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1. Further papers relating to hostilities with Burmah (In continuation of Papers presented June 4, 1852).

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4. Public Works (India). A return of all sums spent on Public Works... in India, since April 1834 etc. "

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**FURTHER PAPERS**

Rare section

RELATING TO

**HOSTILITIES WITH BURMAH.**

(In continuation of Papers presented June 4, 1852.)

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*Presented to both Houses of Parliament by Her Majesty's Command.  
March 15, 1853.*

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## Further Papers relating to Hostilities with Burmah.

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No. 1.

*The Governor-General of India in Council to the Secret Committee of the East India Company.*

*Fort William, April 24, 1852. (No. 17.)*

WE have the highest satisfaction in transmitting to you the inclosed copy of dispatches just received from his Excellency Rear-Admiral Austen, C.B., and Lieutenant-General Godwin, commanding the naval and military forces employed in Burmah.

They report the assault and capture of Martaban on the 5th, and of Rangoon on the 14th of April; and announce the complete success of the combined operations of the army and fleet.

The necessity for immediately dispatching this intelligence now, by the last express which can safely be relied upon, renders it impossible for us to convey to your Committee our sentiments on the gratifying results which are announced, as fully as we desire to do. This duty we shall have the satisfaction of discharging by the ensuing mail.

But we beg leave to take this earliest opportunity of assuring you, that we feel we cannot use language too strong in making known to you our unqualified approbation of the admirable spirit which has been displayed in these combined operations of the naval and military forces; or express too warmly our gratitude to the Rear-Admiral and to the Lieutenant-General by whom the operations have been conducted, and to the officers, non-commissioned officers, and men, of both services, who, as the several dispatches will show you, have so nobly performed their duty in the field.

We have, &c.

DALHOUSIE.  
F. CURRIE.  
J. LOWIS.

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Inclosure 1 in No. 1.

*The Secretary to Rear-Admiral Austen to the Secretary to the Government of India.*

Sir,

*"Rattler," Rangoon River, April 2, 1852.*

REFERRING to the 7th paragraph of the instructions from the Indian Government to the Commander of the Forces, in which that functionary is desired, before proceeding to Rangoon, to ascertain, by such means as may seem best, through a flag of truce, whether any letter from the Court of Ava to the Government had been received, I have the honor, by the desire of the Rear-Admiral Commander-in-chief, to state, for the information of the Governor-General, that the East India Company's steamer "Proserpine" was sent up the river with Captain Latter, Burmese interpreter, to the Governor of Dalla, to ascertain whether any letter had been received.

The steamer, with a flag of truce, was permitted to pass two stockades on the right bank of the river, unmolested; but a third, upon the left bank, opened fire upon her.

In obedience to the instructions his Excellency had given her commander,

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she turned back; but, as the flood tide was running very strong, this was a work of difficulty, and she had to remain some time under fire, which she returned with shell and shot, and blew up the stockade. The other two stockades then opened fire, but she succeeded in returning to the anchorage without damage, having been struck by only one shot from a 12-pounder gun.

I have, &c.

G. P. MARTIN.

Inclosure 2 in No. 1.

*The Secretary to Rear-Admiral Austen to the Secretary to the Government of India.*

Sir,

*"Rattler," Rangoon River, April 9, 1852.*

I HAVE the honor to request you will be pleased to inform the Governor-General, that, agreeably with the intention expressed in my letter of the 25th ultimo, the Rear-Admiral Commander-in-chief hoisted his flag on board Her Majesty's steam-sloop "Rattler;" and, accompanied by Her Majesty's steam-sloop "Salamander," left Penang on the 28th of March.

On the 1st of April, his Excellency arrived off the mouth of the Rangoon river, where he found lying Her Majesty's ships "Fox" and "Serpent," the East India Company's steamers "Phlegethon" and "Proserpine," three transports, and the ship taken from the King of Ava. On the following morning, the steamers and transports, named in the margin,\* arrived from Calcutta, with the Lieutenant-General commanding the forces on board; and the "Salamander" came in shortly after.

The "Proserpine" was sent to Moulmein the same day, to give notice of projected movements; and on the 3rd instant, the "Rattler," bearing his Excellency's flag; the "Hermes," with the Commander of the Forces on board; and the "Salamander," sailed for Moulmein. Receiving troops on board there, to the number of 1500, the squadron proceeded off Martaban, and assisted at the capture of that place on the 5th instant, the particulars of which the Commander of the Forces will have the honor of communicating to his Lordship. The "Hermes" grounded too far off to be of much use. The "Salamander," owing to her draught of water, could not come so near as was desirable; nevertheless, the shelling was most effective. The "Rattler" took up an admirable position, 214 yards from the stockades; her shot and shell did much execution. The "Proserpine," admirably managed by her able commander (whom his Excellency would beg to bring under favorable notice), received the troops from the larger steamers, and landed them, and at the same time kept up a constant fire upon the stockades. The only casualties that occurred in the squadron were on board the "Rattler," where one seaman was wounded in the arm, and two of the Madras Native Infantry.

On the 7th instant, 1100 European troops, with camp-followers, baggage, &c., were embarked in the squadron, and the transport "Jessie;" and all sailed for the rendezvous, arriving on the 8th instant.

The steamers and transports named in the margin† had arrived at the rendezvous, and arrangements are this day being made for an advance upon Rangoon.

The Rear-Admiral will have the honor of communicating future proceedings as opportunities occur.

I have, &c.

G. P. MARTIN.

\* Her Majesty's steam-sloop "Hermes." East India Company's steamers "Fire-Queen," "Enterprize," "Tenasserim." Transports, "Tubal Cain," "Julia," "Monarch," "Lahore."

† Steamers, "Feroze," "Sesostris," "Moozuffer," "Zenobia," "Berenice," "Medusa." Transports; "Rockliff," "Hempsyke," "Atalanta," "Sir Thos. Gresham."

## Inclosure 3 in No. 1.

*The Secretary to Rear-Admiral Austen to the Secretary to the Government of India.*

Sir,

*"Rattler," Rangoon River, April 9, 1852.*

I HAVE the honor to inform you, by desire of the Rear-Admiral Commander-in-chief, that, in compliance with an arrangement entered into between the Lieutenant-General Commander of the Forces and his Excellency, Commodore G. R. Lambert, in Her Majesty's ship "Fox," ascended this river, in force, on the 4th instant, for the purpose of destroying the stockades below Rangoon; thus clearing the way for the advance of the squadron.

I have the honor to inclose a copy of a letter\* from the Commodore, reporting the execution of this service in a manner which, in the opinion of the Rear-Admiral, must meet with approval.

I have, &c.

GEO. P. MARTIN.

## Inclosure 4 in No. 1.

*Commodore G. R. Lambert, R.N., to Rear-Admiral Austen.*

Sir,

*"Fox," Rangoon River, April 6, 1852.*

IN pursuance of the instructions I had received from your Excellency, I proceeded up the Rangoon river on the afternoon of the 4th instant, taking under my orders Her Majesty's sloop "Serpent," and the "Tenasserim" and "Phlegethon" steamers belonging to the East India Company, with three companies of Her Majesty's 18th Regiment, under the command of Lieutenant-Colonel Coote. I anchored off the Bassein Creek the same evening.

At daylight on the morning of the 5th, I again weighed and went up the river, having previously given directions to Commander Luard, with the "Serpent" and "Phlegethon," which I placed under his orders, with one company of the 18th Regiment, to attack and destroy the De Silva stockade; which service he most effectually performed.

I proceeded myself with the "Fox" and "Tenasserim" to the Dunnout, and a new stockade that had recently been erected, nearly opposite on the other side of the river; as we approached, the enemy opened an ill-regulated fire on us, (two of their shot striking the "Fox,") which was soon silenced by Her Majesty's ship and the steamer. The troops and the marines of the "Fox" were then landed, and by the evening both stockades were burnt, and the whole force re-embarked without any casualty.

I have great satisfaction in stating that the energy and good feeling displayed by both services in performing this duty was such as to meet my highest approval, and I have to express my thanks for the assistance I received from Lieutenant-Colonel Coote and Commanders Tarleton and Luard, as well as from the Commanders of the East India Company's steam-vessels of war "Tenasserim" and "Phlegethon."

I have, &c.

G. R. LAMBERT.

## Inclosure 5 in No. 1.

*The Secretary to Rear-Admiral Austen to the Secretary to the Government of India.*

Sir,

*"Rattler," Rangoon River, April 10, 1852.*

I HAVE the honor, by desire of the Rear-Admiral Commander-in-chief, to inclose a return, showing, at one view, the force assembled for proceeding against Burmah; together with a list of the transports employed.

I have, &c.

G. P. MARTIN.

\* April 6, 1852.

*Force employed in the Expedition against Burmah.*

*Her Majesty's Ships.*

"Rattler," Commander A. Mellersh, 130 men, 11 guns. Flag-ship. Two guns received from "Fox."  
 "Fox," Commodore G. R. Lambert, 298 men, 40 guns. Two guns lent to "Rattler," and 12 seamen to "Maha Nuddie."  
 "Hermes," Commander E. Fishbourne, 120 men, 6 guns.  
 "Salamander," Commander J. S. Ellman, 135 men, 6 guns.  
 "Serpent," Commander W. Luard, 125 men, 16 guns. Four guns received from Calcutta.  
 A gun-boat, Mr. R. C. Copland, Acting Mate, 10 men, 1 gun.  
 Total—818 men, 80 guns.

*Steamers of the Indian Navy.*

"Feroze," Captain H. B. Lynch, 230 men, 7 guns. Senior officer.  
 "Moozuffer," Commander H. H. Hewett, 230 men, 7 guns.  
 "Zenobia," Commander A. Ball, 200 men, 6 guns.  
 "Sesostris," Commander C. Campbell, 135 men, 4 guns.  
 "Medusa," Lieutenant H. A. Fraser, 60 men, 5 guns.  
 "Berenice," Lieutenant A. Nisbett, 97 men, 1 gun.  
 Total—952 men, 30 guns.

*Uncovenanted Services.*

"Tenasserim," Captain W. Dicey, 80 men, 6 guns.  
 "Pluto," Captain O. Burbank, 86 men, 7 guns.  
 "Phlegethon," Captain G. T. Neblett, 86 men, 6 guns.  
 "Proserpine," Captain A. Brooking, 86 men, 6 guns.  
 "Enterprize," Captain A. Fryer, 70 men, 2 guns.  
 "Fire-Queen," Captain H. Boon, 70 men, 2 guns.  
 "Maha Nuddie," Lieutenant G. W. Rice, R.N., in temporary charge, 22 men, 4 guns. Tender to "Fox." 12 men received from "Fox."  
 Total—500 men, 33 guns.

*Troops.*

Her Majesty's 18th Royal Irish	..	..	..	..	850 men.
"    51st Regiment	..	..	..	..	900 "
"    80th "	..	..	..	..	460 "
Five companies of Artillery	..	..	..	..	517 "
Three regiments of Native Infantry..	..	..	..	..	2,800 "
Gun Lascars	..	..	..	..	70 "
Two companies of Sappers and Miners	..	..	..	..	170 "
				Total	5,767 "

*Ordnance.*

Howitzers,—8-inch, 2; 24-pounders, 6; Guns,—9-pounders, 8; Total, 16 guns.  
 Ships of war, 19; men, 8,037; guns, 159.

Inclosure 6 in No. 1.

*The Secretary to Rear-Admiral Austen to the Secretary to the Government of India.*

Sir,

*"Rattler," at Rangoon, April 16, 1852.*

IN continuation of my letter of the 9th instant, reporting, for the information of the Governor-General of India, the proceedings of the naval squadron employed in these waters, I have the honor further to report, by desire of the Rear-Admiral Commander-in-Chief, that, on the 10th instant, the ships, steamers, and transports commenced an advance up the river, and anchored below the Hastings Shoal that evening.

The "Zenobia" had been sent a part of the way up on the day previous, for the purpose of watering; but, grounding on the De Silva Shoal, was unfortunately unable to get out of her difficulties in time to take a part in the proceedings against Rangoon.

A copy of the Rear-Admiral's order to advance is annexed,\* by which it will be seen that it was intended on the following morning (Easter Sunday) to anchor above the shoal, but out of the range of fire from the enemy. I have

\* April 10, 1852.

the honor also to inclose a copy of the General Order\* for the proceedings of the squadron while off Rangoon. Some alteration had, however, to be made in the arrangements proposed. It was found that there would not be room for all the ships to anchor above the shoal out of gunshot, without a risk of their grounding, and it was for some time debated whether the squadron should remain below the shoal until Monday, or advance on the Sunday morning to take up their positions off Rangoon, and risk the commencement of the action on that day. The tides and other causes decided the authorities on adopting the latter course, and accordingly the shoal was crossed on the morning of the 11th by each ship as the water served. When the first vessels had anchored above it, the Dagon Pagoda fired several guns, apparently with a view to call in the people. Upon the East India Company's steamers, "Feroze," "Moozuffer," and "Sesostris," taking up their positions, fire was opened upon them from the stockades on either side, which was returned with shot and shell. In the course of an hour an explosion took place, the importance of which was only afterwards discovered. It was that of a stockade mounting nine 18-pounder guns, well planted, and would doubtless have done great mischief to our shipping, if not thus accidentally silenced so early. Upon the "Fox" advancing to take up her position, she poured effective broadsides into the stockades on both sides of the river. After consulting the Lieutenant-General Commander of the Forces, the boats of the "Fox" landed with a party of seamen and marines and a company of the 18th Royal Irish, and, under cover of the ships' guns, stormed two stockades on the Dalla side. Although a rapid fire of musketry was kept up from many hundreds of the enemy in these defences, yet this service was happily effected with but one man wounded on our side. Her Majesty's sloop "Serpent" and the East India Company's steamer "Phlegethon" then passed up the river, and anchored above Kemmendine, in order to capture the war-boats, and to prevent fire-rafts being sent down upon the squadron. The "Rattler" and "Tenasserim" next advanced along the line, and succeeded in silencing three more stockades. The party before alluded to in the boats of the "Fox," and a few seamen, with thirty of the Royal Irish, from the "Rattler," stormed another on the Dalla side, driving hundreds of the enemy out of it into the jungle. All the stockades that had been taken were then set fire to and burnt in succession. The ships returned to their respective positions, in readiness to land the troops, which commenced at four o'clock on the morning of the 12th, without opposition from the enemy. It was discovered that the Dagon Pagoda was not so far from the ships as was laid down in the charts, being at a good shelling distance; the ships accordingly commenced throwing shells into it. In the course of the evening a magazine blew up, and the outskirts of the Pagoda were set on fire in several directions, creating great confusion among the enemy. Shells were occasionally thrown from the ships on the 13th instant, during the day and night, frequently setting fire to the stockades in various places. On the afternoon of that day a large party of men, with two elephants and riders, were seen to leave the Pagoda. It was afterwards understood that this was the Governor of Rangoon, who had quitted the Pagoda in despair of being able to hold it.

It will be the pleasing duty of the Commander of the Forces to report the advance of the troops and the gallant storming of the White Stockade, about half-a-mile from the landing-place, and ultimately the storming and capture of the Dagon Pagoda. The Rear-Admiral desires further to observe that he leaves to the Lieutenant-General to report upon the conduct of the small naval brigade, composed as per margin,† under the command of Senior Lieutenant J. W. Dorville of the flag-ship, employed with the forces upon this occasion, in the utmost confidence that ample justice will be done to them.

Inclosed is a list of the casualties that took place in the squadron while employed upon this service, and his Excellency desires to remark, that it is a subject not less of surprise than thankfulness that so few have taken place on the occasion,

I am, &c.

G. P. MARTIN.

\* April 11.

† "Rattler."—Senior Lieutenant J. W. Dorville, commanding, Mr. T. S. Gooch, mate (second in command); Mr. O. J. Llewellyn, acting assistant-surgeon; 30 able seamen (10 lent from "Hastings").

"Hermes."—Mr. E. A. Tweeddale, mate, and 40 seamen.

"Salamander."—Mr. W. H. Nurse, acting mate, and 30 seamen.

## Inclosure 7 in No. 1.

*General Memorandum.*

To the Captains and Commanders of Her Majesty's ships and vessels, and the East India Company's steamers in the Rangoon river.

*"Rattler," Rangoon River, April 10, 1852.*

IT having been determined that the squadron of steamers and transports shall commence their advance up the Rangoon river at 1.30 P.M. of this day, it is my direction that the following arrangements be observed.

The steamers will, at the hour above named, take in tow the ships and transports expressed against their names.

"Tenasserim."—Her Majesty's ship "Fox."  
 "Enterprise."—King of Ava's ship.  
 "Fire Queen."—"Tuba! Cain," "Lahore."  
 "Moozuffer."—"Atalanta," "Rockliff."  
 "Feroze."—"Sir Thomas Gresham," "Hempsyke."  
 "Sesostris."—"Futtee Allum," "Fatel Rozaek."  
 "Zenobia."—"Bengal," "Monarch."  
 "Berenice."—"Juliana."  
 "Salamander."—"Jessie."

The steamers not named will take up their positions in the advance as convenient.

The gun-boat has been placed at the end of the De Silva shoal to mark its position. Her Majesty's sloop "Serpent," and the East India Company's steamer "Phlegethon," have been sent to place themselves in mid-channel off the Hastings Sand, in order to point it out.

It is intended that the squadron shall anchor this evening in two divisions at the lower end of the Hastings shoal; the first to consist of Her Majesty's ships, and the East India Company's steamers from Calcutta, anchoring with their transports on the starboard hand; the second division, to consist of the steamers of the Indian Navy, under the immediate charge of Captain Lynch, with their transports, are to anchor on the port hand.

The following forenoon, upon the signal to weigh being given, the steamers, with their ships and transports in tow, will proceed across the Hastings Sand, and anchor above the shoal, but not so far up as to be within range of fire from the stockades.

Directions for future movements will hereafter be given.

Particular attention is to be paid to signals, and an officer on board each ship is to be appointed to this important duty.

C. J. AUSTEN, *Rear-Admiral.*

## Inclosure 8 in No. 1.

*General Memorandum.*

To the Captains and Commanders of Her Majesty's ships and vessels, and the East India Company's steamers in the Rangoon River.

*"Rattler," Rangoon River, April 11, 1852.*

THE Captains, Commanders, and Commanding Officers of Her Majesty's ships and vessels, and of the East India Company's steamers, under my orders, are hereby informed of the proposed arrangements for the contemplated attack upon Rangoon.

At 4.30 A.M. to-morrow, the steamers will weigh and proceed to take up their positions off Rangoon in the following order:—

East India Company's steamers—"Zenobia" (headmost up the river), "Moozuffer," "Sesostris," "Feroze."

Her Majesty's ships—"Fox" (Commodore's broad pendant), "Rattler" (flag ship), "Hermes" (head-quarters), "Salamander"

The especial duty of the East India Company's steamers, "Tenasserim," "Enterprise," "Medusa," "Pluto," and "Maha Nuddie," will be to assist in landing the troops, by towing the boats on shore, and in such other manner as they will from time to time be directed.

The "Fire-Queen" is to take up a position close to the flag-ship, as a tender to her and the head-quarters; but, upon the signal to land being given, she is to draw near the ship "King of Ava," to assist in landing her troops.

The order in which it is proposed landing the men and guns comprising the land force, is as follows:—

First, Her Majesty's 51st Regiment.—Ex "Feroze," 515; ex "Sesostris," 380; total, 895.

Second, Her Majesty's 18th Royal Irish.—Ex "Fox," 115; ex "Tenasserim," 102; ex "Maha Nuddie," 81; ex "Hermes," 300; ex "Rattler," 100; ex "Fatel Rozaek," 96; total, 794

Third, the 40th Regiment Bengal Native Infantry —Ex "Enterprise," 270; ex "Fire-Queen," 240, ex "King's Ship," 550; total, 1060.

The Artillery and Park will be landed at this time in long-boats belonging to the transports, and towed by the "Medusa" and ships' boats

Artillery.—Ex "Hermes," 120; ex "Bengal," 120; ex "Berenice," 277; total, 517.

Ordnance.—Ex "Berenice," two 24-pound howitzers, four 9-pounders; ex "Lahore," two 24-pound howitzers, four 9-pounders, ex "Hermes," two 24-pound howitzers.

Park.—Ex "Salamander," Sappers and Miners, 160, ex "Hermes," one boat for ladders and powder bags; ex "Monarch," one boat for tools and materials.

There are also a few ladders on board the "Fox," "Monarch," "Tenasserim," and "Phlegethon," which it is desirable to be landed.

Finally, the Madras Infantry will be landed.

9th Regiment Madras Native Infantry.—Ex "Moozuffer," 583, ex "Medusa," 100; total, 683.

35th Regiment Madras Native Infantry.—Ex "Zenobia," 350; ex "Sir Thomas Gresham," 350; total, 700.

Commander E. G. Fishbourne, of Her Majesty's steam-sloop "Hermes," is to be on shore at the spot which will be pointed out to him by the Commander of the Forces, to superintend the landing of the troops, and from which place a white ensign will be hoisted, as a signal to the boats as the place at which to land.

Captain H. B. Lynch, Senior Officer of the Indian Navy, will make the necessary arrangements for the debarkation of Her Majesty's 51st Foot, by means of the boats of the steamers under his immediate orders. The boats are to be alongside of the steamers containing that regiment, in readiness to take them on shore directly the signal to land is given, which will be a white ensign hoisted from head-quarters, and repeated along the line.

The Commodore undertakes the arrangement for debarking Her Majesty's 18th Royal Irish, and will issue the necessary directions for this purpose, as also for the landing of the Artillery and Park.

The landing of the 40th Regiment Bengal Native Infantry is to be superintended by Commander J. S. Ellman, of Her Majesty's steam-sloop "Salamander," which will be accomplished by his own boats, assisted by the "Medusa."

The Madras Native Infantry will finally be landed by the small steamers and the boats of the squadron, after their duties, before detailed, have been executed.

The troops having been landed, and the stockades having been silenced by the fire from the squadron, a party of seamen and marines will probably be directed by signal (a white ensign from the flag-ship to be repeated along the

line), to land from each ship, armed with pistols and cutlasses only, under the charge of a Lieutenant; the whole to be commanded by Commander Tarleton, of Her Majesty's ship "Fox."

The vessels are not to land more men than will enable them in their absence to work the guns.

It is necessary that particular directions be given as to the necessity of keeping a vigilant look-out for signals. Any that should not be answered at once by the ship or ships indicated, are to be repeated by the other vessels.

The troops are to be landed with one day's provisions in their knapsacks.

C. J. AUSTEN, *Rear-Admiral.*

Inclosure 9 in No. 1.

*A List of Casualties that took place on board Her Majesty's ships and vessels, and the East India Company's steamers, under the Orders of Rear-Admiral Austen, during the Operations against Rangoon and Dalla, 11th—14th April, 1852.*

"Fox."—Henry White, marine, burnt from gunpowder in stockade, not severe. James Minton, boatswain's mate, burnt from explosion of a gun, not severe. Charles Pittis, A.B., accidentally drowned on boat service. Thomas Working, private 18th R I, shot through parietes of the chest not severe.

"Hermes" William Chapman, stoker, wounded, dangerously. Geo. J. Whitehead, ordinary, wounded, right arm amputated. Henry Thompson, A.B., wounded, slightly. William H. Parker, A.B., wounded slightly. John Jusset, A.B., wounded, slightly. George Wright, A.B., coup de soleil.

"Salamander."—John Chapman, stoker, gun-shot wound in left leg, has since undergone amputation of the limb.

"Feroze."—Michael Moore, gunner, Artillery, gun-shot wound in right breast, severe.

"Moozuffer."—Two seamen, wounded, slightly. Five privates, 9th Regiment, M N.I., wounded, severely.

"Sesostris."—Ensign Armstrong, H.M.'s 51st Regiment, wounded, mortally, at 10.30 A.M., died at 1.30 P.M.

"Tenasserim."—William Poole, A.B., blown away from after pivot gun, gun exploded while loading.

"Serpent."—Mr. C. Sproull, assistant-surgeon, and 7 seamen, wounded.

"Rattler."—Mr. L. Campbell, boatswain, wounded, slightly. Francis Skinner, wounded, slightly.

G. P. MARTIN, *Secretary.*

Inclosure 10 in No. 1.

*Rear-Admiral Austen to the Governor-General of India in Council.*

My Lord Marquis,

"Rattler," at Rangoon, April 16, 1852.

WHILE congratulating your Lordship on the success that has hitherto attended the expedition against Burmah, in the storming and capture of the strongholds of Martaban and Rangoon, I trust your Lordship will permit me to bring under notice the support that I have received from all the officers and men under my command, forming the naval part of the expedition. The embarking and disembarking the troops, baggage, and military stores, the arrangements for the transports, and for victualling the combined forces, have furnished almost incessant night and day work for the officers and men under my orders. It has been done on all sides with the utmost cheerfulness, and this large force has been moved up a rapid river, without any accident of moment having occurred; and I have, up to the present time, to thank every officer and man employed under my orders for the cheerful manner in which they have undergone so much toil in this distressing climate.

To the Commodore I feel under especial obligation. His local knowledge proved valuable, as his judgment and discretion were most useful. It would be impossible to value the services of an officer, second in command, more highly than I do those of the Commodore.



Captain Lynch, Senior Officer of the Indian Navy, has, by his ability, judgment, and discretion, rendered essential service.

Commander Mellersh of my flag ship, and Commanders Fishbourne and Tarleton, have rendered every possible assistance in carrying out all necessary arrangements. I was an eye-witness to Commander Tarleton's bravely leading his men to storm a stockade, to his being the first to mount the walls, and enter it. Commander Luard, of Her Majesty's sloop "Serpent," has been employed many months in these waters. A more zealous and indefatigable officer is not to be met with, and, relying upon his ability, he has frequently been placed in charge of responsible duties. With the assistance of the East India Company's steamer "Phlegethon," commanded by G. T. Neblett, Esq., he destroyed the De Silva stockades. When the action on the 11th of April commenced, he passed along the line of fire in the sloop under his command, to above Kemmendine, for the purpose of preventing the removal of the war-boats, and while on this service he was attacked by a very important stockade, and an officer (Mr. C. Sproull, Assistant-Surgeon,) and seven of his men were wounded, but which he ultimately succeeded in silencing. Before the commencement of the war he took great pains in surveying the coast and river, and his information was afterwards of great use.

The Commanders and officers of the Indian Navy and East India Company's Uncovenanted Service have, without a single exception, performed their duties with all possible alacrity. Commander Brooking, of the "Proserpine," had at Martaban an opportunity of particularly distinguishing himself, of which he took good care to avail himself; and it is with great regret that I found myself under the necessity of leaving him at Moulmein for the protection of British interests, and thus losing his valuable services here.

Lieutenant George Rice, in temporary command of the "Maha Nuddie," rendered essential service to the cause, admirably handling his little vessel; he landed men on the beach to storm stockades, covering their landing with his own guns; and at the storming of them he was to be seen among the foremost ranks. In landing men, stores, and baggage, and ascending the narrow creeks of this river, the "Maha Nuddie" has proved most useful.

Senior Lieutenant Dorville, of my flag ship, commanded the naval brigade at the capture of Rangoon, and from the flattering manner in which the Commander of the forces has been pleased to speak of his services, I feel assured he must be honorably mentioned in the Lieutenant General's dispatches

Among those that have fallen victims in the service of their country upon this occasion, it is my painful duty to record that of the Rev. Thomas T. Baker, Chaplain of Her Majesty's ship "Fox." Incessantly employed in administering to the wounded and dying, and in burying the dead, he fell a victim to the prevailing epidemic, cholera, on the 16th instant, leaving, I am informed, a widow and young family, who were wholly dependent on him for support.

I was an eye-witness to the indefatigable exertions of Dr. Minter, Surgeon of the "Fox," at the hospital on shore and on board the "Tubal Cain." Dr. Montgomery, Superintending Surgeon, expressed himself to me as being under the greatest obligations to him for his assistance. In addition to the duties performed by Dr. Minter at the hospital, he had those of his own ship to attend to, where the cholera had broken out with some virulence. Mr. Seccombe, Assistant-Surgeon of the "Hermes," was also employed at the hospital on shore.

In conclusion, I beg to remark that the whole conduct of the officers and men under my orders, employed on the present expedition, has been such as reflects much credit on themselves, and on the services to which they respectively belong.

I have, &c.

CHAS. JNO. AUSTEN, *Rear-Admiral.*

Inclosure. 11 in No. 1.

*Lieutenant-General H. Godwin, C.B., to the Secretary to the Government of India.*

Sir,

*Moulmein, April 6, 1852.*

I HAVE the honor to acquaint you, for the information of the Governor-General in Council, that the force under my command left the Sand Heads on the 28th of March, for the Rangoon river, the place of rendezvous for the combined force from Bengal and Madras, where it arrived on the 2nd of April.

In obedience to my instructions, a flag of truce was immediately sent up to Rangoon, to inquire if any communication had arrived from the Court of Ava, in reply to the terms sent up to the Burmese Government, for the adjustment of the violences committed on the subjects of Her Majesty by the authorities at Rangoon: the flag was in charge of Captain Latter, of the Bengal army, and conveyed in the East India Company's steamer "Proserpine," Commander Brooking.

On reaching the stockades that guarded the river on both its banks, the flag was fired on; and it was only by the excellent arrangement and brave conduct of Commander Brooking that his ship extricated herself, inflicting on the enemy a severe chastisement, by blowing up a powder magazine and destroying many men.

I found, on my arrival at the rendezvous, that the Madras division had not made its appearance, nor were there tidings of it, so that I resolved to go to Moulmein, and make arrangements for the capture of Martaban.

In the Rangoon river I found that Rear-Admiral Austen, C.B., the naval Commander-in-Chief, had just arrived from Penang, in Her Majesty's steamer "Rattler." His Excellency and Commodore Lambert immediately came on board the "Hermes," Commander Fishbourne, in which I had my head-quarters, when it was agreed, in conference, that the Admiral would accompany me to Moulmein with Her Majesty's steamers "Hermes," "Rattler," and "Salamander,"—sending in advance to the mouth of the Martaban river the East India Company's steamer "Proserpine." We accordingly left the Rangoon river at daybreak on the 3rd of April; reached Moulmein the next day at noon. Orders were immediately issued for the troops to be in readiness for embarkation by 4 P.M., and by 9 that evening a wing of Her Majesty's 18th Royal Irish, a wing of Her Majesty's 80th Regiment, a wing of the 26th Madras Native Infantry, with detachments of Bengal European Artillery, and Madras Sappers—in all about 1400 men—were on board.

Martaban stands on a noble sheet of water, with a river line of defences of about 800 yards. Inland lies a large pagoda, a wall running along the whole front, with an ascent from the water's edge of about 500 feet, on the top of which small pagodas stand, the slope being partially covered with fine trees and close jungle.

Arrangements were made for the attack at daybreak of the 5th. The Rear-Admiral made every disposition possible, in waters full of shoals and violent currents, for bombarding the position with his five steamers, and to cover the landing of the troops. It was the admiration of every one to witness the noble manner the "Rattler" worked her way within 200 yards of the wall, and close to the pagoda, doing tremendous execution. I changed from the "Rattler" at 6 o'clock, to superintend the landing of the troops, and went on board the "Proserpine," a smaller vessel, with my staff. Colonel Reignolds commanded the attack. At half-past 6 the steamer opened fire, and at 7 the troops were in the boats, and landed, by the indefatigable exertions of Commander Brooking, under a smart fire of musketry and guns. Soon was the storming party under the walls, and over them, with less loss than I thought possible. Lieutenant-Colonel Reignolds immediately ascended to the pagodas on the height, and took possession of them, after some skirmishing with the enemy.

At 8 A.M. Martaban was won; and, considering the enemy's position and numbers, which report gives at 5000 men, we have got it very cheaply.

I have to ask his Lordship's and the Council of India's best consideration of the services of Lieutenant-Colonel Reignolds, of the 18th Royal Irish, to whom is due the credit of this day's endurance of severe fatigue and privation under a burning sun.

To Captain Gillespie, in command of the Grenadiers of the 18th Royal Irish, whom I saw first on the wall, the soldier following him receiving three wounds; to Captain Campbell, who commanded the wing of the 18th Royal Irish; to Major Lockhart, in command of the wing of the 80th Foot; to Lieutenant-Colonel Johnson, commanding the wing of the 26th Regiment Madras Native Infantry; and to Captain Rundall, commanding the detachment of Madras Sappers and Miners, my warm approbation is due.

I beg also to recommend to the consideration of his Lordship in Council, the Assistant-Adjutant-General of the Forces, Captain Mayhew, whose exertions during the disembarkation of the troops, tended greatly to its success; as also my Aides-de-camp, Lieutenant Chads, of Her Majesty's 64th Regiment; and Lieutenant Lambert, of the 56th Bengal Native Infantry, son of the Commodore, who were highly useful to me during the whole day.

Major Fraser, the Commanding Engineer of the Force, and Major Turton, in command of the Bengal Artillery, were with me the whole day, but from the nature of the operations, their particular services were not called into play, though they had made every disposition for the efficiency of their respective departments.

It will be obvious from the foregoing how greatly the success of the operations I have detailed, has depended on the co-operation of the sister branch of the service. His Excellency Rear-Admiral Austen, C.B., has throughout afforded me the most cordial assistance. Her Majesty's steamers "Rattler," "Hermes," and "Salamander," worked in concert with the troops throughout the day.

On my departure to-morrow, I intend to take with me to the Rangoon river the wings of the 18th and 80th Regiments, and the Company of Bengal Artillery, and the detachment of Madras Sappers and Miners doing duty at Moulmein.

In conjunction with Lieutenant-Colonel Bogle, the Commissioner of these Provinces, I have put the 26th Madras Native Infantry, and a Company of European Madras Artillery, with a suitable battery of guns, as a garrison at Martaban, relievable from Moulmein, when it may be thought desirable.

In addition to which a war steamer has been placed by the Naval Commander-in-chief on the station. These arrangements are, I think, adequate to the protection of the place, and will, I trust, meet with the approbation of the Government of India.

In conclusion, I beg to remark that I am greatly indebted to Lieutenant-Colonel Bogle, who accompanied me during the whole of the operations of the 5th, and was, from his local knowledge, of much use to me.

I have, &c.

HENRY GODWIN.

Inclosure 12 in No. 1.

*Return of Killed, Wounded, and Missing, at the Attack and Capture of Martaban, on the 5th of April, 1852.*

*Assistant Adjutant-General's Office,  
Rangoon, April 17, 1852.*

Her Majesty's 18th Royal Irish Regiment of Foot.—7 rank and file wounded.  
26th Regiment Madras Native Infantry.—1 havildar, wounded.

Total.—1 havildar, 7 rank and file, wounded.

Warrant and non-commissioned officers, rank and file, 8 wounded.

Grand total of killed, wounded, and missing.—8.

W. MAYHEW,  
*Captain, Assistant Adjutant-General of the Forces.*

## Inclosure 13 in No. 1.

*Lieutenant-General Godwin to the Secretary to the Government of India.*

Sir,

*Head-Quarters, Rangoon, April 18, 1852.*

ON my return from Martaban on the 8th of April, I had the satisfaction to find the Madras division had arrived on the previous day, so that no time had been lost by my going to Martaban.

It was arranged that, during my absence at Moulmein, Commodore Lambert should, on the 5th instant, aided by some troops, destroy the stockades on the Rangoon river, which had long been troublesome, and had fired on the flag of truce. This had been so effectually performed as to leave hardly a sign of where the stockade had stood.

I shall now have the satisfaction of acquainting you, for the information of the Governor-General in Council, of the proceedings of this force, inclusive of the capture of the Great Dagon Pagoda at Rangoon, and the consequent fall of all around it.

The 9th of April I devoted to making every disposition for the landing of the troops, and to becoming acquainted with the heads of the departments of the Madras Division. I informed the Admiral, on the evening of that day, that my preparations were complete; and his Excellency proceeded up the river next day, close off Rangoon.

On the 11th, the Admiral moved opposite the old town, with the intention, the next morning, to bombard the whole line of stockades on both banks of the river; but some of the flotilla getting very near the shore were fired on, which brought on a return from our side, and ended in the general destruction of the whole line of defences, though the fire of the enemy proved fatal to many on board the shipping. The Admiral and Commodore took a most distinguished part in the operations, landing and setting fire to all around them. This powerful attack, from the steam-frigates of both Her Majesty's and the East India Company's Navy, completely cleared the ground for nearly a mile for our landing.

On Monday the 12th, at daybreak, the troops were ready, and by about 7 I had landed Her Majesty's 51st Light Infantry, the 18th Royal Irish, the 40th Bengal Native Infantry, and part of my Artillery. The Bengal guns, under Major Reid, were ordered to move in advance, covered by four companies of the 51st Light Infantry. They had not proceeded far, however, when, on opening some rising ground to our right, guns opened on us, and shortly after skirmishers showed themselves in the jungle. This was a new mode of fighting with the Burmese; no instance having occurred last war of their attacking our flanks, or leaving their stockades, that I remember ever to have taken place. I make this remark, as they are now not only good shots, but bold in their operations, and clever in selecting their ground, and covering themselves. Our casualties for the past three days will prove it—our dress exposing us, and their garb and colour concealing them.

On looking at the stockade whence the fire came, I perceived it was a strong work, which used to be called in the last war the White House Picket, a very strong position, and just in the way of our advance. A battery of four guns was immediately opened on it by Majors Reid and Oakes, the whole being under the command of Lieutenant-Colonel Foord, Commandant of that arm. The fire of these guns was very effective. A storming party was formed of four companies of the 51st Light Infantry, under Lieutenant-Colonel St. Maur, with the Madras Sappers, under Major H. Fraser, Commanding Engineer, and advanced under cover of a jungle, on getting through which the musketry was so steady and effective from the stockades and adjoining buildings, that a great many of our party were killed and wounded; amongst whom were several officers.

I have to deplore the temporary loss of Lieutenant-Colonel Bogle, the Commissioner of the Tenasserim Provinces, who was very bravely attending the army to witness its operation. Major Fraser took the ladders to the stockade most gallantly, and alone mounted the defences of the enemy, where his example soon brought around him the storming party, which carried the stockade, but at very severe loss on our part.

It was my intention to move on to the main object of our operations; but on looking around me at the complete exhaustion of the storming party, it now being 11 o'clock, under a sun that may be understood since Major Oakes, of the Madras Artillery, was struck down by it at his battery, and died; Brevet-Major Griffith, Madras Army, whilst conveying an order, died on the road; Lieutenant-Colonel Foord, Commandant of Artillery, was nearly a victim to the heat, and obliged to quit the field; Brigadier Warren and Lieutenant-Colonel St. Maur also suffered greatly; so that, under such destruction, I resolved to halt where I was, and to concentrate the force in as strong a position as the country admitted of. We were teased by parties of the enemy hovering around us till the night closed, when all was quiet under the protection of our guns, which had been brought up to the front.

On Tuesday the 13th it was reported the heavy battery guns could not be landed and with me before the middle of that day, and also that rations for the troops could not be prepared in time to enable me to advance. I therefore held my position till the next morning.

His Lordship in Council knows well the spot where I proposed to force my way into the Great Pagoda; and the road I was about to move on, entirely turned all the defences of this real stronghold. The present position of Rangoon is entirely altered since the last war; within a few years, the old town, which stood on the river bank, has been utterly destroyed, its bricks now lying in heaps on its site. A new town has been formed about a mile and a quarter from the river; it is nearly a square, with a bund or mud wall about sixteen feet high, and eight broad: a ditch runs along each side of the square; and on the north side, where the Pagoda stands, it has been very cleverly worked into the defences, to which it forms a sort of citadel. The distance from the Pagoda to the south entrance of the town is about three quarters of a mile, and it is something more than that breadth from east to west. The old road from the river to the Pagoda comes up to the South Gate, running through the new town, and it was by this road the Burmese had settled that we should attack it, and where they had made every preparation to receive us, having armed the defences with nearly 100 pieces of cannon and other missiles, and with a garrison of at least 10,000 men. The attempt to assault on this side would, I am convinced, from the steady way the Burmese defend their works, have cost us half our force.

On Wednesday, the 14th, the troops were under arms at 5 A.M., all in as fine a temper as ever men were. Our march was to the north-west, through thick jungle; four light guns, 9-pounders, their flanks protected by two companies of Her Majesty's 80th Regiment, the rest of the wing of that corps following, with two more guns, and the 18th Royal Irish and the 40th Bengal Native Infantry, formed the advance. The 51st Light Infantry, and the 35th Madras Native Infantry, were in reserve; the 9th Madras Native Infantry keeping open the communication with the shipping. We proceeded in this order for about a mile, when we opened the Great Pagoda, and its fire was turned on us. An excellent position for two guns was taken by Major Turton to our left flank; these were left under the command of Major Montgomery of the Madras Artillery, who served them well. The ground to the front, getting very difficult, barely admitted of the 80th and Royal Irish occupying it in close order. We had now completely turned the enemy's position, having passed their stockaded town, and got opposite the east side of the Great Pagoda, our main object. Major Turton informed me, that he had a favorable position to place in battery his heavy guns; but it took some time to bring them up, a service in which the navy brigade of about 120 men, under the command of Lieutenant Dorville, of Her Majesty's frigate "Fox," assisted by the Artillery, rendered their invaluable aid, under a heavy fire of guns and wall-pieces from the Great Pagoda and town, from which they suffered severely. Whilst this was going on, the enemy's artillery had got the range of our crowded position, and their skirmishers had somewhat closed upon us, and it took 500 men to keep down their fire. The practice of the heavy battery under Major Back was very effective. My intention was to have stormed the Pagoda at noon, but at a little after 11, Captain Latter, of the Bengal Army, my interpreter, assured me he felt confident, from what he could see of the east entrance to the Pagoda, on which our battery was playing, that the entrance was clear, and that he was prepared to show the way. As our people were dropping fast where we stood, I determined on an immediate assault. The storming party was formed of the

wing of Her Majesty's 80th Regiment, under Major Lockhart, two companies of the Royal Irish, under Lieutenant Hewitt, and of two companies of the 40th Bengal Native Infantry, under Lieutenant White, the whole commanded by Lieutenant-Colonel Coote, of the 18th Royal Irish, Captain Latter accompanying the party to show the road. The advance to the east entrance to the Pagoda was of about 800 yards, which the troops crossed in a most steady manner, under the fire of the walls crowded with the enemy, the remainder of the force following closely. When the storming party reached the steps, a tremendous rush was made to the upper terrace, and a deafening cheer told that the Pagoda no longer belonged to the Burmese. The enemy ran in confusion from the southern and western gates, where they were met by the fire of the steamers. All the country around has fallen with the Pagoda; and I understand the once strong post of Kemmending has been abandoned and destroyed.

In this united service there has been not only a cordial cooperation between the army and navy, but so much good-heartedness, that their joint efforts have tended to secure the rapid success of this expedition. I cannot presume to say of Rear-Admiral Austen, C.B., commanding the Navy, more than to express my admiration and respect for his qualities, and to thank him for his able and never-failing assistance. Commodore Lambert, whose spirit never is at rest whilst any thing is to be done, and whose heart is ever ready to accomplish what he undertakes, has my cordial thanks and warmest gratitude. I particularly wish to draw the attention of his Lordship in Council to Commander Fishbourne, of Her Majesty's steamer "Hermes," who, from the first fitting out of the expedition in Calcutta to the close of these operations, has been indefatigable in assisting in the embarkation of stores and troops, and in removing difficulties, and finding resources, which alone enabled the expedition to sail at the time appointed; and nothing will give me such satisfaction as his aid, were a forward movement to be made hereafter.

My most difficult task now commences, that of recommending to the protection of the Governor-General in Council a number of brave men who have had opportunities of distinguishing themselves in a service where the utmost emulation and gallant devotion were shown by all.

I beg the Governor-General's consideration of the services of Brigadier Elliot, who was conspicuous in every place where he could be useful; of Lieutenant-Colonel Reynolds, who commands the Bengal Brigade, in consequence of Brigadier Warren's prostration by the sun, and who has borne a very large share in these operations, including Martaban; of Lieutenant-Colonel Coote, of the 18th Royal Irish, who commanded the storming party, when he was severely wounded; of Lieutenant-Colonel Thomson, commanding the 40th Bengal Native Infantry in the assault; of Major Lockhart, commanding the wing of Her Majesty's 80th, on the same occasion; of Major Fraser, Commanding Engineer of the Force, who not only distinguished himself most gallantly at the White House stockade, but whose indefatigable exertions have never for a moment ceased; of Major Turton, who commanded the Artillery after Lieutenant-Colonel Foord's retirement, from illness, and whose labours in his department have been the cause of his suffering, I regret to say, under severe indisposition at the present moment; of Majors Reid, of the Bengal, and Montgomery, of the Madras Artillery; of Captain Rundall, commanding the Sappers and Miners; to all of whom I am deeply indebted.

The Assistant Adjutant-General of the Force, Captain Mayhew, was everywhere present during these three days' operations, and the assistance he has rendered me on all occasions has been very valuable. Major Allan, the Assistant Quartermaster-General, was severely wounded at the White House stockade; since when, Major Boulderson, my Deputy Judge Advocate-General, has been performing his duties, and has rendered essential assistance since the operations commenced. I beg to bring all three to the notice of Government.

The officers commanding brigades have recommended to my notice the valuable aid they have received from their respective Brigade Majors, Captain Call, of the 18th Royal Irish, and Captain Smith, of the 13th Madras Native Infantry; and Major Turton has brought to my attention the indefatigable exertions of Lieutenant Robertson, the Deputy Commissary of Ordnance, in landing his guns and stores.

I beg leave to bring to his Lordship's notice the assistance I have received from my aides-de-camp, Lieutenant Chads, of Her Majesty's 64th Regiment,

who was wounded at the White House stockade, but did not leave me during the operations, and Lieutenant Lambert, of the 56th Bengal Native Infantry, who, after great exertion, was one of the victims to the sun on that day, which obliges him to return to Calcutta, and who will convey these despatches.

In conclusion, I regret that the order of the landing of the troops did not afford me an opportunity of availing myself of the services of the 9th Madras Native Infantry, and 35th Madras Native Infantry, in the front; but they tended greatly to give freedom to my leading column, and will, from their soldierly bearing, doubtless do honor to the distinguished service to which they belong, when they are brought more closely under fire.

I have, &c.

HENRY GODWIN, *Lt.-Gen.*

Inclosure 14 in No. 1.

*Return of Killed, Wounded, and Missing, at the Attack and Storming of Rangoon, on the 11th, 12th, and 14th April, 1852.*

*Assistant Adjutant-General's Office,  
Rangoon, April 17, 1852.*

Personal Staff.—1 European officer, wounded.

General Staff.—1 European officer, 1 serjeant, wounded.

Total.—2 European officers, 1 serjeant, wounded.

Engineer Department.—3 European officers, wounded.

Madras Sappers and Miners.—3 rank and file, killed, 2 European officers, 1 havildar, 8 rank and file, wounded.

*Artillery.*

Bengal Contingent.—1 serjeant, killed; 6 serjeants, wounded.

Madras Contingent.—1 serjeant, killed; 1 serjeant, 1 lascar, 3 syce drivers, wounded.

*Infantry.—1st, or Bengal Brigade*

Her Majesty's 18th Royal Irish —1 European officer, 1 serjeant, 2 rank and file, killed; 3 European officers, 1 serjeant, 1 drummer, 37 rank and file, wounded.

Her Majesty's 80th Foot (one wing) —1 serjeant, killed; 1 European officer, 3 serjeants, 1 drummer, 21 rank and file, wounded.

40th Bengal Native Infantry —1 drummer, 3 rank and file, killed, 11 rank and file, wounded.

*2nd, or Madras Brigade.*

Her Majesty's 51st Regiment of Foot —1 European officer, 1 rank and file, killed; 1 European officer, 3 serjeants, 13 rank and file, wounded.

9th Regiment Madras Native Infantry.—1 rank and file, killed; 1 European officer, wounded.

35th Regiment Madras Native Infantry —1 European officer, 1 havildar, 5 rank and file, wounded.

Total.—2 European officers, 4 serjeants, 1 drummer, 10 rank and file, killed; 12 European officers, 16 serjeants or havildars, 2 drummers, 95 rank and file, 1 lascar, 3 syce drivers, wounded.

European officers, 2 killed; 14 wounded.

Warrant and non-commissioned officers, rank and file, &c, 15 killed; 114 wounded.

Lascars, syce drivers, syces, &c, 4 wounded.

Total.—17 killed; 132 wounded.

Grand Total of killed, wounded, and missing.—149.

H. GODWIN, *Lieutenant-General, Commanding  
the Forces in Ava, Arracan, and Tenasserim.*

W. MAYHEW, *Captain, Assistant Adjutant-  
General of the Force.*

*Officers Killed and Wounded.*

*Killed.*

Her Majesty's 18th Royal Irish.—Lieutenant R. Doran, April 14.

Her Majesty's 51st Foot.—Ensign A. N. Armstrong, April 14.

*Wounds.*

Personal Staff.—Lieutenant W. J. Chads, slightly;  
 General Staff.—Captain G. Allen, severely.  
 Engineer Department.—Second Lieutenant E. C. S. Williams, slightly; Second Lieutenant L. Donaldson, mortally, April 12; Second Lieutenant W. S. Trevor, slightly.  
 Madras Sappers and Miners.—Captain J. W. Rundall, slightly; Lieutenant B. Ford, slightly.  
 Her Majesty's 18th Royal Irish.—Lieutenant-Colonel C. J. Coote, severely; Captain W. T. Bruce, slightly, Lieutenant G. A. Elliot, slightly.  
 Her Majesty's 80th Foot.—Lieutenant J. L. W. Nunn, slightly.  
 Her Majesty's 51st Foot.—Captain W. Blundell, dangerously.  
 9th Madras Native Infantry.—Ensign G. F. C. B. Hawkes, slightly.  
 35th Madras Native Infantry.—Lieutenant W. C. P. Haines, dangerously.  
 Commissioner, Tenasserim Provinces, Lieutenant-Colonel A. Bogle, severely.

## Inclosure 15 in No. 1.

*Notification.*

April 23, 1852.

THE Governor-General in Council has the highest satisfaction in announcing, that dispatches have this day been received, reporting the capture of Martaban and of Rangoon, by combined attacks of the naval and military forces now employed in Burmah.

The Governor-General in Council is pleased to direct that, in honor of this success, a royal salute shall be fired at every principal station in India.

The dispatches will be published for general information.

C. ALLEN,

*Officiating Secretary to the Government of India.*

## No. 2.

*The Governor of Bombay in Council to the Secret Committee.*

(Extract.)

May 3, 1852. (No. 42.)

WE beg to forward a copy of a letter from Captain H. B. Lynch, of the Indian Navy, commanding the Indian Naval Squadron in the Bay of Bengal, to the address of Sir Henry Leeke, containing particulars of the capture of Rangoon by the British Naval and Military Forces, on the afternoon of the 14th ultimo.

## Inclosure in No. 2.

*Captain H. B. Lynch, of the Indian Navy, to Commodore Sir Henry Leeke,  
 Commander-in-chief of the Indian Navy.*

Sir,

*Off Rangoon, April 14, 1852.*

IN continuation of my last letter of the 10th instant, I have the honor to inform you that, Rear-Admiral Austen and the whole of the squadron having joined us below the Hastings Sand, on the evening of Saturday the 10th, the squadron under my command, each vessel having two transports in tow, on the morning of the 11th (with the exception of the "Zenobia," which vessel unfortunately grounded on the De Silva Shoal, and was not in company), crossed the Hastings Sand, and anchored a little below the stockades, having cast off the transports when clear over the Hastings Shoal. Almost immediately on our anchoring at 9.30 A.M. the enemy opened fire, which was returned by the "Feroze," "Sesostris," and "Moozuffer;" the "Berenice" and "Medusa" having anchored some distance below. At 9.40 A.M. the magazine of the principal stockade, at the King's Wharf, was blown up by a shell from the squadron; at 10 A.M. Her Majesty's ship "Fox" passed up in tow, and opened fire; the enemy's fire was soon silenced; at 10.15 A.M. ceased firing; and at 30 minutes past noon, a party from the "Fox" landed, took and burnt the Dalla stockade, on the right hand of the river. At 5 P.M. weighed and stood up the



river, anchoring ahead of Her Majesty's ship "Fox," abreast of the King's Wharf, the Admiral having previously taken and burnt the stockades on the right or Dalla bank of the river. At 5.15 P.M. two stockades, just above us, having opened fire, were quickly silenced by our fire, and the magazine of the stockade, on the upper wharf, blown up, when the enemy's fire ceased for the night. At 4 A.M. next morning (12th April), landed Her Majesty's 51st Regiment from the "Feroze" and "Sesostris," and the 9th and 35th Madras Native Infantry from the "Moozuffer" and "Zenobia;" the "Zenobia" having joined during the night. Having landed the troops, and obtained the Admiral's permission, proceeded up the river and anchored abreast the upper stockade, with the "Sesostris," "Moozuffer," and "Zenobia," and landed parties from the vessels of the squadron under the command of Captain Campbell, and burnt the stockades without opposition, the enemy having evacuated them previously to the landing of the party. Being now abreast the Great Pagoda, and the line of the principal stockade at the upper end of an open plain, commenced shelling, and found we could do so with effect, the shells bursting over the pagoda. Ceased firing by signal from the Admiral.

Commodore Lambert came on board and desired me to proceed to Kemmendine, where Her Majesty's brig "Serpent" and "Phlegethon" steamer had attacked the stockade; weighed and stood up, "Moozuffer" in company, and anchored at dark, ahead of the "Serpent," about three-quarters of a mile below the Kemmendine stockade.

The next morning (13th of April), flood tide having made (the river being too narrow to allow the ship to swing at anchor off the stockade), dropped up in company with the "Serpent," "Moozuffer," and "Phlegethon," abreast the stockade, which not returning our fire, landed a party from the vessels, as previously arranged, under command of the First Lieutenant of the "Serpent," and burnt the stockade, the enemy having evacuated it on the approach of the steamers. I then returned, "Moozuffer" in company, and rejoined the Admiral off Rangoon, anchoring in the same position as yesterday, abreast the Great Pagoda, and the squadron shelled the Pagoda during the night, by order of the Admiral; at 2 A.M. ceased firing, to allow the troops then near the stockade to advance, and I am happy to inform you that Rangoon was taken by our troops this afternoon.

I send this off too hurriedly to be able to forward any other papers from the squadron, which I am happy to state is all in good order and health.

It is probable the "Moozuffer" will be detached for the protection of Martaban, the "Zenobia" and "Berenice" for troops to Vizagapatam, and "Sesostris" for Calcutta, with dispatches.

I have, &c.

H. B. LYNCH

No. 3.

*The Governor-General of India in Council to the Secret Committee.*

(Extract.)

*Fort William, May 3, 1852. (No. 20)*

WE have the honor to transmit to you a copy of the further papers regarding Rangoon affairs.

In these documents, our sentiments are expressed in warm, but not exaggerated, terms; for, in truth, no language could be employed too strong to convey the praise which is justly due to the gallantry, the fortitude, the patience, temper and discipline which have been exhibited, during the several operations on the coast, by all branches of the combined force, and by those who have led them so well.

We beg, most respectfully and most earnestly, to commend the services of these brave men, according to their several ranks, and recorded merit, to the gracious consideration of Her Majesty the Queen, and to the approbation and favour of the Court of Directors.

## Inclosure 1 in No. 3.

*Notification.*

*Fort William, April 28, 1852.*

THE Governor-General of India in Council, having failed to obtain redress from the Court of Ava for injuries which had been inflicted on British subjects, in gross violation of existing treaties, was compelled to declare that reparation should be exacted by force of arms.

To that end an expedition was immediately prepared and dispatched to the coast, in the hope that a blow promptly struck against the Burmese Power might possibly lead to a concession of the just and moderate demands advanced by the Government of India, and might thus avert the necessity for engaging in extended and costly war.

The Governor-General in Council has had the satisfaction of publishing, for general information, dispatches which announce the success of the expedition, in the capture of Märtaban, in the destruction of the formidable defences constructed along the river, and in the assault and occupation of the fortifications of Rangoon.

The Governor-General in Council cannot employ terms too strong in expressing his unqualified approbation of the brilliant service which has thus been performed, and his gratitude to those by whose joint exertions it has been achieved.

His admiration is due equally to the perfect cordiality and concert with which Navy and Army have acted together; to the gallantry which has been conspicuous in the field; and to the fortitude and patience with which all have endured, without a murmur, a fierceness of climate whose deadly influence is unhappily too well attested by the number of those who have fallen victims to its effects.

The Governor-General in Council especially desires to offer to the Commander-in-Chief of Her Majesty's Naval Forces in these seas his warm acknowledgments of the ready cooperation, and of the very effective aid which his Excellency has afforded to the Government of India, by the powerful squadron under his command, whose operations he has so ably directed, and in whose services he has borne so distinguished a part.

To Lieutenant-General Godwin, commanding the forces in Ava, the Governor-General in Council begs leave to tender his most full and cordial thanks for the manner in which, by his intrepidity, his energy, and ability, he has brought the military operations of the force to their present successful issue; and to congratulate him upon having thus won fresh and higher honors upon the same scene on which he formerly gained so much distinction.

The Governor-General in Council has great satisfaction in publicly rendering to Commodore Lambert his sincere acknowledgments of the promptitude with which he gave his assistance to the Government of India, of his constant exertion on its behalf during a trying service, and especially of the prominent share he has now borne in the destruction of the river defences; thus materially facilitating the movements of the squadron, and the ultimate success of the attack.

The best thanks of the Governor-General in Council are due to Brigadier Elliot, commanding the Madras Brigade, and to Lieutenant-Colonel Reignolds, who, after having taken a part in every operation of the troops, has assumed the command of the Bengal Brigade, from which, illness, which the Governor-General in Council regrets, has removed Brigadier Warren.

The Governor-General in Council is happy to record his appreciation of the essential service rendered by Captain Lynch, the senior officer of the Indian Navy, to whose ability, judgment, and discretion his Excellency the Rear-Admiral has borne his testimony on this occasion.

And his Lordship in Council, at the same time, desires to mark his sense of the services of Commander Mellersh, of Commander Fishbourne, by whose aid the Government has largely profited, of Commander Tarleton, Commander Luard, Lieutenant Rice, R. N., Captain Neblett, of E. I. C. steamer "Phlegethon," and of Surgeon Minter, whose personal exertions have been severally commended by his Excellency.

The Governor-General in Council has to add his marked acknowledgments of the valuable assistance afforded during the attack on the land defences of Rangoon by Lieutenant Dorville, R.N., and the Naval Brigade under his orders.

The Governor-General in Council has further remarked with gratification the distinguished conduct of Captain Brooking, of E. I. C. steamer "Proserpine." His Lordship in Council wishes to express his warm approbation of conduct which has elicited the applause both of the Admiral and of the General who witnessed it.

The conspicuous gallantry of Major Fraser, commanding the Engineers, and his indefatigable exertions since the expedition was resolved upon, more especially in the field, command the highest praise, and the best thanks of the Supreme Government.

To Lieutenant-Colonel Foord, commanding the Artillery; to Major Turton and Major Reid, of the Bengal Artillery; to Major Montgomery, of the Madras Artillery; to Lieutenant-Colonel Coote, of Her Majesty's 18th, who has been severely wounded; to Lieutenant-Colonel Thomson, of the 40th Native Infantry; to Lieutenant-Colonel Johnson, of the 26th Madras Native Infantry; and to Major Lockhart, of Her Majesty's 80th Regiment; to Captain Mayhew, Deputy Adjutant-General, whose value is specially remarked; to Captain Allan, Deputy Quartermaster-General; to Captain Call and Captain Smith, Brigade Majors; to Lieutenant Robertson, Deputy Commissary of Ordnance; to Captain Gillespie, who led the assault at Martaban; and Captain Campbell, of Her Majesty's 18th; to Captain Rundall, commanding Madras Sappers and Miners; to Captain Chads and Lieutenant Lambert, Aides-de-Camp to the Lieutenant-General; the services of all of whom have been noticed with approbation by General Godwin; the Governor-General in Council begs to offer his earnest thanks.

The Governor-General in Council has to offer his thanks to Lieutenant Colonel Bogle, Commissioner of the Tenasserim Provinces, for the valuable aid he rendered to General Godwin in connexion with the attack upon Martaban; and his Lordship in Council particularly desires to record his approbation of the energetic and successful exertions of the Commissioner in giving effect to the preparations of the Government for ensuring, as far as possible, the health and comfort of the troops to be employed upon the expedition.

Captain Latter, who has discharged his functions hitherto to the entire satisfaction of the Government, has added to his claims by the duty which he well performed in the assault on the Pagoda at Rangoon.

Not only to the officers he has thus specially named, but to all the officers, to the non-commissioned officers, of whatever designation, and to the soldiers and sailors of the force, the Governor-General in Council desires to convey his true and hearty thanks for the alacrity, the endurance, the bravery and good conduct they have displayed during the several operations in which they have been engaged.

The Governor-General in Council deeply laments to know that our success has not been achieved without the sacrifice of valued lives.

He deplores the loss of Major Oakes, and of Brevet Major Griffith, of the Madras Army; of Lieutenant Armstrong, of Her Majesty's 51st Regiment; of Lieutenant Donaldson, of the Bengal Engineers; of Lieutenant Doran, of Her Majesty's 18th, who nobly perished in the front of the assault; and of the Reverend Mr. Baker, Chaplain of Her Majesty's ship Fox, and other brave men, who died in the performance of their several duties in the service of their country.

It shall be the first care of the Governor-General in Council to bring the conduct and services of the naval and military forces on the coast of Burmah under the most favorable notice of Her Majesty's Government, and of the East India Company.

By order of the Governor-General in Council,

C. ALLEN,

*Officiating Secretary to the Government of India.*

## Inclosure 2 in No. 3.

*Lieutenant-General Godwin to the Secretary to the Government of India.*

Sir,

*Rangoon, April 22, 1852.*

I HAVE the honor to advise you, for the information of the Governor-General of India in Council, that everything remains quiet in this neighbourhood. There are various accounts of the defeated Burmese army, under the late Governor of Rangoon, and they tend to the conclusion that he may be retreating up the country with a very small force.

The inhabitants of the villages around visit Rangoon, and bring in various articles for sale. The old inhabitants are partially settling themselves in the vicinity of the Old Town; and great numbers of Burmese are in our employ as coolies.

It has been reported to me that a detachment of the 26th Madras Native Infantry, in garrison at Martaban, had marched against a post occupied by the enemy, which it most spiritedly routed on the 11th instant, without loss; and that, on the 14th, the pickets at Martaban were attacked, and the enemy beaten off with great spirit by the same corps, commanded by Captain Welch, at a very trifling loss. All this will, I have no doubt, subside on the fall of Rangoon becoming known.

I sincerely regret having omitted to bring to the notice of the Governor-General in Council, in my dispatch of the 18th instant, how much I am indebted to Mr. Crisp, junior, for his able assistance in conducting the army through very difficult ground, on its progress to the Great Pagoda, which he performed, under the fire of the enemy, with great coolness and courage.

I rejoice greatly to say the wounded are doing very well. The skill, the labour, the attention, and the humanity of Superintending-Surgeon Montgomerie, and of the Medical department generally under him, call for the warmest approbation of the Government.

Major Fraser, Commanding Engineer, has been indefatigable in his exertions in his own department, and indeed everywhere, to get this place into some order and cleanliness.

He has requested me to bring to the notice of the Governor-General in Council the gallant conduct of Second Lieutenant W. S. Trevor, Assistant Field Engineer, who was the first on the ladder, and there wounded, at the White House Stockade, on the 12th; as also of Lieutenants Craster (Bengal) and Mayne (Madras), Engineers, who were very forward on the same occasion.

My greatest pleasure, however, is to bring before his Lordship in Council the admirable conduct and temper of this force:—its discipline and regularity of demeanour are unexceptionable.

I have, &c.

H. GODWIN,  
*Lieutenant-General, Commanding the Forces in Ava,  
Arracan, and Tenasserim Provinces.*

## Inclosure 3 in No. 3.

*Notification.*

*Fort William, May 1, 1852.*

THE Governor-General in Council directs that the following extract of a further dispatch received from Lieutenant-General Godwin, C.B., commanding the Forces in Ava, Arracan, and Tenasserim Provinces, dated the 22nd ultimo, be published for general information:

“I sincerely regret having omitted to bring to the notice of the Governor-General in Council, in my dispatch of the 18th instant, how much I am indebted to Mr. Crisp, junior, for his able assistance in conducting the army through very difficult ground, on its progress to the Great Pagoda, which he performed, under the fire of the enemy, with great coolness and courage.

“I rejoice greatly to say the wounded are doing very well. The skill, the

labour, the attention, and the humanity of Superintending-Surgeon Montgomerie, and of the Medical department generally under him, call for the warmest approbation of the Government.

“Major Fraser, Commanding Engineer, has been indefatigable in his exertions in his own department, and indeed everywhere, to get this place into some order and cleanliness.

“He has requested me to bring to the notice of the Governor-General in Council the gallant conduct of Second Lieutenant W. S. Trevor, Assistant Field Engineer, who was the first on the ladder, and there wounded, at the White House stockade on the 12th, as also of Lieutenants Craster (Bengal), and Mayne (Madras), Engineers, who were very forward on the same occasion.

“My greatest pleasure, however, is to bring before his Lordship in Council the admirable conduct and temper of this force:—its discipline and regularity of demeanour are unexceptionable.”

The Governor-General in Council has great satisfaction in acknowledging the skill and attention exhibited by Superintending-Surgeon Montgomerie; and he rejoices to learn that by the exertions of the Medical department, the wounded men are doing well.

The Governor-General in Council begs to offer his thanks to the officers now brought under his notice; to Lieutenant Trevor and to Lieutenant Craster, Bengal Engineers; to Lieutenant Mayne, Madras Engineers; as well as to Mr. Crisp, junior, whose service has been noticed by the Lieutenant-General.

By order of the Governor-General of India in Council.

C. ALLEN,

*Officiating Secretary to the Government of India.*

No. 4.

*The Governor-General of India in Council to the Secret Committee.*

(Extract.)

*Fort William, June 2, 1852. (No. 23.)*

WE beg to transmit herewith a copy of further correspondence connected with Rangoon affairs.

Inclosure 1 in No. 4.

*Lieutenant-General Godwin to the Secretary to the Government of India.*

(Extract.)

*Head-Quarters, Rangoon, May 14, 1852.*

IN my report of the 18th of April, I had the honor to recommend to the favorable consideration of the Governor-General in Council the valuable service I had received during the operations of the 12th, 13th, and 14th, from Brevet Major Boulderson, the Deputy Judge Advocate-General of the force, who had requested to follow me in the field, and who, when Captain Allan, the Deputy Assistant Quartermaster-General, was wounded at the White House stockade, was appointed to officiate for him. He has been of the greatest assistance to me in both departments by his ability and zeal, and I therefore venture to bring to notice the omission of his name in the General Orders of the 28th of April, which I entirely attribute to oversight, and earnestly request may be rectified.

A few omissions and errors, inseparable from the recent formation of the forces I command, have occurred in the preparation of my dispatch of the 18th of April, which I solicit the favor of being allowed to correct, should his Lordship in Council see fit to extend his grace.

Brigadier Warren, whose absence from the army I greatly regret, has reported to me the services of the companies of the 18th Royal Irish, which under his immediate command assisted, in the ‘Tenasserim,’ at the destruction of the three stockades at the entrance of the Rangoon river on the 5th of April. The Brigadier was, with the same companies, under the heavy fire of the stockades on the Dalla and Rangoon sides of the river, on the 11th of April. He also was in command of his brigade during the greater part of the 12th of April.

Major Fraser has brought to my notice the very gallant conduct of his Adjutant, Lieutenant Williams, of the Engineers, at the White House stockade, where he was very prominent. The Major has also pointed out that Lieutenant Ford was the officer who commanded the detachment of Madras Sappers and Miners at Martaban, and who should have received the thanks of Government, instead of Captain Rundall, who had not joined the force, and who very honorably disclaims the praise.

Captain Christie, of Her Majesty's 80th Regiment, has been brought to my notice as the officer who commanded the portion of the storming party from that corps at Martaban; he partook in the subsequent operations on that day.

The Commandant of Artillery has also pointed out the omission, on my part, of the services of Brevet Major Back, in command of the Madras Artillery contingent, who directed the heavy battery in the action of the 14th of April, which I commended as having been served with precision and effect.

The services of Brevet Captain Scott, of the Madras Brigade of the Artillery, have also escaped my notice; he has been mentioned in very complimentary terms by the officers commanding the Bengal and Madras contingents of Artillery.

Inclosure 2 in No. 4.

*Notification.*

*Fort William, May 27, 1852.*

THE Governor-General in Council having learnt by a dispatch from Lieutenant-General Godwin, C.B., commanding the forces in Ava, Arracan, and the Tenasserim Provinces, that the name of Brevet-Major Boulderson, Deputy Judge Advocate-General of the Force, who had also acted as Deputy Assistant Quartermaster-General, and was commended by the Lieutenant-General, was omitted in the Governor-General's Order, dated April the 28th, and having further been informed that Captain Rundall had been erroneously mentioned in the dispatch as commanding the Madras Sappers and Miners, instead of Lieutenant Ford, his Lordship in Council desires to correct the omission and the error, and to offer to Major Boulderson and to Lieutenant Ford the thanks which are their due.

C. ALLEN,  
*Officiating Secretary to the Government of India.*

No. 5.

*The Governor-General of India in Council to the Secret Committee.*

*Fort William, June 2, 1852. (No. 24.)*

WE have much satisfaction in forwarding for your information the accompanying copy of dispatches from Lieutenant-General Godwin, C.B., and Commodore Lambert, announcing the gratifying intelligence of the capture of the city of Bassein by the combined Military and Naval Forces.

We have, &c.

DALHOUSIE.  
F. CURRIE.  
J. LOWIS.

## Inclosure 1 in No. 5.

*Lieutenant-General Godwin to the Secretary to the Government of India.*

Sir,

*Rangoon, Head-Quarters, May 24, 1852.*

THE Governor-General having expressed some anxiety about the south part of Arracan, as being in the neighbourhood of Bassein, I resolved, as soon as I could conveniently leave Rangoon, to take a detachment, and personally visit the place. On expressing this intention to Commodore Lambert, he, to my very great pleasure, said he would accompany me. I fixed on Monday, the 17th of May, and had a detachment warned to be ready to embark on that morning, consisting of 400 of the 51st King's Own Light Infantry, 300 of the 9th Madras Native Infantry, 67 Madras Sappers, and a serjeant and 6 gunners of the Bengal Artillery. The whole party was placed under the command of Major Errington, of the 51st Light Infantry.

The Commodore appointed three fine vessels to carry the troops, the East India Company's steam-frigates "Sesostris" and "Moozuffer" and the "Tenasserim," with a smaller steamer, the "Pluto," carrying the naval brigade and Marines of Her Majesty's frigate "Fox."

We cleared the Rangoon river on the afternoon of Monday, the 17th, and on the next evening anchored off Negrais Island, leading into the Bassein river. At daybreak the next morning, the flotilla weighed, and we ascended that most beautiful stream for sixty miles, which, at four o'clock, brought us in view of the defences, of about a mile long, of the city of Bassein: we had passed some new stockades, one at, and the other south of, Naputá, a few miles below the town, which were not armed; but these consisted of one extensive stockade, with several hundred men in it, fully armed, and with cannon.

The enemy looked at us, but did not show any disposition to molest us. The flotilla arrived at the left of their position, a strong well-built mud fort, armed with cannon and men. This we passed within two hundred yards, and so in succession all their defences for nearly a mile, till the "Tenasserim," with the Commodore and myself on board, anchored opposite a golden pagoda, centrally situated within the defences. The steamers anchored in succession, without bringing down the fire of a single musket.

The admirable position taken up by the steamers induced me to order the immediate landing of the troops. The enemy appeared so completely surprised and paralyzed by our approach, that I gave orders not to fire unless fired on, and to take possession of the pagoda. Nearly all the men of Her Majesty's 51st Foot got on shore under the pagoda, before a shot was fired. Captain Latter, my interpreter, accompanied Captain Darroch, with a company of the 51st, on shore, and landed on the extreme right of the works, opposite a traverse covering a gateway; and there a parley was held between Captain Latter and some Burmese on the walls, which brought on the first discharge of musketry, killing a serjeant and wounding two men. This fire was taken up, ran down the works, but soon ceased.

At this time Major Errington made his advance on the pagoda, and carried it in most gallant style, the 51st Light Infantry maintaining nobly the character they had ever commanded by their courage and distinguished conduct in the field.

The contest that stamped the operations of this remarkable day with a brilliant conclusion was the attack on the mud fort, most scientifically built, and of great extent, which could only have been constructed, under a despotism that commanded the labour of its subjects, in the short time they had been about it. It was not entirely completed in its details within. The storming party under Major Errington proceeding to the left of the Burmese works, accompanied by Lieutenant Rice, of Her Majesty's frigate "Fox," and Lieutenant Ford, of the Madras Sappers, came upon this mud fort fully garrisoned and well armed. The attack was most determined, as was the defence obstinate. It was bravely stormed, but with the consequence of Major Errington and several officers and men being severely wounded. Lieutenant Ansley, with a small detachment of the 9th Madras Native Infantry, shared in this contest; he was severely wounded, and the corps proved itself to be as good as it looks, and it is one of the nicest corps I have ever seen; its gallantry and devotion on this occasion claiming the

admiration of all who witnessed it. The whole affair was over a little after six o'clock.

While these operations had been going on, the Commodore had claimed the services of Captain Campbell, of the "Sesostris," and his men, in destroying a large stockade on the opposite bank of the river; they drove off the Burmese, fired the stockade, and took six guns.

I am informed from several sources that the enemy suffered very severely in the contest in the mud fort.

In having the honor, as well as the gratification, of reporting to the Governor-General in Council the possession of this important station, I will observe that, from every indication of preparation going on, the Government of this country intended to make it a most powerful place, and to repair the loss of Rangoon by establishing Bassein as their mart of communication with this country, as well as a powerful position to keep in subjection the Pegu population, so decidedly and ever our friends, and also to maintain a threatening attitude towards the south of Arracan

By leaving Bassein to itself, I should have been giving it back to the soldiery just driven out, as the defences had been built, and put into the improved state I have described by five thousand men from the upper country, commanded by a man of reputation. To secure it, I have left a garrison of two companies (160 men) of the 51st Light Infantry, and 300 men of the 9th Madras Native Infantry. These will be reinforced by an officer of Artillery and half a company, with two 9-pounder guns; the garrison now possessing two 12-inch howitzers. These, with two months' rations, will leave this on, or about, the 26th instant. Major Roberts, of the 9th Madras Native Infantry, will proceed in the same vessel to take command of Bassein he is an experienced and excellent officer.

I consider that in a few weeks the Burmese soldiery of the upper country will have returned to their homes, meeting with no sympathy from the Pegu population; and the Pegu soldiers themselves are already with their families; so that the garrison I have left could, in a military point of view, be withdrawn in six weeks, and it will then remain with the Government of India to decide whether it hold during the war this very important place. If so, further arrangements will be very necessary. Major Fraser, the commanding engineer, should visit it: a very little expense will make it a secure position. The barrack houses the soldiery are now in are excellent, and well built of wood. Fresh meat can be had, as the population of the place are coming under our protection in great numbers.

I may here remark, that that most admirable officer and clear-seeing man, my most respected late commander, Sir A. Campbell, attached great importance to the holding of Bassein.

After passing two clear days in arranging for the stability of the detachment to be left there, on the morning of the 22nd, the flotilla, with the exception of the "Sesostris," which remains, weighed at daybreak, and reached Rangoon on the 23rd of May, after an absence of only seven days.

To Commodore Lambert, and to this combined expedition, the Governor-General in Council owes all that professional ability and unremitting exertion could accomplish towards success, to which they so largely contributed. The East India Company's steamer "Proserpine," Commander Brooking, arrived twenty-four hours after the place was taken; but even so, his activity was not lost, for he and his vessel went off the morning before we weighed, and destroyed the stockade that I mentioned to have passed on the way up the river.

Major Errington, of Her Majesty's 51st Light Infantry, who commanded the detachment of troops embarked for Bassein, who principally directed this detachment, and who fought this detachment, deserves the particular thanks of the Governor-General in Council. I have great pleasure in forwarding his report of the operations for the perusal of his Lordship in Council.

I beg the best consideration of Government for Captain Rice and Lieutenant Carter, of the 51st Light Infantry, and for Lieutenant Ansley of the 9th Madras Native Infantry, all three severely wounded at the assault of the fort, and also for Lieutenant Ford; of the Sappers and Miners, on the same occasion, for Lieutenant Rice, of Her Majesty's frigate "Fox," who commanded the naval brigade, and who was severely wounded whilst particularly distinguishing himself in the attack of the fort.



It has been brought to my notice that Mr. Duncan, the second officer of the East India Company's ship "Tenasserim," at the head of a party of men of his ship, behaved most gallantly upon the same occasion.

To Captain Darroch, of the 51st Light Infantry, and to Captain Latter, my interpreter, thanks are due for their gallantry in forcing the traverse, and entering at the gate on the right of the enemy's position. Lieutenant Craster, of the Bengal Engineers, also merits thanks, and the plan of Bassein, which I inclose for the Governor-General's inspection, will prove his professional competency. To Lieutenants Elliott and Nightingale, with the marines of Her Majesty's frigate "Fox," and to Captain Campbell, of the East India Company's frigate "Sesostris," I beg your Lordship in Council's kind consideration. To Doctor M'Cosh, and the officers of the medical department, thanks are particularly due.

The naval part of the expedition, both sailors and marines, supported the character that has ever been theirs, of undaunted courage.

I have been considered wanting sometimes in not more particularly naming corps or individuals; but in this peculiar warfare of constant assaults on well-armed and strong positions, often well defended, it has been the noble emulation of all to be first into the enemy's works. It was in such an effort of ambition that that fine and gallant young officer, Lieutenant Doran, of the 18th Royal Irish, fell, pierced with four balls, far in advance of his proper post; indeed I might fill my report with names, were all to be individualized.

I now beg particularly to bring to the notice of the Governor-General in Council Major Boulderson, of the Madras Army, the Deputy Judge-Advocate-General of the Force, who on this occasion accompanied me, and filled the two posts of Assistant Adjutant and Assistant Quartermaster-General to the expedition, as I could not move from their important duties at Rangoon Adjutant-General Mayhew nor Quartermaster-General Allan.

The Major has been of much essential service to me in various ways; and the judicious manner in which he posted the pickets after the capture of Bassein, in that wilderness of houses and jungle, tended to the perfect security of the force. Captain Chads, my aide-de-camp, never leaves me, and always makes himself particularly useful.

Since my last report, nothing worthy of note has occurred at Rangoon. The town is increasing in importance by the crowds of natives who daily come in, with their families and goods, as is the case throughout the neighbourhood, but especially at Kemmendine, which is as large a place as Rangoon.

The conduct of the troops is excellent, and their health is improving daily since the rain has set in.

I have, &c.

H. GODWIN.

P.S.—When recalling the omissions I have been unaware of in my dispatches, it has occurred to me that I have not done justice to Captain J. J. Wood, of the 18th Royal Irish, who, on the 14th of April, commanded his corps, during the storm, into the Great Pagoda, Lieutenant-Colonel Coote holding at the time a separate command, that of the storming party. I shall feel greatly obliged by the notice of the Governor-General in Council of this deserving officer, who is of long standing.

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Inclosure 2 in No. 5.

*Major A. C. Errington, of Her Majesty's 51st Foot, to Lieutenant-General Godwin.*

Sir,

*Off Bassein, May 22, 1852.*

THE operations being concluded, I have the honor now to lay before you a report of the assault and capture of the strong stockades erected by the enemy at Bassein, by the troops under my command, on the 19th instant.

The East India Company's steamers having anchored in succession at about half-past 4, P.M., in front of Bassein, a signal was made for the troops to land. This was effected in a very short time, and the ground occupied was an open space running along the river in front of the stockade. The work was full of armed men, and several guns were in position. I formed the troops in line.

The whole force had not landed when a fire from the enemy was opened upon us. This was a signal for the troops to advance, which was done in the

most gallant style; the stockade was surmounted, the Chief Pagoda gained, and the enemy were driven in every direction. Considering the sharp fire that was opened upon us in this gallant attack, our loss of killed and wounded was small.

Having formed the troops in the Pagoda, companies were sent out by your orders in different directions to disperse the enemy.

A most important duty still remained to be performed. The enemy's stronghold, a fortified position to the south of the town, was still unmolested.

A company of Her Majesty's 51st, under Captain Rice, and two of the Madras Native Infantry, under Captain Borthwick, were selected to assault this position. I accompanied this detachment myself, in order to be an eye-witness of what I knew would be a most dashing operation. I halted the party for a few minutes on the road, as Captain Borthwick had not come up, where it was joined by a few seamen and marines, under Lieutenant Rice, Royal Navy, by a party of Madras Sappers, with ladders, under Lieutenant Ford, and by a subdivision of the 9th Native Infantry, under Lieutenant Ansley. As it was getting late, I decided upon not waiting for the remainder of the 9th.

Taking a circuitous route, we came out in rear of the stockade, in an open space, which afforded us a distinct view of this formidable position. I here detached Lieutenant Ansley, with his party, to the right, to attack in reverse the north-east side.

Our further progress was impeded by water and low thick jungle, obliging us to take another direction, which brought the party out upon a brick road leading straight up to the north-east angle of the work. Upon opening the position, and when within fifteen yards of it, a severe fire of musketry, guns, and jingals, was opened upon us by the enemy. I was struck in the groin, which disabled me at once. Lieutenant Rice, Royal Navy, whilst bravely leading on his men, was shot through the hand. Captain Rice, Her Majesty's 51st Light Infantry, whilst gallantly leading his company up to the assault, was shot through the lower part of the neck; his place was gallantly taken by his subaltern, Lieutenant Carter, who, followed by his men, was the first on the parapet. He was struck down by a musket-ball, and rolled over the exterior slope, but still insisted upon being carried into the work. Lieutenant Ansley, of the Madras 9th Native Infantry, and Lieutenant Ford, Madras Sappers, mounted the parapet in the most gallant manner, the former receiving a wound through the right hand. The enemy now gave way in every direction, followed by the victorious troops under the command of Lieutenant Ford.

Thus, in forty minutes from the time the troops landed, the whole of the enemy's works were in possession.

In conclusion, I beg to bring to your notice the noble conduct of the officers, non-commissioned officers, and soldiers of all arms, who took place in the assault, and the cheerfulness and alacrity with which every individual appeared anxious to perform his duty.

I beg to inclose a list of the killed and wounded.

I have, &c.

A. C. ERRINGTON, Major.

#### Inclosure 3 in No. 5.

#### *Return of Killed, Wounded, and Missing, at the Attack and Capture of Bassein, on the 19th of May, 1852.*

*Head-Quarters, Rangoon, May 24, 1852.*

Her Majesty's 51st Regiment of King's Own Light Infantry.—2 rank and file, killed; 4 European officers, 11 rank and file, wounded.

9th Regiment Madras Native Infantry.—1 European officer, 1 havildar, 6 rank and file, wounded.

Total.—2 rank and file, killed; 5 European officers, 1 havildar, 17 rank and file, wounded.

European Officers, 5 wounded.

Warrant and non-commissioned officers, rank and file, &c., 2 killed; 18 wounded.

Total.—2 killed; 23 wounded.

Grand Total of killed, wounded, and missing.—25.

W. MAYHEW, Captain,  
Assistant Adjutant-General of the Barmah Field Force.

*Officers Wounded.*

Her Majesty's 51st Foot.—Major Errington, slightly; Captain Darroch, slightly, Captam Rice, very severely; Lieutenant Carter, severely.  
9th Madras Native Infantry.—Lieutenant Ansley, severely.

W. MAYHEW.

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*Return of Ordnance captured in the Fortifications of the City of Bassein,  
on the 19th of May, 1852.*

On the works round the city.—Guns, 30; jingals, 6.  
In the mud-fort.—Guns, 16; jingals, 20.  
In the stockade opposite the town.—Guns, 6; jingals, 6.  
In a mud-fort at Naputa.—Guns, 2.  
Total.—Guns, 54; jingals, 32.  
Grand Total.—86.

W. MAYHEW.

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Inclosure 4 in No. 5.

*Commodore Lambert to the Secretary to the Government of India.*

*Her Majesty's ship "Fox's" Boat, at Bassein,  
May 20, 1852.*

Sir,

I REQUEST you may be pleased to inform the Governor-General of India in Council, that the Lieutenant-General commanding the Forces having communicated his wish to make an attack on the city of Bassein, I placed a squadron of four steamers at his disposal for this service.

On the morning of the 17th instant, Lieutenant-General Godwin, C.B., the Commander of the Forces, embarked in the squadron with 400 of Her Majesty's 51st Regiment, 300 of the 9th Regiment Madras Native Infantry, 60 Sappers and Miners, the Royal Marines, and a detachment of seamen with a field-gun from Her Majesty's ship "Fox."

I left the naval force at Rangoon, in charge of Commander Tarleton, with the "Fox," and went with my boat to the "Tenasserim," in which steamer I hoisted my broad pendant, and put to sea at 2 o'clock in the afternoon, with the steamers named in the inclosure marked A.

The Lieutenant-General accompanied me in the "Tenasserim."

On the evening of the 28th, we anchored off the Island of Negrais, at the entrance of the Bassein river, where the "Pluto" joined us. I had sent her on from Rangoon a day previously, as her small power could not have enabled her to keep up with the steam-frigates.

At daylight on the 19th, the squadron weighed and proceeded up the river, the "Pluto," from her light draught, being a-head, showing the soundings. The "Tenasserim" led, followed by the "Sesostris" and "Moozuffer," at half a cable's length distant.

At a few minutes after 4 o'clock in the afternoon, the fortifications of Bassein appeared in sight, consisting of a very extensive mud fort, and a long line of stockade on the left bank, on which the city stands, and a strong stockade round the Pagoda, with a brick parapet fronting the river. Then, in an admirable position on the right bank, stood a very large stockade, mounting several cannon.

The enemy permitted the squadron to approach unmolested.

At half-past 4, when abreast the stockade, I made the signal to anchor; immediately afterwards, Lieutenant-General Godwin expressed his wish to land the troops, which was effected in perfect order in a very short period. They had scarcely formed, under the Lieutenant-General's direction, when a heavy fire was opened, both with cannon and musketry, from the various stockades, which was instantly answered by a cheer from the party landed, who stormed and carried the Pagoda.

As soon as the enemy commenced firing, the ships opened their fire on the different batteries.

Observing the stockade opposite the town had been silenced, I directed

Commander Campbell, of the "Sesostris," to land with the boats of his own ship and the "Moozuffer's," and to storm it, which he effected in gallant style, driving the Burmese from their guns with considerable loss to them in killed and wounded.

Commander Campbell has called my special attention to the zeal and activity displayed on this occasion by Lieutenants Robinson and Lewis, of the Indian Navy.

At half-past 5, I had the satisfaction of hearing that the last and most formidable of the stockades had been carried, but not without considerable loss on our part, from the great resistance shown by the enemy.

Amongst those I have to enumerate as sufferers on this occasion, I have to name Lieutenant George W. Rice, of Her Majesty's ship "Fox," who received a severe and painful wound through the right hand, whilst gallantly leading his party of seamen into the stockade.

I feel it my duty also to mention the steady conduct of the Royal Marines, under the command of First-Lieutenant John Elliott; and I cannot conclude without expressing my best thanks to Commanders Campbell and Hewett, of the Indian Navy, for the skill and ability with which they brought their ships up a river, which had hitherto been but imperfectly surveyed, for a distance of more than sixty miles; nor can I refrain from expressing how much I am indebted to Commanders Dicey and Burbank, of the Bengal Marine, for the assistance I received from them; and I attribute our being able to perform this service without accident to the careful and judicious manner with which the commander of the "Pluto" went in advance, and communicated the soundings.

I cannot forbear bringing to his Lordship's notice, Mr. Francis Duncan, second officer of the "Tenasserim;" he was by the side of Lieutenant Rice when he was wounded; and in storming the stockade his conduct was most gallant.

My thanks are general to the officers and men who served under my orders on this occasion, for the steady, gallant, and cheerful conduct with which they performed the duty; neither can I omit remarking that the most perfect unanimity prevailed between the two services.

Since my last visit to Negrais, the old Governor of Bassein has been removed, and the government entrusted to another officer who arrived here from Ava with 4000 regular troops, which increased the strength of the garrison to 6000 men.

I have the honor to forward herewith a list of killed and wounded in the squadron: the casualties among the troops, I understand, amounted to about twenty-five more: and I also inclose a return of the number of cannon captured from the enemy.

I have, &c.

GEORGE R. LAMBERT, *Commodore*.

Inclosure 5 in No. 5.

*A List of the Naval Force commanded by Commodore Lambert in the Action and Capture at the City of Bassein, on the 19th of May, 1852.*

East India Company's steam-sloop "Tenasserim;" Commander, W. Dicey, broad pendant of Commodore Lambert, R.N.—8-inch, 2; 32-pounder, 4; total, 6 guns. Officers and crew, 139. Also on board, Commodore Lambert, of Her Majesty's ship "Fox;" James L. Southey, Esq., Secretary; Mr. G. Digby Morant, Signal Midshipman; and a boat's crew of the "Fox."

East India Company's steam-frigate "Sesostris;" Commander, C. D. Campbell, I.N.—8-inch, 2; 32-pounders, 2; 12-pounders, 2; total, 6 guns. Officers and crew, 168.

East India Company's steam-frigate "Moozuffer;" Commander, H. H. Hewett, I.N.—8-inch, 5; 32-pounders, 2; total, 7 guns. Officers and crew, 228.

East India Company's steam-vessel "Pluto;" Commander, C. Burbank.—32-pounder, 1; 12-pounders, 4; 6-pounders, 2; total, 7 guns. Officers and crew, 80.

A party of seamen from Her Majesty's ship "Fox;" Lieutenant Geo. W. Rice in command.—12-pounder, 1; total, 1 gun. Officers and crew, 19. Includes Mr. F. M. Lisboa, Midshipman; and Mr. Fred. Morgan, Assistant-Surgeon.

Royal Marines of Her Majesty's ship "Fox;" First Lieutenant John Elliott in command. Officers and crew, 45. Includes Second Lieutenant Nightingale.

Total.—8-inch, 9; 32-pounders, 9; 12-pounders, 7; 6-pounders, 2. Total of guns, 27. Total of officers and crews, 679.

G. R. LAMBERT, *Commodore*.

## Inclosure 6 in No. 5.

*List of Killed and Wounded in the Squadron under the command of Commodore Lambert, at the Capture of the City of Bassein, on the 19th of May, 1852.*

"Tenasserim," David Hughes, A.B, wounded, slightly; contused wound by a bullet.

"Pluto," Mr. Charles Bolt, purser, wounded, slightly; contused wound.

Party of seamen from Her Majesty's ship "Fox," under the command of Lieutenant George Rice.—George Woolridge, boatswain's mate, killed; shot through the head. George W. Rice, Lieutenant, Royal Navy, wounded, severely; musket-ball through hand and wrist. George Odgers, A.B., wounded, severely; musket-ball through fleshy part of thigh. Thomas Metcalfe, A.B., wounded, severely; musket-ball through the right shoulder.

Royal Marines of Her Majesty's ship "Fox," under the command of First Lieutenant John Elliott.—John Elliott, First Lieutenant, wounded, slightly; contused wound by a bullet in right arm. Samuel Gray, private, wounded, dangerously; musket-ball through the arm. George Davis, private, wounded, slightly; musket-ball through the finger. George Jones, private, wounded, slightly; bayonet wound in the thigh.

Her Majesty's ship "Fox," 1 killed and 7 wounded.

"Tenasserim," 1 wounded.

"Pluto," 1 wounded.

Total.—1 killed, and nine wounded.

GEORGE R. LAMBERT.

## Inclosure 7 in No. 5.

*Commodore Lambert to the Secretary to the Government of India.*

Sir,

*H.M.S. "Fox," Rangoon, May 24, 1852.*

REFERRING to my dispatch of the 20th instant, I request you will inform his Lordship in Council, that after we had obtained possession of the city of Bassein, I sent the "Pluto" a short distance up the river, to endeavour to intercept the retreating army.

She returned next morning, and Commander Burbank acquainted me that he proceeded up the river above Bassein about forty miles; that he communicated with the village of Mamoon, from which the inhabitants came off, and informed him that one of the party then on board was a person of high command at Bassein during the attack; that he then arrested this person, and he has delivered him over to me, together with another officer of high rank.

Commander Burbank having been informed that a party of the retreating force, in two boats, had that night left the village, he proceeded in chase, succeeded in capturing one of the boats, in which he found a quantity of arms and ammunition, which he destroyed; the troops landed, and fled into the jungle.

The "Pluto" afterwards fell in with another portion of the defeated Burmese, encamped, but who fled on being observed, leaving their arms, all which have been destroyed, as well as their barracks.

A party of seamen from the "Fox" embarked in the "Pluto," to assist in the operations, under Mr. Lisboa, midshipman (Brazilian Navy).

The "Proserpine" steam-vessel, having joined me from Moulmein, I dispatched her, with the "Fox's" marines, to destroy some unoccupied stockades in the neighbourhood of the village of Naputa, which was accomplished without any opposition, assisted by the villagers.

I also request you will inform his Lordship that the squadron under my command, detached to Bassein, returned to Rangoon on the 23rd, with the exception of the "Sesostris," which I left to cooperate with the troops in garrisoning that place, and of the "Pluto," which I have sent to Penang, agreeably to orders I had received from Rear-Admiral Austen.

In continuation of my letter of the 11th of May, I request that his Lordship may be informed that the "Phlegethon" returned here to-day, having made a most successful expedition, in conjunction with the barge of this ship, in charge of Acting-Lieutenant Lawrence, which I had dispatched to rejoin that vessel.

While Commander Neblett was waiting for sufficient water to get into the Rangoon river, I directed him to reconnoitre Donabew; he accordingly proceeded to that place, and found that the Governor of Dallah had fled, and that this once famous stronghold was unoccupied and defenceless. The inhabitants

seemed desirous of affording every assistance, and informed him that a considerable force was collected further up the river, to which spot he also proceeded, and at about ten miles above Donabew, near the town of Sagadjee, he fell in with them.

The "Phlegethon" opened fire upon this force, consisting of about 5000 men, which retreated and fell back upon Sarawah, a town thirty miles higher up the river: he afterwards ascertained that a portion of them crossed over to Henzadah at the junction of the Bassein river.

Commander Neblett informs me that, wherever the "Phlegethon" made her appearance, he was received by the natives with every demonstration of friendship, and an anxiety for him to afford them protection from the marauders and Burmese troops.

I have, &c.

G. R. LAMBERT.

No. 6.

*The Governor-General of India in Council to the Secret Committee.*

(Extract.)

June 15, 1852. (No. 26.)

WE beg to refer the Committee to the Notification of the 5th instant, in which we have publicly expressed our sense of the promptitude, skill, and gallantry, displayed by Lieutenant-General Godwin, Commodore Lambert, and all the officers and men engaged in the combined operations against Bassein.

Inclosure in No. 6.

*Notification.*

*Fort William, June 5, 1852.*

THE Governor-General in Council has the gratification of announcing the capture of Bassein, and of publishing for general information the dispatches which report the combined operations of the naval and military force by which this service has been executed.

In ascending for sixty miles a river still very imperfectly known; in effecting the landing of the troops and capturing the city, the fort, and the stockaded defences on both sides of the river, fully garrisoned and armed; and in accomplishing all this with very unequal numbers, and within the limits of a single day; the combined forces at Bassein performed a gallant and spirited service, which well deserves the approbation and applause of the Government of India.

To Major-General Godwin, C.B., and to Commodore Lambert, the Governor-General in Council has again the satisfaction of offering his cordial acknowledgments of the ability and goodwill with which they have united their exertions for ensuring success to the operations in which they were engaged.

The Governor-General in Council begs to repeat his thanks to Major Boulderson, Deputy Judge-Advocate-General, to Captain Latter, to Captain Chads, Aide-de-camp, and to Lieutenant Ford, of the Madras Sappers, for their conduct in the field on this occasion.

His Lordship in Council desires especially to mark his sense of the services rendered by Major Errington, Her Majesty's 51st Light Infantry, commanding the detachment of troops at Bassein; and to Commander Campbell, of the Indian Navy, by whom the stockade upon the right bank of the river was stormed and taken.

To Captain Rice, Captain Darroch, and Lieutenant Carter, of Her Majesty's 51st Light Infantry; to Lieutenant Ansley, 9th Madras Native Infantry; to Lieutenant Craster, Bengal Engineers; and to Doctor M'Cosh, of the Medical Department; the Governor-General in Council begs leave to convey his best thanks.

Equal acknowledgments are due to Lieutenant Rice, Royal Navy; to Lieutenant Elliott, and Lieutenant Nightingale, Royal Marines; to Commander

Hewett, to Lieutenant Robinson, and Lieutenant Lewis, Indian Navy; and to Captain Dicey, Captain Burbank, and Mr. F. Duncan, of the Bengal Marine, whose services have been commended.

The Governor-General in Council has particular satisfaction in adding the expression of his entire approbation of the gallantry and good conduct of the officers, non-commissioned officers, and men of Her Majesty's 51st Regiment, of the 9th Regiment Madras Native Infantry, of the Madras Sappers and Miners, and of the Seamen and Marines employed in the capture of the city of Bassein.

By order of the Governor-General of India in Council,

C. ALLEN,

*Officiating Secretary to the Government of India.*

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No. 7.

*The Governor-General of India in Council to the Secret Committee.*

(Extract.)

July 2, 1852. (No. 29.)

THE dispatches of Commodore Lambert and Major-General Godwin will lay before you the result of the operations of the naval and military forces, detached against the City of Pegu, on the 3rd of June. We have conveyed our approbation of the conduct of the officers and men engaged on the occasion to the Commodore and the Major-General commanding

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Inclosure 1 in No. 7.

*Major-General Godwin to the Secretary to the Government of India.*

(Extract.)

*Head-Quarters, Rangoon, June 9, 1852.*

I HAVE the honor to report, for the information of Government, that, on the morning of the 26th of May, Martaban was attacked by a Burmese force of 10,000 or 12,000 men, which was gallantly beaten back by the 49th Madras Native Infantry in garrison there under the command of Major Hall. The operations are reported to me as follows

At about half-past 6 A.M. of the 26th of May, the pickets at Martaban were fired on in a desultory manner by the enemy for upwards of an hour, when a strong skirmishing party led by Captain Stewart sufficed to dislodge them. Our loss has been very trifling; 1 private killed, and 1 subadar, 1 naick, and 11 privates wounded.

During the day a party was sent out by the officer commanding to scour the country around, but they met with no opposition, and the place had been unmolested up to the time of the last report. On the opening of the fire of our guns, the steam-frigate "Feroze," which had 200 men of the 51st Light Infantry on board, landed part of them at Martaban, to aid in the defence of the place, and the remainder proceeded in boats up the river, and took the enemy in reverse and caused them considerable loss.

The troops appear to have behaved very well, and the exertions of Major Hall, who commanded the post, of Captains Rickards and Stewart, of the 49th Madras Native Infantry, who commanded the party that went to scour the country; and of Lieutenant Purvis, who commanded the Artillery, were very meritorious. Captain Lynch and the troops on board the "Feroze," under Captain Anderson, were as usual prompt, and the good judgment displayed by the former officer tended to the complete confusion of the enemy.

I have had excellent accounts from Bassein, of the 31st of May, from Captain Darroch, whom I left in command of the place, till the arrival of Major Roberts, of the 9th Madras Native Infantry. These are highly creditable to that officer, and to Lieutenant Craster, of the Bengal Engineers, and show what a few days' well-directed exertions may do in placing a post in a state of excellent defence.

Captain Darroch further reports that everything is quiet around Bassein: the enemy had left the neighbourhood, and the inhabitants were coming in, in numbers, to seek protection under our rule.

The head-men of twenty-six villages had come to tender services, and to bring provisions of all sorts for the troops.

I have also the honor to report, for the information of the Governor-General in Council, the operations of a small expedition which I detached against Pegu on the 3rd instant, under the command of Major Cotton, of the 67th Regiment Native Infantry, to cooperate with Captain Tarleton, of Her Majesty's frigate "Fox," in driving out a strong force, either from Sitang or Bileng, who had taken possession of that city, so lately filled with a friendly population, and where there was a large granary.

I inclose Major Cotton's own report of his operations, which show great promptitude, good judgment, and brave conduct, in himself and the troops he commanded.

The particulars, as to the conduct of the officers and men, and also the cheerful assistance given by Captain Tarleton and his naval contingent, I feel assured the Governor-General in Council will appreciate most favorably.

In concluding my dispatch, I have only to congratulate the Government on the continued good conduct of its troops, on their excellent health, and perfect state of discipline for any duty they may be called on to perform.

Inclosure 2 in No. 7.

*Major H. Cotton, of the 67th Bengal Native Infantry, to Captain Mayhew,  
Assistant Adjutant-General of the Burmah Field Force.*

Sir,

*Rangoon, June 9, 1852.*

AGREEABLY to instructions furnished me by Lieutenant-Colonel Sturt, commanding the 67th Regiment Native Infantry, I embarked on board the East India Company's steamer "Phlegethon," Captain Neblett, on the morning of the 3rd instant, in command of a detachment, of the strength mentioned in the margin,\* to cooperate with Captain Tarleton, Her Majesty's frigate "Fox," in command of the naval portion of the expedition, in carrying out the instructions detailed in Lieutenant-Colonel Sturt's letter, and I have the honor to make the following report for the information of Lieutenant-General Godwin, C.B., commanding the Burmah field force.

We reached the village Peinkeong the same evening, and anchored; the next morning, the troops were embarked in boats, and we proceeded up the Pegu river; when within a few miles, heavy firing was heard a-head, and, from information obtained from the Peguers, I learnt that the enemy were in force on the right bank of the river opposite the town. I immediately landed my detachment at half-past 9 o'clock, A.M. to attack them, and Captain Tarleton agreed to take the naval force, and cooperate on the right. I shall leave Captain Tarleton to detail to Commodore Lambert his part of the engagement. I proceeded in skirmishing order with the detachment along the right bank of the river, for nearly two miles through heavy swamp, and jungle, and drove the enemy completely across the river, in the direction of the Great Pagoda; when, hearing heavy firing from the direction of the boats, I returned to render my aid to Captain Tarleton. I found, on crossing the river, he had had a smart engagement with the enemy, and repelled an attack made by them on the boats, and I was much gratified to hear from Captain Tarleton, of the admirable conduct of a section of the Rifle Company of the 67th Regiment Native Infantry present at it, under the command of Captain E. W. Hicks. The men were by this time (one o'clock) much fatigued, and I resolved to remain for a couple of hours, and then proceed to attack the Great Pagoda, whither the enemy had been seen to retreat, having arranged with Captain Latter, that he should guard the boats with a party of Peguers.

\* 100 men, Her Majesty's 80th Foot, under command of Captain Ormsby. 100 Rifles, 67th Regiment Native Infantry, under Captain Hicks. 30 Madras Sappers, under Lieutenant Mackintosh. Lieutenant Mayne, Madras Engineers, Field Engineer. Dr. M'Kellar, East India Company's service, in Medical charge.



We had not, however, rested very long, when a report was brought from the picket that the Burmese were coming down upon us in great numbers from the pagoda. I went down and ascertained that such was the case, that they were coming down in skirmishing order, I should say at least 1000 men, and amongst them 30 or 40 were mounted upon ponies. I could plainly discern their leader from his dress and gold chattah. I immediately got my party under arms in extended order, Captains Tarleton and Neblett, the former with 30, and the latter with 20, seamen, joining. When the enemy had got well across the plain, in extent about three quarters of a mile, consisting of rice fields partially covered with water, I advanced with the whole detachment, and, after a smart fire, drove them into the jungle which surrounds the pagoda. I then formed my detachment into column of sections, and, steadily advancing, stormed the south gate with the 80th and Sappers, while the Rifles under Captain Hicks extended to the left, and rushed in at the west gate. So sudden was the assault that the enemy had not time to fire their guns, which were found loaded, and covering the entrances to the gates. At the west gate were four guns, two brass and two iron, and at the south gate two guns and two jingals.

We drove the enemy through the pagoda, and succeeded in killing and wounding a number of them as they retreated down the gateway. It was impossible to pursue them, as the men were much knocked up, having been under arms since one o'clock in the morning, and all overcome by the excessive heat and fatigue encountered during the day.

I am happy to say that no soldier was killed, and only two sepoys and one dooley bearer wounded: this small loss is to be attributed to the fact that the enemy, for the most part, fired too high.

My detachment occupied the pagoda during our stay, and I employed the time in carrying out the wishes of the Lieutenant-General in destroying some parts of the fortifications surrounding the pagoda; this was done by Lieutenant Mayne, Field Engineer, whose report I beg leave to attach.

In the town, on the river side, there was a great quantity of rice, which I permitted the Peguers to carry away in boats.

Surrounding the Pagoda there is also another town, in which much rice was found; this I caused to be burnt, after allowing the inhabitants to carry away as much as they could.

The cooperation of the naval force under Captain Tarleton, Her Majesty's ship "Fox," and under Captain Neblett, East India Company's ship "Phlegethon," was most active and efficient, and I would beg my most sincere thanks and congratulations for success should be conveyed to them, officers and men, through the proper channel. Before concluding this report, I hope I may be permitted to mention my admiration at the gallantry displayed by all comprising my detachment, including the naval parties, officers and men. The union, cordiality, and good feeling which existed are beyond all praise, and not a single complaint was made against any one during the whole time. I beg to notice, for the information of the Lieutenant-General, Captain Ormsby, commanding a company of Her Majesty's 80th, and Lieutenants Amiel and Fraser, of the same Regiment, and Dr. M'Kellar, East India Company's Service, in medical charge, who, in addition to his other duties, displayed great humanity in attending to the wounded Burmese; Lieutenant Mackintosh, 52nd Regiment Madras Native Infantry, Second Lieutenant Mayne, Assistant Field Engineer, who entered the Pagoda with the Sappers and 80th, and Captain Hicks, commanding Rifle Company, 67th Regiment Native Infantry, Lieutenant Clarke and Ensign Thompson, of the 67th Regiment, all of whom rendered me the greatest assistance, and with whose conduct I was much pleased. I left Pegu at 12 o'clock A.M. on Saturday last, with my detachment, in progress to Rangoon.

I have, &c.

H. COTTON, 67th Regiment.

P.S.—I beg to inclose a list of casualties; of guns and arms captured; also a plan of operations, drawn by Lieutenant Mayne, Madras Engineers, Assistant Field Engineer.

*Return of Ordnance captured at Pegu, June 4, 1852.*

Small calibre.—2 brass guns, good; carriages destroyed. 6 iron guns; 2 good, 4 very bad carriages destroyed.

10 jingals; 3 sunk in the river at Pegu.

400 to 500 lbs. of powder; 100 lbs. used in blasting.

*List of Casualties in the Detachment under the Command of Major Cotton,  
67th Regiment, at the Capture of Pegu, June 4, 1852.*

*Wounded.*

67th Regiment Bengal Native Infantry.—2 rank and file; 1 camp follower.

Inclosure 3 in No. 7.

*Commodore Lambert to the Secretary to the Government of India.*

Sir,

*Rangoon, June 8, 1852.*

THE Lieutenant-General commanding having expressed his wish that a military and naval force should make an attack upon the City of Pegu, I therefore sent Commander Tarleton, with the boats of Her Majesty's ship "Fox" and the East India Company's steam-vessel "Phlegethon," to perform this service, in conjunction with 230 troops, under the command of Major Cotton, and I have the honor to request you may be pleased to lay Commander Tarleton's report of proceedings before the Governor-General.

I inclose also a list of killed and wounded in the naval force.

I have, &c.

G. R. LAMBERT.

Inclosure 4 in No. 7.

*Commander J. W. Tarleton, R.N., to Commodore Lambert.*

*Her Majesty's ship "Fox," Rangoon,  
June 8, 1852.*

Sir,

I HAVE the honor to inform you that, in pursuance of your orders, I proceeded on the morning of the 3rd instant, with the boats expressed in the margin,\* to the East India Company's steamer "Phlegethon," which vessel, having embarked 98 men Bengal Native Infantry Rifle Company, Major Cotton commanding the detachment; 100 men, Her Majesty's 80th Regiment, Captain Ormsby; 30 men, Sappers and Miners of the Madras Division, Lieutenant Mackintosh; Lieutenant Mayne, Assistant Engineer; Captain Latter, Interpreter to the Lieutenant-General commanding the forces, also accompanied us.

We proceeded up the Pegu river, as far as the village of Peinkeong, which we reached a little before 8 P.M., it being then high water. The stream becoming extremely narrow and shallow at this point, I did not deem it prudent to ascend it further, and therefore arranged with Major Cotton for proceeding with his detachment in the boats, on the next flood tide, which I looked for about 2 A.M., but the ebb ran for 9½ hours, so that we could not leave the steamer before 5:30 A.M. on the 4th. At Peinkeong, Captain Latter obtained information that a large number of Peguers had put themselves under the direction of one of their countrymen named Mounpta; that they had assembled on the right bank of the river, where the day previous they had been engaged, with a body of men under Moungyawik, the Burman Governor of Pegu. By the villagers' account,

\* Her Majesty's ship "Fox." Launch—Mr M'Murdo, mate; Mr. Lucas, Midshipman; crew, 15 men. Pinnace—Mr. Copland, Mate; Mr. Hudson, Midshipman; crew, 15 men. Gig—Mr. Cottam; crew, 6 men. Cutters—Mr. Alexander, Mr. Lisboa; crew, 9 men each. Mr. Morgan, Assistant-Surgeon, Her Majesty's ship "Fox." East India Company's steamer "Moozuffer." Mr. Harding; crew, natives, in paddle-box boats. A large canoe, fitted for the conveyance of the camp-followers.

the latter had been worsted, and had retired in the direction of Zangauain, situated on the river bank, immediately opposite Pegu. When within about five miles of this place, the chief, Moungha, came off to the boats, and confirmed the reports which had been previously received. His force, consisting of about 1,500 men (imperfectly armed), lined the right bank of the river, and advanced with the boats. From his communication with Moungha, Captain Latter was satisfied that the enemy's chief strength lay on the right bank. Major Cotton, therefore decided on landing his detachment on that side, while I proceeded with the boats (as soon as the men were disembarked), to cooperate on his right flank. The river at this point is not more than sixty yards wide. The present village of Pegu stands on the left bank, which is steep and muddy below high-water mark. About a quarter of a mile in the rear of the houses there is a broad ditch, the bottom of which, at this season, is a swamp; it runs along the west face of the old wall of Pegu for the distance of two or three miles; the wall has been originally built of brick, and the top (which may be twenty feet above the bottom of the ditch) is now covered with jungle. The village of Zangauain, as I before mentioned, stands immediately opposite; it possesses a small pagoda, and is surrounded by a low growth of jungle.

I had proceeded a short distance in the boats, when a sharp fire of musketry was opened upon us from the Pegu side. Feeling the disadvantage we laboured under by being underneath the enemy's fire, with no effectual means of returning it, I at once landed with the boats' crews of Her Majesty's ship "Fox," and was shortly after joined by Captain Neblett and boats' crews of the "Phlegethon,"\* in all about 50 men. The Burmese fired upon us as we advanced, but were driven from point to point until completely broken; one party retreating by the river's side to the northward, and the other within the old wall before mentioned. Our object being attained, I was retiring in close order to the boats, when a fire of jingals and musketry was opened upon us from the wall: deeming it unwise to permit the Burmese to suppose we had retreated from them, I instantly engaged a native guide to show us the causeway through the ditch, and then advanced to the attack. We halted a few seconds to gain breath, under shelter of an old house; then rushed in over the causeway, and through a breach to the right of the gateway. On getting over the wall, we found ourselves among some fine trees, free from underwood; behind these the enemy stood with great resolution, until they were, in many instances, driven out by the bayonet; the defect in their firing was here very observable, as their shot in most cases struck the branches above our heads. We pushed them through to the plain beyond, when they broke and fled, leaving many dead. Their number engaged might probably have been 100 men, and they also had a reserve of about 200 more, commanded by officers on horseback, beyond the reach of musketry. The whole party retired within the Great Pagoda, about a mile and a-half to the eastward. I am glad to say that this service was performed with only one casualty on our side,—one man having received a severe sword-cut in a personal encounter.

Information was now brought me that our boats had been attacked by another party of the enemy from the southward; I accordingly hastened down to their relief, and happily found them safe. Mr. McMurdo, Mate of Her Majesty's ship "Fox," who had been left with a few men in charge, reported that a very heavy fire had been opened upon them, to which he had endeavoured to reply with the pinnace's gun and a small-arm party, but the water was too low to do this with effect, and, having one man killed and two wounded, he judiciously removed the remainder to the right bank, sending an application to Major Cotton for support. A party of Rifles, returning, fortunately met the messenger, and, coming on with all speed, took up a position on the river side, from which they kept up so true and incessant a fire across the water that the enemy were compelled to abandon their attempt, and, on our approach, to retreat. Major Cotton, having overcome all opposition on the opposite side, now crossed over with his detachment.

On a consultation with him, it was determined to wait until 3 P.M. before we should advance to attack the Great Pagoda, the men being absolutely in need of repose after so much fatigue under a burning sun. The rifle company of the

\* East India Company's steamer "Phlegethon." Two Cutters—Messrs. T. M. Hulke, 3rd Officer; C. C. Sevenoaks, Midshipman; crew, 22 men.

67th was therefore bivouacked in the wood within the wall, Her Majesty's 80th Regiment on the river face ; and the seamen returned to their boats. At 2 P.M. the alarm-bugle was sounded, and, on my landing, I discovered that the Burmese had issued from the Pagoda in considerable strength, with the evident intention of attacking us. The troops lost not a moment in getting under arms, and the seamen\* came on shore.

The enemy fell back on our advance ; a movement he appeared to have so little expected, that many of his men were unable to regain their position in time to defend it, and those who did were so taken by surprise that their fire was ineffectual, and their four guns, which pointed down the steps leading up to the gateway, were found loaded by Her Majesty's 80th, who gallantly led the assault ; and this naturally strong place was happily carried without a casualty on our side.

I returned with the seamen to the boats as soon as the Pagoda was in our possession ; embarked the detachment at 0.30 P.M. ; on the 6th reached the steamer, at Peinkeong, at 5 P.M. ; she weighed on her return at 8 A.M. ; on the 7th, at noon, she took the ground, and, as the tide was ebbing, and there was no possibility of her moving for several hours, I ordered the "Fox's" boats to take the canoe with the camp-followers in tow ; I passed them in the gig, and arrived on-board Her Majesty's ship "Fox" at 3 A.M. on the 8th.

I have the honor to inclose a list of casualties.

I beg leave to add, that the conduct of both officers and men under my orders has been most exemplary ; and to represent to you the valuable assistance and cooperation I received on all occasions from Captain Neblett, Commander of the East India Company's steamer "Phlegethon."

I have, &c.

J. W. TARLETON.

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Inclosure 5 in No 7.

*List of Men, belonging to the Naval Forces, Killed and Wounded during the Action at Pegu, on the 4th June, 1852.*

Her Majesty's ship 'Fox.'—3 seamen wounded.  
East India Company's steamer "Phlegethon."—1 seaman killed.

Her Majesty's ship "Fox"—Andrew Walker, A.B., wounded, severely ; incised wound of right shoulder, from a sword-cut. Henry Ingram, Ordinary, wounded, slightly ; superficial wound of the right shoulder, from a musket-ball. John Taylor, A.B., wounded, slightly ; graze of the right leg, from a musket-ball.

East India Company's steamer "Phlegethon."—James Shields, killed.

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No. 8.

*The Governor-General of India in Council to the Secret Committee.*

*Fort William, July 2, 1852. (No. 30.)*

WE have the honor to submit, for your consideration, the minutes which have severally been recorded by us, upon the important question of the policy which the Governor-General in Council shall establish towards the neighbouring Kingdom of Burmah, upon the termination of present hostilities.

We have purposely delayed submitting the question to you until now, for we were desirous of giving, to the Court of Ava, the fullest opportunity for offering redress, and seeking reconciliation, that could be conceded to it, without detriment to our own interests. Further delay could not be permitted ; because the preparations which are necessary for a force to take the field in November, can no longer be safely postponed, and the time is not more than sufficient to insure our being in the possession of your instructions, before the military operations shall be recommenced. It is of the utmost consequence that we should be so instructed, previous to that date.

\* Her Majesty's ship "Fox." Officers, Mr. M'Murdo, Mate ; Mr. Hudson and Mr. Lucas, Midshipmen ; 38 men.

East India Company's steamer "Phlegethon." Captain Neblett ; 22 men.

We have, therefore, the honor respectfully to request that you will be pleased to make known to us your decision on the question, now submitted to you, with as little delay as may be consistent with a deliberate consideration of the subject.

If the policy we have suggested should not meet with your concurrence, we trust that the Governor-General in Council will, in such case, receive explicit directions from you as to the specific measure which it may be your pleasure he should adopt.

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Inclosure 1 in No. 8.

*Minute by the Governor-General of India.*

(Extract.)

June 30, 1852.

IN a minute, dated the 12th of February, 1852. I had the honor to record the grounds upon which, in my judgment, hostilities with Burmah had become unavoidable; and upon which I had resolved to propose, that an expedition should immediately be prepared and dispatched to Rangoon, for the purpose of exacting the redress which the officers of the King of Ava had wholly refused.

Every consideration of sound policy urged the Government of India to the adoption of this measure.

If the Court of Ava should finally uphold the acts of its officers, and should refuse redress, as was anticipated, a delay of eight months, in acting upon the intimation which the Government had given to the King, that it would proceed to exact redress by force of arms, would have been greatly to the disadvantage of the British Government, while it would both have encouraged the Burmese Court to resistance, and would have increased its means of resisting. It was known that already, even before negotiations had been concluded, preparations for war had been commenced at Rangoon, and the formidable defences which had been constructed within a very short time, both there and at Bassein, have since shown that the Government of India judged rightly in assuming that the Burmese would busily turn to good account any delay that might be made in attacking them.

To enter into a general campaign against Burmah, at the season of the year which we had reached, was impracticable. But it was felt that a blow, promptly struck, and severely, might possibly give to the Burmese such evidence of our power and resources, as might recall to their memories the issue of their last contest with us, and might possibly deter them from entering on the hazards of another encounter.

If no such demonstration were made by us, upon the moment, extended war would be rendered certain, when the season for operations should reopen. If such a demonstration were made, and should produce the consequences that were so earnestly desired, a vast political advantage would be gained by the restoration of friendly relations between the States, and by the avoidance of a conflict, equally to be deprecated for its present evils, and for its probable consequences.

If the demonstration should not produce immediate submission, nevertheless, the defeat of the Burmese army, the capture and retention of the second city in the kingdom, results which the force proposed was fully adequate to insure, were measures eminently calculated to convince the Burmese of their inferiority, and to aid the Government of India materially in prosecuting the war, if they did not altogether avert it.

I have said the "retention" of Rangoon, because the information I received, at the Presidency, as to the climate and condition of that town, the study of official documents relating to the pestilence by which the troops there were prostrated in 1842, and more full consideration of the great difference there was in the circumstances under which a military occupation of Rangoon would now be undertaken, had removed the objections which, at first, I felt, to holding the city, when we should have taken it, and had led me to the conviction that it might be done with perfect safety to the health of the troops, and with great advantage to the public service.

The Government of India never ceased to regard the lives and health of the troops as a consideration paramount to every other, and it was resolved, that

if, contrary to its expectations, the same grievous sickness should again appear, the troops should be withdrawn to Moulmein, or elsewhere. The mere possibility, however, of this contingency, which was not anticipated, did not deter the Government from dispatching the expedition. For although a withdrawal after the capture would of course have greatly weakened the effect of our success, still its effect would not have been entirely lost. The work of war must have been recommenced; but it would have been against an enemy who had already been defeated, and would have been stripped, by our previous success, of much of his means of defence.

In every point of view, therefore, sound policy dictated the immediate dispatch of an expedition.

If it should accomplish the full measure of success, an infinite gain would be secured, for a long and costly war would be avoided.

If the expedition were partially successful, and though no submission were made by the Burmese, the best of their cities and forts would be captured, and occupied by British troops, and a valuable advantage would be gained for the early and effectual renewal of hostilities hereafter.

Even though we were unable, from climate, to hold what we had taken, the effect of our success would not be lost, for we should have materially weakened the strength of our enemies.

And, in each of these events, the Government of India would have the satisfaction of feeling that, if it had not achieved, by the dispatch of the expedition, the full success of averting prolonged war with Burmah, it had at least lost no opportunity; it had thrown away no chance of securing it.

The expedition was prepared and dispatched accordingly. The circumstances connected with the preparation of it have already been reported to the Secret Committee.

It had been necessary to allow a sufficient interval of time for receiving from Ava the reply of the King to the ultimatum of the Government of India. The 1st of April had been named, as the day beyond which the forbearance of this Government would not be prolonged. On the 2nd of April, the first ships of the expedition reached the rendezvous, at the mouth of the Irrawaddy. By the 14th of that month, the cities of Martaban and of Rangoon had been captured, and were in possession of the British troops. Since that time we have had the honour to report the capture of Bassein, and the occupation of that important point also. The Burmese armies, numerically strong at both places, and strengthened at Rangoon by the regular troops from the capital, have been scattered, and, for the present at least, have wholly disappeared.

In spite of every exertion, it has been found almost impossible as yet to obtain any correct information of what is going on at Ava, or in the Upper Provinces. But in the Lower Provinces there seems every reason to believe, that we are correctly informed of the present state of affairs. Bands of marauders are wandering about the districts of Martaban and Pegu. They attacked lately the detachment at the former city, and were repulsed; and they were driven from the latter, by a very small force sent from Rangoon. Such bands can hardly be called troops; and this Government has discouraged the exposure of our troops in petty expeditions for the purpose of dislodging them.

The remnant of the force defeated at Bassein has scattered; a portion retreating northwards, the rest retiring to their villages.

Steamers have penetrated up the Bassein branch, nearly to its junction with the main stream of the Irrawaddy, and again up the main stream to the junction, which it ascertained to be not safely navigable at present.

None of these steamers have been able to hear of any troops anywhere remaining in the Delta.

The great stockades at Donabew, so conspicuous in the last war, have been found in utter ruin. Whenever any of the smaller stockades along the river-banks have been approached by the steamer, they have instantly been abandoned by the garrison, and have been destroyed by us. And when the little vessel came upon a body of troops, on the left bank of the Irrawaddy (of whose existence they had heard from the headmen of the villages, and of whom they had gone in search), the whole body, amounting, it was said, to 5000 men, retired before the vessel, and retreated into the jungle, as soon as a few shells had been thrown among them.

No intelligence can be obtained of any large force, or of any preparations

in the Lower Province. Nor can we learn anything, with certainty, of preparations being in progress; but it is stated that a force is gradually collecting at Prome, and that the Burmese are strongly fortifying that position.

On the other hand, it is ascertained that there is no force near to Aeng; and the Deputy Commissioner of Assam has lately reported to me, demi-officially, that the Singphoos on the frontier—tribes strongly opposed to the Burmese—have sent in, to inform him, that the northern Shans, on being required by the King to send their levies to Ava, for the prosecution of the war, have peremptorily refused to do so.

The Secret Committee is probably aware that, during the summer, large fleets of boats of considerable burden descend the Irrawaddy, and, entering the branches of the Delta, load with grain, and, on the rising of the river, are carried up the stream, by the aid of the strong monsoon. Upon these supplies the Capital and the Upper Provinces are stated to depend largely, if not mainly, for the food of the population.

Commodore Lambert has been directed by the Government of India to intercept these boats—which, by the last intelligence received, were commencing their return—by means of the steamers at his disposal, and to bring them to Rangoon, where both the grain and the boats that convey it may be useful hereafter. Already some fleets had been seized; and there seems good ground to hope that this measure may exercise a material influence upon the resources of the Court of Ava, and possibly upon its conduct.

While the Government of India is enabled to offer to the Secret Committee this favorable representation of the success of the expedition thus far, it is still more a subject of congratulation that the anticipations which the Government were led to entertain of the practicability of maintaining the health of the troops at Rangoon have, under the blessing of Providence, been completely realized up to the present date.

As soon as a breach with Burmah was seen to be inevitable, the Commissioner of Tenasserim was requested, by the Governor-General, demi-officially, to strain every nerve in preparing cover for the troops, and in providing well for the Commissariat.

That officer indefatigably, and most successfully, discharged the task entrusted to him, and practically proved at the very outset the vast superiority which the possession of the Tenasserim Provinces would give us during the present war over our predecessors, in those matters where they met with most difficulty, and from which the worst sufferings of the army proceeded.

Large supplies of slaughter-cattle were collected before the present expedition arrived, and an ample supply may be relied upon from those provinces. Besides fresh meat thus prepared in abundance, stores of almost every sort that are required by troops are procurable at Moulmein, now a town of flourishing trade, but in the last war unheard of.

Wooden barracks in frames, with thatching, had been prepared. They were sixty in number, each capable of holding a company. They were sufficient, with what could be made available at Rangoon, to give cover to all the troops, and were sent over as fast as they could be put up. They are rude, but they are of the same materials as most buildings in that part of the world, and they are effective.

In like manner, ranges of hospitals were prepared at Amherst, and thither the wounded and sick have been conveyed, by the steamers, as occasion required.

The result of these precautions has been, that while the troops necessarily suffered much from the unrelieved exposure of the first three days in the field, from the terrible power of the sun, and the great alternations of temperature during the night and day, these effects of climate were temporary. Successive mails have brought improved accounts, and, up to the 22nd of June, the Major-General reports that the health of the troops is still improving, and excellent upon the whole.

For this happy state of the health of the troops occupying Rangoon, the Government lies under great obligations to the activity and laborious zeal of many, and chiefly of Major-General Godwin, of Lieutenant-Colonel Bogle, Commissioner of the Tenasserim Provinces, and of Major Fraser, chief engineer with the force. The Government of India is very sensible of these obligations, and desires to lose no opportunity of publicly acknowledging them.

The conduct of the inhabitants of Pegu has also conduced greatly to the health and comfort of the force at Rangoon. Both there, and elsewhere throughout the province, it stands in very marked contrast to their conduct at the commencement of the former war.

Then, no communication was held by the inhabitants with the force under Sir Archibald Campbell, and for a long time neither labour nor any of the commonest articles of produce were by any means procurable. Upon this occasion, whatever may be the cause, the population has flocked round the troops from the day the Pagoda was assaulted, and the Burmese force driven out. There is a large settlement at Kemmendine; and a very considerable population, stated at not less than 40,000 souls, has already gathered at Rangoon, where they have rebuilt the houses, and are living in perfect confidence. Labourers have from the first been obtained in great quantities; they have not only returned themselves, but have brought back their families, their bullocks, and hackeries. And General Godwin in his last letter informed me that the people resort to the bazaars from all the country round, and sell beef, mutton, venison, fish, fowls, eggs, milk, butter, vegetables, and fruit, in great abundance, and at moderate rates.

The same feeling of confidence was shown at Bassein as soon as the British had occupied it; and supplies, including cattle, were brought in equal abundance.

Nor is this friendly spirit traceable only to the self-interest which might be supposed to persuade the people of Pegu to this freedom of intercourse. It has been apparent where no such interested feeling could actuate their conduct. Wherever the steamers have gone, whether up the Bassein branch, or the Panlang branch, or the Pegu river, or the main stream of the Irrawaddy itself, everywhere the villagers have come forth on their appearance. Information has been given by them, of where troops were in their retreat, or of where any bodies were collecting; and nowhere has their intelligence proved false. All have shown satisfaction at the appearance of our boats or troops, and have proved the sincerity of it by giving such assistance as they could, and everywhere they have sought our protection, and asked for the continuance of it.

At Pegu they have gone a step further, and have sought, in some degree, to act with us, and for themselves. In that district, under the leadership of a descendant of their former chiefs, the Peguers rose against the Burmese troops at the town of Pegu and expelled them. When in their turn they were expelled by a larger force, they invoked our aid, and when the Burmese bands had been driven afresh out of the city, the occupation of it was undertaken by the Peguers. Whether they will be able to hold their ground there, is doubtful. But this circumstance serves, with the rest of my statement, to show the marked difference which there has been in the conduct of the Peguers towards the British upon this occasion, as compared with the unfriendly demeanour exhibited towards them, on the first occupation of Rangoon, in 1824.

Such is the actual condition of affairs, at the present time, in Pegu. Such is the issue of the expedition which it was resolved to dispatch against Burmah. The most complete success has attended every military operation. A very severe blow has been promptly struck. The three first cities in the Burman Kingdom next to the capital have been taken. The whole seaboard of Burmah is in our possession. The trade of the country, both external and internal, has been stopped. The troops have achieved all this, now as ever, with a spirit that does honour to their nation; they are in excellent health, and in full flush of confidence. No army can be heard of in the field near us; and the inhabitants of the enemy's country that we hold are entirely friendly, and voluntarily aid us to their very best.

But, for all that, the Court of Ava has made no sign of submission, and a final result has not yet been obtained.

I have already recorded my conviction that it is indispensably necessary, for the security, and for the supremacy of the British power in India, that it should not, in this matter, stay its hand, until it shall have fully vindicated the superiority of its arms, and, having established the sufficiency of its power to protect its subjects, and to enforce its rights, shall have taken effectual pledges against any renewal, by the Burman power, of outrage against the one, or violation of the other.

I had the honor to declare my opinion, that "the Government of India cannot, consistently with its own safety, appear for one day, in an attitude of



inferiority; or hope to maintain peace and submission among the numberless princes and people embraced within the vast circuit of the empire, if, for one day, it give countenance to a doubt of the absolute superiority of its arms, and of its continued resolution to assert it."\*

This maxim applies with especial force, to any matter of dispute or conflict with the Burman Kingdom. There is now no power in Asia to which the British Government can less afford to give even an apparent advantage: for there is none which ventures to assert the same pretensions to superiority in strength and dignity, and none so ready to support those pretensions by force of arms.

The presumptuous arrogance with which the Burmese entered upon the former war with the British, in full belief—King, Court, and People—that their success was certain, and that fresh conquests were about to be opened to them, is a matter of history. The doggedness with which they opposed our troops during three continuous campaigns, disputing the line of advance to their capital, shows how slowly they consented to relinquish the ideas they had cherished of their invincible superiority.

The fact that they were ultimately compelled to sign submission, in a treaty, within forty miles of Ava, and to a force hardly amounting to 2000 effective troops, might naturally lead to the inference that the Burmese must then have been convinced of their absolute inferiority. It might well be thought that, heavily mulcted for the expenses of the war, and punished by the loss of several extensive provinces, the Burmese would have been taught never again to engage in battle with troops of whom so few had been able to effect so much.

Such appears to have been the impression left upon the minds of our countrymen at the close of the last war, in 1826, and such views are commonly entertained now. It has been thought that so keen was the recollection of former defeats, and so heavy the punishment of its former aggressions, that the Court of Ava would shrink from any probability of collision with us, and would at once concede whatever we might demand.

But the Government of India, while it entertained the hope that a sense of their own interest, if not a sense of justice, might lead the Burmese to redress the wrong they had done in the first instance; and while it subsequently hoped that the reparation which had not been afforded by right feeling, or prudence, would be conceded to a hostile demonstration, which showed danger, more close to them, and imminent; has never relied with any assured confidence on the belief that the result of the last Burmese war would, with certainty, prevent the recurrence of another, upon the present occasion.

The Burmese could not possibly disguise from themselves, in 1826, that their armies had been unable to stop the progress of the British troops, and that one after another they had been defeated and dispersed. But there is abundant evidence to be found, as well upon written record as in the subsequent conduct of the Court of Ava, that neither the King nor his Chiefs regarded themselves as conquered; and that they have neither recognised their actual inferiority to the British power, nor were at all anxious to avoid a fresh encounter with it.

So early after the close of the last war as the year 1830, when Lieutenant-Colonel Burney was the Resident at Ava, he reported thus, to the Government of India:

"The King and Ministers had been assured by Dr. Price, when he returned from Calcutta, and by Mr. Sarkies, when he visited Ava, in 1826, that the late war had nearly ruined us, and that our financial difficulties and embarrassments were so great, that we would submit to anything rather than engage in another war with Ava . . . . And it is well known that the King, when he insisted upon Mr. Crawford delivering up the British subjects whom he was about to take away with him in the 'Diana,' presumed so far as to say that he would not mind risking another war with us, and that he would use force to make Mr. Crawford deliver up those people. . . ."

"Although the respectable portion of the Burmese are, at present, disinclined to engage in another war with us, yet it cannot be denied that the late war has failed to leave a permanent impression on their minds of our superiority. We evinced too great an eagerness, during the contest, to conclude it; and all

\* Minute, February 12.

our offers to treat served only to encourage the Burmese Court to make greater exertions. There is no question, that the very first opportunity which may appear favorable, will be seized for renewing hostilities with us, and that the feelings of the majority of the inhabitants are decidedly unfriendly to us. Under these circumstances, it may be questioned how far it would be good policy in us to restore any territory to the Burmese, and thus add to their pride and strength. I am satisfied that it is not by means of conciliation, but by holding a firm and high hand over them, we shall be able to keep this people quiet, and prevent them from molesting us again."\*

The correctness of the view thus taken by Lieutenant-Colonel Burney of the light impression produced, by our successes in the last war, upon the minds of the King and his advisers, of the absence of any reluctance to engage in war with us again, and of any clear conviction of our superiority, has been proved by the disregard with which they have viewed the treaties they signed, by the conduct of their Court, at various times, and by the refusal of redress for outrages, with which the public records abound.

With much importunity, indeed, and after long delay, the payment of the million sterling, to which they were bound by the treaty, was obtained. But the maintenance of a resident at Ava, on which so much stress was laid, has not merely become, long since, a dead letter, but the operation of the clause was practically, almost avowedly, defeated by the resistance of the Burman Court to its fulfilment.

No mission has been retained at Calcutta, nor is even a Vakeel deputed from the Court of Ava. The mission of Lieutenant-Colonel Burney was, in reality, compelled to leave Ava, by the treatment which, as the representative of the British Government, he received.

In like manner, the mission of Lieutenant-Colonel Benson was withdrawn; and for the same reason. The Agent who was still retained at Rangoon after the departure of Colonel Benson, remained but a short time; and he too was withdrawn.

Ostensibly the departure of these missions was caused by the failure of each Resident's health. But I apprehend that it will not be denied, that the real reason of their total withdrawal was the intolerable arrogance of the Burman Court, which could not be submitted to, and which would probably have led to an immediate rupture if it had then been resisted to extremity.

To the Court of Ava, which ever regarded the presence of a British Envoy with dislike and suspicion, the withdrawal of successive Envoys was, of course, a cause of triumph, and was interpreted as a plain evidence of our inferiority to a power with which, as it seemed, we could not venture to quarrel.

And as this main clause of the treaty, upon which was placed our reliance, for the protection of our subjects and traders, was wholly set aside by the Court of Ava, other clauses of the treaties have been violated by its officers. At one time, the treaty was entirely repudiated by the King: for long, complaints have been frequent of exactions practised upon the traders of Rangoon, in open violation of it, till at length, in the cases which primarily led to the present hostilities, the extortion of the Burmese Governor, his imprisonment of British subjects, and his violence towards them, compelled the Government of India to seek the redress which, as yet, has been refused to it.

During the whole period, since the close of the war, outrages have been frequent upon our borders, especially on the borders of Moulmein. Such outrages were to be expected; but the aid which also we had a right to expect from the Burmese authorities, in repressing such outrages, or in detecting and punishing the perpetrators of them, with hardly an exception, has been withheld from us.

The proofs of the readiness of the Court of Ava for renewed war with the British Government, do not rest entirely upon the facts I have recited above, and which show the Burmese to have stood in no fear of the British Government, and to have been indifferent as to collision with it. In 1839, the records of the Government of India evince the conviction which was then entertained, that war with Burmah was unavoidable; and, in the year 1841, the King Tharawaddy formed a large army, amounting, it was said, to 50,000 men. He collected his war-boats, and marched down to Rangoon, with the intention, it was then supposed, of boldly taking the initiative, and of invading the British provinces in his vicinity.

\* Journal of Major H. Burney, Resident at the Court of Ava, 1830.

Thus, through the whole period, from the close of the last war to the present moment, when, as I have stated, they are pursuing their preparations to meet us, the Burmese Government is seen inflated with the same overweening arrogance as before, and pursuing a line of conduct which shows that they are still convinced of their power to defy us, and not reluctant to make the attempt.

Hence it follows, that the necessity is now even more urgent than before for asserting the full power of the British Government to protect its subjects, to enforce its rights, and to establish throughout all India the conviction of its superiority over every enemy. No result of the present hostilities can be regarded as final and complete, which does not include a vindication of the superiority of our military power; reimbursement from the Court of Ava, in some form, of the expenses of the war; and an effectual guarantee against renewed war with that Government hereafter, either by the reduction of the substantial power of the Burmese State, or by such other means as may be determined upon.

I have endeavoured, in the preceding paragraphs, to state clearly and fairly the actual condition of our affairs in Burmah; and to define what are the political ends which, in my humble judgment, it is indispensable for us to secure, as the issues of the war in which we are engaged. I shall proceed now to consider by what means those ends are to be obtained.

Ample opportunity has been given for the consideration and transmission of overtures of peace by the Court of Ava, in the two months which have purposely been suffered to elapse without any further political movement on the part of the Government of India. There is no ground whatever for believing, as was alleged during the last war, and has sometimes been surmised of late, that the King or his Ministers are not informed of what has taken place. On the contrary, there is every reason to be convinced that the Burman Government is fully acquainted with every event, and is pursuing its own fixed course of policy. It will wait, in the hope that the rains at Rangoon will have the same injurious influence upon the health of the troops as they exercised in 1824; and that our further advance will be thus delayed, if not altogether prevented.

If on seeing, as the season advances, as we trust will be the case, that the health of the troops has not been affected, the Court of Ava should seek for terms of reconciliation, I am of opinion that, after the events of the last three months, we ought not to concede to them terms so light as General Godwin, in his instructions, was authorized to grant.

The determined spirit exhibited in the fortifications constructed at Bassein and Rangoon, the continuance of the contest up to the present time, and the preparations which we are credibly informed they are making to oppose our advance, all tend to show that such a punishment must be inflicted upon the Burmese as will be sensibly felt, if we desire to secure at all the observance of peace hereafter.

In this view I conceive that, if overtures should be made before large additional charges have been incurred by the Government of India, in the preparation of an army to take the field in November, the Court of Ava should be required to pay down promptly 15 lacs of rupees, to cede the Negrais and Diamond Islands, and the district of Martaban, to a point upon the Sitang river near to Shoee-Gyne.

This district has been the scourge of Moulmein, its inhabitants and its trade. Its possession by us, and the introduction of order and obedience there, will be of essential value; and its annual revenue is estimated to amount to four lacs of rupees.

This payment, with the cession of territory, and the re-establishment of our relations with Ava by means of an agent at Rangoon, upon which we have insisted, might be held sufficient to satisfy our demands, and to accomplish the ends we have in view, if the proposal for peace shall be made by the Burmese Government at an early day.

It is not anticipated, I think, by any one, that overtures of peace will be made at present.

In the meantime, we can no longer with prudence delay the commencement of additional preparations for carrying on, with vigour, the war against Burmah, at the earliest date at which the opening season may permit.

Before he left Calcutta, General Godwin, at my request, submitted his opinion as to the force which would be necessary for pursuing the war, by an advance towards Ava.

He desired to have in the field, four brigades of infantry, each consisting of one European and two Native corps, together with three batteries, one a horse field-battery, and two troops of horse-artillery.

The Government of India has assumed that General Godwin desires to have this force in the field, in addition to what he already has under his command. It is believed that no difficulty will be found in providing this force, without unduly weakening any quarter of the empire in its present circumstances. The Government of India was of opinion, that the troops above mentioned should be provided jointly by the Presidency of Bengal and by the Presidency of Madras, aided by that of Bombay. The Government of Madras and his Excellency the Commander-in-chief in India have been addressed accordingly. I have no doubt whatever that the full force named will be ready, and perfectly equipped, at the time which may be fixed for its advance.

The line of its advance, and the plan of operations generally, are matters on which the Government of India will seek the advice of the military authorities.

The late Major-General Sir Archibald Campbell, at the request of the Governor-General in Council, in the year 1829, recorded his views as to the proper line of attack in the event of our again going to war with Burmah. He strongly advocated an advance from Arracan, by the Aeng Pass. When Sir Archibald Campbell wrote, the pass had been traversed by a single regiment on its return to Madras. Since that time many examinations have been made of the Aeng, and other passes through the Arracan Mountains, into Burmah. In the year 1839, when renewed hostilities were looked for, the question was elaborately discussed, in minutes by members of the Government, and especially by Major-General Sir William Casement. Very recently, new and valuable reports have been submitted upon the present condition of these passes, especially the Aeng, and the Thonghoo, by Captain Nuthall, and Lieutenant Fytche.

After a careful consideration of all these documents, together with reference to the widely different condition of affairs in the British provinces south of Burmah, and to the greater variety and extent of our resources now, as compared with the state of things which existed in 1829, I venture, with deference, to question whether Sir Archibald Campbell would now give the same opinion as he recorded in 1829.

Whether the advance of the British force shall be made, either by the Aeng route, or by the river route, or by both, the ultimate result will be the same. The Burmese forces will be defeated wherever they may stand, and the British army will reach the capital. The King will either offer submission, and seek for terms of peace, on the approach of our army, or, as, in my opinion, is more probable, he will retire from Ava to Umerapoor, and from Umerapoor into the highlands beyond, with his family, such treasure as he has, and the remnant of his troops; and there he will oppose to our advance, the passive resistance of a retreat beyond our reach.

Such were the tactics which, it has been stated, the King had resolved to practise in 1826. if Sir Archibald Campbell's army had not halted at Yandaboo; and such, I am inclined to think, would be the plan resorted to upon the present occasion.

Whether the King shall make submission on our advance, or shall evade it by retreat, the question for the decision of the Government of India will remain the same; namely, what measures should the Governor-General in Council adopt for confirming the vindication of our power, for obtaining reimbursement of the expenses of the war, and for providing a security against its recurrence?

In the earliest stage of the present dispute, I avowed my opinion that conquest in Burmah would be a calamity second only to the calamity of war: that opinion remains unchanged. If any adequate alternative for the confiscation of territory could have been found by me, or had been suggested to me, my mind would most readily have adopted it. If conquest is contemplated by me now, it is not as a positive good, but solely as the least of those evils before us, from which we must, of necessity, select one. But, after constant and anxious

reflection, through the months during which hostilities have been in progress, I can discover no escape from the necessity. I have been driven, most reluctantly, to the conclusion, that no measure will adequately meet the objects which, in my judgment, it is indispensable for us to secure, namely, the establishment of our superiority now, and its maintenance in peace hereafter, except the seizure and occupation of a portion of the territories of the Burman Kingdom. In like manner as in 1826 it was felt to be necessary to deprive the Burmese of the Provinces of Tenasserim, Arracan, and Assam; so now, for stronger reasons, and with better effect, the occupation of the Province of Pegu appears to me to be unavoidably demanded by sound views of general policy.

I have been led to this conclusion, by the conviction with which my judgment has been impressed, of the total insufficiency of every other measure that has come under review, for effecting a permanent termination of wars between the States, or for establishing, in fact, anything better than an unsubstantial and short-lived truce.

The course of policy which would be open to the Government of India, upon the termination of hostilities, either by the submission of the Court of Ava, or by the total defeat of its armies, without any submission made by the King, offers five alternatives:

1st. The Government of India, satisfied of the proved superiority of its arms, by the result of the war, may withdraw its armies from all Burmah; and exacting nothing, retaining nothing, it may trust entirely to the influence of this second manifestation of its power, for protecting its subjects and territories against Burmese violence, in the future.

But, if the King shall have made no submission, a withdrawal of our army from Burmah, thus exacting and retaining nothing, would, in the eyes of Asia, be tantamount to a defeat. Though our troops had scattered every force that met them, had levelled every defence opposed to them, and had overrun the land from north to south, their departure would be regarded, not as a proof of superiority, and of contemptuous indifference to the power of Burmah, but as an unequivocal, though tacit confession, of our inferiority, and as an irrefragable proof that we had, in truth, been beaten by Burmah in the end. The British had a treaty, it would be said, but they have failed to enforce its observance; their subjects had rights by it in Burmah, but the Government of India has been unable to maintain them in those rights; the British had, by solemn agreement, a footing in Burmah, but they have been driven forth from it. Our power would be measured not by the position we had been able to reach, but by that which we were seen to hold; and the issue of all this would be, that far from avoiding risk of future war by withdrawal, we should only invite and encourage aggression, by the Burmese, on our frontier provinces, still in their neighbourhood, and should incur the danger of weakening our ascendancy, in other parts of India, to which the tidings of apparently successful resistance to our authority would speedily reach.

If, on the other hand, the King should have made submission, relations with the Burman Government would be restored, and some of the objections to withdrawal, which are stated in the preceding sentences, would be lessened in force. But the case would remain substantially the same. Exempted from the mulct of reimbursement, its ports restored, its territories undiminished, the Court of Ava would interpret, in its own way, a moderation which neither it, nor its neighbour nations, could comprehend,\* and would exult, in the issue of the war, as in reality a homage to its power, which would be far from discouraging its tendency to outrage, and would rather inflame the arrogance from which offences would speedily arise.

In any case, therefore, I consider that a recurrence to the relative positions in which the States were placed before the war, would be in the highest degree impolitic.

2ndly. The army may be withdrawn from Burmah generally, but possession may be retained of the district of Martaban.

If the King shall have made no submission, a retirement from Rangoon without establishing there the Agency, to which we are entitled by treaty, and

\* "They believe that the conquering party will always keep what it has got, if it can, and that negotiation is therefore useless. Overtures to treat are always looked upon either as a mark of weakness, or are considered as an artifice to gain time."—Rev. Mr. Judson's Deposition, *Wilson's Coll.*, p. 234.

without any concession of the redress we have demanded, for rights already violated, would lay our policy open to the weightiest objections; while, if submission shall have been made by the Court of Ava, but no greater punishment shall be inflicted than the occupation of what they would affect to consider a petty district, the policy would still be liable to have its moderation misunderstood and misrepresented, and no valid security would be afforded for future peace.

3rdly. Possession may be retained of Rangoon, as well as of the district of Martaban.

But, if Rangoon be so occupied, it must be held by a garrison sufficient to sustain itself at all times against any attack which the Burmese might make upon it, deliberately or suddenly. The necessity for a garrison of sufficient strength to hold Rangoon against attack, would not be lessened by the renewal of the Treaty, if the King by submission should bind himself afresh. One who knew them well, the Rev. Mr. Judson,\* testified officially regarding the Burmese some years ago, that they were "utterly" faithless. "They would consider it nothing less than folly to keep a treaty, if they could gain anything by breaking it."

But this force would be a heavy charge on the finances of India; for no territory, such as it was capable of protecting immediately round Rangoon, would afford a revenue sufficient to pay for even a portion of the troops.

And, if the object were to give us command over the trade of Burmah, I question whether the measure would effect that object. Excluded from Rangoon, the Burmese would probably resort to Bassein, where a fine navigable river is open to the sea; while, upwards, it communicates with the Irrawaddy, by a channel available for small boats at all seasons of the year, and navigable by all native craft during the monsoon.

The exertions which the Burmese were found to have made, when the British troops lately captured Bassein, lead to the belief that they had already begun to provide for the transfer thither of the trade of Rangoon.

4thly. The British troops may continue to hold what they now occupy, —Martaban, Rangoon, and Bassein.

The same objections apply to this scheme as to the preceding one. The expenses of such a force would be very heavy, and no local income would be derived to meet the charge.

The amount of troops to be employed on this service, and the cost of maintaining them, would not fall far short of such a force as, properly placed upon the frontier, towards Prome, would be capable of holding all Pegu; while, at the same time, the revenues of the province would be commanded for the payment of the force.

Neither examination of maps, nor study of official documents, nor reference to the knowledge and experience of persons acquainted with the country, have enabled me to select any portion of territory which could be held effectually, and with advantage, by us, intermediately between the single district of Martaban and the whole province of Pegu.

5thly. This province of Pegu, extending somewhat above Prome, may be retained and permanently occupied as British territory, on the termination of the war.

If it be admitted that a confiscation of territory is requisite to our interests and security, the advantages belonging to the possession of the Province of Pegu appear, to me, to be not inconsiderable in themselves.

The northern frontier, indeed, would not be strong in itself; for it presents no natural features in the formation of the country which would facilitate its defence, or save us from the worry of predatory attacks, even if invasion were not attempted by the Burmese. And although a very large force would not be required for its protection, it would undoubtedly be necessary to increase the European force at the disposal of the Government of India, by three regiments. The means of doing so will be adverted to separately. Some small increase of general service regiments would probably be required in the Bengal Army. For both the armies of Bengal and Madras appear now to be not more than adequate for the permanent discharge of the duties they have to perform.

On the other hand, if the frontier to the north be indefinite or weak, the

\* Wilson's Burmese War, p. 234.

boundaries to the south-east and west are excellent. The sea, with its trade, will be our own. On the west, are the mountains of Arracan, with our own province beyond. On the east, are hills inhabited by the Shans, tribes who border also on Tenasserim, and who have ever held the most friendly feelings towards us, and have cultivated constant intercourse with us. They will, so far as we are concerned, enjoy entire independence, and will probably rejoice in any diminution of the power of the Court of Ava, which claims supremacy over them.

The climate of this province has ever been regarded as excellent, exception being made generally of Rangoon. That exception, however, has not been admitted by others well qualified to judge, who have maintained that the sickness which prevailed among the troops there in 1824, was not referable to the general insalubrity of the place, but to the influence of an epidemic universal in that year, and to temporary causes connected with the formation of the expedition. This consideration forms so important an element in the question to be decided, that I think it right to quote, in support of my view, the following passage from a report by Dr. Martin, a medical officer of eminence in the service of the East India Company, who served in Burmah, and whose authority is high. He says :\*

“ Viewing the Delta of the Irrawaddy in connection with its known medical topography, its latitude, and, in short, its general climate, it stands in favorable comparison with that of any known river. Such I believe to be the general opinion entertained of it by professional men; and its salubrity, together with the superior physical character of its inhabitants, was early noticed by that distinguished writer and observer, Dr. Francis Buchanan Hamilton, who, I believe, visited that country twice, and who ascribed the general comparative healthfulness of Lower Pegu, to the geological nature of the soil and its undulating surface, which left no room for stagnation, in the numerous communicating branches of the Irrawaddy.

“ An evil impression of the climate of Rangoon especially, has arisen from the enormous loss of European life, during the last war; but I believe I am correct in stating, that general or local climate formed one of the least of the causes of the excessive mortality spoken of; and that, beyond a heavier fall of rain, during the south-west monsoon, and consequently a greater degree of humidity in the atmosphere than generally occurs in Bengal, the climate contributed little or nothing to the result. It was scorbutic disease that destroyed so large a portion of the European force; and as the powerful causes which led to its development are now well understood, I need not dwell upon them.

“ Of ordinary tropical disease, such as fever, tropical dysentery, and liver disease, there existed but little, comparatively, amongst the troops, European or Native; and in the Governor-General's body-guard, in which I personally served, we had but little disease of any kind, and very few deaths, other than casualties in the field. The health of the European portion of our force improved also amazingly by the time of our entry into Prome, on the 25th of April.

“ By measures of local improvement, easy of execution, Prome might be made a place of uncommon salubrity.”

While the climate of Pegu is thus shown to be healthy, its soil is fertile, and adapted to products available for commerce. The population, except upon the rivers, is believed at present to be thin; and vast tracts of land lie wholly uncultivated. Peace, with security to person and property, will, in time, produce, upon this state of things, the effect which has ever followed it elsewhere. The valuable forests of teak, which cover the whole face of many portions of this province, are too well known to need remark.

Of the revenues of the province, I do not venture to speak with certainty; for, in truth, from the nature of the public income, and its mode of levy under the Burmese, no certain knowledge of its amount could be obtained. The Commissioner of the Tenasserim Provinces has stated it, to me, on a cautious estimate,† as being from twenty to twenty-five lacs per annum.

Besides these positive advantages, there are other circumstances connected with the possession of Pegu, which, although they would not be sufficient to

\* Report to Government, October 1, 1839

† Mr. Crawford, in his official report in 1826, estimated the revenues of Pegu at thirty-six lacs of rupees.

recommend the annexation of the province, are not without their value, if circumstances should compel us to adopt that course.

An occupation of Pegu would be a very different measure from the occupation of a conquered province, as it usually occurs; for it is to be observed, that we shall have no hostile population to provide against. In the course of this minute, I have shown that the feeling of the people of Pegu towards us has appeared to be actively friendly. If it be thought too sanguine to count upon this feeling being displayed generally, at least we may safely count upon the absence of hostility. It is in the nature of things that it should be so. Pegu is a province of Burmah: but it is a conquered province, and conquered after having been itself the conqueror. The days of its supremacy are not so far gone by as to have been forgotten by the people; while the severe oppression under which they have laboured, and the cruel tyranny of the Burman rule, render it certain that they will heartily rejoice in their liberation, and will give their best support to those who have restored to them their freedom, though they may have no affection for the foreign race, apart from the advantages they have derived from its power.

While, therefore, in the Punjab and other acquisitions, the Government had carefully to provide as much against its new subjects as against any foreign enemy beyond; in Pegu the whole care of the army will be to guard the northern frontier from attack, secure that the territories recently acquired, on the Irrawaddy, behind them, will remain as peaceable, and as worthy of trust as the British provinces of Tenasserim and Arracan on either side.

Nor can it be objected correctly, that the occupation of Pegu would be an extension of our territory, in the ordinary sense of that phrase. It is undoubtedly an enlargement of our territory; but uniting, as it would, into one continuous tract, our present provinces of Arracan and Tenasserim, between which it now intervenes, it is rather to be regarded as a consolidation than as an extension of our territories.

In the preceding remarks, I do not wish to be understood as parading advantages which would render the province of Pegu a desirable possession in itself. My true object has been to show that if the presumption and injustice of the Burman Government have compelled us to take possession of Pegu, as, in my judgment, necessary to our interests and security, the acquisition of it is not without certain advantages, which may countervail some of the many objections against it; and that although the conquest be an evil, it will not be an evil altogether without mitigation.

The disposition of the people of Pegu, towards those who shall free them from bondage to Burmah, is in my mind a consideration of so great weight, that it has seemed to me well worthy of consideration whether, in the event of the King evading submission, and of the occupation of Pegu being finally resolved upon, we should not confine our military operations against the Burmese, to driving them before us, out of every part of the province of Pegu, and then occupying it with the declared intention of holding it permanently, without proceeding onwards to the capital.

This plan of operations would save the State and the Army from the enormous cost, and from the toil of a march which, of course, would give us victory, but which I very much doubt, as I have already said, being successful in compelling the declared submission of our enemy. Moreover, as the occupation of the upper provinces has never been in contemplation, the plan in question would obviate the misrepresentation which, in Burmah, has ever attached to the retirement of a force, from whatever motive the retirement might have been made, and which would be a source of weakness to us, since it would tend to give hope and spirit to the enemy.

In a strong position at Prome, with a healthy climate, having all the resources of our elder provinces at our back, and the resources also of the new province close at hand, while the good will of its population, being assured to us by their own personal interests, will free us from all anxiety regarding internal tranquillity among them; with such advantages as these, our hold of the province of Pegu would, I humbly conceive, be speedily made unassailable, without the necessity for an advance to Ava.

Nor is this all our advantage. For, inasmuch as the upper province is believed to be almost wholly dependent upon the trade and produce of Pegu, our position at Prome, on the outermost frontier of that province, and com-



manding the Irrawaddy, its great highway, will enable us to command, also, at will, the supplies of Ava, and will thus give to our local position a coercive influence hardly inferior to the influence of our arms

In a minute, discussing the several modes of proceeding which may be open to the Government of India, I have presumed to suggest a view which has seemed to me to be, at least, worthy of some consideration. I have done so, however, subject to the opinion of the military authorities, whose advice will, of course, be sought, and who may see and make good objections, which have not presented themselves to my mind during my consideration of the subject.

My colleague, Mr. Lewis, has observed, —

“ But there is one point, which appears, to me, connected with the subject of the anticipated campaign, to which I desire to draw his Lordship’s attention. It is, whether the time has not come when it will be useful to give some assurance to the Peguers and Taliens of Pegu, that they shall not again be abandoned by us. That we can never relinquish this province, appears to be now certain, and, during the ensuing four months, something might be done to organize its government and its means of self-defence, and to make the people feel that they are no longer Burmese, but British, subjects; a feeling which will not be without its value, when our troops are marching through the country.”

Assuming the feelings of the people of Pegu to be friendly to us, or even assuming only that they would hail the substitution of any dominion for the savage oppression of the Burman Government, a fact which no one seeks to dispute, it cannot be doubted, that the issue of a declaration, such as is proposed, would materially aid the policy which should aim at securing the sovereignty of Pegu. In the present minute, I have recorded my conviction that the necessity of assuming that sovereignty is forced upon us, however reluctant we may be to admit it. But, nevertheless, I must continue to deprecate, as I have hitherto done, the issue of a declaration of the tenor suggested, or any overt act calculated to lead the Peguers by implication to believe that the British Government will certainly retain in perpetuity the possession of their country. If the Government of India were an independent authority, such a proclamation should, in my opinion, at once be issued. But, as the views of the Governor-General in Council are subject to the controlling commands of the higher authorities which he serves, and as I do not feel the same confidence as my colleague evidently entertains, that the authorities in England will certainly ratify the policy which has commended itself to our deliberate judgment here, I think it more prudent and more just to abstain from an act which is not absolutely necessary, and which might become the cause of grievous suffering to the people of Pegu. For, if the assurance of protection which we might give, and the declaration that we should not again abandon them, should induce the Peguers to lay aside all reserve, and everywhere to favor our objects, and to aid our progress; and, if we should subsequently receive peremptory orders from the Secret Committee to withdraw from Pegu, the result would be disastrous to the population of the province, and would gravely affect our national reputation by impugning its highest characteristic, the observance of strict good faith.

Our troops would no sooner be withdrawn, than the Burmese would inflict upon the whole body of hapless Taliens, not oppressions merely, but those horrible cruelties which they are known to practise, and of which ghastly examples were exposed to view, even after the recent capture of Rangoon. And the victims of their cruelty would, apparently, have just reason to execrate the name of the British Government in India, which, by promises it failed to redeem, and by pledges never to abandon those whom it straightway forsook, had induced them to commit themselves by overt acts, for which they, and their children after them, would be made to pay a fearful penalty.

I would submit, too, that the promulgation of such a declaration as has been referred to, would tend to fetter the authorities in England, in their determination regarding the policy they may desire to pursue in this case. They would, doubtless, recognise the consequences to the people of Pegu, of their refusing to ratify the assurances which the Government of India might have given of full and permanent protection; and they might thereby feel themselves compelled, from motives of humanity, to sanction a policy of which they did not approve. Or, if they still objected to the policy so strongly as to determine to disallow it, they would feel that the act of the Governor-General in Council

had given to their resolution a harshness, and had laid it open to objections, which silence on the part of the Government of India would have entirely obviated.

Since, then, I cannot feel confident that the policy recommended by the Governor-General in Council, in regard to Pegu, will certainly be adopted in England, I would earnestly advise that we should forego all the advantages which an open declaration of our intentions now would undoubtedly secure to us, in the further prosecution of hostilities, rather than run the risk of exposing the people of Pegu to consequences which all of us alike would deprecate.

I have now fully and faithfully set forth the actual position of our affairs, in connection with the hostilities commenced against Burmah. I have discussed the measures to be adopted, in each contingency that can be anticipated; and have advised the Secret Committee as to the policy which it is, in my judgment, our duty and our interest to pursue, towards the kingdom of Burmah, upon the termination of the war. It remains for the Committee to pronounce its decision, and to convey its instructions to the Government of India.

I presume most earnestly to express my hope, that the Committee will not be deterred, by any considerations of present convenience, from boldly meeting our difficulties face to face. I heartily trust that, whatever their decision may be, it will be framed upon a far-sighted view of sound policy, which shall seek, above all things, to provide with certainty against the recurrence of harassing war, while it shall be calculated to uphold, in all its authority, the supremacy of the British power throughout these regions of the East.

Inclosure 2 in No. 8.

*Minute by Sir Frederic Currie.*

*July 1, 1852.*

THE minute of the Governor-General of yesterday's date has reached me this afternoon. The mail, by which it has to be dispatched to England, will be made up to-morrow evening. The minute has yet to be read and studied by Mr. Lewis, and the subject to be considered in Council to-morrow.

My remarks must, therefore, necessarily be brief; but the very full and lucid narrative of all the circumstances connected with our present position, in respect to Burmah, and our pending operations; the full account of the proceedings of the Burmese Court and army; and the clear description of the state and disposition of the frontier Provinces, and their inhabitants, contained in the Governor-General's minute; together with the explicit statement of the different modes of meeting and overcoming our present difficulties, suggested by his Lordship, for the consideration and orders of the Home Government, render any detailed comments on my part quite unnecessary.

I entirely concur with the Governor-General in the views set forth by his Lordship in this minute. I am reluctantly brought, by the circumstances described, to the conclusion, that the annexation of the Province of Pegu is, for the reasons stated, inevitable.

I incline very much to the measure of taking forcible possession of the whole of Pegu, and going no further; giving the Court of Ava to understand, that this is the punishment which we have decided to inflict on that Government, for the insult and injury we have received at their hands.

We could, without much difficulty or great cost, defend our new frontier, and maintain our position, with our own provinces, east and west, and the sea, with our own posts, to the south.

The Burmese would be without resources for continued operations of aggression; and amicable relations might, ere very long, I think, be established.

This, in the event of no terms being offered by the Burmese, before the breaking up of the monsoon.

I concur with the Governor-General in the inexpediency of making any declaration of our intention, or of holding out any expectations to the Peguers, at the present moment.

Independently of the considerations mentioned by the Governor-General, in reference to the uncertainty of the views of the Secret Committee, and the impropriety of doing anything, not absolutely necessary, which might tend to embarrass their decision, I think, until we have fairly occupied the province, or are, at any rate, in circumstances immediately to do so, the time has not arrived for making assurances of protection to the inhabitants; and that our holding out any promises to them beforehand would, if it were not interpreted as desiring their aid in accomplishing our object, be certainly taken as a declaration that we are purposing to do hereafter that which we cannot now perform.

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Inclosure 3 in No. 8.

*Minute by Mr. Lewis.*

*July 2, 1852.*

THE minute of the Governor-General places the position of this Government, and that of Ava, in so clear a light, and discusses the whole subject of our relations with that Government in so complete a manner, that, except on one point, I have only to express my concurrence in the views set forth by his Lordship.

The excepted point is that noticed in the concluding portion of his Lordship's minute, which animadverts on a suggestion recently thrown out by me, that, perhaps, the time was now come when some assurance might be given to the Peguers and Taliens that they should not be again abandoned to the tender mercies of the Burmese.

Of course it was far from my intention to hamper, in any way, the decision of the authorities in England on any open question; and, in that point of view, the suggestion was premature. But I think that both the Governor-General and Sir F. Currie have arrived, however unwillingly, at the conclusion that there is no safe and honorable method of retreat open to us. His Lordship's argument, indeed, amounts to a demonstration that the province must be retained, and as, to my own mind, the course of events had made withdrawal a political impossibility, I had ceased to consider the question an open one, and had, in my contemplation, at the time I wrote, only the easiest, safest, and least expensive manner of completing and consolidating the conquest which we have been compelled to make.

I gather from his Lordship's observations that, except for the reason specified, he approves of the suggestion which has elicited these remarks; but as that reason deserves the greatest possible weight, I willingly withdraw the suggestion. At the same time, it may be worth while to consider whether, if we continue to act towards the inhabitants of Pegu as if they were our subjects, and encourage them to act as if their legitimate Government were British, a moral obligation will not grow up, to the full as binding upon a just Government, as a positive assurance of ultimate protection, and whether, if we allow these men to sell to us, and hire themselves to us, and do us all manner of good offices, as they have been doing for the last ten weeks, we shall not be bound to protect them from the brutal vengeance of the Burmese, just as certainly as if we had undertaken to do so in set terms. I believe that we shall be so bound, that if things go on in the neighbourhood of the great towns and along the rivers as they have done since the fall of Rangoon, for this cause alone withdrawal will be unjust, as well as disgraceful, and that that which I now believe to be politically impossible, will become so on still higher grounds.

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## No. 9.

*The Secret Committee to the Governor-General of India in Council.*

September 6, 1852.

YOUR very important dispatch of the 2nd of July, conveying to us the minute by the Governor-General in Council, of the 30th of June, with the minutes thereupon of Sir Frederick Currie and Mr. Lewis, of the 1st and 2nd of July, has received our most careful consideration.

The minute by the Governor-General exhibits an ample and distinct recapitulation of all the circumstances which led to, and have hitherto accompanied, the hostilities with the King of Ava. It also shows, in accurate detail, the grounds on which you have proceeded in every stage of the warfare in which you have, with so much reluctance, unavoidably been engaged.

We concur in the perfect accuracy of the retrospect thus taken by the Governor-General. Our several secret dispatches, with reference to these hostilities, have already made known to you our agreement with you in opinion, and our approbation of your conduct. We have had every reason for conveying to you our warmest approbation of your endeavours, continued to the very latest moment, for averting the calamity of a war with Ava: and we witnessed with great satisfaction the judgment and decision with which, before that latest moment had elapsed, you struck the vigorous blow, whereby the whole of the maritime possessions remaining to Burmah have been wrested from that Power.

You have received our cordial approval of the skilful combinations with which the expedition against Rangoon was prepared, and the celerity with which it was dispatched. The skill, valour, and discipline displayed by the forces employed on the occasion, have been graciously acknowledged from the Throne.

After thus noticing the lucid exposition, by the Governor-General, of the origin and progress of this war, we have now to advert to your opinions and suggestions with respect to the further prosecution and possible conclusion of it.

Having regard to the history of our former transactions, in war and in peace, with the Burmese; to the rash, arrogant, and presumptuous character of that nation; and to the present position of our empire in India; we fully concur with the Governor-General, that the necessity is now more urgent than ever, "for asserting the full power of the British Government to protect its subjects, to enforce its rights, and to establish throughout all India the conviction of its superiority over every enemy:" and that "no result of the present hostilities can be regarded as final and complete, which does not include a vindication of the superiority of our military power; a reimbursement from the Court of Ava, in some form, of the expenses of the war; and an effectual guarantee against renewed war with that Government, hereafter."

Entertaining, in common with you, these sentiments, we have to consider the several alternatives for your future proceedings, which are set before us in the minute by the Governor-General.

It is observed that, in the improbable event of overtures being made by the King of Ava, before larger expenses have been incurred for the prosecution of the war in November, we should require the payment, promptly to be made, of 15 lacs of rupees; the cession of the Negrais and Diamond Islands, and the districts of Martaban to a point on the Sitang river, near to Shoee-Gyne.

This payment and cession of territory, accompanied by the re-establishment of our relations with Ava, by means of an Agent at Rangoon, might, he observes, "be held sufficient to satisfy our demands, if the proposal for peace should be made by the Burmese at an early day."

It appears that you entertain no expectation that any such timely overture will be made. If it should, nevertheless, arrive, we are of opinion that it would greatly depend upon the character and circumstances of the communication, whether the terms above stated would be sufficient for the honor and interests which you are so justly solicitous to uphold. There might probably not be time, in such a contingency, for a reference to us; and we rely upon your

judgment and prudence for adapting to the existing circumstances of the case, any treaty which you may be induced, consistently with your views of our interests and honor, to conclude.

But supposing the Court of Ava not to be sufficiently well advised to afford an opportunity for such an early conclusion of the war, the Governor-General adverts to five alternatives which would "be open to the Government of India, upon the termination of hostilities, either by the submission of the Court of Ava, or by the total defeat of its armies without any submission made by the King."

The first of these, "that, satisfied with the proved superiority of our arms, by the result of the war, the Indian Government should withdraw its armies from all Burmah, and, exacting nothing, retaining nothing, trust entirely to the influence of this second manifestation of its power for protecting its subjects and territories against Burmese violence in future;" we discard at once, in perfect accordance with the Governor-General's opinion, that it would be in the highest degree impolitic.

Secondly, "that the army might be withdrawn from Burmah generally, but possession be retained of the district of Martaban, as already referred to."

Thirdly, "that the same course might be pursued, retaining Rangoon in addition to the district of Martaban."

For the reasons which are assigned in the minute, we regard both of these as wholly unfit to be adopted.

Fourthly, the Governor-General suggests that "the British troops might continue simply to hold what they now occupy;" but he correctly adds, the same objections apply to this scheme as to the two preceding. The expenses of such a force would be very heavy, and no local income would be derived to meet the charge.

Fifthly, "the Province of Pegu, extending somewhat above Prome, might be retained, and permanently occupied as British territory, on the termination of the war."

We concur with the Governor-General in his opinion, that extension of territory is not in itself desirable; and that the annexation, even of a province possessing so many advantages as Pegu, is to be looked upon rather in the light of a choice of evils, than a positive and unmixed good. But we think with him that, if the presumption and injustice of the Burmese Government compel us to take possession of Pegu, as being necessary to our security, the objections which may be urged against its acquisition may be counterbalanced by no inconsiderable advantages. And we entirely agree with the Governor-General in his estimate of the important bearing which the occupation of this fine province, with reference to its position, its climate, and its adaptation, in a commercial and maritime point of view, to the interests of this country, may have upon the security and advancement of our Eastern Empire.

After presenting to us these five alternatives, it is stated in the minute of the Governor-General (having reference more particularly to the disposition of the inhabitants of Pegu), "that it may be well worthy of consideration whether, in the event of the King of Ava evading submission, and of the occupation of Pegu being finally resolved upon, we should not confine our military operations to driving the Burmese before us out of every part of that province, and then occupying it, with the declared intention of holding it permanently, without proceeding onward to the capital."

We are of opinion that the permanent annexation to the British dominions, of the Province of Pegu, including Prome within its northern limit, should be adopted as the measure of compensation and redress for the past, and of security for the future, which we ought to insist upon.

If that object could be accomplished without a further expenditure of life and treasure, it would undoubtedly be the most satisfactory termination of a war into which you have been so unwillingly compelled to enter. But we see material difficulties opposed to the retaining possession of the district, without bringing the war to a conclusion, either by a treaty with the King of Ava, of which that cession should be the basis (*sine qua non*), or by the entire subjugation of that Power. The mere annexation and occupation of the province, with an indefinite continuance of hostilities between the two States, and with a professed determination not to extend our military operations further, would place

us in a precarious and undefined position, and entail upon us the necessity of constantly maintaining a force upon a war footing in that district, for the defence of it. It might also leave an unfavorable impression upon the minds of the people of India, who might be disposed to ascribe our forbearance to a want of power, rather than to a spirit of moderation.

We therefore consider that, simultaneously with the advance of the force under General Godwin (or earlier, if you think it more expedient), it should be announced to the King of Ava, that you are prepared to adopt the cession of the Province of Pegu as the measure of compensation by which your farther advance into his kingdom may be stayed, and to conclude a Treaty of Peace with him, upon the foundation of that concession, accompanied by the necessary stipulations for the future maintenance of a friendly intercourse between the two nations; but that, in the event of his refusing, or delaying, to accede to that proposal, he must be prepared for all the consequences which he will bring upon himself, by the further prosecution of the war in his dominions.

We observe, with satisfaction, that you are enabled to furnish to General Godwin all the force which he estimates to be necessary for the advance upon Ava, "without unduly weakening any quarter of the empire in its present circumstances." As this force would be required under any of the contingencies contemplated by you (except the very improbable one of a timely submission by the Burmese), we doubt not that your preparations for the dispatch of it will have been completed in due time to take advantage of the favorable season for its employment.

We observe, with great satisfaction, the very friendly disposition of the inhabitants of Pegu. The Governor-General, undoubtedly, judged wisely in not yielding to the desire of the Peguans to place themselves formally under the protection of the British power, while any uncertainty remained with regard to the intentions of the Government at home, as to the final annexation of the district. That uncertainty will be removed by the present dispatch, which is intended to convey to you our authority, under the sanction of the Queen's Government, to consider the permanent occupation of Pegu, and its final annexation to the East Indian Dominions of Her Majesty, as the just and necessary result of those military operations which you have been driven to direct against the Burmese Empire.

Having embraced that determination, you will not hesitate to avail yourselves of the favorable disposition of the Peguans, and derive from them all the assistance which their good will and zeal can afford to you. It may be doubted, indeed, whether the relations even now established between you and that people have not already imposed upon you the obligation of protecting them.

Their attachment to our Government cannot fail to add greatly to the facility of occupying and defending the new territory, and will render it the more easy to establish hereafter such an administration of the province, economical and political, as may be productive of great benefits to them, and may open large sources of advantage to British commerce and enterprise.

You will, therefore, consider yourselves authorized to proclaim the annexation of Pegu to the British Empire in the East, as soon as the forces under General Godwin shall be in possession of the whole of it, by the capture of Prome.

When we speak of the annexation of the whole province of Pegu, we do not lose sight of your remarks relating to its northern boundary, which appears to present no well-defined military line of defence. You will be well advised on that point by the military authorities whom you will be enabled to consult; and you will, no doubt, fix the precise limits of the cession which you will insist upon, with a due regard to the line most available for giving security to the new possession.

No. 10.

*The Governor-General in Council to the Secret Committee.*

(Extract.)

*Fort William, July 12, 1852. (No. 31.)*

WE have the honour to lay before you the accompanying copy of the minutes noted in the margin,\* from which you will learn that it has been deemed expedient by us that the Governor-General should pay a brief visit to Rangoon, for the purpose of arranging personally with the military and naval commanders there, the plans of such further operations in Burmah, as circumstances may render necessary.

We have, &amp;c.

DALHOUSIE.  
F. CURRIE.  
J. LOWIS.

Inclosure 1 in No. 10.

*Minute by the Governor-General.*

(Extract.)

*July 8, 1852.*

THE orders for preparing a force to take the field in Burmah at the opening of the season have already been issued.

The main outlines of future proceedings have already been marked out; but much detail remains to be filled up for insuring that the army shall be in a state of preparation to move at the time proposed.

Notwithstanding the great difference of local circumstances and feelings, which appears to be so much in our favor during the present war, great difficulties will be found in the way of a movement of the army, both in respect to carriage and supplies. The former will probably be found necessary both by water and by land. The latter will probably require to be drawn from a distance, though not from so great a distance as in the former war.

All these points require to be provided for completely and early. A correspondence for the purpose of conducting all these details, and determining upon them, would be tedious, and comparatively ineffectual, because tardy.

In order to bring the whole prospective arrangements into one view, and to determine upon, and distribute them among the different officers, who are to be responsible for them, with the least practicable delay, I proposed, if my colleagues saw no objection, to proceed myself to Rangoon, taking some heads of departments with me, and then and there to settle with the commanders of the naval and military forces all that was requisite.

I can see no real risk, or public inconvenience, in my taking this step. The affairs of the north-west frontier, by the reports of the Board, are, for the present, tranquil, and likely to continue so at this season. Nothing is at all likely to occur within so short a time which could render my brief temporary absence injurious, while the object for which I go is undoubtedly worth some risk.

My absence would not extend beyond eighteen days, or so.

DALHOUSIE.

Inclosure 2 in No. 10

*Minute by Sir F. Currie.*

(Extract.)

*July 9, 1852.*

WHEN the suggestion was made some days ago in Council, by the Governor-General, that his Lordship should pay a brief visit to Rangoon, for the purpose of arranging personally with the military and naval commanders, the plans of such operations in Burmah, as circumstances may render necessary, and the details of the forces to be employed, I stated my opinion that such a

\* Minute of the Governor-General, dated July 8, 1852.

„ Sir F. Currie, „ 9, —  
„ Mr. Lewis, „ 9, —

visit would be highly advantageous in facilitating future arrangements; and, in many obvious respects, conducive to the public interests connected with operations in that quarter.

I do not anticipate that the brief absence of his Lordship will be attended with any inconvenience; at any rate with inconvenience commensurate with the benefits likely to accrue from his visit at the present time.

It is, of course, desirable that the Governor-General should be absent from the seat of Government for as short a time as is consistent with the object in view. I do not anticipate that such absence would exceed twenty days; and I think that the great advantage likely to result is such as fully to warrant the Governor-General's undertaking the trip.

F. CURRIE.

Inclosure 3 in No. 10.

*Minute by Mr. Lewis.*

July 9, 1852.

I CONCUR in these views. I anticipate no material inconvenience from the absence of the Governor-General, for a fortnight or three weeks, in carrying on the executive government here; and I am satisfied that ulterior arrangements for the operations in Burmah, which appear now inevitable, will be infinitely facilitated by personal communication between his Lordship and General Godwin.

J. LEWIS.

No. 11.

*The Governor-General of India in Council to the Secret Committee.*

(Extract.)

*Fort William, August 7, 1852. (No. 35.)*

THE Governor-General embarked on board the East India Company's steamer "Feroze," on the 21st ultimo; and we have the honor to report that he returned yesterday from Rangoon, and resumed his seat in Council.

It is in the highest degree satisfactory to us to be enabled to report that the health of the troops on service in Burmah continues good.

Supplies are superabundant. An immense population has collected round Rangoon and Kemmendine. They are quiet and manageable, and they exhibit the most perfect confidence in the troops of every description—a testimony to the forbearance and good conduct of the force which will be appreciated by you.

The advance of the steam flotilla on Prome, during which fifty-six pieces of artillery were captured from the enemy, is reported to you.

By the ensuing mail we shall have the honour of addressing you, on affairs in Burmah, more fully than time will admit of at present.

Inclosure 1 in No. 11.

*Commodore Lambert to the Governor-General of India.*

(Extract.)

*Her Majesty's ship "Fox," at Rangoon, July 14, 1852.*

I HAVE the honor to forward to you a copy of a letter I have received from Commander Tarleton, of Her Majesty's ship "Fox," detailing the services he has performed while in charge of the flotilla in the Irrawaddy.

It gives me great pleasure to state that, gallant and valuable as these services have been, they are strictly in accordance with what I considered were your Lordship's wishes, namely, to gain a correct knowledge of the river as far as Prome, which had hitherto been so imperfectly described, and to dislodge and harass the enemy wherever they appeared, if practicable. How this service has been performed I leave to your judgment to decide, after your perusal of Commander Tarleton's letter.

You will perceive, without particularizing any individual under his command, how fully he appreciates the aid he received from all who partook in this gallant enterprise.



## Inclosure 2 in No. 11.

*Commander Tarleton to Commodore Lambert.*

(Extract.)

*Moniew, July 11, 1852.*

I HAVE the honor to inform you that, in pursuance of the instructions contained in your letter, addressed to me on the 30th ultimo, I proceeded up the Irrawaddy as far as Yeagaim, where I anchored on the 7th instant, having been joined on the way by the East India Company's steamers "Proserpine" and "Mahanuddy." This place is now deserted both by the enemy and its inhabitants, and we were thus compelled to procure our own fuel. While thus employed, the East India Company's steamer "Phlegethon" joined company; when, finding that she had coal sufficient to supply the other vessels, I immediately proceeded with the four steamers. At 2 P.M., when opposite to Kononghee, a large number of armed men were observed collected on the bank. On a shell being fired amongst them, they immediately disappeared, either into the jungle, or some holes or trenches near the water's edge, whence they opened a most vigorous fire from five or six guns, and a vast number of muskets. I remained with the flotilla abreast their position for an hour, shelling the enemy to the best of our ability; but, protected as they were by the embankment, no decided impression could be made on them. I have no doubt that we could have carried the work, by running one of the small steamers alongside, and throwing the small-arm men on shore, but this service could not have been performed without certain loss; and, beyond spiking the guns, there was no object to be gained, the jungle covering the bank offering a secure retreat to the Burmese, from which they would have returned as soon as we had re-embarked. I considered, therefore, that I should be more fully carrying out your instructions in making this a reconnoitring force, by pushing forwards, without further attempt to dislodge the enemy, reported by the neighbouring inhabitants to be 1500 strong. I have the honor to inclose a list of casualties on this occasion; they are confined to the "Medusa," at which, as the leading vessel, the enemy's fire seems to have been principally directed.

At sunset the flotilla anchored off Myan-aong; at daylight, on the 8th, it again weighed, and proceeded till within sight of an extensive fortification crowning the end of a ridge of hills about 300 feet high, terminating abruptly at the town of Akouk-toung (marked in the chart Peeinghee). Bundoola was reported to be here with 7000 men, and a number of guns, differently stated from fifteen to forty. Having ascertained from the pilot that a passage might probably be found at this season through a creek to the eastward of the island, opposite Akouk-toung, and thus completely out of range of the enemy's guns, I determined to attempt it, and happily succeeded in getting through, with not less than two fathoms water. Here we learnt that a small steamer belonging to the King of Ava had only left the day previous, and that the whole army of the country was centred at Akouk-toung, or its neighbourhood.

Foreseeing the panic which the presence of the steamers would create above the defensive force, I urged forwards with all speed, detaching the "Proserpine," as the fastest vessel, to endeavour, by proceeding through the night, to overtake the Government vessel. Mr. Brooking, however, found this impracticable, and was compelled to anchor.

The "Mahanuddy's" fuel being now exhausted, I left the "Phlegethon" with her, to supply her wants, and, by dint of great attention on the part of Lieutenant Fraser, Indian Navy, and the officers of the "Medusa," I succeeded in steaming through the night, and reached Prome at daylight on the 9th. At the south end of the town, near the water's edge, I observed four heavy guns, but no armed men near them. I accordingly anchored the vessel abreast the spot, landed, and made fast a hawser to them, and hove them off: the iron guns were disabled, and sunk in deep water, and the brass ones taken on board. At seven, the "Proserpine" joined, and a few hours afterwards, the two other vessels, and, with the boats' crews of the "Fox" heartily entering on the work, every gun in Prome, twenty-three in number (see Return), was thus brought off. In the afternoon, I ascended ten miles higher up the river, as far as Zeegain, where I anchored for the night, leaving the other vessels at Prome to transfer fuel.

I had now, Sir, fully carried out the instructions contained in your letter of the 30th of June. There was no prospect of overtaking the steamer, and I had seriously to consider the safety of the vessels under my orders. With an enterprising foe, I was aware that the creek near Akouk-toung might be made impassable, and even by the Burmese, when, by the large force in the neighbourhood, such means were at their command. I, therefore, decided on an immediate return, with the view to prevent their having time to complete their preparations. I rejoined the vessels off Prome, at daylight on the 10th, and commenced the descent of the river. The city had been in our possession for twenty-four hours, the Governor, Moungrine, having fled at our approach. At 10 A.M. we arrived at the entrance of Akouk-toung Creek; when about half way through, we observed several large boats crowded with armed men: at first it was difficult to make out their intentions, whether these were to attack the vessels, supported by a fire from the shore, or were crossing. It proved to be the latter; and they succeeded, before our guns could be brought to bear upon them, in reaching the bank; from which a straggling fire of musketry was opened, but soon silenced by the great guns of the flotilla. Ten men, who had not time to escape from one of the boats, were made prisoners, and will be sent to Rangoon for interrogation. The steamers now turned round, and ascended the creek again, dispersing the enemy wherever he was to be seen, brought away five brass guns on field-piece carriages that were still in the boats, and burnt the general's state barge and a number of war boats, with a large quantity of arms and ammunition.

I am not quite certain as to the movements of the enemy; the reports of the natives not entirely agreeing. They stated that the force began to cross at 3 P.M. on the 9th, and continued to do so through the night, and until we reached them at 10 A.M. on the 10th, as above related. One party insisted that the whole army had crossed; but this was not true, as men could be seen still on the fortifications opposite. The other stated that a thousand men only had been sent over to defend the creek. I am inclined to believe that the principal part of the army, including the general, had crossed (as our informant told us) on their way to Prome, the road to which leads from here, leaving a small force only at Akouk-toung. The barge, with the two gilt umbrellas and flag, would certainly not have been on this side had Bundoola not crossed himself; and I do not think it probable he would have come over with a detachment. I now continued the descent of the river, being joined by the East India Company's steamer "Pluto," at 3 P.M. The enemy had evacuated his trenches at Kanaong, and gone upward. At sunset, the flotilla was anchored off this place, where it is employed provisioning, and getting into readiness for further service.

I trust that this expedition has, for the present, entirely freed the lower country of the presence of the enemy, and I do not apprehend that they will again venture so far from Prome. This will be an incalculable blessing to the inhabitants, who evince to us everywhere the most friendly disposition, and only require security to become contented and happy.

I should be doing great injustice to every officer and man in this little force (consisting of the "Medusa," "Phlegethon," "Proserpine," "Mahanuddy," with three boats of the "Fox," and twenty marines, the officer commanding whom I regret to say is severely wounded) if I failed to represent to you the zeal and attention that has been shown on this service by all; without it, I have no hesitation in saying that it could not have been brought to a successful issue.

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*List of Casualties on board the East India Company's steamer "Medusa," during the Engagement at Konnonghee, on the 7th of July, 1852.*

Her Majesty's ship "Fox."—Mr. John Elliott, First Lieutenant, Royal Marines, wounded, severely; musket-ball wound of the right foot. Mr. Frederick Morgan, Assistant Surgeon, wounded, slightly; contusion from a splinter. George Cook, boy, wounded, slightly; contusion from a splinter.

East India Company's steamer "Medusa."—Mr T. Rose Hunter, mate, Indian Navy, wounded, dangerously; gun-shot wound, and amputation of left arm. James Cummings, artillery man, wounded, dangerously; gun-shot wound of the chest.

**FREDERICK MORGAN,**  
*Assistant Surgeon, Her Majesty's ship "Fox."*

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*Return of Ordnance captured by the Steam Flotilla in the Irrawaddy, on the 9th and 10th of July, 1852.*

At Prome, July 9, 1852				
Iron.—12-pounder carronades..	..	..	..	4
12-pounders, 6 feet in length	..	..	..	3
32-pounders, 9 feet in length (3 of wrought-iron)	..	..	..	4
24-pounders, 6 feet in length	..	..	..	4
18-pounders, 6 feet in length	..	..	..	2
42-pounder ..	..	..	..	1
6-pounder ..	..	..	..	1
				19
Brass—8½-inch, 8 feet 2 inches in length	..	..	..	1
8½-inch, 6 feet in length	..	..	..	4
7½-inch, 7 feet 6 inches in length	..	..	..	1
8½-inch mortar, 3 feet 6 inches in length	..	..	..	1
At Akouk-toung Creek, July 10, 1852	..	..	..	5 brass field-pieces
				9
				28
Total ..	..	..	..	28
Destroyed and sunk	..	..	..	19
Brought away ..	..	..	..	9
				28
Total..	..	..	..	28

J. W. TARLETON, *Commander, R.N.*

**Inclosure 3 in No. 11.**

*Commodore Lambert to the Governor-General of India.*

(Extract.)

*Her Majesty's ship "Fox," Rangoon, July 21, 1852.*

IN continuation of my dispatch, dated the 14th instant, I have the honor to inform you that this morning I received a report\* from Commander Tarleton, detailing further successful operations against the enemy in the neighbourhood of Prome, by a portion of the flotilla under his orders.

Mr. Burbank, the Commander of the "Pluto," having been informed that the Burmese troops had evacuated the fortified post on the heights of Akouk-toung, and had left their artillery there, he sent a force on shore to demolish the works, and to destroy or bring on board the guns.

This was accomplished on the 14th instant, without any opposition, after five hours' hard work under a burning sun; when all the enemy's guns on the heights of Akouk-toung, 28 in number, were either destroyed or brought off to the steamers. Their calibre was from 4 to 18-pounders.

Next day the steamers proceeded to Sahlaydan, where they captured six large boats laden with grain and arms, which were being conveyed upwards; and, on the 16th, arrived off Podangmew, where some Government boats were destroyed.

On the morning of the 17th, Mr. Burbank anchored off Prome. Some of the inhabitants immediately came off with the intelligence that 500 troops had been stationed on the hill at the back of the town, but decamped directly the steamers came in sight. He also learnt that General Bundoola, with the remnant of his army, consisting of only 2000 men, the rest having deserted, was encamped at Ethaymew, a town without any defences, nine miles inland. The inhabitants of Prome, as well as of all the other towns, are most anxious that a steamer shall be permitted to remain off their city, to protect them from the lawless gangs of disbanded soldiers.

In bringing Mr. Burbank's zeal and activity to my notice, Commander Tarleton recapitulates the services performed by the small steam force under his orders, assisted by three boats and 60 seamen and marines from Her Majesty's ship "Fox," during the last ten days.

The river has been ascended to Prome, 56 guns have been captured, 10 war boats, and several boats containing military stores and ammunition have been burnt; and an army of 7000 men, commanded by one of the highest officers in the Burman Empire, dispersed, with the exception of 2000 who are collected in the neighbourhood of Prome, where, without artillery or defences, they are no longer formidable.

\* Not received in England.

## No. 12.

*The Governor-General of India in Council to the Secret Committee.*

*Fort William, August 21, 1852. (No. 38.)*

IN continuation of our dispatch, dated the 7th instant, No. 35, we have the honor to transmit for your information a copy of further papers, relating to the present state of affairs at Burmah.

We beg to draw the especial attention of your Committee to the minute recorded by the Governor-General, concurred in by Sir F. Currie and Mr. Lewis, showing what are, in the opinion of his Lordship in Council, the most effectual means of securing the ends which the Government has sought to obtain from the state of Burmah.

We have, &c.,  
**DALHOUSIE.**  
**F. CURRIE.**  
**J. LEWIS.**

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Inclosure 1 in No. 12.

*Minute by the Governor-General of India.*

*August 13, 1852.*

ADDRESS Major-General Godwin.

Acquaint him that the Governor-General in Council, after having had the advantage of conferring personally at Rangoon with himself and with Commodore Lambert, commanding the naval force, has, since his return to the Presidency, maturely deliberated upon the position of our affairs in Burmah, upon the objects which the Government of India has had in view, in reference to that State, and upon the most effectual means of securing the political ends it has sought to obtain.

The Governor-General in Council has finally resolved that, under present circumstances, he will not direct the Major-General, with the army which shall be assembled under his command, to undertake a march upon the capital of Burmah.

His Lordship in Council has determined that the present operations of the army shall be limited to the complete subjection, and present military occupation of the province of Pegu, up to whatever point to the northward of Prome we may, on examination, find it convenient to fix.

In the Memorandum which was submitted by General Godwin to the Governor General at Rangoon, two brigades, composed each of one European and two Native Infantry regiments, one troop of horse artillery, one horse light field battery, and one corps of irregular cavalry, were specified as the force which the Major-General would require, in addition to that already under his command, for the subjection of Pegu, and its secure occupation.

Accordingly, a brigade, composed as above, will be embarked as soon as possible from Bengal.

The horses, and a battery of nine-pounders, will be sent from Dum Dum, to be attached to the artillery company, which formerly held them.

Two rissallas, amounting to 200 men of the Ramghur Horse, being Irregular Cavalry, will be embarked for Burmah. The only corps of Irregular Horse which have volunteered for service across the sea, are at a great distance. Though some time must necessarily elapse, the other two rissallas will be sent afterwards, if required.

A similar brigade will be embarked from the Presidency of Madras. It is understood that the regiments composing it are ready for immediate embarkation. One of them, the 5th Madras Native Infantry, will very shortly be relieved in Arracan by the 68th Bengal Native Infantry. Measures have been taken to provide immediate transport for the rest, namely one European and one Native Infantry regiment, with a troop of horse artillery, to which the Governor-General in Council has added two additional companies of Madras sappers and miners.

The East India Company's frigate "Feroze" will sail to-morrow morning to Madras, for the conveyance of a portion of these reinforcements to Rangoon.

Commodore Lambert has been requested to despatch all the steamers to Madras, which he can make available for the same purpose; and the Government of Fort St. George will employ sailing transports if it thinks fit

By these arrangements, the Governor-General in Council anticipates that the force under the command of the Major-General, exclusive of the troops in Arracan, will, by the 10th of September, amount to four regiments European Infantry, nine regiments Native Infantry, one troop horse artillery, four companies artillery, with a bullock battery, four companies of sappers.

By the 10th of October it is probable that that force will be further increased by one regiment European, two regiments Native Infantry, one horse field battery, and possibly the Irregular Cavalry.

In order to provide for every contingency, two other brigades, as originally ordered, will be held in readiness at the Presidencies; though the Governor-General in Council does not anticipate that their services will be required in Burmah.

The attention of the Governor-General in Council has long been given to the matter which is noticed in the Major-General's Memorandum, namely, the means of rendering the flotilla on the Irrawaddy powerful and effective. While at Rangoon, the Governor-General requested Commodore Lambert to make every exertion, and to spare no expense in collecting and fitting native boats to be employed with the flotilla.

Lieutenant-Colonel Bogle was requested to cooperate by similar exertions on the rivers to the eastward.

At the Commodore's request, the "Enterprize" is now despatched to strengthen the flotilla; and whenever the state of the monsoon will permit, His Lordship in Council hopes to add three other river boats of the same class as the "Mahanuddy;" beyond these, none can be sent, for there are no others fit for the work in the possession of the Government, and none can be obtained.

Shortly after the arrival of the expedition at Rangoon, Major-General Godwin laid before the Governor-General in Council the grounds on which, in a military point of view, he objected to an immediate advance of the force to Prome.

The want of support without reinforcements, which could not then be given; the uncertainty as to the plans and movements of the Burmese; and the insecurity of the communication by the rivers, upon which the Major-General must have exclusively relied; were the chief objections advanced by the Major-General; and they appeared to the Governor-General in Council to be valid and sound. He therefore fully approved of the resolution not to make an immediate advance to Prome.

Though subsequent events have weakened some of these objections to an advance, still the absence of reinforcements hitherto, and the inexpediency of moving the European troops out of the good and healthy quarters which had been provided for them at Rangoon, and of exposing them to the injurious influences of climate and the season, appeared to the Governor-General in Council fully to justify the continued resolution of the Major-General not to advance to Prome during the strength of the rains, when no object of first importance was to be gained by the movement.

But the year is now advancing; the monsoon will diminish in violence; and it is understood that at Prome little rain falls after September.

Early in that month, as has been shewn above, a considerable reinforcement will have been added to the original force. Every account that has been received goes to shew that the Burmese are not in a condition for formidable resistance, and the flotilla has complete command of the river, from Prome to the Sea.

It would obviously be advantageous, if it can be safely effected, to convey a force to Prome, while the river is still swollen by the rains, upon the flotilla and boats. The quantity of carriage required for the movement of the force by land is so great, as shewn by the memorandum submitted by the Major-General; the difficulty of obtaining such carriage on the spot is apparently so insuperable; and the cost of bringing it by sea from the Presidencies would be so enormous; that it is in the highest degree desirable to move the troops as much as possible by way of the river.

Since, then, the available force at Rangoon will be greatly increased early in September; since the river communications will be quite secure; since the climate of Prome, as is believed, will not then be injurious; and since the political ends of the Government of India will be promoted by the further advance of the force to Prome, the Governor-General in Council has the honour of suggesting, for the consideration of Major-General Godwin, whether, if a force of from 2,000 to 2,500 men, with provisions and stores, could be conveyed simultaneously upon the flotilla to Prome, such force could not, under existing circumstances, maintain itself in perfect safety there, against any Burmese attacks, while the flotilla should return to Rangoon, and bring up a reinforcement of similar amount. This question is, of course, left for the determination of the Major-General on military grounds, and according to his own judgment.

But if the Governor-General in Council does not err in believing that such a movement may be made with safety, his Lordship in Council would be glad that it were executed, as soon as it can be undertaken without serious risk to the health of the troops.

If the Major-General should determine in the affirmative, the Governor-General in Council requests that he will give early information to Commodore Lambert regarding his intentions, with a view to expediting the preparation of the flotilla.

The further measures which may be necessary for driving the Burmese troops out of the district of Martaban, and for completing the military subjection of the Province of Pegu, are left to the judgment of Major-General Godwin.

In the former instructions addressed to the Major-General, in March 1852, certain terms were named in the event of the Court of Ava making overtures for peace.

The course of events has subsequently rendered these instructions inapplicable to the present state of affairs.

The Governor-General in Council has the honor to request that in the event of any communication being made by the Court of Ava, he will transmit it at once to the Governor-General in Council. The Major-General will not, however, by reason of any such overtures having been made, delay his advance, or the preparation for his advance, or any operations in which he may be engaged.

DALHOUSIE.

I entirely concur.

F. CURRIE.  
J. LOWIS.

No. 13.

*The Secret Committee to the Governor-General of India in Council.*

*October 7, 1852.*

WE have received your dispatch of the 21st of August, with its several inclosures.

We observe, with great pleasure, the favorable impression which the Governor-General had received from his visit to Rangoon, of the conduct of the naval and military officers in charge of the several departments of the forces assembled in the Province of Pegu; and of the generally effective condition of the troops under their command. The Governor-General's commendations appear to have been very judiciously bestowed.

We also learn, with entire satisfaction, the arrangements which you had made for adding to the military and naval strength of the combined force under General Godwin, observing that you intended to dispatch, forthwith, a considerable reinforcement to him, and that you had made provision for a further augmentation of his army, when the occasion should require it.

Our instructions to you by the mail of the 8th of September will have conveyed to you, in the clear and explicit manner which you so naturally and justly required, our views with respect to the policy to be adopted in the prosecution

and conclusion of the war into which you have been so reluctantly, but unavoidably, forced, by the conduct of the Burmese authorities.

We continue to be decidedly of opinion that the war, thus unwillingly commenced on our part, cannot be satisfactorily terminated except by a treaty, upon the conditions which were pointed out in our instructions, or upon such other terms as the obstinacy and folly of the Court of Ava may compel you to impose upon it.

We observe that, after the visit of the Governor-General to Rangoon, you had come to the conclusion that an advance of the troops upon Prome would be more advantageous, under all the circumstances of the climate, in the month of September, than at the more advanced period of the year (November) which you had originally contemplated. We rely entirely upon your judgment and discretion in that respect, as well as for your directing the employment of the force under General Godwin, for the accomplishment of the policy recommended by our instructions, in the manner best adapted to the nature of the climate to which the troops will be exposed, and to the character of the enemy with which they will have to deal.

No. 14.

*The Governor-General of India in Council to the Secret Committee.*

*Fort William, September 7, 1852. (No. 42.)*

WITH reference to the concluding paragraph of our dispatch dated the 7th of August last, No. 35, we now fulfil our promise of addressing you fully on the affairs of Burmah.

A copy of the minute recorded by the Governor-General on the 10th ultimo, is herewith inclosed, embodying the results of his Lordship's inquiries, and of his personal communications, while at the seat of war; together with a transcript of the minute recorded by Sir F. Currie, and concurred in by Mr. Lewis.

We must apologize for neglecting to forward the above by the last mail; the omission occurred through an oversight.

We take this opportunity to forward, for your information, copies of further dispatches received from Major-General Godwin, and from Commodore Lambert, and of the instructions we have issued to those officers, regarding the military occupation of the country, the construction of barracks for the troops, and the naval preparation for the advance of the troops to Prome by water.

We have, &c.,

DALHOUSIE.  
F. CURRIE.  
J. LOWIS.

Inclosure 1 in No. 14.

*Minute by the Governor-General.*

(Extract.)

*August 10, 1852.*

IT has been my desire to submit to my colleagues, as soon as possible after my return from Rangoon, the results of my inquiries, and of my personal communications, while at the seat of war. And having read and considered the several dispatches from the Commander-in-chief in India, and from the Government of Fort St. George, relative to the reinforcements for General Godwin's force, I beg leave to submit a brief summary of the state of affairs in Burmah, as they appeared to me, after conference with the General and the Commodore; together with a statement of the view which I take of our present position, our means, and our future prospects and requirements.

In consequence of successive accidents to the "Feroze," caused by the violence of the tides, and of the strength of the monsoon which met the vessel in the bay, I was so much delayed as to render my stay in Rangoon necessarily very short; since I was desirous of returning to the Presidency before the

departure of the mail of the 8th of August. Nevertheless, I had sufficient opportunities for full conference with Major-General Godwin, with Commodore Lambert, with the Commissioner of the Tenasserim Provinces, whom I had requested to meet me there, and with other officers who had been employed on the several services.

No military movement of any kind had been made upon our part since the General last reported to the Government. He had visited Martaban and Bassein, and having corrected the omission at the former post, by which the hill was left unfortified, he now considers everything secure, at both places, under all circumstances.

Attacks were reported to have been made upon Martaban, or alarms of attack to have been given, twice during my short stay at Rangoon. They were regarded as of no moment.

Some Burmese troops were certainly still in the Martaban district. They had detached a portion of their force, and had again, as we anticipated, taken possession of Pegu, wresting it from the Talicns, who undertook to hold it.

In the Delta of the Irrawaddy, and in the Bassein district, no enemy's force could be found.

A flotilla, composed of several steamers and of ships' boats, had been sent up the river by the Commodore, under the command of Captain Tarleton, R.N. The annexed dispatches, which were delivered to me on my arrival, describe another very dashing piece of service performed by this little squadron.

Avoiding a strong stockade at Akouk-toung, armed with heavy guns, by discovering a new and unused channel, Captain Tarleton found his way to Prome. Very few troops were there. He landed, seized the river stockade, destroyed or carried away twenty-three pieces of artillery, and again returned down the river. As he had calculated, he came upon the troops crossing over from Akouk-toung to the Prome side. Having thus cut them off from their guns in the stockade, he subsequently attacked it, and captured twenty-eight more guns, making in all fifty-six pieces of artillery captured at that time, many of which were heavy.

The full benefit of the advance to Prome has not been secured, because it was impracticable, with the numbers they had, to hold what they had seized. But still to have acquired the certainty that there is no large force assembled, and that there are no strong defences as yet constructed at Prome; to have captured fifty-six pieces of artillery; routed the chief Burmese Commander, Bundoola, out of a strong stockade at Akouk-toung, and obtained a complete command of the river from Prome to the Sea, is good service done; and I propose that these gallant sailors should receive a full measure of praise for their enterprise, bravery, and success.

With the exception of the 5000 men, or thereabouts, said to be under Bundoola, and a few thousands more whom I have mentioned, towards Martaban, no Burmese army can by any means be heard of in the Lower Province.

We have every reason to believe that no army has been assembled in the Upper Province either. The last dispatch from the Commissioner of Arracan, conveying the report of the scout whom he sent into Burmah, clearly states that no army has been prepared to advance towards Prome. The report of this man has been proved to be so accurate in regard to the amount of force, and to the state of affairs in the Lower Province, that I think the Government may reasonably place reliance on his statements as to the Upper Province; and may assume that up to this time at least, no army has been assembled, nor any preparations made to advance towards the lower country.

Wherever the troops or the ships of the expedition have gone, they have been received with unequivocal marks of friendship and goodwill. The people everywhere bring supplies; they bring fuel for the steamers; they seek our protection; and it will be seen that even at Prome the inhabitants begged for a steamer to be left, in order to protect them from the plunderers to whom they are exposed, undefended by their own troops or rulers.

The same confidence and goodwill have been displayed by the people at Rangoon, in a very extraordinary degree. The population of that place, and of Kemmendine, has, it is calculated, increased to not less than 60,000 persons. The bazaars are filled with goods; while every description of violence or plunder, or outrage by the soldiery, has been avoided; and the intercourse between the



people, the troops, and the ships, has been marked by the most complete reliance, and by a singularly amicable spirit, on both sides, from the beginning.

Such a result is the highest testimony that could be afforded to the orderly conduct of the force. Their discipline, and inoffensive behaviour in quarters, have been equally applauded by the General and their several Commanders. These facts appeared to me so honorable to the character of the force, as to merit the praise of the Government; and as the value of any such eulogy is always enhanced by its being expressed at the moment, and on the spot, I took the liberty of expressing at once my sentiments to the force, in the general order, of which a copy is annexed, without waiting for my return to Council.

It is gratifying to be able to report, that the most sanguine hopes of the Government have been realized in regard to the preservation of the health of the troops at Rangoon, by the precautions that have been taken. I found the men of the 18th and 80th housed in excellent wooden barracks, provided by the exertions of Lieutenant-Colonel Bogle, and constructed with not less energy and success by the devoted exertions of Major Fraser.

Besides these barracks, excellent hospitals, and numerous officers' quarters, have been constructed, and fresh ranges for the 51st Regiment were in rapid progress. In the meantime, the men of that corps are very sufficiently lodged in the Phoongyes', or Priests', houses, near the Pagoda. The Artillery are well quartered in the Pagoda Square.

The supply of fresh meat has been excellent and abundant. The stock of 2000 cattle, which had been collected at Moulmein and Amherst, before the troops landed at Rangoon, has been drawn upon, and still the stock now consists of 3000 head. Major Budd, the Commissariat officer, so reported to me. A supply of beef is readily obtained also upon the spot.

The season, by the favor of Providence, has been good, and the monsoon unusually mild. One of the great causes of the sickness which exists, is the abundance of fruit, and the inordinate quantities which the men naturally devour, from its great cheapness. Still, by good lodging, care, and the excellent and successful regulations which have been made and enforced by the Commodore, to prevent the introduction of liquor by way of the river, the sickness is such as must, under the circumstances, be considered light. For the month of July, as the return of Dr. Montgomery will show, it amounted to about  $10\frac{1}{2}$  per cent. of the European, and 9 per cent. of the Native troops. This per-centage, though it rises above the general average in India, does not exceed the amount of sickness in many corps now in cantonments. It certainly is not large, considering the position of the troops on service, and it bears no resemblance whatever to the state of things which prevailed in 1824, at the same period of the year, and the recurrence of which has been so much dreaded, and so confidently predicted upon this occasion.

If the troops should remain at Rangoon during the months of September and October, the same increase of sickness must be looked for there which usually prevails everywhere in India during those months. But lodged, fed, and cared for as they are, I think the Government may feel confident that the troops will even then suffer as little as any troops employed on service in the field can be expected to suffer.

The state of our affairs in Burmah may be concisely summed up thus :

We are masters of the sea-coast from east to west. We control by our steamers the whole of the streams of the Irrawaddy, from Prome to the Sea. With the exception of a few thousand men near Prome, and a still smaller body towards Martaban, no Burmese troops whatever can be heard of in the Lower Province. In the Upper Province, no army has been collected. No defences have been constructed at Prome, and no force remains there.

The Burmese have betrayed a total want of enterprise, courage, power, and resource. Large bodies of them retire at the mere sight of a steamer, or in the presence of a few Europeans, so soon as they are landed. At the same time, no sign has been shown of an intention to submit, or to treat, nor is there the slightest ground for believing that any such overtures will be made.

The population of the country, while they evidently cannot be depended upon to fight, either for us or for themselves, have everywhere shown the strongest and most unequivocal desire to aid our operations, to furnish us with supplies, and to obtain our protection.

Our troops are healthy, their discipline excellent, their spirits confident and high.

Commodore Lambert, it was agreed, should make every exertion for the collection of boats, and for the fitting of them for the conveyance of troops and stores, to be attached to the flotilla, which he requested might be strengthened by the "Enterprise." This vessel, though condemned for heavy work at sea, will be most effective and useful, if well armed, and stationed in the deep water near to Prome. The fitting of the other river steamers, also, is rapidly proceeding. The strengthening of the flotilla, in country boats, &c., will be aided by Lieutenant-Colonel Bogle, in the eastern rivers.

Lastly, the reinforcements which were ordered for the army are rapidly collecting, and some are already prepared for embarkation.

The review I have thus taken of the present position of our affairs in Burmah, of our preparations, our means, and our future prospects, will naturally have led my colleagues to expect the declaration which it is now my duty to make, that everything which has occurred in the course of recent events, and all that I have learned by personal conference, and inquiry, at the seat of war, have confirmed my convictions of the necessity and soundness of that policy which the Government of India has advised, with a view to establishing our superiority over Burmah, now, and its maintenance in peace, hereafter; while, at the same time, I have seen stronger grounds than before, for believing that this Government will experience no difficulty in attaining and securing the object which it has proposed to itself.

But the Government of India is at present incompetent to determine the question of policy. No reply can be expected to their application for instructions, for some time to come.

The absence of definite orders, now, upon the ultimate policy to be adopted, is so far to be regretted, that it necessarily hampers the Government, in some degree, as to present measures. For, so long as it continues doubtful whether the permanent occupation of Pegu will be permitted, I feel reluctant to direct an advance of the army, even as far as Prome, because I am most unwilling to expose the people (who would be led by our advance to commit themselves still more deeply to us than they have yet done) to all the horrors which I have already described, as the certain consequence to them of any subsequent retirement by us.

But while I conceive that the Government of India should be induced by this consideration to refrain from ordering or permitting an advance to Prome in undue haste, I hold that it would not be justified, on that ground, in withholding the order to advance from Rangoon, after the period when the issue of such order has become practicable, and, moreover, expedient, with reference to the complete success of our future operations, whether these shall consist of a march upon Ava, or only of an advance through, and an occupation of the Province of Pegu.

The determination of this important question,—namely, whether the ensuing campaign shall include a march upon Ava, or shall be restricted to an advance to Prome and an occupation of Pegu, can no longer be delayed. Its decision is essential for guiding the Government in the preparations it has now to make for the future prosecution of the war.

In the minute dated the 30th of June, a plan of campaign, similar to that which was carried on in the last war, was contemplated, and the additional military force which General Godwin had named as necessary for the execution of it now, was stated to have been called for from the Government of Madras, and from the Commander-in-chief of this Presidency. At the same time, I ventured to submit my opinion, that if no further annexation of territory than that of the Province of Pegu, were contemplated, it would be expedient, for reasons which were fully stated, that the advance of the army should be restricted to the limits which it was intended permanently to occupy. At the same time, it was added, that this proposal might be open to objections which could be seen, and appreciated by the military authorities, though they had not been detected by the Government, and that the scheme would, of course, not be adopted without previously consulting the military commander.

Accordingly, upon my arrival at Rangoon, I entered upon the consideration of the future operations of the army with Major-General Godwin. The Major-General laid before me the memorandum marked A, which had been prepared

previous to my arrival, and in which he specified the force he would require for an advance to Ava.

Subsequently I unfolded to him the views which the Government were inclined to entertain in favor of more restricted operations, and assuring him that those views had been entertained subject to any military objections which might be shown to weigh conclusively against their final adoption, I requested him to consider the subject maturely, and thereafter to state to me his opinions.

Two days afterwards, our conference was renewed, when the Major-General submitted to me the memorandum marked B. In that document he did not set forth any military objections to the proposed plan of limited operations, but simply stated the force which he considered would be sufficient for its successful execution, and which amounted to little more than half of what he considered requisite for the more extensive operations.

In the conversation which ensued, and in reply to the inquiries I addressed to him, the Major-General alleged no military objections to the view I had ventured to bring forward, and he orally expressed himself with confidence to the same effect as in that paragraph of the memorandum in which he states, that "5000 men at Prome would repel any force that an enemy might attempt to stockade with, or to offer any violence to the Pegu people."

An advance to Ava could not, according to the best information I have been able to obtain, be made wholly by water. I greatly doubt whether the steamers, which, during this autumn, would go to Prome, could, in the ensuing winter, mount the stream to Ava. In any case, a heavy land column would, I humbly conceive, be unavoidable for some part of the way. Greatly as everything in that country has changed for the better, compared with what it was in 1824, I apprehend that the difficulty of obtaining land-carriage would be hardly less now than then. Carts are extremely scarce, and they are not fitted for the heavy draught of the stores and equipage of the troops. The chief animal of the country is the buffalo, which, excellent for purposes of tillage, is almost useless for heavy draught. Roads there are none. Yet with all these disadvantages, the annexed return will show the vast amount of carriage held necessary to move even a small force. To supply this, including, as will be seen, nearly 300 elephants, would be practicable no doubt. Everything of that sort is practicable, if one is resolved to do it; but it could be effected only at an enormous cost, which nothing but a proved indispensable necessity would justify this Government in incurring.

Giving its full value to the friendly spirit of the people, the cost of supplies on such a march would still be very heavy indeed; and if, as is probable, much of those required for the European troops should, of necessity, be drawn from our stores by the sea, that heavy cost would be grievously enhanced.

Judging by the course of the present war, much loss need not be feared from the enemy: but some loss must be looked for from that cause: climate, fatigue, exposure, and disease, would sweep away more; and the expenditure of good and gallant lives, on such a march, would be far more costly than the expenditure of our treasure. Moreover, time would be, as I conceive, unprofitably consumed, when it might be far better employed in securing our conquest, if we are permitted to occupy, or in removing our troops, if we should be ordered to evacuate.

Major-General Godwin declared his opinion distinctly, that leaving Rangoon, and effecting successfully his march upon Ava, his operations would still occupy so many months as would render it necessary for the army to pass the hot season of 1853 at Ava. In such case every channel of expense for a numerous and distant army would still be kept open; and a state of actual hostilities, unconcluded by any declared result, would be protracted over almost as long a period as was occupied by the war from 1824 to 1826.

And all this expenditure of treasure and of life—all this prolongation of a state of war—would be for no good end, after all. For as no one has advocated the retention of the upper provinces of the empire, we shall conquer, only to relinquish them. In relinquishing them, we shall, as I have already ventured to contend, sacrifice far more than we may have gained by our conquests; and shall, by our retirement, weaken the reputation of our military power far more than we strengthened it by our previous advance, however numerous might be its successes, however complete might be its triumph.

On the other hand, if it be resolved to limit the advance to the ground which it is proposed to occupy permanently, the greater part of the objections which have been stated to the alternative course will be obviated at once. The amount of troops required by the General will be diminished by one half. The force required for Prome may, it is expected, be entirely conveyed by the flotilla; land-carriage will be little, if at all, required; the troops will not be exposed, but will be transported easily, and in a comparatively short time, to their ultimate destination. Every expense will be vastly diminished; life will be saved; and time will be economized. The whole of the cold season will be before us, in which to confirm our position and to provide against the future; and if the decision of the authorities in England shall confirm the proposals of the Government of India, the war may be declared at an end in November, and the annexation of the province proclaimed. The treaty relations which have been violated by the Burmese will not be renewed. Doubts and uncertainties, both in Pegu and among ourselves, will be removed, and thenceforward we shall have only to defend our frontier against attack. Each day, of late, has convinced me more and more that the defence will be an easy task.

Such are the comparative advantages and disadvantages of the two plans of operation. The latter of the two appears to me to be so greatly preferable, in every view of sound policy, that I have no hesitation in recommending that the Government of India shall now finally resolve upon adopting it, and carrying it into effect.

Having decided that the advance should be limited to Prome, it remains to consider when that advance shall be made.

It will be in the recollection of my colleagues, that the subject of an immediate advance to Prome was officially discussed by the Major-General shortly after the first operations of the army at Rangoon. He stated strong military objections to the movement; he pointed out that his force was comparatively small, and that no reinforcements could be obtained at that season; he showed that we were totally ignorant of the plans and movements of the enemy. Hence he argued, that if he should take his force to Prome, it would be placed there in the heart of an enemy's country, wholly without support, if attacked (which was an event at least as possible then as in 1825), and with his sole communication by the river insecure; and, consequently, that he would be altogether in a weak and false position.

These reasons against an immediate advance seemed to me to be unanswerable.

The Major-General has subsequently been strongly urged by many to advance during the rains. He has informed me that he had declined to do so. Though some of his previous objections were removed by the command obtained over the river by the flotilla, he would still, in the absence of reinforcements, have been wholly without support; and he alleged as an additional reason for declining to advance, that while no object of importance had been pointed out, as likely to be secured by the early occupation of Prome, it would have been unwise and culpable to remove the troops, without positive necessity, from the barracks which had been provided for them, and where they were enjoying comparatively good health, in order to expose them at Prome to effects of climate and the season, from which they were likely to suffer severely.

I consider that these reasons of General Godwin, for refusing to advance hitherto, during the rains, to Prome, were sound and good.

But the season is now advancing, the monsoon is wearing away, and during the ensuing month it is understood that the rains cease at Prome.

There would be advantage in moving up as soon as possible after the first cessation of the rains, because the river will then be more favorable for the movement of the flotilla than it would be a few weeks later. And the sooner the troops are placed at Prome, the longer will be the time before them for establishing themselves, and for making every necessary arrangement in respect of barracks, &c., before the commencement of the ensuing hot season.

Very early in the ensuing month the force under the Major-General's command will be increased (by arrangements which will presently be detailed) to—

4 Regiments European Infantry,  
9 Regiments Native Infantry,  
1 Troop Horse Artillery,

1 Bullock Field-Battery,  
4 Companies European Artillery,  
4 Companies Madras Sappers.

By the beginning of October I expect that the force will be still further increased by—

1 Regiment European Infantry,  
2 Regiments Native Infantry,  
Horses for 1 Field-Battery,  
200 Irregular Cavalry.

Wherefore I conceive that by the beginning of the month of September, sufficient support will have been supplied, the communications by the river will be secure, and the flotilla will be effective.

In such case I propose that the advantages of as early a movement as is consistent with military considerations, having been stated to the Major-General, he should be requested to consider the practicability of moving up to Prome, by the flotilla on the river, a force of from 2,000 to 2,500 men. Such a force, it is considered, with a steamer stationed upon the river, off Prome, would be able to hold its position against any army at all likely to be brought against it, until the flotilla should return to Rangoon, and bring up the remainder of the force intended for Prome.

With the details of these movements the Government of India of course will not interfere. But orders are necessary for the completion of those arrangements by which the reinforcements necessary to any movement from Rangoon are to be provided.

I propose that the Government of Madras, and the Commander-in-chief, Sir W. Gomm, should respectively be informed that, having regard to the position of affairs in Burmah, as they appear to the Governor-General in Council, after conference with the military and naval commanders at Rangoon, we do not anticipate that the whole amount of reinforcements recently called for will be required. At present we propose to dispatch only one brigade from each Presidency. At the same time, considering it prudent to provide for every contingency, we propose that the remaining brigades shall be held in readiness for embarkation, if they should be required.

The details of the instructions which it will be necessary to issue, will be found in the annexed memorandum which I have drawn up.

A letter must be addressed to Captain Lynch, commanding the "Feroze," requesting him to proceed to Madras, and to place himself at the disposal of the Government there, for the conveyance of reinforcements.

The Commodore must be requested to dispatch every available steamer, for the same purpose, to Madras.

By the time that these vessels have transported the reinforcements from Madras, their services will be required here, for a similar duty. Orders to that effect may be issued hereafter.

Only one point more occurs to me, requiring the orders of the Government of India.

The Court of Ava has made no overture for terms; it shows no signs of doing so; even if it should do so now, the proposal will not reach us until a vast additional expense will have been actually incurred, in the movement of troops and steamers, and in the hiring of transports, which must be taken up immediately. I conceive, therefore, that the terms which the General was empowered to concede four months ago, and even the terms which are mentioned in the Minute of the 30th of June, would be quite insufficient to meet the present circumstances of the case.

As the General is not to advance beyond Prome, I would now instruct him, that in the improbable event of his receiving any overtures of submission from the Court of Ava, he should forward them for the consideration of the Government of India. In the meantime he will not, by reason of such communication, suspend any advance, or preparations for an advance, to Prome, in which he may be engaged.

This precaution is necessary for the purpose of counteracting any design they may have of gaining time, for which purpose alone, as is well known, such pretended negotiations are frequently opened by the Burman Court.

DALHOUSIE.

## Inclosure 2 in No. 14.

*General Order by the Governor-General to the Forces at Rangoon.*

Rangoon, July 31, 1852.'

THE Governor-General of India cannot forego the opportunity which is afforded him, by his visit to Rangoon, of again offering to the combined force his most cordial acknowledgments of the valuable and distinguished service they have rendered here.

The gratification which the Governor-General experiences in thus congratulating the force upon its success in the field, is greatly enhanced by his being enabled to add the expression of his unqualified approbation of its conduct in quarters.

In every branch, whether naval or military, European or Native, the force has exhibited an orderly conduct, an inoffensive demeanour towards the people of the country, and a spirit of sound discipline, which are as truly honorable to its character as the high distinction it has won in battle.

Whatever may be the future course of this service, whatever may be the ultimate fate of this country, the Governor-General has had the proud satisfaction of feeling that the people of Burmah will hereafter associate with the presence of a British force among them, no other recollections than those of its irresistible bravery in the field, of its order, forbearance, and obedience in the camp.

## Inclosure 3 in No 14.

A.—MEMORANDUM on the strength of the army I think requisite to enable me to march into the heart of Burmah and to subjugate it.

ON this point I have the same opinion I had the honor to express to the Governor-General of India at Calcutta.

Four European regiments, six Native ones, two troops Horse Artillery, one field battery, horsed, and 350 Sappers and Miners, in addition to the force I now command at Rangoon, will be the increase I think indispensable to such a step.

Out of this force I shall have to leave a garrison at Rangoon of from 2,000 to 2,500 men, and for this purpose, I shall select the least robust men of the various corps.

Bassein will require 600 men, and Martaban about 100 Europeans to give confidence to its native garrison.

At Prome at least 800 to 1000 men must be left, to protect the stores and depôts that will be formed there.

It may be necessary also to place a small force at or near Shoee-Gyne, so as to cover Martaban and Pegu, and to give security to my right flank and rear on the advance.

I would suggest also, but without making a point of it, the great advantage that would be derived from the services of a corps of Irregular Cavalry. Its moral effect would be as great as the many uses it could be put to in the field.

It is not to be supposed that so large a force as I have named can be required at any one point, but it will not more than provide for the unavoidable drain by loss in action and by sickness at so long a distance from any reinforcement.

On the assembly of this army, I would submit, for the favorable consideration of the Governor-General, some increase to the department of the Adjutant-General and Quartermaster-General. The heads of these offices might be made deputies; and a deputy-assistant be given to each. Some addition should be made to the office establishment of the Adjutant-General; and that of the Quartermaster-General should be put on the following footing, which I am inclined to think is not excessive, viz.:

One head draughtsman . . . .	Rs. 150	monthly
One assistant . . . . .	70	„
One head writer . . . . .	120	„
One assistant writer . . . . .	70	„
Charges contingent . . . . .	40	„
Total . . . . .	450	„

An officer might with advantage be appointed to survey and map the country, and he should be attached to the Quarter-Master General's department.

The arrangements for the Commissariat I leave to the consideration of Government, for I have not sufficient data on which to base calculations.

I have received from the several departments returns of what carriage they think sufficient for moving efficiently the stores and baggage, an abstract of which I have the honor to send herewith.

I beg to recommend to your Lordship's favourable consideration, Captain Bruce, of Her Majesty's 18th regiment, for the Deputy-Assistant-Adjutant-General's post, when that department shall be increased.

As also Captain Keighly 49th Madras Native infantry, for the post of Deputy-Assistant-Quarter-Master General.

Your Lordship will excuse me for pressing on your Lordship's best consideration, the providing for this army a well constructed and convenient flotilla, to be formed by some well-informed person, for this department of naval utility.

There can be no exertion, no business at this time, and for some time to come, of equal importance, if this army is ever to move.

H. GODWIN,  
*Major-General.*

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STATEMENT of the Carriage required for the Ordnance, including Artillery, and portion of the two Brigades of Infantry, &c, now at Rangoon.

Corps and Detachments.	Elephants.	Artillery Bullocks.	Ponies, or Carriage Bullocks.	Carts, two Bullocks each.	Dooley Bearers.	Tons.	REMARKS.
<b>ARTILLERY.</b>							
2 Companies Bengal .. ..	18	1178	65	457	..	634	1. The carriage required by the Commissariat has not been included in this statement.
2 ditto Madras .. ..							
Ordnance Department .. ..							
<b>BENGAL BRIGADE.</b>							
Her Majesty's 18th Royal Irish ..	69	..	628	207	..	126	2. Dooley-bearers required by Regiments are not entered, as they came with them from India; those estimated for by the Superintending Surgeon, on the calculation of a field-hospital being established for 200 Europeans only.
Wing, 80th Regiment .. ..							
40th Regiment Native Infantry ..							
67th Regiment Native Infantry ..							
<b>MADRAS BRIGADE.</b>							
Her Majesty's 51st Regiment ..	39	..	356	129	..	75	3. If tents are carried on bullocks, a cooley will be required for the poles of each European tent, and two coolies for the poles of every three native tents.
Detachment 9th Madras Native Infantry ..							
35th Regiment Native Infantry ..							
Sappers and Miners, and Engineer Department .. ..	156	..	..	..	..	71	4. An elephant has been calculated to carry 1000 lbs. only, a cart 600, and a bullock 140. These loads are considered the maximum for a country like Ava.
Superintending Surgeon's Department ..	2	..	..	60	1268	17	5. Fractional parts have not been calculated.
<b>TOTAL .. ..</b>	<b>284</b>	<b>1178</b>		<b>853</b>	<b>1268</b>	<b>923</b>	6. The number of tons inserted, is the dead weight alone. This calculation will answer for guns, shot, and stores of that description; but for baggage, tonnage must be calculated by measurement. Tents, for instance, will require 1 ton for every 50 cubic feet; the number of tons that would be required may therefore safely be doubled, or 1846 instead of 923 inserted in the column of the statement. A nearer approximation cannot be arrived at without measuring the whole of the baggage of officers and men.



## Inclosure 4 in No. 14.

## B.—MEMORANDUM.

*Rangoon, July 31, 1852.*

SHOULD the Governor-General deem it advantageous to annex Pegu, and to take possession of this lower country, confining his military operations to the line west to east, Prome and Tonghoo, Major-General Godwin conceives that two more brigades of two European and four Native regiments, with one troop of Horse Artillery, one troop (horse?) light Field Battery, and a corps of Irregular Horse, in addition to the force he now commands, are sufficient.

Five thousand men at Prome would repel any force that an enemy might attempt to stockade with, or offer any violence to the Pegu people.

The remaining 4,000 would be disposable for garrisoning Rangoon, Bassein, Martaban; and he believes a force would be most effective, posted at Shoee-Gyne or at Sitang.

H. GODWIN,  
*Major-General.*

## Inclosure 5 in No. 14.

*Minute by Sir F. Currie.**August 13, 1852.*

I ENTIRELY concur in the views of the Governor-General, as expressed in this minute, as to the operations which we should now direct to be undertaken in Burmah. I have already recorded my opinion, that we should not, unless forced to do so by circumstances, advance beyond the frontier of the province which we intend to occupy, as indemnification for the expenses of the war, and to secure the peace of our own provinces in future.

I think that we are now committed to the occupation and annexation of the Pegu Province, for the above purpose, and I think we should do everything in our power to effect that occupation as speedily and as effectually as possible.

I cannot anticipate that we shall be peremptorily instructed by the Home Government to evacuate the country, without having effected the purpose for which the war was undertaken. I see no other means of effecting that purpose than the one proposed; for if we do not declare the annexation of Pegu to be the punishment we have considered it imperative on us to inflict on the Burman State, and the indemnification for the cost we have been put to, we must necessarily advance to Ava; and an advance to Ava will involve such an immense expenditure, as the Burmese State can never, by any money payment, by any possibility make up to us.

I think, moreover, that the time is gone by for any negotiations by which we can relinquish what we have taken, even if the Burmese were now (which is not at all probable) to advance them. We cannot, after all that has taken place, again abandon the Peguers and Taliens to Burmese vengeance.

F. CURRIE.

I concur.

J. LOWIS.

## Inclosure 6 in No. 14.

*The Secretary to the Government of India to Major-General Godwin.*

Sir,

*Fort William, August 13, 1852.*

I AM directed to acquaint you that the Governor-General, after having had the advantage of conferring personally at Rangoon with yourself and Commodore Lambert, commanding the naval force, has, since his return to the

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Presidency, maturely deliberated upon the position of our affairs in Burmah; upon the objects which the Government of India has had in view in reference to that State; and upon the most effectual means of securing the political ends it has sought to obtain.

The Governor-General in Council has finally resolved, that, under present circumstances, he will not direct the Major-General, with the army which shall be assembled under his command, to undertake a march upon the capital of Burmah.

His Lordship in Council has determined that the present operations of the army shall be limited to the complete subjection, and present military occupation, of the Province of Pegu, up to whatever point to the northward of Prome we may, on examination, find it convenient to fix.

In the memorandum which was submitted by you to the Governor-General at Rangoon, two brigades, composed each of one European and two Native infantry regiments, one troop of horse artillery, one horse light field-battery, and one corps of Irregular Cavalry, were specified as the force which you would require, in addition to that already under your command, for the subjection of Pegu and its secure occupation.

Accordingly, a brigade, composed as above, will be embarked as soon as possible from Bengal.

The horses, and a battery of 9-pounders, will be sent from Dum Dum, to be attached to the artillery company which formerly held them.

Two rissallahs, amounting to 200 men, of the Ramghur Horse, being Irregular Cavalry, will be embarked for Burmah. The only corps of Irregular Horse which have volunteered for service across the sea, are at a great distance. Though some time must necessarily elapse, the other two rissallahs will be sent afterwards, if required.

A similar brigade will be embarked from the Presidency of Madras. It is understood that the regiments composing it are ready for immediate embarkation. One of them, the 5th Madras Native Infantry, will very shortly be relieved in Arracan by the 68th Bengal Native Infantry. Measures have been taken to provide immediate transport for the rest, namely, one European and one Native infantry regiment, with a troop of horse artillery, to which the Governor-General in Council has added two additional companies of Madras Sappers and Miners.

The East India Company's frigate "Feroze" will sail to-morrow morning, to Madras, for the conveyance of a portion of these reinforcements to Rangoon.

Commodore Lambert has been requested to dispatch all the steamers to Madras, which he can make available for the same purpose; and the Government of Fort St. George will employ sailing transports, if it thinks fit.

By these arrangements, the Governor-General in Council anticipates that the force, under your command, exclusive of the troops in Arracan, will, by the 10th of September, amount to—

- 4 Regiments European Infantry.
- 9 Regiments Native Infantry.
- 1 Troop Horse Artillery.
- 4 Companies Artillery with a Bullock Battery.
- 4 Companies of Sappers.

By the 10th of October, it is probable that that force will be further increased by 1 regiment European, 2 regiments Native Infantry, 1 horse field-battery, and possibly the Irregular Cavalry. In order to provide for every contingency, two other brigades, as originally ordered, will be held in readiness, at the Presidencies, though the Governor-General in Council does not anticipate that their services will be required in Burmah.

The attention of the Governor-General in Council has long been given to the matter which is noticed in your memorandum, namely, the means of rendering the flotilla on the Irrawaddy powerful and effective: while at Rangoon, the Governor-General requested Commodore Lambert to make every exertion, and to spare no expense, in collecting and fitting native boats, to be employed with the flotilla.

Lieutenant-Colonel Bogle was requested to cooperate by similar exertions, on the rivers to the eastward.

At the Commodore's request, the "Enterprise" is now dispatched to strengthen the flotilla; and whenever the state of the monsoon will permit, his Lordship in Council hopes to add three other river-boats of the same class as the "Mahanuddy." Beyond these none can be sent, for there are no others fit for the work in the possession of the Government, and none can be obtained.

Shortly after the arrival of the expedition at Rangoon, you laid before the Governor-General in Council the grounds on which, in a military point of view, you objected to an immediate advance of the force to Prome.

The want of support, without further reinforcements, which could not then be given; the uncertainty as to the plans and movements of the Burmese; and the insecurity of the communication by the rivers upon which you must have exclusively relied; were the chief objections advanced by you; and they appeared to the Governor-General in Council to be valid and sound. He therefore fully approved of the resolution not to make an immediate advance to Prome.

Though subsequent events have weakened some of these objections to an advance, still the absence of reinforcements hitherto, and the inexpediency of moving the European troops out of the good and healthy quarters which had been provided for them at Rangoon, and of exposing them to the injurious influences of climate and the season, appear to the Governor-General in Council fully to justify your continued resolution not to advance to Prome during the strength of the rains, when no object of first importance was to be gained by the movement.

But the year is now advancing; the monsoon will diminish in violence; and it is understood that at Prome little rain falls after September.

Early in that month, as has been shown above, a considerable reinforcement will have been added to the original force. Every account that has been received goes to show that the Burmese are not in a condition for formidable resistance, and the flotilla has complete command of the river from Prome to the Sea.

It would obviously be advantageous, if it could be safely effected, to convey a force to Prome, while the river is still swollen by the rains, upon the flotilla and boats. The quantity of carriage required for the movement of the force by land is so great, as shown, by the memorandum submitted to you; the difficulty of obtaining such carriage on the spot is apparently so insuperable; and the cost of bringing it by sea from the Presidencies would be so enormous; that it is in the highest degree desirable to move the troops as much as possible by way of the rivers.

Since, then, the available force at Rangoon will be greatly increased early in September; since the river communications will be quite secure; since the climate of Prome, as is believed, will not then be injurious, and since the political ends of the Government of India will be promoted by the further advance of the force to Prome; the Governor-General in Council has the honor of suggesting for your consideration, whether, if a force of from 2000 to 2500 men, with provisions and stores, could be conveyed simultaneously upon the flotilla to Prome, such force could not, under existing circumstances, maintain itself in perfect safety there against any Burmese attacks, while the flotilla should return to Rangoon, and bring up a reinforcement of similar amount. This question is, of course, left for your determination, on military grounds, and according to your own judgment.

But if the Governor-General in Council does not err in believing that such a movement may be made with safety, his Lordship in Council would be glad that it were executed, as soon as it can be undertaken, without serious risk to the health of the troops.

If you should determine in the affirmative, the Governor-General in Council requests that you will give early information to Commodore Lambert regarding your intentions, with a view to expediting the preparation of the flotilla.

The further measures which may be necessary for driving the Burmese troops out of the district of Martaban, and for completing the military subjection of the Province of Pegu, are left to your judgment.

In the former instructions addressed to you in March last, certain terms were named in the event of the Court of Ava making overtures for peace. The course of events has subsequently rendered those instructions inapplicable to the present state of affairs.

The Governor-General in Council has the honor to request, that in the event of any communication being made by the Court of Ava, you will transmit it at once to the Governor-General in Council: you will not, however, by reason of any such overtures having been made, delay your advance, or the preparations for your advance, or any operations in which you may be engaged.

I have, &c.

C. ALLEN.

Inclosure 7 in No. 14.

*Major-General Godwin to the Secretary to the Government of India.*

Sir,

*Rangoon, August 25, 1852.*

I HAVE had the honor to receive your dispatch of the 13th instant.

I fully understand the instructions of the Governor-General in Council on the subject of confining my approaching movements in this country to the Province of Pegu. The force to be put under my command I consider, in consequence of this resolution, to be quite adequate to any call on it; and, indeed, the whole orders of Government are so clearly explained and laid down, as to prevent the least misconstruction on any point.

It had been my intention to propose the movement from this of about 2000 men up to Prome, about the 20th of September, when the violence of the rains may be presumed to be very much mitigated; and I feel no sort of doubt that such a force will be perfectly able to hold its position.

It is my intention to take up the first detachment myself, to see to its quarters, as well as for those of the succeeding detachments. I shall immediately return to Rangoon, to expedite the advance of the different branches of the force.

The only failure to be apprehended is the power to get cover, however indifferent, for our men. I know Prome, its capabilities, and its climate, as I was there for eight months, and have traversed its neighbourhood in every direction on service during that time; it has not one-tenth part of the capabilities of Rangoon, and the late measures there may have rendered that even less, as it has been for some time in the possession of the Burmans.

I feel assured great efforts will have to be made from Rangoon to give quarters to our force at Prome. I shall take Major Fraser with me, and also the Quartermaster-General. If the town has not been entirely burnt, as part has been, when the force shall amount to 4000 or 5000 men, I shall quarter them in the city, but it would not be prudent to do so till I am so strong.

I have been in communication with Commodore Lambert on the subject of this advance; he was with me this morning, when we mutually understood each other, so that by the end of September I look to having military possession of Prome.

I have a very strong persuasion that our advance will draw a good many of the troublesome people from Beling and Sitang up to our neighbourhood. As we cannot reach those places by water, but shall have to march about 100 miles, any operations against them must be postponed until the ground becomes so dry that the soldiers can lie on it safely, and our matériel move over it to take the field.

I am perfectly aware that my late instructions respecting a treaty with the Government of this country are null and void.

There have been repeated annoyances at Martaban, but as I have indirectly learned that the enemy have been turned out of their lurking-place near that post, we may hear no more of them. I have the honor to forward Lieutenant-Colonel Johnson's report of these demonstrations.

To expedite the preparation of boats for stores and baggage, I have procured a most respectable and capable man from Moulmein. I have also sent for Brevet Captain Keighly, 49th Madras Native Infantry, whom his Lordship may remember I recommended for employment in the Quartermaster-General's department. He has informed me that he understands boat-building, and I

know his activity and resources to be great, so that he will be of much service in taking superintendence of the whole.

Captain Keighly and Mr. Chisholm are now busily repairing, classing, and measuring a great number of boats. The Commodore is also taking up some small vessels for the same purpose.

The health and conduct of the troops remain most satisfactory.

I have, &c.

H. GODWIN.

No. 15.

*The Secret Committee to the Governor-General of India in Council.*

October 23, 1852.

SINCE the date of our last dispatch to you (the 7th of October), we have received your letter of the 7th of September, No. 42.

It has brought to us the minute of the Governor-General of the 10th of August, a very important and interesting document, which appears to have been omitted from the mail of the 21st of August, by some inadvertency at Calcutta.

The material variation from your original plan of postponing the re-opening of the campaign until the month of November, by directing the advance of the troops in September,—adopted, we doubt not, with your usual prudence and judgment, upon the latest and most careful review of all the circumstances of the case,—appears to have induced you to form your conclusions upon the ulterior policy of your proceedings, in anticipation of those precise instructions for which you applied to us by your dispatch of the 2nd of July, No. 30.

The Marquis of Dalhousie correctly observes, in his minute of the 10th of August, that our instructions could not reach you in sufficient time to meet the more early dispositions which you then felt called upon to make.

We consider that you will be in possession of those instructions by the middle of October, when the forces under Major-General Godwin will be established on the frontier of Pegu, and, therefore, fully in a condition for the fulfilment of our intentions, should no intervening circumstances have occurred to render them inapplicable.

Lord Dalhousie's remarks on the feeble character of the military dispositions of the Burmese, whether for defence or aggression, supported as they are by all the secret information you have obtained, encourage us to expect that General Godwin, under your directions, will experience no material obstacle to such a termination of the war as we have pointed out in our instructions to you.

We can hardly suppose that the enemy will continue so deaf to the suggestions of prudence, and so blind to a just view of his own position, as to resist the appeal which you will make to him when you are in full possession of his southern province, and within a moderate distance of his capital. He cannot remain ignorant of the extent of the military and naval strength which General Godwin will be enabled to wield for his destruction; and we hope and trust that he will not persevere in the folly of setting at defiance such a fearful preponderance of power against him.

No. 16.

*The Governor-General of India in Council to the Secret Committee.*

Fort William, October 25, 1852. (No. 50.)

From the General Order, and the dispatches published on the 23rd instant, you will learn with satisfaction the capture of Prome, on the 9th and 10th idem, with but a trifling loss on our side.

## Inclosure 1 in No. 16.

*General Orders issued by the Governor-General of India in Council.**Fort William, October 23, 1852.*

THE Governor-General in Council has much gratification in publishing for general information, dispatches received from Commodore Lambert and from Major-General Godwin, which report the capture and occupation of the city of Prome, after some resistance, and with comparatively trifling loss.

The steam squadron and the boats of Her Majesty's ships, conveying the troops upon the Irrawaddy, anchored off Prome on the 9th of October. A fire from the shore was silenced by the fire of the steamers and of the boats. The troops having been landed, drove the enemy, some three or four thousand strong, from the suburbs; and, on subsequently advancing to the Great Pagoda and to the heights beyond, they found the position wholly abandoned by the Burman force.

The Governor-General in Council desires to express in the strongest terms his obligations to Commodore Lambert, for the care, the energy, and unwearied zeal which he has shown in directing the naval preparations for advance, and which have conduced so largely to the early and successful renewal of operations in the field.

His Lordship in Council begs to offer his thanks to Captain Loch, and to Commander Shadwell, for their conduct of the service on the river; and to Commander Rice, for his direction of the body of seamen upon shore.

His thanks are also due to Commander Campbell, of the Indian Navy, whose merit has been acknowledged by the Commodore.

The Governor-General in Council has viewed with high approbation the services of the officers and men, who, upon this occasion and for several months past, have been employed in boats upon the river, subjected to severe exposure, and engaged in harassing duties, which they have performed with the utmost alacrity and cheerfulness, and with conspicuous advantage to the public service.

To the officers, seamen, and marines of Her Majesty's ships, of the Indian Navy, and of the Bengal Marine, who have been serving upon the Irrawaddy, and to Commander Tarleton, who long commanded them, the Governor-General in Council is desirous of offering his hearty thanks.

The Governor-General in Council has in like manner to assure Major-General Godwin of the satisfaction with which he has viewed the skill and judgment by which the Major-General enabled the troops to obtain possession of an important post, without delay, and with but little loss.

To Major Mayhew, Deputy Adjutant-General; to Major Allan, Deputy Quarter-Master-General; to Captain Smith, Interpreter; to Captain Burne, Military Secretary; and Captain Chads, A. D. C.; the Governor-General in Council tenders his thanks.

Especially to Captain Christie and to Captain Welsh, of Her Majesty's 80th Regiment, for the gallant manner in which they led their men to the attack, and to all the officers, non-commissioned officers, and soldiers of the force, the Governor-General in Council desires to give assurance of his cordial approbation.

While thus congratulating the naval and military forces on the first result of their advance, the Governor-General in Council feels it to be due to the memory of an old and gallant sailor, that he should add a public expression of the deep regret with which he has received intimation of the death of His Excellency the Commander-in-Chief of Her Majesty's ships in the Indian Seas.

Although Admiral Austen did not survive to witness the successful conclusion of the operations in which he had shared, the Governor-General in Council desires to record his admiration of the staunch high spirit which, notwithstanding his age and previous suffering, had led the Rear-Admiral to take his part in the trying service which has closed his career.

His Excellency Rear-Admiral Austen has afforded to the Government of India at all times a cordial and constant aid.

The Governor-General in Council has been grateful for his services, and laments his death.

C. ALLEN,

*Officiating Secretary to the Government of India.*

## Inclosure 2 in No. 16.

*Commodore Lambert to the Secretary to the Government of India.*

*Her Majesty's ship "Fox's" Boat, on board the "Fire Queen,"  
Prome, October 11, 1852.*

Sir,

I REQUEST you may be pleased to inform the Governor-General in Council that, having embarked on board the East India Company's steam-vessels under my orders Her Majesty's 18th and 80th Regiments, the 35th Regiment Madras Native Infantry, a detachment of Sappers and Miners, and of the Bengal Artillery with their field guns, I dispatched them as they were ready to rendezvous off Yangernsiah, a town situated at the upper end of the Panglang creek, which joins the Irrawaddy to the Rangoon river.

The Commissariat, Ordnance, and Engineers' stores, and about 1000 followers attached to the regiments, were conveyed in the steamers, large Burmese cargo boats, five small schooners and a barque

The cargo boats, manned by Burmese crews, advanced in three divisions under convoy of the barges and pinnaces of Her Majesty's ships "Fox," "Winchester," and "Hastings," the barque and schooners were towed by the steamers.

These arrangements being completed, I left Rangoon on the 24th ultimo, and Major-General Godwin joined me on the following day at Yangernsiah.

Having hoisted my broad pendant on board the "Fire-Queen," the steamer in which the Major-General embarked, I weighed from Yangernsiah on September the 27th, with the steam squadron specified in Inclosure No. 1, and proceeded up the Irrawaddy to Prome, calling at Henzadah on my way.

On the morning of the 9th of October, Prome was in sight, and on the squadron nearing the city, the enemy opened fire with a couple of guns and musketry, which was returned by the steamers as we proceeded into the bay, where I anchored in a convenient position, abreast of the town, for landing the troops.

The enemy continuing to keep up a fire after we had anchored, I sent the boats of the squadron, under the command of Captain Loch, C.B., of Her Majesty's ship "Winchester," to throw in a few shells and canister shot amongst them, which had the effect of silencing it for a time, although they kept up a very spirited fire on the boats, which wounded two seamen.

They then brought a gun down abreast of the "Fire-Queen," but had only time to give us one shot before it was dismounted by the fire from the steamers, which effectually cleared a landing place.

Major-General Godwin now expressed his wish to land the 80th Regiment and a party of artillery with two guns, at half-past 4, which was effected without any opposition, and the lower town cleared of the enemy.

At daylight next morning, the remainder of the troops were landed, and a brigade of 50 seamen being formed under Commander Rice, at the Major-General's request, to assist in working the guns, the pagoda and other parts of the city were taken possession of, the Burmese flying as the forces advanced.

Thus the important city of Prome was occupied by British troops with the trifling loss of one killed and three wounded on the part of the army, while in the squadron only four were wounded, who are named in Inclosure No. 2.

My thanks are due to Captain Loch, C.B., for the assistance he rendered me throughout these operations, also to Commanders Shadwell and Rice, of Her Majesty's ships "Sphinx" and "Hastings," the former for his unremitting attentions to the instructions I had sent him previously to my entering the Irrawaddy, and to the latter officer for the part he took when on shore with the brigade of seamen. Nor can I speak too highly of Commander Campbell, the officers and men of the Indian Navy and Bengal Marine.

The skill and perseverance displayed by the officers and men belonging to the boats appointed to convoy the cargo-boats from Rangoon to Prome, a distance of more than 200 miles, against a rapid stream, exposed occasionally to a fire from the enemy, is deserving of my highest praise.

I have, &c.

GEORGE R. LAMBERT,  
*Commodore 1st Class, Commander-in-chief.*

*A List of the Naval Force employed at the Occupation of the City of Prome, under the Command of Commodore Lambert, on the 9th and 10th of October, 1852.*

"Fire Queen," Bengal Marine (broad pendant of the Commodore); S. G. Boon, Commander. 8 guns. On board—Commodore George R. Lambert, commanding the East India and China Station; J. L. Southey, Esq., Secretary; Lieutenant George Rice, R.N., Flag-Lieutenant; Mr. Cottam, Midshipman; and the gig's crew of Her Majesty's ship "Fox."

"Enterprise," Bengal Marine; G. T. Neblett, Commander. 6 guns. On board—Captain G. G. Loch, C.B.; the Hon. Mr. Lascelles, Midshipman; and the gig's crew of Her Majesty's ship "Winchester."

"Mahanuddy," Bengal Marine; J. Simson, Commander. 4 guns. On board—Commander C. F. A. Shadwell; His Serene Highness Prince Ernest of Leiningen, Midshipman; and the gig's crew of Her Majesty's ship "Sphinx."

"Sesostris," steam-frigate, Indian Navy; C. D. Campbell, I.N., Commander. 5 guns; with two 8-inch guns.

"Medusa," Indian Navy; Lieutenant Fraser, N.I. 6 guns.

"Nemesis," Bengal Marine, R. Goodwin, Commander. 6 guns.

"Proserpine," Bengal Marine, A. Brooking, Commander. 6 guns.

"Phlegethon," Bengal Marine, A. Fryer, Commander. 6 guns.

*Boats of the Squadron, conveying Cargo-boats laden with Stores and Provisions, under the Command of Commander E. B. Rice, of Her Majesty's ship "Hastings."*

Her Majesty's ship "Fox," barge and pinnace, 2 guns.

" " "Winchester," barge and pinnace, 2 guns.

" " "Hastings," launch and gig, 1 gun.

" " "Sphinx," pinnace, 1 gun.

*Officers employed in these Boats.*

Mr. Copland, Mate; Mr. Lucas, Midshipman; Mr. Hudson, Midshipman; Her Majesty's ship "Fox," under the superintendence of Lieutenant Rice.

Lieutenants H. S. Hillyar and R. B. Pearse; Messrs. Round and Wilson, and the Baron Van Otter, Mates; and Mr. Slade, Assistant Surgeon; Her Majesty's ship "Winchester."

Mr. Nott, Acting-Mate; and Lieutenant Holland, Royal Marines; Her Majesty's ship "Hastings."

Mr. Smith, Midshipman; Her Majesty's ship "Sphinx."

N.B.—The launch, 2nd pinnace, and cutter, of Her Majesty's ship "Fox," under Lieutenants Kennedy and Mason, and launch of Her Majesty's ship "Winchester," assisted in conveying as far as Henzadah; and the barge and pinnace of Her Majesty's ship "Hastings," with Mr. Davidson, Acting-Mate, and Mr. Luttrell, Midshipman, and Dr. Woods, M.A., M.D., Assistant Surgeon on board, under the superintendence of Lieutenant Edye, from Henzadah to Prome.

GEORGE R. LAMBERT, *Commodore.*

*List of Wounded in the Flotilla under the Command of Commodore Lambert, at Prome, the 9th of October, 1852.*

Her Majesty's ship "Fox's" barge, David Reid, A.B.

" " "Winchester's" pinnace, David Evens, A.B.

East India Company's steam-vessel "Mahanuddy," two natives of India.

GEORGE R. LAMBERT, *Commodore.*

*Inclosure 3 in No. 16.*

*Major-General Godwin to the Secretary to the Government of India.*

Sir,

*Prome, October 12, 1852.*

THE Governor-General in Council was aware of my intention, at the proper season, when the monsoon here had in some measure subsided, to break up the army at Rangoon, and remove its head-quarters to Prome.

I have now the honor to inform you that the first division of this force is in possession of that city.

After some weeks of preparation, the embarkation commenced on the 16th of September, and the 1st Division, amounting to 2300 men, and consisting of one company of the Madras Foot Artillery, with two 24-pounder howitzers and four 9-pounder guns, Her Majesty's 18th Royal Irish, Her Majesty's 80th Regiment, the 35th Regiment Madras Native Infantry, and 119 Sappers, were all on board by the 25th idem.



The flotilla arrived off Prome on the morning of the 9th of October; each ship was cannonaded from a projecting point on the hills, as it rounded to the city, with very little effect. This fire was returned with much spirit by the steamers.

The weather here is so intensely hot, that I disembarked the Artillery under Brigadier Foord; Her Majesty's 80th Regiment, under Lieutenant-Colonel Hutchinson, with the Sappers under Lieutenant Allen, on the evening of the same day; and, by sunrise the next morning, the 18th Royal Irish, under Lieutenant-Colonel Coote, and the 35th Madras Native Infantry, under Lieutenant-Colonel Apthorp.

The enemy, consisting of three or four thousand men, occupied a very fine position on a range of hills about a thousand yards east from the point where they first opened fire, commanding the town and the large pagoda, which they also occupied.

The troops were landed in the evening, in a suburb to the north of, and beyond, the town. I then ordered them to advance towards the position I had selected for the night; when, upon the head of the column approaching a dry nullah dividing the suburb from the town, a very smart fire of musketry and jingals was simultaneously opened from some jungle and houses on our left, and a small pagoda in our front.

The grenadiers of Her Majesty's 80th Regiment, under Captain Christie, immediately advanced at the double towards the pagoda, and a party, consisting of two companies of the same regiment, under Captain Welsh, and accompanied by Brigadier Reynolds, were detached to the left, and in a very short time most gallantly drove the enemy out of their position, with the loss of only one man killed and a few wounded, Captain Welsh's party bringing in a jingal.

The grenadiers of the 80th Regiment kept possession of the pagoda, which I made the right of my position, and the troops had excellent cover during the night, which was passed in perfect quietude.

The following morning, when the remainder of the troops were landed, I advanced through the town in a direction I had determined upon the day before, from plans of the place in my possession, covered by the flank companies of the 18th Royal Irish and Her Majesty's 80th Regiments, and two 24-pounder howitzers, which were drawn by a party of sailors, under Commander Rice, of Her Majesty's ship "Hastings." Upon our advanced guard reaching the pagoda, it found that the enemy had abandoned that position, as well as the heights beyond it, leaving in our possession an entirely evacuated town, overrun with thick and rank vegetation, and, I regret to add, abounding in swamps.

It is evident that the enemy expected our force to land, and advance up the direct road to the pagoda, along which they had erected two or three small breastworks, as well as removed the planking of several wooden bridges leading to the pagoda, and the heights beyond it; but landing at the point we did, not only gave us an excellent road, but at the same time completely turned their position, rendering it impossible for them to hold it.

I have been for a long time aware of the assemblage of a large force about ten miles east of Prome, and at which place they also had a very formidable force in the last war, which took Sir Archibald Campbell several days to disperse. I have ascertained, from very good authority; that they have now about 18,000 men well posted in two or more stockades. It is not my intention to disturb them at present in any way, as by their concentration at that place the fine force now assembling here will have an opportunity of striking a blow which may put an end to much future opposition. It was on this Burmese Army that the enemy retreated from Prome upon our entering it.

The bravery and alacrity of the troops on this occasion was as conspicuous as it ever is.

His Lordship's thanks are deserved by Captain Christie, of Her Majesty's 80th Regiment, for the gallant manner in which he led his company to the attack and capture of the small pagoda in our front, and to Captain Welsh, who, with two companies of his regiment, drove the enemy out of their position on our left.

The general staff—Major Mayhew, Deputy Adjutant-General; Major Allan, Deputy Quartermaster-General; Captain Smith, Interpreter to the Force; as also my personal staff—Captain Burne, Military Secretary, and Lieutenant Chads, Aide-de-Camp, were active in rendering me every assistance.

Brigadier-General Sir John Cheape, commanding the Bengal division, came up to Prome with the portion of his division embarked, and was present throughout the whole of these operations; and I have great satisfaction in being enabled to leave him in command upon my return to Rangoon, where I am required, and for which place I shall leave this to-morrow.

I leave Major Fraser, of the Engineers, and Major Allan, Deputy Quarter-master-General, at Prome, to carry out the necessary arrangements for the reception of the regiments which will hereafter arrive.

To Commodore Lambert your Lordship is deeply indebted for the unremitting exertions, calling forth all possible resources, and anxious solicitude, which have accomplished the conveyance of the force to its destination up this noble, but most difficult to be navigated, river. To Commander Rice, for the exertions of himself and men under his command, I feel greatly indebted.

I have the honor to inclose a return of the casualties which have occurred during our operations before Prome, and to remain, &c.

H. GODWIN, *Major-General.*

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*Return of Killed and Wounded at the Attack and Capture of Prome,  
on the 9th of October, 1852.*

*Head-Quarters, Prome, October 12, 1852.*

Engineers.—1 severely wounded.

Her Majesty's 80th Foot.—1 killed; 1 severely, and 5 slightly wounded.

35th Madras Native Infantry.—1 slightly wounded.

Total.—1 killed; 8 wounded.

H. GODWIN,

*Major-General, Commanding Army of Burmah.*

W. MAYHEW, *Major,*

*Deputy Adjutant-General, Army of Burmah.*

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No. 17.

*The Governor-General of India in Council to the Secret Committee.*

*Fort William, November 6, 1852. (No. 53.)*

IN reply to your dispatch of the 6th of September last, we have the honor to forward for your information the accompanying copies of minutes recorded by us on the affairs of Burmah, from which it will be seen that we are unanimous in deprecating an occupation of Burmah, and that we further deprecate an advance to Ava (with the exception of Sir John Littler, who advocates an advance, but without an occupation).

We have, &c.,

DALHOUSIE.

J. LITTLER.

F. CURRIE.

J. LOWIS.

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Inclosure 1 in No. 17.

*Minute by the Governor-General of India.*

(Extract.)

*Fort William, November 3, 1852.*

THE dispatch of the Secret Committee, dated the 6th of September, contains a reply to the dispatch from this Government, dated the 2nd of July, wherein our future relations with Burmah were discussed.

The Committee entirely approves of the steps that had been taken by this Government, and fully adopts its recommendation that the Province of Pegu should be annexed, as the least measure of reparation and security that ought to be obtained upon the conclusion of the war.

The cordial approval of the Committee bestowed upon our measures, and

its ratification of the principle of our proposed policy, must be in the highest degree gratifying to my colleagues and myself.

I regret, however, to observe that the Committee does not coincide with the Governor-General in Council regarding the manner in which the formal termination of the war is to be effected.

The Government of India had proposed that the Province of Pegu should be conquered and occupied; and that, content with this acquisition, and with the strength and advantages of the position which the army would occupy, the Government should not, without absolute necessity, direct the troops to march upon Ava.

The Committee observes upon this suggestion, that it sees "material difficulties opposed to the retaining possession of the district without bringing the war to a conclusion, either by a Treaty with the King of Ava, of which that cession should be the basis (*sine qua non*), or by the entire subjugation of that Power." The Committee, accordingly, directs that "it should be announced to the King of Ava, that you are prepared to adopt the cession of the Province of Pegu, as the measure of compensation by which your further advance into his kingdom may be stayed, and to conclude a Treaty of Peace with him upon the foundation of that cession, accompanied by the necessary stipulations for the future maintenance of a friendly intercourse between the two nations; but that, in the event of his refusing or delaying to accede to that proposal, he must be prepared for all the consequences which he will bring upon himself by the further prosecution of the war in his dominions."

The orders of the Committee, therefore, are, that, on the occupation of Pegu being completed, the King of Burmah shall be called upon to conclude a Treaty of Peace, of which the cession of Pegu shall be the basis; and threatened, if he refuses, with all the consequences that continued war will bring upon him.

The terms of this menace are general, and if they stood by themselves might leave some doubt as to what precise consequences were in the contemplation of the Committee, as the results of continued war.

Interpreted by the aid of the context, the intentions of the Committee are evident. The opening remarks in paragraph 21, make it clear that the alternative proposed by the Committee, if the Court of Ava should refuse to conclude a Treaty, is the "entire subjugation of that Power."

It is the duty of the Governor-General in Council to obey the instructions of the Secret Committee. But it is a duty not less imperative upon him, that he should respectfully and frankly set before the Committee such objections as careful consideration may, in his deliberate judgment, suggest to *details* of policy enjoined by the Committee; upon which, from his local position and local experience, he must be well qualified to advise it.

This duty it is my wish to perform now, with deference.

I would premise that, when the Government of India advised that no advance should be made beyond Prome, it was under the impression that a proposal for the occupation of the Upper Provinces of the Burman Empire would never be entertained. That impression was derived from the expressions which were reported in the journals as having been employed by Her Majesty's Ministers in Parliament, strongly deprecating all conquest in Burmah, and from the tone adopted by the Committee, as well as by the public voice in England, upon the same question. The Government of India, therefore, concurring in these views, argued against an advance as impolitic, on the assumption that a subsequent retirement was inevitable, by reason of the objections which would everywhere be made to any larger occupation than that of the Lower Province.

Although it now appears that the objections felt by the Committee to the larger occupation are not insuperable, I still adhere to the policy originally recommended; and still strongly urge that the army should not advance to Ava, excepting under a more cogent necessity than that contemplated by the Committee in their present dispatch.

The Committee regards the Treaty as of great importance.

I regret to feel myself compelled to differ from it so widely, that I regard a treaty with this Burman Power as an evil to be avoided. Treaties of peace and commerce between civilized States are instruments of great power and value. In them the contracting parties solemnly bind themselves by mutual obligations in the sight of all nations. The obligations thus assumed cannot be lightly

disregarded by either party. Neighbouring nations standing by, who have witnessed the formation of the contract, deter, by their very presence, either Contracting Power from wrongfully violating its engagements. And under certain circumstances they would even interpose to enforce an observance of the stipulations of treaty.

But the conclusion of a treaty between the British Government and such a Power as Burmah, has no such efficacy or solemnity. Eastern nations set little store by such instruments. Their opinion of any attempted violation of treaty by Burmah would certainly not be calculated to deter the Court of Ava from prosecuting its unfaithful projects; and the British Government would obtain neither moral nor physical aid from them in enforcement of its rights, either by their opinion or by their action. In truth, the conclusion of such a treaty serves only to impose obligations upon the British Government in proportion as it confers rights. A general stipulation for peace and friendship, and for the mutual security of the subjects of both States, is not open to so much objection. But when clauses are multiplied, as in the Treaty of Yandaboo, and in the subsequent Commercial Treaty with Burmah, giving to the British Government many rights specified in detail, points of contact, and consequently of conflict, are multiplied in the same proportion. The British Government is thereby reduced to the necessity, either of interfering upon every occasion on which a faithless and overbearing Power disregards the stipulated rights of our subjects, or of avoiding the perpetual risk of quarrel by overlooking such disregard of its subjects' rights and neglecting to enforce them.

Such was the course pursued through many years in regard to our treaties with Burmah. The violations of them were innumerable; but we passed them by, for they were matters that were thought to be not worth going to war about. Our Envoys were actually hunted out of the country, wherein they were present by treaty; but we sat still under the contumely, because our hands were full of wars.

I do not presume to condemn this policy; I only describe it. But I add, without fear of contradiction, that it did unquestionably encourage the Burmese in their arrogance, and presumptuous violation of public rights, which led at last to the present war, and to their refusal of any reparation for the purpose of averting it.

Similar treaties formed now would, in like manner, lead either to early quarrel, or to a repetition of the same process as before, with the same result.

These are the reasons for which I regard the negotiations of a formal treaty with Burmah as productive of evil.

Even if the treaty be couched in those general terms to which I have said there is less objection, it would still, in my humble judgment, be wholly useless. The only considerations which would induce such a Power as Burmah to refrain from hostilities, and to save our subjects harmless, is fear of our power, and of the consequences, if they should provoke its exercise. If they have that fear, a treaty is superfluous for our protection: if they have it not, a treaty is worthless. For they not only do not observe treaties, but they do not affect to do so; the whole Burman people would scout, as an absurdity, the notion of their observing them, if there was any reason persuading to the contrary. I beg to quote again the statements of Dr. Judson, to whom their customs and character were familiar. He says, "All idea of negotiation is repugnant to the pride of the Burmans, and contrary to their custom. They believe that the conquering party will always keep what it has got if it can, and that negotiation is therefore useless. Overtures to treat, are always looked upon either as a mark of weakness, or they are considered as an artifice to gain time." Again, Dr. Judson says, in reply to the question, whether he considered the Burman Government very faithless, "Utterly so. They have no idea of the moral excellence; or of the utility; of good faith. They would consider it nothing less than folly to keep a treaty, if they could gain any thing by breaking it."

When the Government of India has such good evidence as this before it, of the disregard of all treaty obligations by the Burman Government, and when its own experience in the twenty-six years which have elapsed since that evidence was given, has abundantly proved its accuracy; the Governor-General in Council can have no other opinion than that a treaty with Burmah is of no more value than the reed with which it is written—that, as a barrier against hostility, it is as flimsy as the paper on which it is traced. Holding that opinion;

the Government of India has not contemplated forming a Treaty of Peace, in which it well knows no security for peace will be found.

Since, however, the Committee has expressed an opinion that a treaty should be formed, its injunctions shall be obeyed. But in obeying them, I submit that some relaxation should be made in the extreme penalty which the Committee have attached to any refusal by the Court, or even to any delay on its part, in concluding the treaty required. For if that penalty shall be fully and immediately exacted, it is my duty to say that, in my deliberate judgment, the consequences will be most injurious to the interests of the British Government.

I regard it as in the last degree improbable that the King will consent to sign a treaty ceding Pegu. That province was the first and best of the conquests of Burmah, and is the last that it has retained. To cede it, would be to cut off a right hand and pluck out a right eye. National pride would struggle bitterly against the open humiliation of a formal surrender. These motives would strongly affect almost every Burman. The personal character of the present King would hold out no hope of his being exempt from the same influences; while the intelligence that we have received, gives us good reason to believe that the King obstinately refuses to listen to any reasonable counsels regarding the war.

When the Committee directed that a refusal to sign a Treaty of Cession, should be followed by the entire subjugation of the Burman power, it had not before it the full information that (in the Minute of the 10th of August) must subsequently have made it acquainted with the great difficulties by which the execution of such an enterprise would be obstructed.

Nor, I think, has the Committee been fully aware of what it is that a total conquest of Burmah would involve. I beg permission to set forth in this place the difficulties and disadvantages which I foresee in the course that has been enjoined.

No correct estimate can be formed of the difficulty of moving a force on Ava, by a reference to the previous movements of this campaign, or to the recent advance of the first division of the army from Rangoon to Prome. It has been usual with the public press in India and in Europe, and with many other persons, to urge the immediate dispatch of a force upon the steam flotilla to Ava; thus to strike at the heart of the capital, and to terminate the war at once.

Such a movement is simply impossible. The Government of India has not at its disposal the means of effecting it. The steam flotilla is limited in numbers, and its operations are still further limited by the nature of the waters in which it has to act. It consisted during the late advance of the nine steam-vessels named in the margin.\* Since that time, the "Fire Queen" has necessarily been withdrawn from the river for the mail duty. Three small steamers† have been added. Thus the steam flotilla, now amounting to eleven vessels, is numerically stronger than before, but of about the same capacity for the conveyance of troops. On the late advance, the flotilla, towing boats and aided by the armed boats of the squadron escorting convoys, carried to Prome 2,300 men, with their equipments, stores, and ammunition. But this has been correctly described as a great effort, which could probably not be repeated even on the comparatively short passage from Rangoon to Prome. That it could not be repeated beyond Prome is very obvious. For, of the vessels I have named, the "Sesostris" is a steam frigate of 1000 tons, which it was resolved to put into the river while it was yet high. The "Enterprise" is a sea-going steamer, drawing twelve feet of water. The knowledge we obtained of the river by the voyage of the "Diana," and by the survey then made of the river, proves that it is physically impossible for these ships to navigate the Upper Irrawaddy in the dry season. The river has already fallen fifteen feet since the 9th of October.

Deducting these two large vessels, the remainder, having regard to the increased quantities of stores and supplies which must be carried as the force advances away from its depôts, could not convey more than 1000 or 1200 men upon the river.

If it be argued that advantage should be taken of the rains when the

\* "Sesostris," "Enterprise," "Fire Queen," "Pluto," "Proserpine," "Phlegethon," "Nemesis," "Medusa," "Mahanuddy."

† "Lord William Bentinck," "Damooda," "Nerbudda."

swollen stream would admit of the larger vessels proceeding onwards, I submit that very slight consideration would show the inexpediency of such an attempt.

No man in his senses—certainly no prudent Government—would attempt to carry steam frigates six hundred miles up a rocky, impetuous, and uncertain river, where so much may be risked by failure, so little obtained by complete success. It was but the other day that this same ship, "Sesostris," in coming down the broad, deep Bassein river, safely traversed before by the entire squadron in a single day, struck upon a rock not laid down. For forty-eight hours the ship hung upon the rock, and was saved only by the skill of its commander, and the perseverance of the crew. Such an event is tenfold more probable in the Irrawaddy, where the unwieldy vessel would be contending with a most powerful current. If it should occur, let it be considered what would be the effect on a ship crowded with troops, and crammed with stores; let it be considered what would be the moral effect which the loss of the ship would have upon our own men, not less than upon the enemy. Above all, what would become of the troops thus left without conveyance or cover?

And if all these misfortunes should be avoided, and the men should be landed, what effective operations could be carried on by them during the rainy season? For it is to be remembered, that although the monsoon above Prome is less heavy than at Rangoon, it is still the same as in other parts of India.

Similar consideration connected with the monsoon would greatly diminish the number of troops which the same ships could convey. Although 2300 men were recently brought to Prome, the voyage was comparatively short, and the weather was fine. Even then the men suffered from the crowding and confinement. If they are to be moved in the rains for nearly 400 miles further, the ships must be covered in, and the ships' boats could not give the same aid as of late. Unless it was desired to invite the decimation of cholera, the numbers embarked on each ship must be greatly less than on the advance to Prome. I give a wide estimate, when I say that the whole steam flotilla could not, in the rains, convey more than 1500 men.

Moreover, the flotilla cannot be increased. Every vessel that could be fitted on the Ganges has already been prepared; and the "Indus," the last of them, will shortly be sent. The steam-tugs, even if they could be brought, are useless; for they draw twelve feet of water.

On communicating with the Superintendent of the Indus flotilla, I found there were few which were not required for the service there, and that those few were old, and would be useless to contend with the stream of the Irrawaddy, even if they could be got safely across the sea, which was extremely doubtful. An attempt was made to buy a steamer at Bombay, but it was found to be unfit for the duty.

The facts I have detailed will show that the flotilla we have, can by no means be increased at present. They further show that whether, disregarding every risk, the advance be made from Prome in the rains, or in the dry season, the utmost amount of force that could be carried on the river alone would be 1500 men.

To rely upon this inconsiderable force for the conquest and occupation of Ava could not be gravely contemplated by the Government of India. The Burmese are styled a contemptible enemy, and they have shown themselves to be so during this war. But it is never wise to despise an enemy. To despise them so overmuch as to attempt the conquest of their empire with 1500 men, could not be justified: while our experience of Cabul is as yet but ten years old, it would be rash indeed thus to expose a handful of men, isolated in the midst of enemies, who, however immeasurably inferior to them in the field, yet might, by their mere numbers, cut off their supplies, harass them at every point, and, by the aid of climate, hunger, and fatigue, produce again the calamity which we have once had occasion to deplore.

If Sir Archibald Campbell at Yandaboo brought little more than 2000 effective men into the field, it is to be remembered that these were the remains of a conquering force opposed to the fragments of a broken and disheartened army. The conduct which in that gallant officer was a wise boldness would, if deliberately repeated by landing a still smaller force at Ava, be a reckless folly in the Government of to-day.

Having shewn that our means are wholly inadequate for conveying a

sufficient force by water to Ava, it follows that if an adequate force is to be sent, a large proportion of it must march by land.

The difficulties which would be found in moving such a force by land were pointed out in the Minute of the 10th of August. It was there said :

“An advance to Ava could not, according to the best information I have been able to obtain, be made wholly by water. I greatly doubt whether the steamers which during this autumn would go to Prome could, in the ensuing winter, mount the stream to Ava. In any case a heavy land column would, I humbly conceive, be unavoidable for some part of the way. Greatly as everything in that country is changed for the better, compared with what it was in 1824, I apprehend that the difficulty of obtaining land carriage would be hardly less now than then. Carts are extremely scarce, and they are not fitted for the heavy draught of the stores and equipage of troops. The chief animal of the country is the buffalo, which, excellent for purposes of tillage, is almost useless for heavy draught. Roads there are none, yet, with all these disadvantages, the annexed return will shew the vast amount of carriage held necessary to move even a small force. To supply this, including, as will be seen, nearly 300 elephants, would be practicable, no doubt. Everything of that sort is practicable, if one is resolved to do it; but it could be effected only at an enormous cost, which nothing but a proved indispensable necessity would justify the Government in incurring.

“Giving its full value to the friendly spirit of the people, the cost of supplies on such a march would still be very heavy indeed; and if, as is probable, much of those required for the European troops should of necessity be drawn from our stores by the sea, that heavy cost would be grievously enhanced.”

No time has been lost nor any exertions spared, since the date of that Minute, to collect carriage for the army, with a view to enabling it to move against any force that might be in its neighbourhood. One hundred and fifty elephants have been dispatched from Bengal. The Assistant Commissioner in Arracan undertakes to pass them over the mountains, and they will probably be at Prome by January.

Colonel Bogle, acting on instructions issued while I was at Rangoon, has collected and purchased 100 elephants on the Tenasserim side. He has collected also other carriage; but these will not be sufficient for an advance to Ava.

Subsequent information has shewn that local supplies of carriage cannot be looked for at present. Our intelligence had informed us that for 100 miles above Prome the country is already deserted by the King's orders, and from that point onwards the inhabitants of the towns and villages are keeping their boats ready for flight on our appearance. The state of things which the first division has found at Prome fully confirms this intelligence. The country was deserted; no one was in the city; its streets were filled with swamp and grass; and, when we last heard, no supplies were procurable excepting those which accompanied the force from Rangoon. These difficulties are not insuperable. The advance doubtless would be made, but at an enormous cost of treasure, and with a certain sacrifice of life, far worse than the loss of treasure.

Heretofore the charges of the war have been light indeed, compared with the cost of the previous war. But if the army is to be advanced 400 miles beyond its present position, the Government of India can no longer regard its financial position with the confidence it is now warranted in entertaining. The Court of Directors has recently been arranging for the conversion of a portion of the public debt; and the Governor-General in Council, notwithstanding that the time for this proposal (coming as it did in the midst of a Burmese war) seemed neither appropriate nor propitious, fell at once into the views of the Court, in the belief that the war-charges would amount to no such sum as would interfere with operations of conversion. But if the Committee requires this Government to protract the war, to continue the advance to Ava, and to seize a vast and unprofitable region, such pleasing prospects as conversion of five per cents and surplus revenue, both of which are now in the view of the Committee, must be abandoned; and the Committee must be prepared to hear, in lieu thereof, of exhausted cash balances and re-opened loans.

If, nevertheless, the advance should be made, doubtless it would be made successfully, and Umerapoorá would be captured. When all this has been effected, our task will still be but half done. If the Committee will refer to the

map of Burmah, it will find that six degrees of latitude must still be traversed before the subjugation of the Burman power will be effected. That tract of country is mountainous, jungly, and peopled with wild tribes. The difficulties of subduing this tract cannot be stated, because they cannot be calculated. But supposing that its conquest has been effected, and that the subjugation of the Burman Empire has been completed, I respectfully request the Committee to consider the burden which they have bidden the Government of India to assume therein.

Territory, 800 miles in length, from the Sea to Assam, and varying in breadth from Arracan to the borders of China, will have been added to the British possessions in the East. Once taken, it must be held, or all the evils which accompany retrocession on our part will be brought upon us. Admitting that the Shans and the other Hill Tribes are insignificant in the plains, like the Nagas and Singphoes round Assam, we shall not be free from perplexity; for we shall have placed ourselves in contact with them among their hills. No hill people is contemptible among its own hills. That these people will not be so, whatever they may be in the plains, we may with certainty infer, when we recollect that our attempt to coerce the Nagas some two years ago was attended with no very brilliant results. At all events, local troops will be required for the purpose, at least as much as they have been required in Assam.

If our power is to be respected, and the subjugation of the Burman authority is to be complete, the machinery of civil government, however simple in form, must be established among them.

In Burmah Proper, as it may be called, an adequate military force must be placed, to hold the country after it has been taken. It is vain to contend that the same force which will suffice to hold Pegu, will suffice also to hold Ava. No Government can venture to risk its European and Native troops at great distances from any support, and with the sea intervening between them and the great body of the army; unless the force thus isolated, depending largely for its supplies upon the country round, and restricted in its efficiency by the power of climate, shall be strong enough in itself to hold its own for a considerable time against whatever may come against it.

If it should be said that once at Ava the force is not likely to be attacked, and that the people of Burmah are all desirous of our rule; I reply that the Government can give no heed to those who represent the feelings of the Burmese to be favorable to the British rule. The Government may safely assume that the Taliens are favourable to us, because their acts have proved it, and because the probabilities of the case are in favour of that assumption. The Taliens are a conquered and oppressed people. They hate their oppressors, and will gladly unite with any who will free them from the yoke. But the Burmans are the conquering race. They long reigned supreme over the nations round them. They are, as all know, arrogant, vaunting, and aggressive. It was the British who first checked their career, and humbled their pride. The British have stripped them of all their conquests one after another—Assam, Arracan, Tenasserim, and now Pegu. And if we shall still proceed, and, not content with depriving them of their conquests, shall invade their own soil, drive out their sovereign, and impose dominion upon them; on what conceivable ground can it be supposed that they will view us with favour, and hail our supremacy?

It may be that they would in time become reconciled to it; it may be, contrary to all probability, that they would not dislike, even now, the introduction of our authority. But, in common prudence, the Government of India must prepare itself for the other and more probable event; and must make itself strong enough to resist their hostility, at least until it has had substantial evidence that there is none to fear.

For this purpose a military force must be maintained, greatly exceeding that which has been stated by General Godwin to be necessary for the occupation of Pegu alone.

In the same manner as the military force must be increased, the means of civil government must be enlarged also. Territory so extensive as that which it is now proposed to occupy, cannot be sufficiently governed by the same amount of superintendence as would amply provide for Pegu. The scale of administration must be that of a kingdom, not of a mere province. And as



distances will be great, and population comparatively sparse, a larger proportionate number of civil officers would be required for the Upper Country, than for the more accessible, and compact districts of the Lower Provinces.

While military and civil expenses would thus be largely increased by the conquest of Burmah, no corresponding increase of revenue would be obtained to meet them. Revenue, of course, would be collected; but from all the information within my reach, I am satisfied that the revenues of Burmah would not be sufficient to meet the extra expense which the possession of Burmah would impose upon us.

If the words, "complete subjugation of the Burman power," shall be held to mean, not the conquest and annexation of the entire kingdom, as described above, but the defeat of the Burman army, the expulsion of the King from his capital, and the occupation of the country as far as the borders of the hilly country beyond Umerápoora, some of the objections which have been stated to the entire conquest of Burmah will be removed. These, however, will only be such as are founded on the difficulty and cost involved in the military and civil control of the hill country. The main objections which I have stated, and which were based on the prospect of increased charges, and an inadequate revenue, remain as fully in force against this modified conquest as against entire subjugation.

And as the modified scheme of placing the frontier near to Ava is liable to almost every objection which I feel to the total conquest of Burmah, so it is liable to all the objections which the Committee have felt to our proposal for fixing the frontier at Prome.

The policy which would fix the frontier near to Ava would assuredly leave us still without a Treaty of Peace, and with the prospect of an indefinite continuance of hostilities between the two States. My own conviction remains as I have already expressed it,—that the King would make no overtures and no submission. On our approach to Ava he would retire into his highlands, as was their declared policy before, and as recent intelligence received through Armenian merchants at Ava shows to be the King's intention now.

Even if he should forego that intention, and should make his submission as we approached Ava, there is no hope whatever of his signing such a treaty as the Committee has required. If it be improbable that the King would consent by treaty to cede Pegu, it is absolutely certain that when the British army has advanced in consequence of that refusal, and the subjugation of his kingdom has been resolved upon, he will never consent to sign a treaty by which he shall cede the fairest portion of his kingdom to us, and shall confine himself for the future to forests and barren hills. Yet, if he does not do so, the British Government will then be in precisely the same position to which the Committee has objected at Prome. No peace will have been concluded;—the King will retire into his fastnesses; an indefinite continuance of hostilities will be as likely then as now, and our position at Ava will be, to say the least of it, not less precarious and undefined than at Prome. The only difference will be, that we shall be encumbered with four hundred miles of additional territory, with enhanced expenses and disproportionate returns.

Having endeavoured, in the preceding paragraph, to state, with deference but without reserve, the strong objections which I see to the adoption of a line of policy upon the occupation of the Lower Province, which must inevitably lead to consequences that seem to me to be most injurious to the public interests, whether they involve the total conquest of the Burman Empire, or the conquest of it as far as Ava, I beg permission to offer some explanations in reply to the objections which the Committee has stated to the course suggested by the Governor-General in Council.

The objections of the Committee are—First, That "a professed determination not to extend our military operations further, would place us in a precarious and undefined position:" Secondly, That it "would entail upon us the necessity of maintaining a force upon a war footing in that district for the defence of it:" Thirdly, That "it might leave an unfavorable impression upon the minds of the people of India, who might be disposed to ascribe its forbearance to a want of power rather than to a spirit of moderation."

The words of the minute which suggested the policy of occupying Pegu "with the declared intention of holding it permanently without proceeding onwards to the capital," have misled the Committee by the double construction

of which they are capable. Those words were not intended to mean that a resolution should be declared of holding Pegu and of not proceeding to the capital. They were intended only to mean that, without proceeding beyond Pegu, we should declare the resolution to hold that province permanently.

I had by no means intended either to content myself with a silent seizure of the province, or to allow the Court of Ava to suppose that it was free from all further risk from our arms. It was my intention to state, both in the Proclamation of Annexation, and in a Letter to be addressed to the King at the same time, that while we sought no further conquest, and did not wish to continue hostilities, any aggression on the part of the Burmese, or attempts to disturb the British Government in the peaceful possession of the province which it had declared its intention permanently to retain, would bring down upon the head of the King such further retribution as the Government of India might think proper to inflict.

The proposal of the Governor-General in Council was, therefore, not liable to the objection which has been seen to it by the Committee, viz., that it seemed to encourage aggressions on the part of the Burmese, by declaring an intention on our part which would have given impunity to them.

Secondly, I beg respectfully to state that the Committee is in error in supposing that the policy suggested by the Governor-General in Council would necessitate the maintenance in Pegu of any larger force for its defence than would be maintained if a treaty of peace were concluded.

I hold a treaty of any kind with the Burmese to be so valueless, that the conclusion of one would not induce me to keep one regiment less in Pegu than if there were no treaty. If peace be preserved, it will be only by their conviction of our power; and, to sustain that conviction, a force ample for our defence against external attack must long be maintained there.

The objection, therefore, which was founded on the supposition that the Government of India must maintain a larger force in Pegu if there were no treaty than it otherwise would do, falls to the ground.

Nor would the force be kept on a "war footing" if there were no treaty, any more than if it were negotiated. The allowances of the troops serving in Pegu will be nearly, if not quite, the same when the war is concluded as they are at present. By long established practice, all troops crossing the sea receive the higher allowances;—the Bengal troops have always received them in Arracan; the Madras troops habitually receive them when holding the Tenasserim Provinces in time of peace. Wherefore, for the present, at least, and until a great change be made, the higher allowances could not be withheld from the troops in Pegu.

From these remarks it will be seen that, as the number of troops in Pegu would not be increased by the want of a formal termination of hostilities, in the shape of a treaty of peace, so their allowances would not be on a more expensive footing.

I beg further to observe, in connexion with this portion of the subject, that the Committee was under a misapprehension when it remarked, with reference to the force which General Godwin estimated to be necessary for the advance upon Ava, that "this force would be required under any of the circumstances contemplated by you."

Subsequent minutes will have informed the Committee that, for the conquest and safe occupation of Pegu, General Godwin required only one half of the reinforcements which he had asked for an advance upon Ava.

Thirdly, I would, with deference, contend that the measures proposed by the Governor-General in Council could not possibly be attributed by the people of India to a want of power, rather than to a spirit of moderation.

I do not affect to claim the merit of being governed in the policy I have proposed by a spirit of moderation. I have been guided thereto by unmixed considerations of the self-interest of the British Government:—any larger acquisition than the Province of Pegu, was calculated, in my opinion, to be injurious to this Government. For that reason I have opposed, and still deprecate it.

While I do not wish that the people of India should ascribe our contenting ourselves with the occupation of Pegu to a spirit of moderation, I feel very confident that they would not see in it any want of power.

When the Ameer Dost Mahomed Khan, in 1849, entered the Punjab in

arms against the British Government, and occupied his old province of Peshawur, our army, after having received the surrender of the Sikhs, pursued the army of the Dost. He was chased out of the country, and we occupied it. No treaty was required from him; it has been our policy not to enter into any treaty with him: and that course has been approved by the Committee. Yet, although there was no treaty, and no definitive conclusion of hostilities, no one has ever seen in that fact any reason to doubt the substantial power of the British, of which they had positive evidence before their eyes, in our expulsion of the Dost through the Khyber, and our permanent occupation of the province he coveted.

So it will be in Pegu. Eastern nations do not view treaties as we do, or attach the same solemnity to them. They will miss nothing in the absence of a treaty of peace; while, in the news of the seizure and annexation of the Province of Pegu, the last remaining and fairest conquest of the Burman power, they will hear and acknowledge a resounding blow, which supplies effectual proof of the power that struck it.

By the explanations and observations in the preceding paragraphs, I have sought to remove the objections which the Committee has stated to the measures proposed by the Government of India. I beg leave now to state concisely the reasons which led me to suggest, and which urge me still to advocate, their adoption.

On considering the policy which the Government of India should pursue towards Burmah, and the mode in which it should be carried into effect, I have steadily guided myself by the one principle of obtaining a reparation for the past, and security for the future.

The occupation of Pegu does, in my judgment, afford reparation for the past, and will give effectual security for the future.

The physical and commercial advantages that would accompany the possession of Pegu by the British Government, were set forth in the Minute of the 30th of June. The inquiries which have sedulously been made since that time, tend, as far as they go, to confirm the safe and moderate estimate, which stated the revenues of Pegu at twenty-five lacs a-year. The annexation of a territory in perpetuity, producing the revenue above named, and susceptible of great and various improvement, will certainly pay for all the cost of its occupation and government, and fully reimburse the State for all the charges of the present war.

Further, the annexation of that territory will, I confidently hope, be sufficient to give us security for peace in the future, by depriving the Burmese of much of their means for carrying on war, and by arming us with commanding advantages calculated to deter them from attempting it.

The loss of Pegu will cut off from the Court of Ava its richest province, whereby its treasury will be impoverished, and the sinews of war will be shrivelled up. It will deprive them of the resource which they had for bringing an army into the field, by the operation of that tenure which made each man a soldier liable to take the field as a conscript whenever he was summoned to do so. However bitter, then, their feelings of hostility against the British may continue to be, the mere occupation of Pegu will very greatly curtail their means of indulging it, both in men and money.

Thus, our security for peace will be found in their being deprived of half the power they possessed for making war. The power that is left to them is little likely to be capable of real war. The trained troops of the Burmese, we have every reason to believe, have never exceeded three thousand men. Their temporary levies are neither trained nor properly armed. Brought together by conscription, they are available for local or temporary purposes, but they cannot be kept together as an army. Already, according to the information we have received, the system of levies is breaking down. In the north, as reported by the Political Officer in Assam, the Shans refused to send their quota. Excepting comparatively small bodies of men in Pegu, it is clear that there is no army on foot; and already the King has been obliged to pay largely, as at the close of the last war, for the men he has engaged and sent down. But if the system of levies fails, the treasury of Ava cannot long support the expense of keeping troops on a paid footing.

Thus the Government of Ava, deprived of Pegu, has not the means of protracting war against us.

If they should, nevertheless, collect an army for attack after the declared annexation of Pegu, we could desire nothing better. The frontier of Prome is not extensive. Its central portion is filled by the Galadzeh mountains, covered with jungle, and destitute of water, which are as impassable even to a Burmese army as to us. The valley of Prome and the valley of Tounghoo are the only points of attack. Major-General Godwin has given it as his opinion, that the smaller force he named would "repel any force that an enemy might attempt to stockade with, or to offer any violence to the Pegu people." Experience of both wars, and especially of the present one, justifies us in concluding, without any presumption, that as an *attacking* force a Burmese army is truly contemptible. If they should attempt so to attack with an army, its destruction, if it will stand, or its total dispersion, if it breaks, would be the certain consequence. A repetition of such attacks, or of the assemblage of armies, I have already stated to be impracticable, for the reasons I have given.

Although I hold attack from the Burmese in force to be in the highest degree improbable, it is very likely that for some time they may harass the border by guerilla inroads. Ample means for meeting such attacks are already at our disposal, without exposing the main body of our force to the worry of them.

The Arracan battalions have recently sent up to the Government, to entreat that it will employ them against their "hereditary enemies," the Burmese. The 68th N. I. being at Kyook Phyoo, the battalion can well be spared, and will be most efficient for the purpose. The Sikh battalion, just now embarked, is excellently adapted for such service, and will be made use of.

Thus, while it is, in my opinion, impracticable for the Burmese to continue attacks in force, a predatory frontier skirmishing we have ample means of meeting. Being met, and the villagers themselves aiding, as they will do with confidence when supported, I am inclined to believe that it would very soon cease. But if it did not, it is my firm conviction that half a century of such forays would be infinitely preferable to the occupation of Burmah.

The superiority of our military power, and the great diminution of that of the Burmese by the annexation of Pegu, are not the only securities for peace on which I reckon. We obtain by the annexation commanding advantages, which would be calculated to deter the Burmese from continuing hostilities, though they had better means of carrying them on than they will henceforth possess.

Burmah depends largely upon Pegu for the supply of all its wants. Pegu is the outlet for its export, the sole channel for its commerce. Pegu is the storehouse, from which it draws almost exclusively its supply of articles of first necessity, rice and salt. Pegu is the mart from which alone it can derive ngapé, or preserved fish, an article of such universal consumption that it has almost become a necessary food; and every other object of use or luxury which it employs.

In occupying Pegu at Prome, the Government of India holds in its hand the key of the food, and of the enjoyment of Burmah. How effectually we are therefore enabled to lock up the supplies of both, the present campaign has shewn. Although the Irrawaddy has of course been less effectually stopped than it will be by arrangements made at Prome, the effect of our partial command over the traffic of country-boats on the river, has been most severely felt. Setting aside as exaggerations, the statement made by the natives, that the Burmese force near Prome were reduced to feed "on ponies and plantain-stalks," we have positive proof that they and the population have been reduced to great straits; for the fact has been authenticated through several channels, that two months ago the basket of rice, whose price was usually half a rupee, was then selling at five rupees.

With such a power as this in our hands, the Burmese will not be likely to provoke its exercise. If peace be observed, their usual supplies will be permitted to pass. But if we should be harassed in our possession of Pegu, the traffic will be stopped, as an instrument of most effectual blockade; even though the stoppage must necessarily be detrimental to our own subjects and to our revenue for the time.

These considerations of our own superiority in military power and naval means, of the diminished resources and straitened revenue of the Burman Government, and of the absolute control we shall hold over the supplies and the trade of Burmah, are to my mind effectual guarantees that the security of our

possession of Pegu will not be long or seriously disturbed by the hostility of the Court of Ava.

If my anticipations should be fulfilled, the British Government will gain a vast advantage by limiting its acquisition to Pegu, and avoiding the extension of its dominion over Burmah. Pegu is manageable in extent, accessible and compact. Its people are friendly and unwarlike; hence internal Government will be easy and cheap. Its external defence, as I have already shewn, will not be difficult. The ports of Pegu, its tidal rivers, its fertile soil, its products, and its forests, hold out a fair promise of commerce and of public wealth. In one word, by the annexation of Pegu, we hold in the easy grasp of our hand, the kernel of the Burman Empire. Why should we, by the occupation of Ava, encumber ourselves with an armful of worthless rind?

Should it be objected that there is inconsistency in my anticipation that our possession of Pegu will not be long or seriously disturbed by the Burmese, when I have elsewhere expressed my conviction that they would not conclude a Treaty of Cession; I would observe that there is no inconsistency herein.

I believe that the Court of Ava would silently acquiesce in a loss, though it would not openly assent to a cession. A conviction of its own interests would dissuade it from disputing our possession, while its extravagant pride would not allow it to give us possession by a formal act of its own.

Such distinctions no doubt are senseless. But it needs little experience of native chiefs and people, to teach how often their acts are irreconcilable with common sense, or traceable to any intelligible motive.

But if my anticipations should not be fulfilled, and if, notwithstanding the superiority which they cannot deny, and the risk which they cannot fail to recognise, the Burmese should really dispute our possession; still I earnestly contend that an onward territorial movement should be avoided to the last. So injurious do I consider the extension of our sovereignty over Burmah would be, that I would exhaust every honorable expedient before I would advise recourse to that measure. Though I am strongly opposed to an advance on Ava, followed by a retirement to Prome, I would advise that even that costly military operation should be undertaken before Burmah be made and declared a British possession.

But if, after all, peace cannot be procured by any thing short of the conquest of Burmah; if the lapse of time and the course of events shall establish a real necessity for advance, then let us advance—let us fulfil the destiny which there, as elsewhere, will have compelled us forward in spite of our own wishes; and let us reconcile ourselves to a course which will then have no alternative. Having made every honest exertion to stand fast, we shall go on with a clear conscience—with motives unimpeached; and we may rest tranquil as to the ultimate result.

I advocate this policy with the more confidence that, if we should hereafter be obliged to depart from it, we may do so without having lost anything by the delay.

If we advance now, everything must be done in haste, from a new possession, and with limited means. If advance should be resolved upon hereafter, I know of no advantage that will have been sacrificed by the delay; while the interval will have greatly increased our means of movement and the power with which we shall move. The new province will in a few months be well known to us, and its resources ascertained. The communication on the river will be established; supplies and carriage will be more abundant; military stores and appliances will be brought to Prome. We shall move more deliberately, more easily, more cheaply, and more effectually than we could do at the present time.

My object in recording this Minute has been partly to explain and to remove the objections which the Secret Committee has felt to the course of policy which the Governor-General in Council has proposed to pursue at the termination of the war, and partly to perform my duty by stating the objections which, in my judgment, apply to the larger military operations, and to the extended conquests, which are involved in a literal obedience to the instructions of the Committee.

The moment for action on the part of the Government of India has nearly arrived. In a few weeks the occupation of Pegu will be complete, and the expulsion of the Burmese from the Eastern districts will be a minor affair. The

proclamation of annexation must then be issued, and the immediate measures of the Government must be taken.

Under these circumstances, I propose to give effect to the orders of the Committee by endeavouring to form a Treaty of Peace; but I propose also so far to modify these orders as to abstain from attaching to the refusal, or neglect, of our offer of a Treaty, a menace so worded as that it must inevitably lead to the immediate advance of the army, and to the ultimate conquest of Burmah. The modification in question will in no respect preclude the Committee from issuing positive orders for the conquest of Burmah, if it should be so minded after weighing and deliberating upon the additional considerations that have now been set before it.

When the occupation of Pegu shall be complete, a proclamation should be issued concisely stating the object and results of the war, and declaring the perpetual annexation of Pegu to the British dominions in India.

The precise terms of the proclamation will be decided hereafter: but it should contain a distinct statement that if the King of Burmah shall refuse to renew relations of peace with the British Government, and shall seek to disturb its peaceable possession of the province of Pegu, the strength of our arms will be again put forth for the vindication of our power by measures which can lead only to the subversion of his kingdom.

At the same time a letter should be addressed to the King of Burmah, reciting more fully the origin, the object, and the results of the war. He should be told that, having now fulfilled its threat, and exacted reparation by force of arms, the Government of India desires no further conquest, and is prepared to admit the Court of Ava to the former relations of peace and amity, by the conclusion of a Treaty of Peace between the States. If the Court of Ava desires to secure itself from further assaults by the power which it has found itself wholly unable to resist, it will cause the proper officers, duly accredited on its part, to repair to Prome, within one month from the dispatch of the letter to the King from that place, there to sign a treaty, by which the Province of Pegu shall be ceded to the British Government, and relations of friendship shall be renewed.

If the King of Ava shall fail to conclude the treaty abovementioned, and if he shall attempt to disturb the British Government in the quiet possession of the province which it has conquered, and intends to retain, the King will be prepared for the consequences that his reckless hostility may provoke—an hostility which, if long persisted in, can only end in the utter subversion of his kingdom, and in the exile and ruin of his race.

It is not easy to say how this letter shall be made to reach the hands of the King. To depute British officers to bear it, would be, in all probability, to send them to immediate death, and it is not to be thought of. It will be no easy matter to find any Burman who would undertake to be the bearer of such a missive to the King; for, if the accounts be true which we receive, and if the King be obstinately set against submission, and infuriated by tidings of defeat, the messenger is very likely to meet his death at the King's own hand.

Precise instructions will hereafter be prepared, including the letter to the King, and the proclamation of annexation. The latter shall be printed at Moulmein, and distributed in large numbers over the country, by which means it may come to the King's ears, though the letter should never reach him.

The Governor-General in Council has selected Captain Phayre, the present Commissioner of Arracan, to be Commissioner of Pegu. He has been directed to repair to the Presidency. An outline of the form of government has been prepared, and in consultation with the Commissioner its details will speedily be matured, and officers for the Civil Government will be chosen, so that the whole may be ready to come into operation, so soon as the proclamation annexing Pegu shall have been publicly promulgated there.

DALHOUSIE.

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## Inclosure 2 in No. 17.

*Minute by Sir John Littler.*

November 4, 1852.

WE should certainly drive the Burmese out of Pegu, and occupy it with the declared intention of retaining permanent possession.

Nothing, however, should, in my opinion, prevent our proceeding on to the capital, should the King obstinately hold out, and evade submission

No treaty, in fact, can ever be effected with the King of Ava, until we either reach the capital, or advance very near it. Should His Majesty refuse to conclude a treaty, there appears to me no other alternative but an entire overthrow of his power; but, at the same time, I do not consider a treaty with such an uncivilized race as the Burmese of any great importance, or that can be depended upon. A treaty with them is useless, for they set little value upon such documents.

The difficulties attending the march of troops to the capital will doubtless be great, but by no means insuperable. If it be attempted, it must be done with a firm determination to carry it through, and I am induced to suppose that the attempt would be perfectly successful. In all such movements, difficulties must and will occur.

The march beyond Prome, it appears to me, will be similar to an advance into any other hostile country; and supplies, &c. will have to be carried with the troops, as usual in such cases: there will be no greater difficulty in this advance than in any other hostile country.

In various parts of India I have witnessed similar movements, but they have always been carried through by the exertions and precautions of the several authorities and heads of departments to whom they have been intrusted. I have no doubt but such will be the case on a forward movement towards Ava. It was never contemplated, I presume, to retain permanent possession of Ava.

The mere presence of our troops at their capital will suffice to show the Burmese what can be accomplished, and that we are determined to bring His Majesty to a just and proper sense of his own position, and of what is due to the British Government.

A certain number of troops will, of course, have to be left at Prome, as a support to the advance. The number of troops to be maintained for the permanent occupation of Pegu can be decided upon when military operations in the field have terminated. I do not think myself that an advance on Ava will be attended with anything like the difficulty anticipated. The Burmese force is said to be assembled there; and where they can go, British troops can surely follow.

J. H. LITTLER.

## Inclosure 3 in No. 17.

*Minute by Sir F. Currie*

November 4, 1852.

I CONCUR with the Governor-General in the views recorded in his Lordship's minute of yesterday's date.

I see no reason, upon further consideration of the subject, to depart from the opinion already expressed by me, which opinion was formed upon full deliberation of the difficulties of our position, and the circumstances described in ample detail by his Lordship in the present paper.

If the Government of Ava, as I expect it will, refuses or evades all treaty, on our completing the occupation of the Province of Pegu, there will, doubtless, be some difficulty in terminating the war, without concluding a peace; but this difficulty appears to me the least in magnitude of those which present themselves on the horizon of future operations.

Every step that we take in advance of the Province of Pegu will involve enormous expense, without a prospect of remuneration—any position that we

may occupy, in the upper country, whether at Umerapoor, or further on, will be ruinous to our resources to maintain, and disparaging to our credit to abandon.

The British Government in the East never can fall back, or retrace its steps, without far more damage to the prestige of its power, than abstinence from advance, under almost any circumstances. The native powers may give us credit for moderation, and a reluctance to extend our conquests beyond reasonable limits; but they will never believe that we would give up what we have once acquired, save from inability to retain it.

I concur with the Governor-General in his estimation of a treaty with Burmah: I do not think it of great importance, whether a treaty is concluded or not: if it be, the terms should, as observed by his Lordship, be general, and the conditions few—any value which may attach to it will be rather as a mark of submission by the Burmese, than on account of the stipulations which the document may contain. The Burmese feel this, and they will be the more reluctant to make a treaty.

I concur in all the measures which the Governor-General proposes to adopt for proclaiming the annexation of Pegu, and for promulgating the intelligence of that annexation to Ava and elsewhere.

F. CURRIE.

Inclosure 4 in No. 17.

*Minute by Mr. Lewis.*

November 5, 1852.

I BEG to record my entire and hearty concurrence in the views of the Governor-General, propounded in his Lordship's minute, dated the 3rd instant.

I quite agree with my colleagues in the estimate which they all have formed of the value of a treaty with a prince so ignorant and untruthful as this Burman is known to be; but I would respectfully suggest to my colleague, Sir John Littler, that if such a document is not of "any great importance," or "cannot be depended upon," and "is useless," that the Government would scarcely be justified in expending blood and treasure in procuring its execution. It has never been questioned, least of all by his Lordship, that this Government is strong enough to plant the British flag on the ramparts of Umerapoor, should sufficient grounds exist, or arise, for doing so. Yet such an expedition would only be made at vast cost; and the argument is, that it should not be undertaken for the sole purpose of exacting from the Burmese a treaty, the value of which is truly described in the words which I have quoted above, from my colleague's minute, who, I observe, repudiates, as his Lordship proposes to do, the permanent possession of Ava.

J. LEWIS.

No. 18.

*The Secret Committee to the Governor-General of India in Council.*

December 23, 1852.

WE have received your dispatch of the 6th of November, No. 53, covering the Governor-General's minute of the 3rd of November, and the minutes of Sir John Littler and Sir Frederick Currie, of the 4th, and of Mr. Lewis of the 5th, on the subject of the war with Burmah, and more particularly with reference to our instructions conveyed to you by the mail of the 8th of September.

The course which the Governor-General proposes to pursue in accordance with those instructions, as expressed in the concluding part of paragraph 43, and in the subsequent paragraphs 44, 45, and 46 of his Lordship's minute, is so well adapted to the fulfilment of our directions, and the attainment of the conclusion which they pointed out to you, namely, the accomplishment of a peace with Burmah on the condition of the permanent annexation of the Province of Pegu to Her Majesty's dominions in the East, that they have our entire approbation.



We should deplore the necessity of further conquest, and we strongly feel the many serious objections to the annexation of any other portion of the Burman Empire.

We see with satisfaction, by the minute of Sir John Littler, whose military experience entitles his opinion to great consideration, that he does not estimate the difficulties of an advance upon Ava as being of so grave a character as to present a material obstacle to the adoption of that course, if it should be rendered necessary by the persevering hostility of the Burmese.

## No. 19.

*The Governor-General in Council to the Secret Committee.*

(Extract.) *Fort William, November 22, 1852. (No. 55.)*

GENERAL BUNDOOLA, the late Commander of the Burmese Army at Prome, surrendered himself on the morning of the 15th of October last.

## No. 20.

*The Governor-General of India in Council to the Court of Directors of the East India Company.*

(Extract.) *Fort William, December 7, 1852.*

WITH reference to certain statements reflecting upon those who are responsible for the conduct of the present war in Burmah, by alleging against them neglect of every precaution for the health and comfort of the troops employed, we have the honor to submit for your perusal the following documents in refutation of the allegations, and we trust the record will prove satisfactory to your Court.

We have, &c.

DALHOUSIE.  
J. H. LITTLER.  
F. CURRIE.  
J. LOWIS.

## Inclosure 1 in No. 20.

*Minute by the Governor-General of India.*

(Extract.) *September 21, 1852.*

STATEMENTS having been made which impute to the Government of India scandalous neglect of the health and safety of the troops employed in Burmah, I think it expedient to notice them, in order to place the facts correctly before the Court.

The statements made are the very reverse of fact. Certain official documents will be necessary to prove that they are so; and it is my wish to call for them from the several departments.

I propose, therefore, that the Secretary should address the Military Board, and request to know, for the information of the Government:

1st. What quantity of provisions were sent with the expedition to Rangoon in the month of March?

2nd. What those provisions were? Whether any complaint has been made of the quality of them? And whether, so far as the Board know, there is any foundation for the statement which has been made, that "measly pork," or bad pork of any kind, was served out as rations to the troops at Rangoon, from the Commissariat stores?

3rd. On what date fresh provisions were first furnished to the troops after their landing at Rangoon? How often they have been issued since that time? And what was the stock available by the last advice?

4th. What was the prospective supply, stated briefly?

I propose further that inquiry be made in the proper department to know what proportion of camp equipage was sent with the troops on that service.

A letter should be addressed to Major-General Godwin informing him that the notice of the Government has been drawn to certain statements which have been publicly made, and which it believes to be unfounded, regarding the provisions issued to the troops upon their landing at Rangoon in April last.

The Government requests him, as the officer commanding the expedition, to state whether the food provided for the troops by the Government was, as has been alleged, insufficient in quantity, and unwholesome in quality, consisting of "measly" or ill-cured pork. The Major-General is requested to put these questions to the Commissariat officers with the forces, as well as to the several commanding officers of regiments at that time under his orders, and to transmit copies of their replies.

The Major-General is further requested to obtain from the Superintending Surgeon with the force, the following medical returns :

1st. Number of deaths of Cholera in the European troops during the month of April, and the same statement from April to the 30th of August.

2nd. A similar return regarding the Native troops.

3rd. If it can be obtained, a return of any deaths by Cholera on board ship during the voyage from Calcutta and Madras respectively.

The Secretary will be so good as to obtain a return of the deaths by Cholera in Fort William (stated monthly), from the 1st of March to the 1st of September, 1852; the strength of Europeans in the Fort (monthly) being also stated.

These returns, with information already in my possession, will enable the Government to place the question fully before the Court.

DALHOUSIE.

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Inclosure 2 in No. 20.

*The Military Board to the Governor-General of India in Council.*

My Lord,

*Fort William, September 29, 1852.*

WE have the honor to acknowledge the receipt of Lieutenant-Colonel Birch's letter, of the 23rd of September, requesting an early report as to the quantity and quality of the provisions sent with the expedition to Rangoon in March last, and, in reply to the several points on which information is therein called for, to state :

1st. The instructions contained in the Government letter, dated the 19th of March, 1852, for increasing the supply of provisions with the Expedition to a four months' stock, were complied with, as reported in our letter, the 18th of May, 1852, by sending one half in the transports with the troops, and the remainder by the "Cecilia."

2nd. Our Board have received the Presidency Disbursements, charging in detail for the provisions and other stores dispatched to Rangoon; but the information required by your Lordship in Council will be more readily available by a perusal of the annexed abstract half-monthly statements of the provisions in store at Rangoon, one of these giving the quantities received and issued, and balances in hand; and the other, the periods for which such balances would meet the demands of the troops. The statements commence from the return by Assistant Commissary-General Captain Simpson, dated the 6th of May, 1852, submitted to Government with our letter dated the 2nd of June. No complaint has been made to the Board of any inferior or damaged provisions having been issued to the troops; some of the biscuit and pork\* sent by the "Cecilia," was damaged, as brought to the notice of your Lordship in Council in our dispatch, dated the 16th of September, 1852, but without affecting the supply to the troops, the damaged casks having been surveyed and condemned. Captain Simpson has always reported in most favorable terms of the stores sent to him, and our Board have had the satisfaction of soliciting the attention of your Lordship in Council to these remarks in our letters dated the 10th and the 16th of September, 1852.

\* Biscuit, 1 cask; salt pork, 9 casks.

3rd. The Batta Rolls for the month of April shew that Her Majesty's 18th Foot received fresh provisions for the first time after landing on the 21st of April, and Her Majesty's 80th on the 23rd idem; and that salt rations were only once again issued to them during the remainder of that month. Batta Rolls of subsequent months have not been received in our office, but Assistant Commissary-General Major Budd shews, in the 2nd paragraph of his report on the supply of slaughter cattle at Rangoon, a copy of which was transmitted to our Board with Lieutenant-Colonel Birch's letter, dated the 9th of July, that fresh provisions were given five times a-week, the troops drawing rations, salt meat, on Wednesdays and Saturdays; in his 4th paragraph he reports the practicability of a daily issue of fresh provisions, and a sufficiency for the whole force to the end of the year. Such an extension of the supply was not ordered, for it appears from Assistant Commissary-General Captain Simpson's latest return (for the 1st of September, 1852), that, during the preceding fortnight, salt provisions had been issued four days, and fresh ten days. In the above quoted return Assistant Commissary-General Captain Simpson reports on hand 156 slaughter cattle, and 237 sheep (for hospital issue only), or 7 days' supply of the former, and 43 of the latter; an abundant stock of cattle, however, as shewn in Major Budd's report, being kept up at Moulmein.

4th. The information submitted in the preceding paragraph shews an ample supply of fresh provisions for the troops at Rangoon: as regards those advancing to Prome, Captain Simpson states in his letter dated the 11th of September, submitted to your Lordship in Council in our letter dated the 20th of September, that he had little doubt but that live stock would be available, but that salt provisions would be dispatched with them.

We have, &c.

G. E. GOWAN, *Brigadier.*

F. S. HAWKINS, *Colonel.*

W. MACTIER, *Lieutenant-Colonel.*

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Inclosure 3 in No 20.

STATEMENT of Victualling Land Stores for the European and Native Troops of the Bengal Division of the Burmah Field-Force for Four Months.

Land provisions, May 6, 1852.	Slaughter Cattle.	Biscuit.	Salt Beef.	Salt Pork.	Flour.	Rice Moonghy.	Sugar.	Tea.	Coffee.	Salt.	Rum.	Dholl.	Ghee.	Cleaned Wheat for atah.	Cleaned Whea for bread.	Total Wheat.
		lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	galls.	lbs.	lbs.	lbs.	lbs.	lbs.
Four months' consumption ..	600	85,337	42,718	24,234	53,855	203,662	53,068	5,718	16,610	51,629	10,125	133,420	60,527	880,000	150,000	1,030,000
Deduct—																
In hand .. .. .	..	15,992	11,950	11,226	28,696	89,310	45,927	516	4,110	11,629	7,565	83,420	60,527	110,000	45,000	155,000
Expected per "Cecilia" ..	..	69,345	30,768	13,008	10,159	34,352	7,141	1,202	..	..	..	..	..	..	..	..
Expected from Amherst ..	..	..	..	..	..	..	..	..	..	..	..	..	..	90,000	..	90,000
Total .. .. .	..	85,337	42,718	24,234	38,855	123,662	53,068	1,718	4,110	11,629	7,565	83,420	60,527	200,000	45,000	245,000
Wanting to complete four months' consumption .. }	600	..	..	..	15,000	80,000	..	4,000	12,500	40,000	2,550	50,000	..	680,000	105,000	785,000

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Rangoon Field Commissariat Office of Control and Accounts,  
Bengal Division, May 6, 1852.

R. S. SIMPSON,  
Deputy-Assistant Commissary-General.

Inclosure 4 in No. 20.

RETURNS showing the quantity of Stores for European and Native Troops, on hand on the dates specified below.

LAND PROVISIONS. <i>May 15, 1852.</i>	Biscuit.	Salt Beef.	Salt Pork.	Flour.	Rice.	Sugar.	Tea.	Coffee.	Salt.	Rum.	Dholl.	Ghee.	Attah.	Wheat.	Gram.	Oil.	Wood.	Soojee.	Slaughter Bullocks.	Sheep.	REMARKS.
Balance per last Return .	lbs. 15,992	lbs 11,950	lbs. 11,226	lbs. 28,696	lbs. 89,310	lbs. 45,927	lbs 1,016	lbs 4,110	lbs. 11,629	galls. 7,565	lbs. 83,420	lbs. 60,527	lbs. 1,462	lbs. 155,040							Since the last Return, advice has been received that the whole of the Dholl arrived per "Ago Bukkurand Sagoff," is for the Madras Commissariat at Moulmen, which reduces the supply in hand to a few days' consumption.
Add, since received . .	-	15,000	-	-	-	-	-	-	-	1,200	-	-	4,847								
Total . .	15,992	28,950	11,226	28,696	89,310	45,927	1,016	4,110	11,629	8,765	83,420	60,527	6,309	155,040							
Deduct Issues . . . .	13,118	4,372	2,858	4,688	9,225	3,445	273	1,273	1,862	921	5,014	415	3,181	59,265							
Balance in hand.	2,874	22,578	8,368	24,008	80,085	42,482	743	2,837	9,767	7,844	78,406	60,112	3,128	96,775							
Average daily consumption	1,400	1,400	1,400	1,400	320	190	62	85	500	70	330	316	4,200	5,200							
Number of days . . . .	2	22	17	250	223	12	30	20	112	236	190	1	20								
<i>June 1, 1852.</i>																					
Balance per last Return .	2,874	22,578	8,368	24,008	80,085	42,482	743	2,837	9,767	7,844	78,406	60,112	3,128	96,775	70,894	27,521					
Add, since received . .	69,345	30,768	13,008	10,159	34,352	30,141	1,202	-	2,000	-	-	-	15,000	80,000	90,000	3 000					
Total . .	72,219	53,346	21,376	34,167	114,437	72,623	1,945	2,837	11,767	7,844	78,406	60,112	18,128	176,775	160,894	20,521					
Deduct Issues . . . .	5,012	17,394	8,308	20,780	11,522	2,326	710	937	889	4,112	73,264	27,881	5,022	11,075	10,492	74					
Balance in hand.	67,207	35,952	13,068	13,387	103,915	70,297	1,235	1,900	10,886	3,732	5,142	32,231	13,106	165,700	150,402	20,447					
Average daily consumption	1,400	1,400	1,400	1,400	350	190	62	95	560	70	350	320	3,500	5,200	720	40					
Number of days . . . .	60	35	10	300	300	20	20	25	60	12	100	3	35	180	210						

RETURNS showing the quantity of Stores, &c.—Continued.

LAND PROVISIONS.		Biscuit.	Salt Beef.	Salt Pork.	Flour.]	Rice.	Sugar.	Tea.	Coffee.	Salt.	Rum.	Dholl.	Ghee.	Aitah.	Wheat.	Gram.	Oil.	Wood.	Soojee.	Slaughter Bullocks.	Sheep.	REMARKS.
<i>June 15, 1852.</i>		lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	galls.	lbs.	lbs.	lbs.	lbs.	lbs.			lbs.			
Balance per last Return .	67,359	35,952	13,068	13,337	103,915	70,297	1,235	1,900	10,886	3,732	5,142	32,231	23,106	165,700	150,402	20,447						
Add, since received .	27,880	-	-	3,437	12,000	2,574	4,210	-	4,964	2,871	48,240	19,010	25,600	392,008	-	-	18,000	23,631				
Total .	95,239	35,952	13,068	16,824	115,915	72,871	5,445	1,900	15,850	6,603	53,382	51,241	48,706	557,708	150,402	20,447	18,000	23,631				
Deduct Issues .	10,509	4,469	243	13,266	66,866	33,487	520	665	2,540	539	15,106	6,328	11,931	96,980	71,055	2,835						
Balance in hand.	84,730	31,483	12,825	3,658	49,149	39,384	4,925	1,235	13,310	6,064	38,276	44,913	36,775	460,728	79,347	16,622	18,000	23,631				
Average daily consumption	1,400	1,400	1,400	350	190	62	95	500	70	350	320	3,500	5,200	720	40	-	-	1,500				
Number of days .	60	31	3	140	200	80	13	26	86	108	240	10	88	110	415	-	-	15				
<i>July 1, 1852.</i>																						
Balance per last Return .	84,730	31,483	12,825	3,658	49,000	39,384	4,925	1,235	13,310	6,064	38,276	44,913	36,776	460,728	79,347	16,622	18,000	23,637	-	-		
Add, since received .	83,964	68,540	7,573	55,220	184,166	51,949	526	955	1,690	4,173	-	-	108,511	203,072	-	-	-	13,590	142	24		Bullocks procur- able for purchase
Total .	168,694	100,023	20,398	58,878	233,166	91,333	5,451	2,190	15,000	10,237	38,276	44,913	145,286	663,800	79,347	16,622	18,000	37,227	142	24		Sheep not procur- able.
Deduct Issues .	12,000	6,000	6,000	15,000	50,000	3,000	900	1,500	7,500	1,050	7,936	8,647	52,000	78,000	4,834	2,722	18,000	3,931				
Balance in hand.	167,494	100,023	14,398	43,878	183,166	88,333	4,551	690	7,500	9,187	30,340	36,266	93,286	585,800	74,513	13,900	-	33,296	142	24		
Average daily consumption	1,400	1,400	750	350	200	62	100	500	70	350	320	3,500	5,200	720	40	-	-	750	7	4		
Number of days .	120	82	60	50	440	70	6	150	120	90	115	25	110	100	350	-	-	40	20	6		

RETURNS showing the Quantity of Stores, &c.—Continued.

LAND PROVISIONS. July 15, 1852.	Biscuit.	Salt Beef.	Salt Pork.	Slaughter Cattle.	Sheep.	Table Rice.	Coarse Rice.	Sugar.	Tea.	Coffee.	Salt.	Rum.	Dhol.	Ghee.	Attah.	Flour.	Wheat.	Sojee.	Gram.	Oil.	Ale.	Porter.	REMARKS.	
	lbs.	lbs.	lbs.			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	galls.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.					
Balance per last Return . . .	167,494	100,023	14,398	142	24	183,166	-	88,333	4,551	690	75,000	9,187	30,340	36,266	93,286	43,378	585,800	33,296	74,513	13,900			Salt selling at nearly 2 maunds per rupee at Rangoon Gram about 82 seers per rupee The Marine and Moulmein Commissariat stores have not been included in this return.	
Add, since received . . .	-	-	-	84	50	-	54,120	-	4,000	12,160	-	-	64,000											
Total . . .	167,494	100,023	14,398	226	74	183,166	54,120	88,333	8,551	12,790	75,000	9,187	94,340	36,266	93,286	43,878	585,800	33,296	74,513	13,900				
Deduct Issues . . .	164,984	48,923	3,198	69	57	149,338	-	16,417	226	-	41,679	4,728	8,382	15,166	61,512	12,786	2,047	8,760	1,205	750				
Balance in hand . . .	62,510	51,100	11,200	157	17	33,828	54,120	71,916	8,325	12,790	33,321	4,459	85,958	21,100	31,674	31,092	583,753	24,536	73,308	13,150				
Average daily consumption . . .	1,400	1,400		7	4	100	250	200	62	100	500	70	350	320	3,500	750	5,200	500	720	40				
Number of days . . .	45	45		23	4	338	210	360	134	127	66	64	245	66	9	41	112	49	100	329				
<b>August 1, 1852.</b>																								
Balance per last Return . . .	62,510	51,100	11,200	157	17	53,828	54,120	71,916	8,325	12,790	33,321	4,459	85,958	21,100	31,674	31,092	583,753	24,536	73,318	13,150				
Add, since received . . .	14,470	-	-	108	33	48,000	98,400	26,465	4,874	8,400	35,520	1,801	32,000	46,916	163,170	31,816	740,960	449	26,000	-	50	50		
Total . . .	76,980	51,100	11,200	265	50	81,828	152,520	98,381	12,999	21,190	68,841	6,260	117,958	68,016	194,844	62,908	1,324,713	14,985	99,318	13,150	50	50		
Deduct Issues . . .	8,932	2,264	2,877	59	22	4,975	28,840	2,723	582	497	3,559	467	15,958	2,196	21,514	5,992	143,753	6,359	2,146	469				
Balance in hand . . .	68,048	48,836	8,323	206	28	76,853	123,680	95,658	12,417	20,693	65,282	5,793	102,000	65,820	173,330	56,916	1,180,960	18,626	97,172	12,681	50	50		
Average daily consumption . . .	1,400	1,400		7	3	100	250	200	62	100	500	70	350	320	3,000	750	5,200	500	720	40				
Number of days . . .	48	40		34	9	76	490	478	200	172	180	82	300	200	50	75	230	37	135	320				

RETURNS showing the quantity of Stores, &c.—Continued.

LAND PROVISIONS.		Biscuit.	Salt Beef.	Salt Pork.	Slaughter Cattle.	Sheep.	Table Rice.	Coarse Rice.	Sugar.	Tea.	Coffee.	Salt.	Rum.	Dholl.	Ghee.	Attah.	Flour.	Wheat.	Soysee.	Gram.	Oil.	Ale.	Porter.	REMARKS.
<i>August 15, 1852.</i>		lbs.	lbs.	lbs.			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	galls	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.			
Balance per last Return .		68,048	48,836	8,323	206	28	76,853	123,680	95,658	12,417	20,693	65,282	5,793	102,000	65,820	56,916	173,330	1,180,960	18,626	97,172	12,681			
Add, since received .		12,314	21,000	15,000	10	206	-	-	24,760	4,000	-	24,218	2,448	40,000	32,829	29,711	14,150	488,000	12,964					
Total .		80,362	69,836	23,323	216	234	76,853	123,680	120,418	16,417	20,693	89,500	8,241	142,000	98,649	86,627	287,480	1,668,960	31,590	97,172	12,681			
Deduct Issues .		8,308	3,131	7,165	60	60	5,319	56,860	5,143	2,336	898	1,953	193	9,361	6,554	10,934	29,348	12,780	4,662	5,632	746			
Balance in hand .		72,054	66,705	16,158	156	174	71,534	66,820	115,275	14,081	19,795	87,547	8,048	132,639	92,095	75,693	158,132	1,646,180	26,928	91,540	11,935			
Average daily consumption		1,800	1,800		9	4	120	300	200	112	500	90	350	320	800		5,000		600	750	50			
Number of days .		40	45		17	43	600	224	570	30	175	90	380	290	95		360		45	122	240			

  

<i>September 1, 1852.</i>		Salt Beef.	Salt Pork.	Biscuit.	Flour.	Sugar.	Wheat.	Attah.	Rice, table.	Rice, coarse.	Sugar.	Tea, Black.	Coffee.	Salt.	Rum.	Dholl.	Ghee.	Gram.	Oil.	Slaughter Cattle.	Sheep.	Porter.	Ale.	REMARKS.
Balance per last Return .		66,905	16,158	72,054	75,693	26,928	1,646,180	158,132	71,534	66,820	115,275	14,081	19,795	87,547	8,048	132,639	92,095	91,540	11,935	156	174			
Add, since received .		-	-	20,520	22,351	43,821	332,800	52,963	-	80,000	-	2,000	-	-	1,200	40,000	16,458	80,000	-	-	63	40	40	
Total .		66,905	16,158	92,574	98,044	70,752	1,978,980	211,095	71,534	146,820	115,275	16,081	19,795	87,547	9,248	172,639	108,553	171,540	11,935	156	237	40	40	
Deduct Issues .		4,940	976	39,949	35,185	6,256	40,000	142,294	15,902	66,030	2,636	1,784	2,621	1,379	1,438	91,855	5,420	74,172	631	92	64			
Balance .		61,965	15,182	52,625	62,859	64,496	1,938,980	68,801	55,632	80,790	112,639	14,297	17,174	86,168	7,810	80,784	103,133	97,367	11,304	64	173	40	20	
Average daily consumption		1,800	-	1,800	-	-	5,000	120	300	200	112	500	90	350	320	750	50	9	4					
Number of days .		42	-	99	-	-	224	463	269	563	281	172	87	230	322	129	226	7	43					

Fort William, September 29, 1852.

J. P. BEADLE, *Officiating Secretary.*



## Inclosure 5 in No. 20.

STATEMENT showing the Number of Days, Land Provisions are calculated to last on the dates specified.

LAND PROVISIONS.	May 15, 1852.	June 1, 1852.	June 15, 1852.	July 1, 1852.	July 15, 1852.	Aug. 1, 1852.	Aug. 15, 1852.	Sept. 1, 1852.
Biscuits ..	2	60	60	120	45	48	40	99
Salt Beef } ..	22	35	31	82	45	40	45	42
Salt Pork }								
Flour ..	17	10	3	60	41	75	95	99
Rice, ..	250	300	140	50				
Sugar ..	223	300	200	440	360	478	570	563
Tea ..	12	20	80	70	134	200	300	281
Coffee ..	30	20	13	6	127	172		
Salt ..	20	25	26	150	66	180	175	172
Rum ..	112	60	86	120	64	82	90	87
Dholl ..	236	12	108	90	245	300	380	230
Ghee ..	190	100	140	115	65	200	290	322
Attah ..	1	3	10	25	9	50	360	224
Wheat ..	20	35	88	110	112	230		
Gram ..	..	180	110	100	100	135	122	129
Oil ..	..	210	415	350	329	320	240	226
Wood ..	..	..	..	..	..	..	..	..
Soojee ..	..	..	15	40	49	37	45	99
Slaughter Bullocks ..	..	..	..	20	23	34	17	7
Sheep ..	..	..	..	6	4	9	43	43
Rice, Table ..	..	..	..	..	338	76	600	463
Rice, Coarse ..	..	..	..	..	216	490	224	269
Porter ..	..	..	..	..	..	..	..	..
Ale ..	..	..	..	..	..	..	..	..

J. P. BEADLE, *Officiating Secretary.*

*Fort William, Military Board Office,  
September 29, 1852.*

Inclosure 6 in No. 20.

RETURNS showing the Quantity of Stores for European and Native Troops, on hand on the dates specified below.

SEA PROVISIONS.	Firewood.	Mustard Seed.	Peas.	Lime Juice.	Raisins.	Vinegar.	Choorah.	Bhool Gram.	Eating Tobacco.	Smoking Tobacco.	Tamarinds.	Chillies.	Betel Nuts.	Chunam.	Khut.	Oil.	Turneric.	Garlic.	Onions	Black Pepper.
<i>15th May, 1852.</i>																				
Balance per last Return ..	3,411	81	4,967	595	14	1,322	82,000	77,256	13,105	7,515	44,192	2,079	1,968	300	646	17,808	1,335	656	296	560
Add, since received*	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<b>Total ..</b>	<b>3,411</b>	<b>81</b>	<b>4,967</b>	<b>595</b>	<b>14</b>	<b>1,322</b>	<b>82,000</b>	<b>77,256</b>	<b>13,105</b>	<b>7,515</b>	<b>44,192</b>	<b>2,079</b>	<b>1,968</b>	<b>300</b>	<b>646</b>	<b>17,808</b>	<b>1,335</b>	<b>656</b>	<b>296</b>	<b>560</b>
Deduct Issues ..	..	..	260	..	..	22	..	6,362	..	..	..	..	..	..	..	287	..	..	..	..
Balance in hand ..	3,411	81	4,777	595	14	1,300	82,000	70,894	13,105	7,515	44,192	2,079	1,968	300	646	17,521	1,335	656	296	560
Average daily consumption..	..	..	..	..	..	..	..	720	..	..	..	..	..	..	..	40	..	..	..	..
Number of days ..	..	..	..	..	..	..	..	90	..	..	..	..	..	..	..	438	..	..	..	..

\* Sea provisions not in use.

RETURN, &c.—Continued.

SEA PROVISIONS.	Firewood.	Mustard Oil.	Peas.	Lime Juice.	Raisins, or Suet.	Vinegar.	Choorah.	Black Pepper.	Eating Tobacco.	Smoking Tobacco.	Tamarinds.	Chillies.	Betel Nuts.	Chunam.	Khut.	Turneric.	Garlic.	Onions.
<i>June 1, 1852.</i>																		
Balance per last Return ..	3,411	81	4,707	595	14	1,300	8,200	560	13,105	7,515	44,142	2,079	1,968	300	646	1,335	658	296
Add, since received ..	..	1,617	15,131	150	3,550	647	17,127	618	..	7,876	7,248	2,682	2,218	..	1,547	..	117	
Total ..	3,411	1,698	19,838	745	3,564	1,947	99,127	1,178	13,105	15,391	51,390	4,761	6,186	300	2,193	1,335	773	296
Deduct Issues ..	3,411	16	1,017	73	..	563	..	7	2,405	..	..	..	..	218	..	458	..	103
Balance in hand ..	..	1,682	8,821	672	3,564	1,384	99,127	1,171	10,700	15,391	51,390	4,761	6,186	82	2,193	877	773	193
<i>June 15, 1852.</i>																		
1400 Europeans. 4000 Natives.																		
	Mustard.	Peas.	Lime Juice.	Raisins, or Suet.	Vinegar.	Choorah.	Black Pepper.	Eating Tobacco.	Smoking Tobacco.	Tamarinds.	Chillies.	Betel Nuts.	Chunam.	Khut.	Turmeric.	Garlic.	Onions.	
Balance per last Return ..	1,682	18,821	672	3,564	1,364	99,127	1,171	10,700	15,391	51,390	2,760	4,186	82	2,193	877	773	193	
Add, since received ..	429	4,960	50	855	215	..	215	12,454	26,450	..	12,000	..	300	..	2,000	2,000	2,051	
Total ..	2,111	23,781	722	4,419	1,599	99,127	1,386	23,154	41,841	51,390	16,760	4,186	382	2,193	2,877	2,773	2,244	
Deduct Issues ..	1,682	15,171	240	3,069	885	..	1,121	2,600	3,891	8,628	1,268	686	62	459	77	73	193	
Balance in hand ..	429	8,610	482	1,350	714	99,127	265	20,554	37,950	42,762	15,492	3,500	320	1,734	2,800	2,700	2,051	
Average daily consumption..	180	262	22	350	12	2,250	8	151	300	1,000	62	8,000	62	31	16	16	16	
Number of days ..	2	32	22	4	60	45	30	136	126	42	249	$\frac{1}{2}$	5	55	175	170	130	

RETURN, &c.—Continued.

<i>July 1, 1852.</i>		Mustard.	Peas.	Lime Juice.	Raisins, Suet.	Vinegar.	Choorah.	Black Pepper.	Eating Tobacco.	Smoking Tobacco.	Tamarinds.	Chillies.	Betel Nuts.	Chunam.	Khut.	Turmeric.	Garlic.	Onions.	
Balance per last Return ..	..	439	8,610	482	1,350	714	99,127	265	20,554	37,950	47,762	15,492	3,500	320	1,734	2,800	2,700		
Add, since received ..	..	671	13,475	42	29,038	536	..	390	183	4,050	4,310	..	..	..	..	..	..	2,000	
Total ..	..	1,110	22,085	524	30,388	1,250	99,127	655	20,737	42,000	47,072	15,492	3,500	320	1,734	2,800	2,700	2,000	
Deduct Issues ..	..	..	..	..	..	..	6,857	..	..	..	..	4,074	500	40	650	..	40		
Balance in hand ..	..	1,110	22,085	524	30,388	1,250	92,270	655	20,737	42,000	47,072	11,418	3,000	280	1,084	2,800	2,660	2,000	
<i>July 15, 1852.</i>		Mustard Seed.	Peas.	Lime Juice.	Raisins.	Suet.	Vinegar.	Choorah.	Black Pepper.	Eating Tobacco.	Smoking Tobacco.	Tamarinds.	Chillies.	Betel Nuts.	Chunam.	Khut.	Turmeric.	Garlic.	Onions.
Balance per last Return ..	..	1,110	22,085	524	6,146	24,242	1,250	92,270	655	20,737	43,000	47,072	11,418	3,000	280	1,084	2,870	2,660	2,000
Add, since received ..	..	5,593	..	16															
Total ..	..	6,703	22,085	540	6,146	24,242	1,250	92,270	655	20,737	43,000	47,072	11,418	3,000	280	1,084	2,870	2,660	2,000
Deduct Issues ..	..	..	7,040	..	2,140	21,796	61	..	7	36	10,956	..	43	..	260	..	..	63	1,993
Balance in hand ..	..	6,703	15,045	540	4,006	2,446	1,189	92,270	648	20,701	32,044	47,072	11,375	3,000	20	1,084	2,870	2,597	7

RETURN, &c.—Continued.

SEA PROVISIONS.	Mustard Seed.	Peas.	Lime Juice.	Raisins.	Suet.	Vinegar.	Choorah.	Black Pepper.	Eating Tobacco.	Smoking Tobacco.	Tamarinds.	Chillies.	Betel Nuts.	Chunam.	Khut.	Turmeric.	Garlic.	Onions.	
<i>August 4, 1852.</i>																			
Balance per last Return .. ..	6,703	15,045	540	4,006	2,446	1,189	92,270	648	20,701	32,044	47,072	11,375	3,000	20	1,084	2,870	2,597	7	
Add, since received .. ..	1,890	32,556	405	..	..	1,410	..	957	..	..	..	..	..	..	..	..	..	..	
Total .. ..	8,593	47,601	945	4,006	2,446	2,599	92,270	1,605	20,701	32,044	47,072	11,375	3,000	20	1,084	2,870	2,597	7	
Deduct issues .. ..	6,087	..	414	..	100	73	..	106	..	..	..	14	..	..	..	..	..	..	
Balance in hand .. ..	2,506	47,601	531	4,006	2,346	2,526	92,270	1,499	20,701	32,044	47,072	11,361	3,000	20	1,084	2,870	2,597	7	
<i>August 15, 1852.</i>																			
Balance per last Return .. ..	2,506	47,601	531	4,006	2,346	2,526	92,270	1,499	20,701	32,044	47,072	11,361	3,000	20	1,084	2,870	2,597	..	
Add, since received .. ..	26,000	26,000	484	..	..	500	..	1,500	..	..	..	..	..	100	..	..	..	..	
Total .. ..	28,506	73,601	1,015	4,006	2,346	3,026	92,270	2,999	20,701	32,044	47,072	11,361	3,000	120	1,084	2,870	2,597	..	
Deduct issues .. ..	2,658	4,124	226	1,119	349	267	..	187	..	1,204	..	166	..	6	..	139	47	..	
Balance in hand .. ..	25,848	69,477	889	2,887	1,997	2,759	92,270	2,812	20,701	30,840	47,072	11,195	3,000	114	1,084	2,731	2,500	..	

RETURN, &c.—Continued.

SEA PROVISIONS.	Mustard Seed.	Peas.	Lime Juice.	Raisins.	Suet.	Vinegar.	Choorah.	Black Pepper.	Eating Tobacco.	Smoking Tobacco.	Tamarinds.	Chillies.	Turmeric.	Garlic.	Onions.	Betel Nuts.	Chunam.	Khut.
<i>September 1, 1852.</i>																		
Balance per last Return .. .. .	25,848	69,477	889	2,887	1,997	2,759	92,270	2,812	20,701	30,840	47,072	11,195	2,731	2,500	..	3,000	114	1,084
Add, since received .. .. .	..	..	488	..	..	250	..	..	..	..	..	..	..	..	2,050	..	..	..
Total .. .. .	25,848	69,477	1,377	2,887	1,997	3,009	92,270	2,812	20,701	30,840	47,072	11,195	2,731	2,500	2,050	3,000	114	1,084
Deduct Issues .. .. .	2,074	42,258	..	187	1,225	1,285	..	991	8,057	2,040	..	1,985	301	140	..	..	..	..
Balance .. .. .	23,774	27,219	1,377	277	772	1,724	92,270	1,821	12,644	28,800	47,072	9,210	2,430	2,360	2,050	3,000	114	1,084

Fort William, Military Board Office  
September 29, 1852.

J. P. BEADLE,  
Officiating Secretary.

## Inclosure 7 in No. 20.

*Major A. Sanders, Deputy Quartermaster-General of the Army, to Lieutenant-Colonel R. J. H. Birch, C.B., Military Secretary to the Government of India.*

Sir,

*Fort William, October 7, 1852.*

I HAVE the honor, in reply to your letter dated the 23rd ultimo, to state that I have no exact return of the number of tents embarked with the company of Artillery, which quitted Calcutta in March last for Rangoon, but with it was its full proportion of camp equipage, as well as with the wing of Her Majesty's 80th Foot and the 40th Native Infantry, a return of which I beg to annex.

I have, &c.

A. SANDERS, *Major,*  
*Deputy Quartermaster-General of the Army.*

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 Inclosure 8 in No. 20.

*W. Jackson, Esq., Superintending Surgeon, Sirhind Division, to Lieutenant-Colonel Birch.*

Sir,

*Simla, October 20, 1852.*

I HAVE the honor to acknowledge the receipt of your letter, dated the 4th of October, 1852, requesting me to transmit direct, for the information of Government, a return of the number of cases of cholera which have taken place at Umballah, and of the number of deaths from that disease.

To meet the wishes of Government, I have drawn out the inclosed "Return of the number of cases of cholera which have taken place recently at Umballah, showing the number of deaths in each month, with the strength of each corps, European and Native, and the proportion per cent. of deaths to strength."

The period included is the whole month of August, September, and to the 18th day of October, the current month. This mysterious epidemic first appeared in the city and gaol of Umballah, about the 17th of July, but did not assail the military cantonment till August, where it first attacked the Native corps, as will be observed by the return; and in the 15th Regiment Native Infantry there are 2 deaths; in the 56th Native Infantry, 1 death; in the 70th Native Infantry, 5 deaths: making a total of 8 deaths in the Native soldiery, while one solitary death of a European occurred in the 5th Battalion of Artillery.

The next month, September, always the most unhealthy of the year, shows the ravages of this fatal scourge among the European troops.

The total loss of both arms of the Artillery, horse and foot, during that month, is 10 men; of Her Majesty's 9th Lancers, 18; and of Her Majesty's 75th Regiment, 36; and the proportion to strength in those corps is as follows:—

	Strength.	Deaths	Proportion per cent. to Strength.
Artillery Division, Horse and Foot ..	368	10	2.71
Her Majesty's 9th Lancers .. ..	627	18	2.87
Her Majesty's 75th Regiment ..	991	36	3.63

I have, in these calculations, taken the rates of deaths to strength for the month of September only, among the Europeans, and, while the loss of the European Artillery and 9th Lancers nearly approximate, Her Majesty's 75th Regiment is nearly 1 per cent. in excess. That regiment has been otherwise very sickly, from fevers and other diseases, and if any opportunity occurred of removing it to a hill sanitarium, no corps seems to require more the bracing effect of a mountain climate.

In the tabular return, the strength is taken from the average of the three months; the per-centage in Her Majesty's 75th Regiment is increased by 7 deaths in October, which brings it, up to the 18th, for the three months, to  $4\frac{1}{2}$  per cent. within a fraction.

The disease is entirely removed from the Artillery and 9th Lancers, and the last weekly report of Her Majesty's 75th Regiment, from the 10th to the 17th of October, only exhibits 1 death from cholera.

On the Native troops no observation seems necessary, as the highest mortality, in the 70th Native Infantry, is under 1 per cent., and the combined deaths of the 2nd Light Cavalry, 15th Native Infantry, and 56th Native Infantry, amount to little more than  $\frac{1}{2}$  per cent. for two months and eighteen days.

Fortunately the epidemic was late in commencing in the year 1852, and the total deaths among the Europeans are 72; while in 1845, when the disease began in May and ended in September, 206 European soldiers fell under the visitation.

It may be asked whether the cholera could not have been prevented by any previous measure? I foresaw that it would come from the city to the cantonments, and on the 27th of August recommended a Committee "to consider what measures should be adopted to arrest the sickness which will probably attack the troops, especially the European portion, during the hot months of September and October, caused by the malaria likely to be generated by the late flood, from stagnant pools, choked nullahs, and rank vegetation." Measures were carried into execution, and all done that human sagacity could suggest; and therefore I say we have yet to discover the mode of preventing, as well as of cure of cholera, both of which are still hid in impenetrable obscurity. The disease now raging at Warsaw will, no doubt, pervade the rest of Europe.

I have, &c.

W. JACKSON.

Inclosure 9 in No. 20.

*Lieutenant-Colonel A. Bogle, Commissioner in the Tenasserim Provinces, to the Secretary to the Government of India.*

Sir,

*Moulmein, October 21, 1852.*

THE material required at Rangoon and Prome for the accommodation of officers and soldiers having all been dispatched, with the exception of a few pieces of trifling importance, and now in progress of shipment, I feel it a pleasing part of my duty to bring to the favorable notice of the Governor-General in Council the invaluable assistance I have received, first of all from Lieutenant Drummond, Executive Engineer, who furnished me with the plans and specifications from which the material required was duly calculated and ascertained; next from Lieutenant Hopkinson, Principal Assistant Commissioner, by whom contracts, and other detailed arrangements for procuring the material, were made; and the whole collected and dispatched, and the money for everything disbursed; and, lastly, from Captain Tapley, Master Attendant, by whom vessels were sought out and engaged, the materials shipped, and the vessels dispatched to Rangoon.

The number of buildings provided was 71 barracks (41 for four European regiments, and 30 for three Native regiments, hospitals included); 60 of which were 120 feet by 20, with a 10-foot verandah all round, and 11 (for Prome) 140 feet by 20, with a verandah the same as above; 12 bungalows, of three rooms each, with bathing-rooms and verandahs for Generals, Brigadiers, and other Field Officers; 15 also of three rooms each, with verandahs, &c., for Captains; and 10 of six rooms, 15 feet square, and 6 bathing-rooms, with spacious verandahs all round, for Subalterns. A vast quantity of spare leaves for roofing, mats and battens for walls and so forth, was also supplied to enable the engineers readily to adapt religious and other buildings for the accommodation of officers and men.

The material required (every piece of which was cut to size) was, under instructions from myself, all collected, purchased, and paid for by Lieutenant Hopkinson. His Lordship in Council may therefore believe that his duty and



responsibility, even in the matter of account, was very heavy; but it did not end here: he had also to engage and dispatch 500 workmen, including Chinese and Burmese carpenters, to erect the buildings, and he had to supervise the arrangements made by the Master Attendant's department for engaging vessels to convey the material to Rangoon, and for loading and dispatching them, and he had finally to settle accounts with the masters and owners, and, under due check, to pay the freight earned; and all this in addition to his usual duties, which have from other causes been greatly increased during the last year; and supplying materials for the Amherst barracks, and something too, I believe, for Martaban.

Captain Tapley's part of the labor, although not involving heavy pecuniary responsibilities and the details of accounts which devolved on Lieutenant Hopkinson, was very arduous and troublesome; comprising all the details of inspecting and engaging vessels, loading boats, conveying cargo alongside, and stowing it in the vessels destined to carry it to Rangoon, and keeping coolies, lascars, ships' officers and crews all up to their work, checking every attempt at idleness and delay, and insisting upon honest and complete stowage in the vessels hired, a matter which it is not easy to control. This task, involving much fatigue and exposure, Mr. Tapley performed most satisfactorily, and he was ably assisted in it by Mr. Fox, the Assistant Master Attendant.

To the officers whom I have already named, but more especially to Lieutenant Hopkinson, is the success of the novel effort to send an army into the field not merely with its camp equipage, but with its barracks and quarters at its back, to be attributed; and now that their labors have come to an end, I should not feel satisfied with myself were I to omit bringing to the notice of Government the great exertions they have made to carry out my instructions, and the very valuable and most zealous assistance they have given me throughout.

It was my intention to have submitted a statement showing the quantity of material of all kinds, but I find that it will not be ready for some time, and it is uncertain when there will be another opportunity of sending letters.

I am therefore obliged simply to mention that the quantity of wood alone amounted to upwards of 3000 tons, and the number of ships and other vessels, large and small, employed in conveying it exceeded twenty, besides native boats, which brought leaves, mats, and rattans from Mergui and Tavoy, and conveyed the same light kind of material to Rangoon.

I have, &c.

A. BOGLE,

*Lieutenant-Colonel, Commissioner in the Tenasserim Provinces.*

Inclosure 10 in No. 20.

*Major-General Godwin to Lieutenant-Colonel Birch.*

Sir,

*Rangoon, October 26, 1852*

I HAVE the honor to acknowledge the receipt of your letter of the 23rd ultimo, and, in reply, beg to forward, for submission, to Government letters in original which I have received from the various departments of the Force under my command, respecting the quantity and quality of the food issued to the troops on their landing at Rangoon in April last.

I also beg to inclose medical returns of cholera amongst the European and Native troops, from April to September.

These documents will, I trust, satisfy Government that the statements which have been publicly made relative to the "measly" or ill-cured pork served out to the troops, are utterly false.

From my own knowledge I can certify that the troops have been plentifully and wholesomely rationed, from the moment of their embarkation to the present day.

I have, &c.

H. GODWIN.

## Inclosure 11 in No. 20.

*Lieutenant W. H. Budd, Deputy Commissary-General, to Major Mayhew,  
Deputy Adjutant-General of the Army of Ava.*

Sir,

Rangoon, October 20, 1852.

I HAVE the honor to acknowledge the receipt of your letter of the 23rd instant, and in reply, to state that salt provisions shipped from Madras with the troops from that Residency, consisted of 220 tierces of beef and pork, containing 72,180 lbs., sufficient for two months' consumption. The whole was Irish meat, in the most perfect condition, and of the very finest quality,—not a single tierce proved objectionable; as far, therefore, as the Madras provisions are concerned, there is not the slightest foundation for the allegation mentioned in your letter now under reply.

A copy of your letter was sent by me to Captain Simpson, Bengal Commissariat, with a request that he would enable me to answer the question as regards the Bengal provisions. I find that you had previously made a direct application to him on the subject, and received from him a direct report, a copy of which he has communicated to me. From this it would appear that the Bengal provisions also were sufficient in quantity, and unobjectionable in quality.

I have, &amp;c.

W. H. BUDD,  
*Lieutenant, Deputy Commissary-General.*

## Inclosure 12 in No. 20.

*Captain R. S. Simpson, Assistant Commissary-General, to Major Mayhew.*

Sir,

Rangoon, October 25, 1852.

I HAVE the honor to acknowledge the receipt of your letter of the 23rd of October, 1852, and in reply to state, for the information of the Major-General commanding, that the food provided by the Government for the troops on landing in April last was, as far as this department was concerned, neither insufficient in quantity or unwholesome in quality, neither was it confined to salt pork.

The provisions were on that occasion issued from the supplies from which the troops were rationed on the passage from Calcutta, and subsequently for a period of two months, and regarding which there was not one instance of rejection or complaint.

The stores provided for the force, procured from the first houses in Calcutta, were all submitted to committees of officers in Calcutta before shipment, and every cask of salt meat was opened and inspected by committees in my presence.

Regarding the quantities of complete rations issued, there was but a solitary instance of complaint, arising from some delay in the supply of half of the usual quantity of rum issued to Her Majesty's 18th Royal Irish, which omission was immediately supplied.

I have, &amp;c.

R. S. SIMPSON,  
*Captain, Assistant Commissary-General.*

## Inclosure 13 in No. 20.

*Brigadier H. S. Foord, Commandant of Artillery in Burmah, to Major Mayhew.*

Sir,

*Rangoon, October 24, 1852.*

IN reply to your letter of this date I have the honor to state, for the information of the Major-General commanding, that the food provided by the Government for the Artillery on their landing in Rangoon in April last, was wholesome and good and of sufficient quantity, and that neither then nor until now has any complaint ever been made by the men respecting their rations.

I have, &c.

H. S. FOORD.

## Inclosure 14 in No. 20.

*Major J C. Errington, Commanding 51st K. O. L. I., to Major Mayhew.*

Sir,

*Head Quarters' Camp, Rangoon, October 25, 1852.*

IN reply to your letter of the 23rd instant, requesting me to inform you whether the food provided by the Government for the troops upon their landing at Rangoon in April last, was, as has been alleged, insufficient in quantity and unwholesome in quality, consisting of measly or ill-cured pork; I beg now to state that the pork and beef issued to the regiment under my command was excellent in every respect. It might have been insufficient in quantity, upon one or two days of issue, but, under the circumstances, nothing could be done in the matter.

I have, &c.

A. C. ERRINGTON,

*Major, Commanding 51st K. O. L. I.*

## Inclosure 15 in No. 20.

*W. Montgomerie, M.D., Superintending Surgeon of the Burmah Field Force, to Major Mayhew.*

Sir,

*Rangoon, October 25, 1852.*

I HAVE the honor to acknowledge the receipt of your letter of the 23rd instant, directing me to furnish you, with the least practicable delay, returns as follows:—

1st. Number of deaths from cholera in the European troops during the month of April, and the same statement from April to the 31st of August.

2nd. Similar returns regarding the Native troops.

3rd. If it can be obtained, a return of every death by cholera on board ship during the voyage from Madras and Calcutta respectively.

In compliance with your request I have the honor to send, 1st, a return of deaths from cholera in the European force from April to August inclusive; 2nd, a similar return of the Native troops of the force; these returns I have been enabled to draw up from the documents in my office.

I regret I have no document or any papers to enable me to furnish at once a return of any deaths from cholera on ship-board during the voyage to Rangoon. I shall however address the various medical officers in charge of corps on the subject, but as they are at different stations, some time must elapse before the information can be obtained; but from the surgeon of Her Majesty's 51st Regiment I learn that one case of death, which occurred on board-ship during the voyage, and was admitted and registered as diarrhoea, had

assumed the character of cholera before the man died; there were also several cases of cholera admitted on board the "Tubal Cain," hospital-ship, on the 10th, from Her Majesty's 80th Regiment, which came on the "Jessie," from Moulmein; and Captain Hunt, paymaster of the regiment, who did not land, died from the same disease on the 14th.

On reference to the returns, it will be observed that by far the greater number of deaths from cholera, viz., ninety-four, occurred in April, for which several causes can be assigned. The men had been for a short time on board crowded transports; they were suddenly employed in fatiguing and harassing duty, exposed without cover to excessive heat by day, and cold chills by night, to which they were subjected for three days and two nights, and this at the very season of the year when cholera is found to be most prevalent in Lower Bengal, and similar localities.

I have, &c.

W. MONTGOMERIE,  
Superintending Surgeon, Burmah Field Force.

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Inclosure 16 in No. 20.

RETURN of Mortality from Cholera in the European Corps serving with the Burmah Field Force, from the month of April to August 1852, inclusive.

Rangoon, October 25, 1852.

Corps.	April.	May.	June.	July.	August.	Total.	Average Strength for Five Months.	Remarks.
Her Majesty 18th Royal Irish Regiment	11	1	1	1	..	14	820	
Her Majesty's 80th Regiment	8	1	..	..	..	9	432, in August 693	
„ 51st „	33	..	2	..	..	35	890	
Bengal Artillery .. ..	9	..	1	..	..	10	143	
Madras „ .. ..	11	..	..	..	..	11	242	
Field Hospital .. ..	22	..	..	..	..	22	..	These were men from all the European Corps, treated at the Field Hospital on the 11th, 12th, 13th, and 14th of April.
Depôt Hospital, Amherst ..	..	..	..	..	..	..	..	
Total ..	94	2	4	1	..	101	..	

W. MONTGOMERIE, M.D.,  
Superintending Surgeon, Burmah Field Force:

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## Inclosure 17 in No. 20.

RETURNS of Mortality from Cholera in the Native Corps serving with the Burmah Field Force, from the month of April to August 1852, inclusive.

Rangoon, October 25, 1852.

Corps.	April.	May.	June.	July.	August.	Total.	Average Strength for Five Months.	Remarks.
40th Bengal Native Infantry	1	3	..	1	..	5	1,080	This corps did not arrive till May.
67th " " "	..	..	..	..	..	..	1,034	
35th Madras " "	2	..	..	..	..	2	715	
9th " " "	..	..	..	..	..	..	770	
Bengal Artillery .. ..	..	..	..	..	..	..	57	
Madras " .. ..	3	..	..	..	..	3	309	
Engineer Department and Madras Sappers and Miners }	3	5	3	..	..	11	513	
Total ..	9	8	3	1	..	21	..	

W. MONTGOMERIE, M.D.

## Inclosure 18 in No. 20.

No. 1.—RETURN showing the Numerical Strength of European Troops at Rangoon, the number of Deaths by Cholera, and ratio per cent. of Deaths to Strength, during the months of April, May, and June, 1852.

Average Strength.	Deaths by Cholera.	Ratio per cent. of Deaths to Strength.	Remarks.
2,527	100	3.95	

No. 2.—RETURN showing the Numerical Strength of European Troops at Umballah, the number of Deaths by Cholera, and ratio per cent. of Deaths to Strength, during the months of August, September, and October, 1852.

Average Strength.	Deaths by Cholera.	Ratio per cent. of Deaths to Strength.	Remarks.
1,983	73	3.68	

No. 3.—RETURN showing the Numerical Strength of European Troops at Rangoon, the number of Deaths by Cholera, and ratio per cent. of Deaths to Strength, during the month of April 1852.

Strength.	Deaths by Cholera.	Ratio per cent. of Deaths to Strength.	Remarks.
2,527	94	3.71	

No. 4.—RETURN showing the Numerical Strength of European Troops at Umballah, the number of Deaths by Cholera, and ratio per cent. of Deaths to Strength, during the month of September 1852.

Strength.	Deaths by Cholera.	Ratio per cent. of Deaths to Strength.	Remarks.
1,986	64	3.22	

No. 5.—RETURN showing the Numerical Strength of Her Majesty's 51st Regiment at Rangoon, the number of Deaths by Cholera, and the ratio per cent. of Deaths to Strength, during the months of April, May, and June, 1852.

Strength.	Deaths by Cholera.	Ratio per cent. of Deaths to Strength.	Remarks.
890	35	3.93	

No. 6.—RETURN showing the Numerical Strength of Her Majesty's 75th Regiment at Umballah, the number of Deaths by Cholera, and ratio per cent. of Deaths to Strength, during the months of August, September, and October, 1852.

Average Strength.	Deaths by Cholera.	Ratio per cent. of Deaths to Strength.	Remarks.
981	43	4.38	

## Inclosure 19 in No. 20.

RETURN showing the Strength of the European Troops serving at Rangoon, and of the Queen's Troops serving in Bengal; the numbers of Sick; and the ratio of Sick to Strength, from April to September 1852.

European Troops serving at Rangoon.				Queen's Troops serving in Bengal.			
	Strength.	Sick.	Ratio of Sick to Strength.	Strength.	Sick.	Ratio of Sick to Strength.	Remarks.
April ..	2,657	294	11·06	14,967	1,167	7·79	Entered as in June, owing to one of the Returns being missing.
May ..	2,274	258	11·34	14,854	1,382	9·29	
June ..	2,234	272	12·17	14,854	1,382	9·29	
July .	2,062	222	10·76	14,775	1,382	9·35	
August ..	2,386	206	8·63	14,727	1,612	10·94	
September	2,537	240	8·19	14,587	1,943	13·18	

Compiled from returns sent by the Superintending Surgeon at Rangoon, and by the Commander-in-chief.

J. RAMSAY,  
Military Secretary.

Inclosure 20 in No. 20.

RETURN of the Number of Cases of Cholera which have taken place recently at Umballah, showing the number of Deaths in each Month, with the Strength of each Corps, European and Native, and the proportion per cent. of Deaths to Strength.

Umballah, October 18, 1852.

Regiments.	Cases of Cholera for the Month of August 1852.							Cases of Cholera for the Month of September 1852.							Cases of Cholera until the 18th of October, 1852.							Remarks.	
	Strength.	Remained.	Admitted.	Discharged.	Died.	Remaining.	Proportion of Deaths to Strength.	Strength.	Remained.	Admitted.	Discharged.	Died.	Remaining.	Proportion of Deaths to Strength.	Strength.	Remained.	Admitted.	Discharged.	Died.	Remaining.	Proportion of Deaths to Strength.		
2nd Brigade Horse Artillery, 1st and 3rd Troops ..	193	1	..	1	..	..	..	185	..	18	7	6	5	3.24	185	5	2	6	1	..	0.54	Proceeded to Peshawur on the 16th of October, 1852.	
5th Battalion Artillery, 1st and 4th Companies ..	185	1	1	1	1	..	..	183	..	15	9	4	2	2.18	180	2	2	4	..	..	..		..
Her Majesty's 9th Royal Lancers ..	647	..	..	..	..	..	0.54	627	..	39	20	18	1	2.87	621	1	..	1	7	..	0.74		..
Her Majesty's 75th Regiment Foot ..	1007	..	..	..	..	..	..	991	..	63	27	36	..	3.63	945	..	8	1	1	7	..		..
Native details attached 2nd Brigade Horse Artillery	703	..	..	..	..	..	..	710	..	..	..	..	..	..	709	..	1	1	..	..	..		..
"    "    5th Battalion Artillery ..	109	..	..	..	..	..	..	109	..	..	..	..	..	..	114	..	..	..	..	..	..		..
2nd Regiment Light Cavalry ..	365	..	..	..	..	..	..	357	..	2	1	1	..	0.28	372	..	..	..	..	..	..		..
15th Regiment Native Infantry ..	912	..	2	..	2	..	0.21	935	..	..	..	..	..	..	935	..	..	..	..	..	..		..
56th " " " ..	928	..	3	2	1	..	0.1	928	..	..	..	..	..	..	810	..	..	..	..	..	..		..
70th " " " ..	737	..	8	1	5	2	0.67	854	2	13	5	3	7	0.35	847	7	2	4	..	5	..		..

	Strength.	Total Deaths in each Regiment.	Total Deaths.	Proportion of Deaths to Strength.
2nd Brigade Horse Artillery ..	188	6	..	3.2
5th Battalion Artillery ..	183	5	..	2.73
Her Majesty's 9th Royal Lancers ..	632	18	..	2.84
"    75th Regiment Foot ..	981	43	..	4.49
		—	72 Europeans	
Native details attached 2nd Brigade Horse Artillery ..	709	..	..	..
"    "    5th Battalion Artillery ..	110	..	..	..
2nd Regiment Light Cavalry ..	364	1	..	0.27
15th Regiment Native Infantry ..	927	2	..	0.21
56th " " " ..	889	1	..	0.11
70th " " " ..	810	8	..	0.99
		—	12 Natives	
		84	84	

W. JACKSON Superintending Surgeon. Sirhind Division.



## Inclosure 21 in No. 20.

*W. Montgomerie, Esq., to Lieutenant-Colonel A. Bogle.*

Sir,

Moulmein, May 9, 1852.

I HAVE the honor to inform you that I arrived early this morning from Amherst, where I have proceeded to establish the Depôt Hospital for the Burmah field force.

I am happy to say that I have fairly housed all the invalids, officers as well as men; and I have great pleasure in stating that I consider the arrangements that have been made are most admirable. The bungalow affords comfortable accommodation for five or six officers, and the five ranges of substantial structures are amply sufficient for 200\* patients. Some little addition, which I shall be happy to point out, is necessary for the security of the medicines and stores, and accommodation for hospital attendants, with convenience of communication between the ranges in bad weather, all of which can, however, be done very easily and quickly; also a few necessary out-houses are required. With these slight additions, and a sufficient native hospital establishment, for which I have indented on the Commissariat, the Depôt Hospital will be as complete and efficient as can possibly be desired.

I have, &amp;c.

W. MONTGOMERIE.

## Inclosure 22 in No. 20.

*Minute by the Governor-General.*

(Extract.)

November 18, 1852.

SOME time ago I called the attention of the Council to certain statements reflecting very strongly upon those who are responsible for the conduct of the present Burmese war, by alleging against them neglect of every precaution for the health and comfort of the troops employed therein.

It seemed to me, therefore, expedient that these statements should be met, for the purpose of satisfying the Home Authorities that the injurious allegations advanced against the Government of India were wholly untrue, and for the purpose of ensuring that the public records of the present war should furnish trustworthy materials for future history, and for counteracting the injurious effects of erroneous contemporary criticism.

Certain Returns were called for in this view, and they are now submitted.

I have the honor to affirm, and I shall proceed to prove, that the present Government took every precaution to provide for the troops. I shall prove that no force was ever more fully, more tenderly, or more successfully cared for; that there was no deficiency in the quantity of their provisions, and no inferiority, still less any unwholesomeness in the quality of them; and, lastly, that, although there existed sickness and cholera, they did not prevail to an alarming extent, and were greatly less severe than might have been expected in the case of any force in the field at that season of the year.

The causes of the sufferings of the troops at Rangoon in 1824, were partly the want of cover, but principally the deficiency of food, the inferiority of its quality, and the deficiency of medical arrangements at a time when epidemic fever was wasting the whole of India.

Simultaneously with the issue of orders in 1852, for assembling an expedition to act against Rangoon, instructions were given by the Government of India calculated to provide effectually against the recurrence of any of these evils, whether it were the want of food or of medicines.

The instructions to the Commissariat regarding the food are already on record: how they were fulfilled, shall be shown presently.

To prevent the risk of any failure, the Government of India took upon itself the organization of medical arrangements at Calcutta for the whole expedition, including both the troops from Bengal and Madras.

\* Afterwards admitted to be sufficient for 300 men.

A Superintending Surgeon was appointed for the force; a numerous Medical Staff, consisting of five Assistant-Surgeons, besides those with corps, was nominated. The amplest store of medicines, doolies, bearers, and of all that could be required for the sick, was furnished; and a large ship was hired and fitted up expressly as an hospital-ship, with every care, and at great cost to the Government.

The Government did not limit its care for the troops and the sick to what could be done at the Presidencies. It caused the most strenuous exertions to be commenced in the provinces near to the seat of war, on the instant that war became imminent, and long before the expedition arrived.

February 10, 1852.

On the 10th of February, 1852, being the day before the expedition was announced, in order to save time, I myself addressed the Commissioner of the Tenasserim Provinces, demi-officially. I said: "Supposing Rangoon should be held for the summer, how far may we depend upon Moulmein for food and supplies of every kind for the troops, European and Native?"

"In the same supposition, what can you do for us in the way of facilitating the provision of cover for the troops who may be kept at Rangoon?"

"If you can aid in respect to cover materially, pray commence collecting materials, and all that will be needed, immediately."

On receiving a satisfactory reply to both questions, I again addressed the Commissioner, on the 3rd of March, to this effect:

March 3, 1852.

"The force will leave Calcutta and Madras thoroughly provided, I think, in everything they can require in the way of ordnance and medical stores.

"With your aid, we shall be at our ease as to Commissariat supplies. The real difficulty is cover for the troops; and that want you are meeting energetically and most usefully. I beg you to continue your exertions, and to provide all that is necessary. Do not let any responsibility as to expense cause you to hold your hand. I will take upon myself the responsibility of all your outlay.

"I avoided the war as long as I could; once having resolved upon it, I look to thorough efficiency in all respects as the first object, and money as secondary."

The official documents to which I have thus referred, and the extracts of my own demi-official letters which I have given, fully prove the correctness of my words when I affirmed that the Government of India did not neglect the "lessons of experience" derivable from the preceding war; but laboured, from the earliest moment at which another Burmese war was in prospect, to prevent a recurrence of the wants and sufferings which were lamented in the first.

I proceed now to show how effectual those labours were, and how unfounded are the allegations that the Government of India made insufficient provision for the cover of the troops; for their food, either in quantity or quality; or for their medical treatment.

First, with respect to cover.

I presume it will not be contended that an invading army must be held to be "unnecessarily exposed," unless barracks are previously erected for them by their own Government in the country they are to invade, and found by them ready built when they land there; yet, unless this absurdity and impossibility had been expected of the Government of India, it would be difficult to point out what more could have been done for the cover of the troops that invaded Burmah than was actually done by this Government.

Full camp equipage was embarked with all the troops that proceeded from Bengal and Madras.

The immediate wants of the whole army on its first landing, in respect of cover, were thus most fully provided for by the Government of India.

Within one week from the day on which Rangoon was captured, wooden barracks, which alone are used in those provinces, were on their way, and were expected to arrive there from Moulmein. The Commissioner, in reply to my letter of February 10, which was quoted above, informed me that he had proceeded at once to have timbers cut up so as to form the frames of barracks, and all the more important buildings; to collect planks for raised floors; mats and battens for walls; rafters, leaves, and rattans for roofs; and that he proposed to have all ready at Moulmein, even to the nails, so as to be dispatched as soon as they were required; at the same time, a body of Chinese and Burmese carpenters were engaged to put up the houses when they were carried to Rangoon.

Deputy Quarter-master-General, Bengal, October 7, 1852. Secretary to Government, Madras, April 3, 1852.

So energetically were these exertions continued, and so fully were the Commissioner's anticipations fulfilled, that the first ship-loads of materials for barracks arrived at Rangoon in April, long before the ground could be cleared on which to erect them. Six ship-loads arrived in April; six more were dispatched in the first half of May; and more would have been sent but that the Engineer informed the Commissioner that materials were arriving faster than they could be put up.

In less than two months the force was supplied with sixty barracks from Moulmein, each 120 feet by 20, with a ten-foot verandah all round, and each capable of accommodating one company. There were supplied, besides, eighty officers' quarters, and a vast quantity of material for other purposes, together with five hundred workmen to construct the buildings.

This simple statement of facts effectually refutes the allegation that the Government of India neglected the cover for the troops, and "unnecessarily exposed" them to the effects of climate.

So far was this from being the case, that I confidently submit it would be difficult to find a parallel, either for the attempting, or for the full success, of what the Commissioner has justly designated this "novel" effort to send an army into the field "not merely with its camp equipage, but with its barracks and quarters at its back."

The allegation that the provisions supplied to the troops were deficient in quantity, or unwholesome in quality, is as unfounded as the allegation of unnecessary exposure to the climate. Letter, October 21,  
1852

Annexed to this minute are the official reports, which concur unanimously in proving that the provisions supplied were ample in quantity, and excellent in quality.

The Military Board in Calcutta states, that, in compliance with the orders of Government, a stock of four months' provisions of beef and pork, accompanied the brigade from Bengal, of which two months were on the transports, and the rest accompanied them. Military Board,  
September 29,  
1852.

The letter of the Commissariat officer with the Madras Brigade states that the stock dispatched with it consisted of beef and pork, sufficient for two months' consumption. Major Budd,  
October 26.

In regard to the quality of the Bengal supplies, the Military Board reports that "no complaint has been made to the Board of any inferior or damaged provisions:" of the whole stock, nine casks were damaged, but these were condemned, and were never issued to the troops; and the Commissariat officer at Rangoon has "always reported in the most favorable terms of the stores sent to him."

The Commissariat officer in question confirms this report in his letter. He observes that there was but a "solitary instance of complaint," and that not regarding provisions, but regarding "half of the usual supply of rum to the 18th Royal Irish, which was accidentally delayed, but immediately supplied." Regarding the provisions, he states that "there was not one instance of rejection or complaint."

The Commissariat officer of the Madras force states that "the whole was Irish meat in the most perfect condition, and of the finest quality, and not a single tierce proved objectionable."

But it must not be supposed that the troops were confined to these salt rations, excellent as their quality was. In reply to my letter of the 10th of February, the Commissioner informed me that they could at once supply cattle sufficient for from three to four months' consumption, and that more could readily be procured.

So ample has been the supply from the first, and so speedily was it made available by the exertions of the local officers, that it is reported by the Military Board that fresh provisions were first issued at Rangoon on the 21st of April, seven days after the capture of the place, and that salt rations were only once again issued during that month; since that time, fresh provisions have been issued five times a-week, salt meat being given on Wednesdays and Saturdays. That salt provisions were issued at all during that period, was not from any scarcity of fresh meat; for, in the same sentence in which its issue is reported, the Board report also "the practicability of a daily issue of fresh provisions, and a sufficiency for the whole force to the end of the year."

The testimony of the Departmental officer to the quantity and quality of

the provisions is in every respect borne out by the testimony of officers connected with the troops.

The Major-General commanding the force in Ava declares that the "statements which have been publicly made relative to the measly or ill-cured pork being served out to the troops are utterly false."

October 26, 1852.

He adds, "From my own knowledge I can certify that the troops have been plentifully and wholesomely rationed from the moment of their embarkation to the present day."

The Commandant of Artillery reports, that "the food provided by the Government for the Artillery, on their landing at Rangoon in April last, was wholesome and good, and of sufficient quantity; and that neither then, nor until now, has any complaint ever been made by the men respecting their rations."

October 24, 1852.

The only exception to an unanimous, and wholly unqualified testimony regarding the sufficient quantity and excellent quality of the rations, is to be found in the letter of Major Errington, commanding Her Majesty's 51st Regiment. He says, "I beg now to state that the pork and beef issued to the regiment under my command was excellent in every respect. It might have been insufficient in quantity upon one or two days of issue, but under the circumstances nothing could be done in the matter."

October 25, 1852.

When the only complaint, from officers and men in the force, goes no further than to state that, in the case of one corps, the quantity "might have been insufficient on one or two days during the course of a summer campaign, and when, even then, it is added, that under the circumstances it was unavoidable, the Government of India may confidently appeal to these documents as unqualified proof, that the quantity of the provisions supplied to the troops at Rangoon has been sufficient; that their quality has been excellent; and that the assertions as to unwholesome meat and measly pork are absolute fictions.

With respect to the medical arrangements, I beg to refer to the whole series of dispatches from the Force, in evidence of the complete sufficiency and success of the preparations made by the Government, and detailed in this minute.

I have to add that by the exertions of the Commissioner, five excellent hospitals, capable of containing 300 patients, were constructed and ready in the first week of May, at Amherst, whither wounded and sick officers and men were conveyed, from time to time, greatly to their comfort and advantage.

Having shewn that the Government of India did not disregard past experience, but endeavoured to take every possible precaution to avert in all respects the evils attending the former occupation of Rangoon, I shall now shew the actual result of those endeavours, and shall prove that the precautions taken by the Government have been most successful for the preservation of the health and efficiency of the troops; and that, while no foresight and no exertions could have prevented an outbreak of cholera, the foresight and exertions of the Government did so far limit the duration of the pestilence, and did so protect the men, that both cholera, and sickness generally, among the troops thus exposed on service in the field, have hardly, if at all, exceeded the effects of similar visitations of cholera, and the ordinary sickness of European troops, in cantonments in India.

During the month of April the losses in the force at Rangoon, by cholera, were undoubtedly severe, and they were deplored by the Government of India; but the occurrence of the terrible pestilence is a misfortune inevitably attendant upon the prosecution of military operations in the field, by Europeans, in the East, at that season of the year.

The commencement of operations at that season was not resolved upon without consideration of the probable consequences. Grievous as these were, the operations were nevertheless undertaken in the hope of averting still greater evils, and the necessity of the measure has been very generally admitted.

The month of April in these latitudes is marked by terrific heat: at Rangoon, the perils of a hot climate are aggravated by comparatively chill, damp nights, succeeding days of intense heat; and in the present season, these characteristics of the climate were of more than usual intensity. The troops had been for some time on shipboard; the exposure to which they were subjected during the operations for the capture of Rangoon united with the effects of previous confinement to render them especially liable to the deadly influences of cholera, and they were unhappily not exempted from the losses

which others in the like circumstances have endured. But these are the ordinary consequences of service in eastern fields by Europeans during the summer heats. They are traceable to no want of precautions on the part of the Government: everything that the Government could give was given, and no exertions on its part could have saved the troops from what they suffered. Nor were the ravages of cholera, much as we deplore them, as extensive or unusual as the language that has been employed in describing them would lead an uninformed bystander to suppose. Out of 101 deaths by cholera in the whole force, 94 occurred during the month of April, while the troops were subjected to the first exposure, and to every other disadvantage incident to the landing and establishing of an invading army. Subsequently, when those measures of the Government for providing barracks, which it was physically impossible to carry into effect at the actual time of landing, had been brought into play, the number of deaths by cholera amounted only to seven.

Yet, although every circumstance which was calculated to induce a visitation of cholera among the troops at Rangoon was in fullest force, their actual loss from it, far from being alarmingly excessive, hardly, if at all, exceeded the loss which occurred by cholera during the same season in one of the healthiest cantonments in Hindostan. The sickness in the force generally has been singularly and happily slight, with reference to the circumstances of the troops.

The Returns which I annex, compiled from the ordinary monthly returns, will make good my assertion. Return No. 1 shows the number of deaths from cholera among the troops at Rangoon in the three months of April, May, and June; to which months, the deaths, with one exception, were confined.

But during three other months of the same season, this inscrutable pestilence made almost equal ravages at Umballah, where such an event was least likely to occur.

Umballah contains a considerable European force. It has always been regarded as one of the healthiest stations in Hindostan. The barracks, built a few years ago, are admirable, and everything connected with the place, and the position of the men, is of the most favorable description.

Yet cholera raged here to an extent which, in most points, equalled its destructiveness at Rangoon, and, in one respect, even exceeded it.

These Returns will show that, while the European troops at Rangoon, in three months, lost by cholera 3.95 per cent. of their strength, the European troops at Umballah in three months lost 3.68 per cent.; while, in the single month of April, the troops at Rangoon, subject to all the influences of active service in the field under trying circumstances, lost by cholera 3.71 per cent of their strength, in the single month of September the troops at Umballah, subject to no such influences, healthy before that time, well lodged and well fed, lost by cholera not less than 3.22 per cent. of their strength.

It so happened that, at each place, one corps suffered more severely than the rest; Her Majesty's 51st at Rangoon, and Her Majesty's 75th at Umballah.

These Returns show that, in the three months during which cholera prevailed at each place, a larger proportion died from it in the corps which was quiet in cantonments than in the regiment which was on service in the field. During three months (April, May, and June,) the 51st at Rangoon lost 3.93 per cent. of their strength; while, during August, September, and October, the 75th at Umballah lost 4.38 per cent. Thus it appears that, in respect of cholera, the troops at Rangoon were not exposed to extraordinary mortality; and that, while their losses by it generally were only fractionally larger than those of troops in cantonments in Hindostan, the loss of the corps which suffered most severely at Rangoon, was actually less than the loss of the corps which suffered most severely at Umballah.

If we turn from the loss by cholera alone to the sickness of the troops generally, the result is, I take leave to say, gratifying far beyond what we had any right to expect.

The Return No. 2 shows the ratio of sick to strength among the troops at Rangoon, from the period of their landing till they commenced their advance to Prome. It shows also the ratio of sick to strength in sixteen regiments of Her Majesty's troops in the several cantonments of the Bengal Presidency, including the sanatoria in the hills during the same months.

In this Return it will be seen that the sickness at Rangoon, though in the

first three months it exceeded the average sickness in the same three months in the Presidency of Bengal, was never very large; that it never exceeded 12 per cent.; that it reached that amount only in one month; and that even this percentage of 12 per cent. in the worst of the six months at Rangoon, was less than the per-centage of sick in the worst of the six months in the Presidency Stations. Lastly, it is to be observed that, as the summer advanced, the per-centage of sick at Rangoon steadily diminished, till, in August and September (two of the worst months in the year), it actually was less at Rangoon than in the Presidency of Bengal by more than 2 per cent. in the former month, and, in the latter, by 5 per cent.

Having thus brought together, in succession, the several documents on which I am content to rest my refutation of the injurious allegations advanced against the Government of India, I shall not add one word of comment.

I point with confidence to the statements which are contained in the paragraphs of this minute, and supported by the documents above mentioned, as demonstrative proof of the correctness of my words when I affirmed that the present Government made every exertion, and took every precaution to provide for the troops; that no force was ever more fully, more tenderly, or more successfully cared for; that there was no deficiency in the quantity of their provisions, and no inferiority, still less any unwholesomeness, in the quality of them; and, lastly, that, although there were sickness and cholera, they did not prevail to an alarming extent, and were greatly less severe than might have been expected in the case of any force in the field at that season of the year.

DALHOUSIE.

Inclosure 23 in No. 20.

*Minute by Mr. Lewis and Sir Frederick Currie.*

(Extract.)

*December 3, 1852.*

THIS vindication of the Government, which the Governor-General has thought it right to put on record, is conclusive and irrefragable.

Every precaution that human foresight could devise for securing the health and comfort of the troops was taken; their food was as good as they would have been supplied with in their own quarters, and disease from exposure, the usual concomitant of war in a tropical climate, was mitigated, by God's blessing upon the exertions of the Government, to a degree which I believe to be altogether without precedent.

J. LEWIS.  
F. CURRIE.

Inclosure 24 in No. 20.

*Minute by Sir John Littler.*

(Extract.)

*December 4, 1852.*

THE very full and minute explanations, as well as the collection of facts, which his Lordship has deemed proper to record, will suffice, I imagine, to convince and satisfy the most sceptical that every precaution was taken which human foresight could possibly devise for the real comfort and health of the troops and all connected with them.

The instructions of the Government, and the laudable exertions of all entrusted with the duty of superintending and carrying them into effect, have been successful beyond the most sanguine expectations.

The charges of neglect and indifference to the wants and necessities of the troops, are entirely groundless.

J. H. LITTLER.

## No. 21.

*The Governor-General in Council to the Secret Committee.*

(Extract.) *Fort William, December 7, 1852. (No. 56.)*

WE have the honor to forward herewith a copy of further papers relative to the affairs of Burmah.

You will learn from the dispatches of his Excellency Commodore Lambert, and Major-General Godwin, C.B., that the city of Pegu was captured and occupied by our troops on the 21st ultimo, after some resistance and with some loss. We have issued a General Order on the occasion, and have expressed our approbation of the steadiness and gallantry displayed by all who were engaged in the expedition.

## Inclosure 1 in No. 21.

*Commodore Lambert to the Secretary to the Government of India.*

*Her Majesty's Ship "Fox's" Boat, in the Panglang Creek,  
Irrawaddy River, November 2, 1852.*

Sir,

I REQUEST you may be pleased to lay before the Governor-General in Council, the enclosed copy of a letter from Commander Shadwell, R.N., reporting the state of affairs in the neighbourhood of Henzadah.

His Lordship in Council is fully aware of the importance of Henzadah as a Depôt and Wooding Station, and, as the protection of this town is essential to the navigation of the Irrawaddy, I have adopted every precaution in my power for its security; yet I fear, now the country is drying up, that I shall not be able effectually to continue to do so, without the aid of a military force.

The opportune arrival of Captain Becher's party, and the assistance that officer so readily gave, has checked the advance of the enemy, and thus saved the town from destruction.

As I am now on my way into the Irrawaddy, having left Rangoon this morning in the "Proserpine," I shall, by actual inspection, make myself acquainted with the plans necessary for carrying on future operations with the flotilla. The river has fallen so much lately that I find only five and a half feet water on the bar at Yangernsiah, and that the "Pluto" and "Nemesis," which left Rangoon a few days ago with troops for Prome, cannot cross it.

I have, therefore, decided on trans-shipping the troops they have, together with those on board the "Proserpine," to the "Damooda," "Lord William Bentinck," and "Nerbudda," the two former being now in sight coming down the river, and the latter vessel at Rangoon. I shall then send the "Proserpine," "Pluto," and "Nemesis," by the way of the China Buckeer river into the Irrawaddy. They will be employed with great advantage in the transport of stores and provisions from Yandoon to Prome, while the smaller steamers can convey the men.

I have, &c.

G. R. LAMBERT.

## Inclosure 2 in No. 21.

*Commander Charles Shadwell, R.N., to Commodore Lambert.*

(Extract.) *Her Majesty's Steam-sloop "Sphinx's" Pinnace,  
Henzadah, November 1, 1852.*

I HAVE the honor to inform you that, after the detachment of the 40th Bengal Native Infantry, under command of Captain A. Becher, was left at this place on the 29th ultimo, in pursuance of the arrangements of Captain Loch, Captain Becher and myself, having reconnoitered the ground in rear of the town, and having collected information from the headman, determined on removing his men to a Phongyee house, nearly in the rear of the centre of the town, and, according to present information, facing the advanced posts of the dacoits.

On Saturday evening I advanced the marines to the Phongyee house, on the left of our position, which had been previously occupied by the sepoy.

I may observe, *en passant*, that a paved road, running fore and aft the town, parallel to the bank of the river in rear of these two positions, afforded the means of retreat, if necessary, to the boats.

Arrangements were made with the headman, Moungh-lou-gly, to station his armed men in intermediate stations between these two positions (which are about a mile and a half apart), so as to keep up the communication, and also to keep armed parties on our flanks.

This morning at 8.30, A.M., I received a message from Lieutenant Nightingale, Royal Marines, to the effect that the dacoits had advanced in force along the banks of the river, and were burning the detached villages on his left; I immediately sent to Captain Becher to acquaint him, and advanced with all the available seamen to the support of the marines.

On arrival I found that the enemy were within long musket range of the quarters of the marines; after a sharp fusillade they retired; we cautiously advanced under cover of the growing paddy fields, and ultimately drove the enemy back into the open country, the sepoy, under Captain Becher, clearing the ground to our right and in our front.

As an illustration of their boldness, I may mention that the dacoits have burnt some houses in a grove half a mile to the left of our position.

The Henzadah people report only one of their men wounded, but several of the enemy; and as an earnest of success, they have taken two prisoners, and report five or six wounded. None of our men were hurt.

Inclosure 3 in No. 21.

*General Order by the Governor-General in Council.*

*Fort William, December 6, 1852.*

THE Governor-General in Council has much satisfaction in publishing, for general information, dispatches which have been received from his Excellency Commodore Lambert, and from Major-General Godwin, C.B., reporting the capture and occupation of the town of Pegu, after resistance, and with some loss.

The Governor-General in Council desires to express his full approbation of the steadiness and gallantry that have been displayed by all who were engaged upon this service.

His Lordship in Council offers his best thanks to Major-General Godwin, C.B.; to Brigadier McNeill, in command of the troops; to Commander Shadwell, R.N., who directed the naval arrangements; to Lieutenant-Colonel Tudor, Bengal Fusiliers; to Major Hill, Madras Fusiliers; to Major Shubrick, 5th Madras Native Infantry; to Captain Mallock, with the guns; and Captain Brown, in command of the Rifle Company, 5th Madras Native Infantry.

His Lordship in Council desires also to offer his thanks to the officers of the Staff; to Major Mayhew, Deputy Adjutant-General; Major Boulderson, Deputy Judge-Advocate-General; Captain Hamilton, Assistant-Adjutant-General; Captain Darroch, Deputy Assistant-Quartermaster-General; Captain Burne, Military Secretary; Captain Renaud, Brigade-Major; Captain Latter, Interpreter with the Force; Captain Chads, Aide-de-camp; and to all the officers, non-commissioned officers, soldiers, and sailors, who were engaged upon the expedition.

By order of the Governor-General of India in Council.

C. ALLEN,

*Officiating Secretary to the Government of India.*



## Inclosure 4 in No. 21.

*Commodore Lambert to the Secretary to the Government of India.*

*Her Majesty's Ship "Fox," at Rangoon,  
November 25, 1852.*

Sir,

MAJOR-GENERAL GODWIN having decided on driving the enemy out of the city of Pegu, where they had re-assembled, and occupying it with a British force, I placed at his disposal four small steamers and the boats of the squadron, under Commander Shadwell, of Her Majesty's steam-sloop "Sphinx," and have the honor to forward to you, for the information of the Governor-General in Council, the report of that officer, detailing the result of the expedition.

I have, &c.

GEORGE R. LAMBERT.

## Inclosure 5 in No. 21.

*Commander Shadwell to Commodore Lambert.*

*Her Majesty's Steam-sloop "Sphinx's" Gig, attached  
to the East India Company's steamer "Mahanuddy," Pegu, November 23, 1852*

Sir,

I HAVE the honor to report, for your Excellency's information, the proceedings of the expedition to Pegu.

The troops having embarked at Rangoon on the evening of the 18th instant, on board the East India Company's steamers "Mahanuddy," "Nerbudda," "Damooda," and "Lord William Bentinck," as set forth in the accompanying memorandum, showing the details of the whole force, dropped down the river below the Hastings' Shoal, and waited for the morning tide.

A convoy of boats, containing provisions, stores, and camp-followers, escorted by the gun-boats, under the command of Lieutenant Mason, preceded the steamers on the afternoon of the 18th.

Weighing at early daylight on the 19th, and taking the whole of the flood-tide with them, the vessels, led by the "Lord William Bentinck," proceeded up the Pegu river, and arrived in the evening at stations a few miles below Pegu.

The "Lord William Bentinck," more fortunate than the rest, (Mr. Digney having previously acquired some knowledge of the river on a former occasion,) reached a point two miles below the position it was proposed to take up; the "Damooda," "Nerbudda," and "Mahanuddy," remaining for the night at stations lower down the river.

The further advance of the vessels on the following day was tedious, and a matter of considerable difficulty, owing to the decreasing width and depth of the channel, and the serpentine bends of the river.

By the evening, the "Lord William Bentinck" had pushed on to a position about a quarter of a mile below the south-east angle of the old ruined city of Pegu; the "Nerbudda" reached a point half a mile further down; the "Damooda," three-quarters; and the "Mahanuddy," a mile and three-quarters below the "Lord William Bentinck."

After anchoring, the Major-General, accompanied by some staff officers and myself, proceeded up the river to reconnoitre, and make arrangements for landing on the following morning.

In the evening, and during the early part of the night, some desultory firing took place from the enemy's river-stockades on the headmost steamer, which was returned by her and the boats, while pickets were thrown out from the steamers on the banks during the night, to prevent the accident of a night attack.

The disembarkation of the troops commenced on the following morning, Sunday, 21st, at 4 A.M., each steamer landing her men on the left bank of the river, abreast of her own position, from whence the different columns marched

along the bank to the point of concentration abreast of the headmost steamer, the "Lord William Bentinck."

At the same time the artillery, two 24-pounder howitzers (which had been previously transferred from the "Mahanuddy" to the paddle-box boats), were landed by the seamen, under the directions of Commander Lambert.

The ancient city of Pegu is of a quadrangular form; the ruined walls or ramparts are still clearly defined, and are surrounded on all sides by a moat, much choked with mud and rubbish, its sides being about a mile and three-quarters in length; the Pagoda, which forms the key of the position, lying in the north-east division of the space inclosed by the ruined ramparts.

The enemy, whose numbers are stated to have amounted to between 3000 and 4000, were strongly posted at the south-east angle of the walls, and also along the river front of their position, which was strongly stockaded. The enemy made no opposition to our landing, owing to our movements being concealed by the fog, which prevailed in the early morning.

The concentration of the troops, and the arrangements for the advance, were completed by about 6.30 A.M.; at 7 the advance commenced, the columns moving along the outer edge of the southern moat towards the eastward, so as to turn the flank of the enemy's position, their progress being necessarily extremely slow, on account of the difficult nature of the ground, which was covered with high grass and jungle, and over which there was no regular road.

The enemy immediately commenced a sharp fire, which soon caused some casualties, and as the troops advanced along the edge of the moat, they moved along the ramparts parallel to them, and maintained a constant fire. At about 9.15 the European troops who were in advance reached a point opposite to a broken opening in the rampart, where the moat seemed passable, and, after a short halt to refresh the men, and form them under cover of a wood, they advanced at 9.45 A.M., in column of attack, charged gallantly across the moat, entered the line of the enemy's defence, and drove the Burmese before them, the enemy retreating towards the Pagoda.

I had remained a little behind to assist the advance of the Artillery, about which the General had been anxious, and, on my arrival at 10 A.M., had the satisfaction of seeing our troops in possession of the enemy's ramparts.

After refreshing the men, the troops advanced, at 10.45 A.M., to the left along the bund, towards the line of the river defences, for the purpose of dispersing the enemy in that quarter: but on perceiving them in full retreat towards the Pagoda, owing to the efficient fire of shell and canister, which from the commencement of the affair had been kept up on them by the "Lord William Bentinck" and the gun-boats, the General countermarched the troops to the right again, and returned to our original position.

At 12 o'clock the columns again advanced by the direct road leading towards the Pagoda, without meeting any opposition, and on arriving near it, at 0.45 P.M., the columns were formed for the assault. On approaching it, we perceived some Burmese stealthily watching our movements; our men advanced with a rush, the enemy fired a volley and fled, we entered the Pagoda, and Pegu was ours.

It could scarcely be expected that this service could be performed without some loss; and I regret to say that the military force had six men killed and thirty-one wounded, including, among the latter, three officers; most providentially none of the seamen in the boats, or on board the "Lord William Bentinck" (which vessel alone was near enough to take part in the attack), were either killed or wounded, although continually exposed to a warm fire.

It is with much gratification that I have to report to your Excellency, the zeal, energy, and good conduct, of the officers and seamen attached to the expedition.

To Commander Rowley Lambert, of Her Majesty's ship "Fox," praise is due for the able manner in which the guns were promptly landed by the seamen under his directions, and, subsequently, for the efficient manner in which he directed the fire from the gun-boats on the enemy's position, by which they were ultimately dislodged.

Messrs. Digney, Porter, Berwick, and Simson, respectively commanding the East India Company's steamers, deserve great credit for the perseverance and energy they displayed in pushing their vessels up the river, under circumstances of most difficult navigation, as well as for their general assistance.

Lieutenants Mason and Glover, and Mr. Pocock, mate, and the subordinate officers in charge of boats, acquitted themselves to my entire satisfaction.

The services of Mr. J. F. Johnson, Assistant-Surgeon of Her Majesty's ship "Sphinx," were extremely valuable in attending on the wounded, many of whom were sent on board the "Lord William Bentinck" at the commencement of the affair.

Commander Beauchamp Seymour, R.N., accompanied the expedition as a volunteer, and was present with the Major-General Commanding, throughout the operations of the day.

I have, &c.

CHARLES D. A. SHADWELL, *Commander.*

Inclosure 6 in No. 21.

*Memorandum showing the Strength of the Expedition to Pegu,  
November 18, 1852.*

East India Company's steam-vessel "Mahanuddy," J. Simson, Esq., commanding.—Major-General Godwin and Staff; 50 Bengal Fusiliers; 50 Madras Fusiliers, 120 Fifth Madras Native Infantry; 30 Artillery; 2 guns.

East India Company's steam-vessel "Nerbudda," W. Porter, Esq., commanding — Brigadier McNeill and Staff; 250 Madras Fusiliers.

East India Company's steam-vessel "Damooda," R. Belwick, Esq., commanding — 250 Bengal Fusiliers.

East India Company's steam-vessel "Lord William Bentinck," J. Digney, Esq., commanding.— 250 Madras Native Infantry.

Her Majesty's ship "Fox," Rowley Lambert, commanding — Pinnace: Lieutenant Mason; Mr. Dunlop, midshipman; 15 men. Barge: Mr. C. Pocock, mate; and Mr. Lucas, midshipman; 13 men. Gig: Mr. W. Dawes, midshipman; 6 men. Gun-boat: Mr. A. Villiers, midshipman, 6 men.

Her Majesty's ship "Sphinx," Charles D. A. Shadwell, commanding — Paddle-box boat No. 1: Lieutenant J. H. Glover; 15 men. Paddle-box boat No. 2: Mr. A. Morphy, master's-assistant; 15 men, conveying 30 sappers each, the first towed by the East India Company's steam-vessel "Nerbudda," the second by the East India Company's steam-vessel "Damooda." Cutter: Mr. A. Webb, midshipman, 9 men. Gig: Mr. W. E. Cookson, midshipman, 5 men, Mr. J. F. Johnson, Assistant-Surgeon.

CHARLES D. A. SHADWELL, *Commander.*

Inclosure 7 in No. 21.

*Commander Shadwell to Commodore Lambert.*

*Her Majesty's steam-sloop "Sphinx,"  
Rangoon, November 24, 1852.*

Sir,

IN continuation of my letter relative to the expedition to Pegu, I have the honor to inform your Excellency that, in accordance with the wishes of the Major-General commanding the Forces, the troops, who it was proposed should return to Rangoon, were embarked on board the East India Company's steamers "Mahanuddy," "Damooda," and "Lord William Bentinck," on the evening of the 22nd. The two latter vessels left for Rangoon on the morning of the 23rd; and General Godwin and Staff having embarked on board the "Mahanuddy" during the afternoon, the vessel proceeded, and returned to Rangoon at noon this day.

A garrison of 430 men remains at Pegu, 230 Europeans and 200 Sepoys.

The Major-General at first wished the "Nerbudda" to remain at Pegu for a few days; but having subsequently changed his mind, I ordered that vessel to return also, and desired one of the "Sphinx's" paddle-box boats to remain until further orders.

Mr. Barnadiston, in charge of the yawl of Her Majesty's ship "Winchester," arrived at Pegu, with a convoy of provision boats from Rangoon, on the morning of the 23rd. I have instructed that officer to return to Rangoon with the empty boats as soon as they have been cleared.

I have, &c.

CHARLES D. A. SHADWELL, *Commander.*

## Inclosure 8 in No. 21.

*Major-General Godwin to the Secretary to the Government of India.*

Sir,

*Pegu, November 22, 1852.*

I HAVE the honor to state, for the information of the Governor-General in Council, that Pegu was captured yesterday.

In June last I was induced, by strong representations from various sources, to send a small force to drive out some Burmese from Pegu. We had had some friendly intercourse with the inhabitants of that place, who declared to me that if they were put again in possession of their town they would be able to hold it. There was an armed party of Taliens at the time from the villages around, who promised their support.

The Burmese were driven out, and the people recovered possession of their town, but, as I feared, they did not hold it a week.

At this time it would have been inconvenient in many ways to have stationed a force there at the commencement of the monsoon.

Since that time, I have had various reports of the enemy being in great force at Pegu, and that they had thrown up strong defences on the river, and from it to the Pagoda, within the site of the old city; they became troublesome also to several villages between this and Rangoon.

As the army will shortly be at Prome, with a garrison only at Rangoon, it became imperative to take possession of, and garrison Pegu.

I had determined upon this for some time, and the three small river steamers, with the "Mahanuddy," having returned from Prome on the 16th of November, I arranged with Commodore Lambert that the troops should embark on Thursday evening, the 18th; when 300 men of the 1st Bengal Fusiliers, under Lieutenant-Colonel Tudor; 300 of the 1st Madras Fusiliers, under Major Hill; 400 men of the 5th Madras Native Infantry, under Major Shubrick; 70 Sappers, with two 24-pounder howitzers and 32 artillerymen; embarked by 7 o'clock, P.M.

This force I placed under the command of Brigadier McNeill, of the Madras Army.

I also embarked with my own Staff in the "Mahanuddy," for the purpose of accompanying the expedition.

Commander Shadwell, of the Royal Navy, had charge of the flotilla.

This town is situated about 60 miles from Rangoon, on a fine creek called the Pegu river, which runs into the Rangoon river, just below the town of Rangoon.

We started on Friday morning, the 19th, at daybreak, and, in consequence of the shallow water, were obliged to anchor about two miles below Pegu, at sunset, on the evening of the 20th.

The troops commenced disembarking at 4 A.M. the next morning, and were all assembled on shore by half-past 6 o'clock; and when I joined the force at this hour, I found it buried in high grass jungle, and the whole country enveloped in a thick fog.

I was in some degree aware of the position of the enemy,—from a plan I had had in my possession for some time, furnished by Captain Latter, he having accompanied the former expedition in June,—but not the particulars of it until I saw it on the ground. The site of the old city, wherein the enemy was posted, is formed by a square, surrounded by a high bund, each side of which is presumed to be about two miles in length, the west side facing the river; and the square is surrounded by a wet moat, between 70 and 80 paces wide.

From the south-west angle there is a causeway over the moat, close to, and parallel with, the river. This causeway the enemy had made exceedingly strong by traverses, and breaking it down at various intervals to prevent our advance. On the whole of the south face of the bund, fronting our position, they had bodies of troops stationed, extending for about a mile and a quarter.

As the causeway on the right of their position was so narrow that only a file of men could advance along it against their numerous musketry and local impediments, I abandoned all idea of attacking them there. It was, therefore, determined to force our way along the moat, and to turn the left of their position, on the south face of the square.

Captain Latter, my interpreter, who was with me, had with him a Burmese, who promised to find us a causeway leading into the bund, close to the left of their position. We commenced our advance, the Bengal Fusiliers leading, covered by the Rifle Company of the 5th Madras Native Infantry, and followed by the Madras Fusiliers and 5th Native Infantry, in file; and for two hours was this force struggling through the almost impenetrable grass and jungle along the outer edge of the moat, and exposed to a very warm fire from the enemy.

We had at last reached a part of the moat which admitted of a passage for the troops, and marked by the extreme left of the enemy's position, and where they had a strong post and two guns.

I here directed Colonel Tudor to form a storming party of 150 of his own men, and 100 of the Madras Fusiliers, which the Lieutenant-Colonel led. At the signal given, they crossed the moat through mud and water, and most gallantly stormed the enemy's post. We were now masters of their position.

Our own guns were actively employed under Captain Mallock, at the spot from which we first commenced our move, and after some time they were brought up, over almost impassable ground, nearly to the spot where we effected our entrance into the enemy's position, and they were protected by the Grenadiers of the 5th Madras Native Infantry, under Captain Wyndham.

After resting the troops for some time, and collecting the wounded men, we again advanced by an excellent path in the direction of the large Pagoda. We suffered no molestation from the enemy, but, on approaching the Pagoda, I formed a party for its attack under Major Hill of the Madras Fusiliers, consisting of 100 of his own regiment, with a similar number of the Bengal Fusiliers. They advanced up to the steps of the Pagoda, and on ascending received a fire of musketry, which they soon silenced, and took possession of the place at about one o'clock P.M.

The fatigues of the day were now over, and I am certain that while they lasted no soldiers ever met with more arduous ones, nor ever met the obstacles of such an advance with more cheerful and steady perseverance than did this little band of brave and determined men.

The enemy, by the least computation, could not number less than 5,000 men, evidently headed by people of consideration, by the numerous mounted people, as well as elephants, which were seen retiring by the road to Sitang.

Our loss is not nearly what I apprehended in the morning it might have been, and, considering the difficulties of the ground, and exposure to the enemy, I congratulate myself that it is so small.

I have now to ask the Governor-General in Council's consideration of the services performed on this expedition by the officers and men engaged.

To Brigadier McNeill, who formed up the force in the morning as it disembarked, and whose indefatigable exertions during the day brought on an exhaustion, which occasioned me much distress to witness, and which deprived me of his valuable assistance for a short time.

To Lieutenant-Colonel Tudor, of the Bengal Fusiliers, who led the storming party, and carried the enemy's position.

To Major Hill, of the Madras Fusiliers, who led the party which carried the Pagoda.

To Major Shubrick, of the 5th Madras Native Infantry, whose position in the "Bentinck," which was considerably in advance of the rest of the flotilla, called forth his greatest vigilance to protect his people from the enemy, who were around him, as also for his exertions during the day.

To Captain Mallock, for his exertions with the guns.

To Captain Brown, who commanded the Rifle Company of the 5th Madras Native Infantry, who covered our advance, and whose conduct I witnessed with much pleasure during the day.

I feel most particularly indebted to the attention and devotion paid to the sick and wounded by the medical officers who accompanied the force.

The Brigadier has brought to my notice Captain Renaud, his Brigade-Major, whose services he highly appreciates.

To Captain Latter, whose distinguished gallantry, on this as on all occasions, has been conspicuous, as also his local information and active assistance, I beg to call your Lordship's particular attention.

To Commander Shadwell, who had charge of the naval part of this expedition, I am deeply indebted for the most unremitting exertions by night and

day, and for the disembarkation of the troops, which was conducted as quietly as expeditiously. Neither the steamers nor the boats could get up to the enemy's defences, owing to the shallowness of the river.

Captain Shadwell personally accompanied me throughout the day.

Will your Lordship permit me to introduce to your notice Commander Beauchamp Seymour, of the Royal Navy, who is here on a visit to many friends, who accompanied me during the day, and whose conduct was conspicuous on every occasion.

To Major Mayhew, Deputy Adjutant-General; Major Boulderson, Deputy Judge Advocate-General; Captain Hamilton, Deputy Assistant Adjutant-General; Captain Darroch, Deputy Assistant Quartermaster-General; Captain Burne, Military Secretary; and Captain Chads, Aide-de-camp; the general and my personal Staff, whose duties were most arduous, being carried on on foot, and whose exertions to keep up the communication with the force in this broken ground were incessant, I beg to call your Lordship's attention.

I leave a garrison of 400 men, 200 of the Madras Fusiliers, and 200 of the 5th Madras Native Infantry, with two 24-pounder howitzers, and a detail of Artillery with 40 Sappers, which the upper terrace of the Pagoda will hold most commodiously, including the magazine and stores. This party will be under the command of Major Hill, of the Madras Fusiliers, a most excellent officer.

Lieutenant Campbell, of the Bengal Engineers, will see to its necessary defences.

Eight guns were taken, and it is supposed that more will be found.

I purpose leaving this for Rangoon to-morrow morning.

Inclosing a list of casualties,

I have, &c.

H. GODWIN,  
*Major-General, Commanding the Forces in Ava,  
Arracan, and Tenasserim Provinces.*

Inclosure 9 in No. 21.

*Return of Killed, Wounded, and Missing at the Attack and Capture of the  
Pagoda, and its Defences at Pegu, on the 21st of November, 1852.*

*Head-Quarters, Pegu, November 22, 1852.*

General Staff—1 European officer, wounded.  
Sappers and Miners.—1 rank and file, wounded.

*Infantry.*

1st European Bengal Fusiliers.—2 rank and file, killed; 9 rank and file, wounded.  
1st European Madras Fusiliers.—1 serjeant, and 14 rank and file, wounded.  
5th Regiment Madras Native Infantry.—1 havildar, and 2 rank and file, killed; 2 European officers, 2 Native officers, 2 havildars, and 2 rank and file, wounded.

Grand total.—1 havildar, 4 rank and file, killed; 3 European officers, 2 Native officers, 1 serjeant, 2 havildars, and 26 rank and file, wounded.

European officers.—3 wounded.

Native officers.—2 wounded.

Warrant and non-commissioned officers, rank and file, &c.—5 killed; 29 wounded.

Total.—5 killed; 34 wounded.

Grand total of killed and wounded.—39.

H. GODWIN,  
*Major-General, Commanding the Army of Burmah.*  
W. MAYHEW,  
*Major, Deputy Adjutant-General.*

*Officers Wounded.*

Madras Commissariat Department.—Lieutenant W. Cook, dangerously.  
5th Regiment Madras Native Infantry.—Lieutenant W. H. Whitlock, very severely; and  
Lieutenant H. D. Cloete, dangerously.

## No. 22.

*The Governor-General in Council to the Secret Committee.**Fort William, December 24, 1852. (No. 63.)*

TWO dispatches have been received from Major-General Godwin, the first, without date, incloses reports from Brigadier-General Sir John Cheape, relative to several small expeditions which have been dispatched from Prome against the Burmese.

The satisfaction of the Government has been expressed with the conduct of officers and men on these occasions.

The second dispatch, dated the 11th instant, reports that the Burmese in force had invested Pegu, which was held by 400 men. The General's dispatch closes with the announcement that he was about to proceed to Pegu again with reinforcements.

We are enabled to add, that a private letter from Commodore Lambert, dated the 16th instant, to the address of the Governor-General, intimates that the garrison of Pegu had been relieved with a trifling loss.

## Inclosure 1 in No. 22.

*Major-General Godwin to the Secretary to the Government of India.*

Sir,

I HAVE the honor to forward to you, for the information of the Governor-General in Council, reports forwarded to the Deputy-Adjutant-General of this army for my information, from Brigadier-General Sir John Cheape, K.C.B., commanding at Prome.

No. 1, reporting a successful attack by his order on a stockade, on the right bank of the river, opposite Prome, which his Lordship will perceive was conducted with good judgment by Major Wigston, of Her Majesty's 18th Royal Irish.

No. 2, containing the account of an unfortunate reconnoissance made at Akouktoung, from the steamer "Enterprise," by Captain Gardner, stationed with a party of the 40th Regiment Bengal N.I. on board that vessel, to prevent any occupation of that place by the enemy; wherein, I grieve to report that Captain Gardner lost his life, as also a havildar and five men were wounded from an ambuscade of the enemy. It also contains the account of a successful expedition, sent by Brigadier-General Sir John Cheape, under Lieutenant-Colonel Handscomb, of the 40th Bengal N.I., to Podang and its neighbourhood. This expedition, his Lordship will observe, has been conducted with judgment and gallantry by the Lieutenant-Colonel, who reports very particularly on the assistance he received from Brevet-Major Edwards, of the 18th Royal Irish.

I have also the honor to forward a report, No. 3, from Major Hill, of the Madras Fusiliers, of a formidable attack on his post—the Pagoda at Pegu—by a very strong body of Burmese; as also, at the same time, on a picket over stores on the beach, commanded by Lieutenant Perceval Brown, of the Madras Fusiliers, aided by a gun-boat of Her Majesty's ship "Fox," commanded by Lieutenant Mason. These attacks were repulsed, as his Lordship will read, with great gallantry, and with considerable loss to the enemy.

Every exertion is making to push up to Prome the cavalry, with other details.

I shall leave this with the staff to establish the head-quarters of the army at Prome in a few days.

I leave in command of Rangoon with great satisfaction Brigadier-General Steel, of the Madras army, where there are always so many calls on the active exertions of any officer in command.

I have, &c.

H. GODWIN.

## Inclosure 2 in No. 22.

*Brigadier-General Sir John Cheape, K.C.B., to Major Mayhew, Assistant Adjutant-General, Burmah Field Force.*

Sir,

*Prome, November 19, 1852.*

I HAVE the honor to report, for the information of the Major-General commanding the Force, that the enemy, on the opposite side of the river just above Prome, appearing to have become rather formidable, and having got up more guns on their two breast-works, from which they fired on boats passing up, and on our guard-boat stationed at the post of Nawaen, I conceived it advisable to dislodge them.

Their force was reported to consist of 500 men in the lower fort, under Mong Oke, with two guns and two jingals; and 500 men in the upper fort, with two jingals and two guns, under Mong-men Lowen.

A party was accordingly ordered, under the command of Major Wigston, of Her Majesty's 18th Royal Irish, on the 12th instant, to perform this service; and I inclose a letter from Major Wigston, reporting that the forts had been entirely destroyed.

The troops behaved exceedingly well; and Major Wigston most ably performed the duty entrusted to him.

I was a witness to the gallant manner in which the detachment was carried up the river, in face of the fire of the forts, by the "Mahanuddy" and "Medusa" steamers, under the direction of Captain Loch; and Commodore Lambert, who was present, will be able to inform you of any other particulars.

The chiefs have fled, it is said, to the north, and have taken post at a stockade, called Yaythayah, on the river bank, about two miles higher up, with about half the number of their followers.

I have, &c.

J. CHEAPE,  
*Brigadier-General, Commanding Bengal Division.*

## Inclosure 3 in No. 22.

*Major Francis Wigston, 18th Royal Irish Regiment, to the Deputy Assistant Adjutant-General, Bengal Division, at Prome.*

Sir,

*Prome, November 13, 1852.*

I HAVE the honor to report, for the information of Brigadier-General Sir John Cheape, K.C.B., commanding the troops at Prome, that, in compliance with division orders of the 11th instant—details as per margin,\* embarked under my command on board the "Lord William Bentinck" steamer, at 5 A.M., on the morning of the 12th instant; and I, at the same time, directed details, as per margin, under the command of Captain Montgomery, 80th Regiment, to embark on board the steamers "Mahanuddy" and "Medusa," for the purpose of cooperating with a naval force under Captain Loch, C.B., R.N., destined to attack in front, and on the left flank, two forts on the opposite side of the river, while that under my orders was to operate on the right and rear of the position.

The party under my command having landed without opposition on the right bank, proceeded through a very jungly and mountainous path, being directed by a guide for about two miles towards the right flank and rear of the forts, when we surprised a number of the enemy in the act of retiring and drawing off one of their guns; on our immediately closing them the gun was aban-

\* 18th Royal Irish Regiment—1 captain, 5 subalterns, 1 assistant surgeon, 5 serjeants, 2 buglers, 121 rank and file. 80th Regiment—1 captain, 2 subalterns, 2 serjeants, 2 drummers, 81 rank and file. 35th Madras Native Infantry—1 captain, 2 subalterns, 1 assistant surgeon, 1 subadar, 2 havildars, 2 naicks, 46 privates. 40th Bengal Native Infantry—1 captain, 1 subadar, 1 jemadar, 4 havildars, 4 naicks, 42 privates. Madras Sappers—1 lieutenant, 25 sappers. 80th Regiment, Captain Montgomery—1 captain, 2 subalterns, 1 assistant surgeon, 2 serjeants, 1 drummer, 52 rank and file. 51st King's Own Light Infantry—1 subaltern, 1 serjeant, 1 bugler, 50 rank and file.



done, and the enemy retreated, pursued by us for a long distance over very difficult ground, where they must have suffered considerably from our fire.

This portion of the enemy having been dispersed, we proceeded, after some difficulty, in finding a path (the guide having disappeared) to the rear of the forts; and on entering that on the right flank, found it already in possession of Captain Montgomery, 80th Regiment, and his detachment, the whole front of the works having been cleared.

These forts were admirably constructed, and, in the hands of a resolute enemy, would not easily have fallen. In them we found three guns, from 9 to 12-pounders (in addition to that previously captured), and a variety of small arms, ammunition, &c.; and two chiefs' gilt umbrellas also fell into our hands.

After remaining for about two hours to refresh the men, who were much exhausted, the whole of the Europeans of the force were re-embarked on board the "Lord William Bentinck" steamer, and returned to Prome at about 11 o'clock A.M. The detachments of the 35th Madras Native Infantry, 40th Bengal Native Infantry, and Madras Sappers, under the command of Captain Lloyd, 21st Madras Native Infantry (attached to the 35th Madras Native Infantry), were directed to stand fast until the demolition of the guns and works, under the superintendence of Captain Young, Bengal Engineers, was completed, which duty was effectually performed by about 2 o'clock P.M., when the whole recrossed the river to Prome.

I have the honor to inclose Captain Young's report and plan of the works.

Captain Montgomery, 80th Regiment, reports that he passed the forts in the "Mahanuddy" steamer, under a well-directed and heavy fire from them; and the "Medusa" steamer not having got up, he landed his detachment of the 80th Regiment, and proceeded with a party of seamen, under Captain Loch, C.B., R.N., by a path in rear of the fort on the left flank, which they entered, and afterwards advanced to that on the right, which they soon deserted.

I have much satisfaction in reporting that, owing to the well-timed combined movement against their position, by which the enemy was completely surprised, the service was effected without any casualty on our part.

The whole of the detachments behaved admirably, and were judiciously led by their respective commanders; viz.: 18th Royal Irish Regiment, by Captain Gillespie, the advance by Lieutenant Swinburn, of that corps; the 80th Regiment, by Captain Christie; 35th Madras Native Infantry, by Captain Lloyd; 40th Bengal Native Infantry, by Captain Becher; and Madras Sappers, by Lieutenant Allen, 21st Madras Native Infantry (attached to the Madras Sappers); a detachment of the 18th Royal Irish Regiment, and 35th Madras Native Infantry, by Lieutenant Hewitt, 18th Royal Irish Regiment, whom I directed to prevent the retreat of the enemy on the right flank; also that of the 80th Regiment, under Captain Montgomery, of that corps; and 51st Regiment, under Lieutenant Sheaffe. I received every assistance from Captain Young, Bengal Engineers, who accompanied me.

I have, &c.

FRANCIS WIGSTON,  
Major, 18th Royal Irish Regiment.

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Inclosure 4 in No. 22.

*Captain C. B. Young, Bengal Engineers, to Major Wigston.*

Sir,

*Camp, Prome, November 13, 1852.*

I HAVE the honor to report, for your information, that the two forts on the opposite bank of the River Irrawaddy, northward of Prome, which were yesterday captured by the detachment under your command, have been completely destroyed, together with the guns and ammunition taken in them, by the party of Sappers under Lieutenant Allen, deputed for the purpose.

Annexed are the plans and sections of the forts, which will, I think, serve to show that these works were very carefully and substantially built, and in a manner which would have done no discredit to a European engineer, being rivetted throughout with stout posts and planks; provided with powder magazines of the best construction; that is, built with a return, covered in with earth,

and sheeted with planks; also with lean-to earth-covered casements, to protect the defenders from the fire of shells, &c.; they also contained a long and capacious under-ground gallery for stores.

All these works, after being filled with combustibles, were set fire to and demolished.

The guns taken in the forts were,—three iron 9 to 12-pounders, and two jingals; the former were loaded with powder, tamped up, and blown into fragments; the latter carried away.

A large quantity of shot was also carried away, and thrown into the river; and the powder and cartridges found in the works served to assist in their destruction.

I have, &c.

CHAS. B. YOUNG,  
*Brevet Captain, Bengal Engineers.*

Inclosure 5 in No. 22.

*Brigadier-General Sir J. Cheape to Major Mayhew, Assistant Adjutant-General,  
Rangoon.*

Sir,

*Prome, December 1, 1852.*

IN my letter to your address, of the 19th ultimo, I had the honor to report, for the information of the Major-General commanding the Force, that a party of 60 men of the 40th Regiment, under the command of Captain Gardner, had been detached on the 16th ultimo, to be quartered on board the "Enterprise," stationed off Akouktoung.

Captain Gardner was instructed to patrol the heights, so as to prevent the occupation of them by the enemy, to the annoyance of our boats and vessels that might be passing up and down the river.

I now regret to inform you that intelligence reached me on the morning of the 20th ultimo, of the attack by the enemy on Captain Gardner's party, on their landing to patrol on the morning of the 19th—of Captain Gardner and his havildar being killed and six sepoy wounded—and that, the enemy being in force, the party had retired to the boats and returned to the "Enterprise," without being able to bring away the bodies of their officers. The intelligence first reached me from native rumour and other sources, but was almost immediately afterwards confirmed by an official letter from the Commander of the "Enterprise," to Captain Loch, a copy of which accompanies, together with a return of the killed and wounded.

This unfortunate occurrence appears to me attributable in some degree to a want of caution on the part of Captain Gardner, who landed his men without the support of the gun-boat, which was detached from this for the purpose, but was not on the spot at the time, and to his taking a most difficult route without any previous precautions of cutting the road, and clearing the jungle: the enemy, from what I can learn, must have observed the manner in which the heights had been patrolled for the two or three preceding days, and laid an ambush for the party. I have, however, had no accounts that can be accurately relied upon; but Colonel Handscomb, who has since been detached, may, I think, be able to ascertain more particulars of the affair, and will no doubt make an official report. It is satisfactory, however, to state, that all accounts I have had, concur in praise of the conduct of the sepoy, who retired in good formation and steadily, and did not recover the bodies of their officers solely in consequence of the narrowness of the road, or declivity of steps across which trees and bushes had been thrown; and it was in stepping over those that the unfortunate officers were shot and immediately dragged off, and the men following in support of them wounded.

On receipt of the above intelligence, and on consulting with Captain Loch, commanding our naval force here, it was immediately resolved to dispatch the "Pluto," the only steamer then at this place besides the "Sesostris," with a detachment of 200 men of Her Majesty's 18th, 100 of the 40th Regiment of Native Infantry, and 50 Sappers, the whole under the command of Colonel Handscomb; Captain Loch to accompany the party with his seamen in the

“Pluto,” and sixteen country boats to convey the tents, stores, &c., and be kept so as to be available to carry the men in the event of the steamer grounding.

The object of the expedition was to disperse the enemy, who, it was evident from the information we possessed, detached men to these heights from their quarters at Guamyetna (the Red Pagoda), about six or eight miles to the north-west, and from Payhee, a village south of Akouktoung, and distant from Kaengaen, on the bank of the river, three or four miles.

It was most desirable to surprise the Chief Mony Moung, who resided at Guamyetna; and I hoped, at the close of the operations against the enemy, who might be located at Guamyetna, on the Akouktoung heights, or at Payhee, to be able to locate the detachment, or a part of them, at Podangmew, which I have been long desirous of doing, for the purpose of protecting the inhabitants, and drawing supplies from the Podang district, as well as to enable us to keep open a communication by the hill passes to Sandoway.

Colonel Handscomb’s letter, of date 29th ultimo, of which a copy is now forwarded, will show that the enemy were completely surprised at Guamyetna, and that the Chief very narrowly escaped being taken; that the heights have been cleared; and that, although Colonel Handscomb did not succeed in getting to Payhee, he surprised a number of the enemy at Tomboo, and in different villages on the bank of the river, on returning to Guamyetna and to Podang, which latter place he reached on the 29th ultimo, and where he now is: and I have the gratification to learn his being in position there promises to be attended with the best effect, the inhabitants beginning to come in with their bullocks and property, and upwards of 100 hackeries having, as I hear, been already collected there.

I have detached a force to proceed to-morrow to occupy the heights of Akouktoung, but am at present in communication with Captain Loch, as to how far he considers the measure still necessary, as it seems the last fleet of boats came up by a different channel, quite out of reach of gun-shot from the Akouktoung heights.

I trust the General will approve of the expedition against Guamyetna, &c. having been undertaken, and that the manner in which the service has been performed by Colonel Handscomb and the troops with him, in conjunction with Captain Loch and the naval party, will have his approbation.

I would particularly solicit the notice of the General commanding to Colonel Handscomb’s favorable mention of Major Edwards.

I have, &c.

J. CHEAPE,

*Brigadier-General, Commanding Bengal Division.*

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Inclosure 6 in No. 22.

*Commander Geo. Neblett, of the Bengal Marine, to Captain Granville Loch, R.N.,  
C.B., Senior Officer in the Irrawaddy River, Prome.*

*East India Company’s steam-vessel “Enterprise,”  
Akouk-toung, November 19, 1852.*

Sir,

I EXCEEDINGLY regret to have to report to you an unfortunate encounter this morning about 7 o’clock, between the detachment of the 40th Bengal Native Infantry attached to the “Enterprise,” and the enemy, in the immediate vicinity of two white pagodas on the western slope of Akouk-toung, just above the village of Tomboo, in which Captain Gardner, the commanding officer, and a havildar were killed, and six sepoy wounded, one dangerously; and I am sorry to add that the bodies of both the killed have been left to the Burmese, by whom the sepoy say, they were so pressed as to make it impossible for them to bring their fallen officers away. They were both in advance in a narrow path, which admitted not two abreast, and is skirted by a thick jungle on either side, and both were shot through the head; I cannot state with any probable accuracy the number of the enemy, as they did not venture from the jungle, being kept in check, doubtless by the fear of our guns and the “Winchester” pinnace, which was not far off. Whilst the unfortunate skirmish was going on it was impossible to distinguish our troops, who were concealed by the

jungle, together with the Burmese, which made it dangerous to them to use our guns, and therefore we could render them but little assistance, save by throwing a few shells on the upper part of the hill, where they had several jingals mounted, from which they kept up a sharp fire upon our troops below.

I have, &c.

GEORGE NEBLETT, *Commander.*

Inclosure 7 in No. 22.

*Lieutenant-Colonel Handscomb, Commanding Detached Force from Prome, to the Deputy Assistant Adjutant-General, Bengal Division, Army of Burmah.*

Sir,

*Podang Mew, November 29, 1852.*

I NOW avail myself of the first leisure time I have had, since I embarked on board the East India Company's war-steamer "Pluto," with the force under my command, named in the margin,\* and have the honor to report my proceedings for the information of Brigadier-General Sir John Cheape, K.C.B., commanding at Prome.

The steamer grounded on the evening of the 20th, which delayed the departure of the expedition till the next day. On the morning of the 22nd, the force landed at 2 o'clock A.M., and moved in two columns for the surprise of Guamyetna.

The left column under Captain Forrest, 40th Regiment Native Infantry, consisting of thirty-eight of the 18th Royal Irish, and fifty of the 40th Regiment Bengal Native Infantry, proceeded to cut off the retreat of the Governor Mounghoe-mong. The right column, being the remaining portion of the force, reinforced by the naval division under Captain Loch, C. B., R. N., marched direct upon the village, pressing the Burmese picket, that fired both jingal and musketry, without any return being made by the column, in order to effect the surprise which proved decisive, as the enemy (after a desultory fire) left all their ammunition and arms, viz., seven jingals, a number of muskets, swords, and spears.

The village being the head-quarters of the enemy, I decided on burning it. The heights above were taken without resistance. I regret to say that Lieutenant Gahagan, of the Madras Engineers, was severely wounded, when destroying the captured jingals.

On the 23rd I made a reconnoissance of the heights above Akouk-toung, to allow me to proceed the next morning, without molestation, to Payhee, for which purpose I started early on the morning of the 24th, but, unluckily, the guides had lost their way, and could not recover their path; and, after wandering for some time in a dense jungle, intersected with numerous breastworks, I returned with the force to Akouk-toung. I was there informed the Governor Mounghoe-mong had returned with a large force to the Red Pagoda, on the heights above Guamyetna.

I apparently made arrangements to make another attempt to reach Payhee, but determined to advance by land, on the Red Pagoda, in the hope of finding the Governor; having previously routed a strong picket of the enemy in a village at the foot of the hills, distant nearly two miles from Akouk-toung, by a party of 100 men under the command of Captain Forrest, 40th Regiment Native Infantry.

Early on the morning of the 26th, I started for the Red Pagoda, and was for a long time delayed by the badness of the roads and a very deep creek, so that I did not reach the vicinity of the pagoda till nearly 4 o'clock P.M. This movement could not have been anticipated by the enemy, who made a stand at the village of Philloydan, and commenced firing musketry and jingal on the advanced guard, led on by Lieutenant Piercey, of Her Majesty's 18th Royal Irish, who immediately secured the bridge that the enemy had commenced destroying,

\* Her Majesty's 18th Royal Irish Regiment—8 officers and 200 men, under Brevet Major Edwards. 2 European commissioned officers, 2 Native commissioned officers, and 112 fighting men of all grades, under Captain Forrest, 40th Native Infantry. 1 officer and 51 fighting men, Madras Sappers and Miners, under Lieutenant Wilson. Staff—Lieutenant Gahagan, Madras Engineers; Lieutenant Miller, 40th Native Infantry; Assistant Surgeon Chalmers, 18th Royal Irish, in medical charge.

and advancing, formed with the main body, and drove the enemy off, after some slight resistance. They, however, harassed the column during its advance forwards, and after occupying the heights, by which I had three men wounded, two severely, and one slightly. On the following morning I cleared the whole neighbourhood of all the small parties of the enemy.

On the 28th, having burnt all the places occupied by the Burmese pickets, I took up a position here. The occupation of Podang-mew will, I hope, prevent the reassembly of the enemy, and open the resources of this part of the country to us.

I find it difficult to describe all the attempts I have made to dislodge the enemy, who, though offering no great resistance, appears always on the alert; and the pursuit of them has been attended with great exposure and fatigue to the troops under my command, which has been endured with much cheerfulness, highly creditable to them, Captain Loch, C.B., Royal Navy, kindly assisted me in the surprise of Moungh-shoe-mong on the morning of the 22nd, and contributed materially to the success of the operations. Captain Forrest, on two occasions when detached, showed much zeal and good judgment in conducting his detachments. Lieutenant Miller assisted me as detachment staff; and Assistant-Surgeon Chalmers, 18th Royal Irish, was very assiduous in attending to the sick and wounded.

In concluding this report it affords me great satisfaction in acknowledging my obligations to Major Edwards, Her Majesty's 18th Royal Irish, and my second in command: his assistance and uniform support, under every circumstance, has enabled me to carry out the instructions furnished by the General, as far as feasible, and I hope he will do me the favor of bringing him to the favorable consideration of higher authority, that some mode of approbation may be conferred on him.

I have, &c.

J. H. HANDSCOMB, *Lieutenant-Colonel,*  
*Commanding Detached Force from Prome.*

Inclosure 8 in No. 22.

*Major W. Hill, Commanding at Pegu, to the Deputy Adjutant-General of the Forces serving in Burmah.*

Sir,

*Pegu, November 28, 1852.*

I HAVE the honor to report, for the information of the Major-General commanding the forces, that a simultaneous attack was made last night upon the Pagoda and picket and boats, a little after 9 o'clock, and continued uninterruptedly until 12 o'clock, when the main body moved away, leaving a small portion of their men about the base of the Pagoda, under good cover to keep up a straggling fire, which forced me to keep the men exposed until 3 o'clock in the morning, when all firing ceased.

From the space over which their force was spread last night, their numbers must have been from 4 to 5,000 men; and though none of our men in the Pagoda were wounded, three of the enemy are now lying dead outside, others were heard to fall from the trees, and many were seen taking away their dead, besides blood having been seen in many places this morning; all of which show that their loss must have been considerable. Many escalating ladders were left by the Burmese, which we brought in for our own use.

A picket of 30 fusiliers and 20 sepoy of the 5th Native Infantry were posted on the bank of the river to protect the provisions of the garrison; this picket had much difficulty in keeping their ground, having the gun boats only to look to for support. Lieutenant Mason of Her Majesty's ship "Fox" has reported to me this morning the able judgment and coolness with which Lieutenant Percival Ashley Brown, of the 1st Madras Fusiliers, the officer in command of the picket, gave directions from the shore to enable him to point his guns and fire his rockets upon such places as the enemy appeared to be in force, and Lieutenant Mason adds that the steady fire of the picket was of the greatest use to his boats also, as they were attacked from both sides of the river.

Lieutenant Brown has brought to my notice the gallantry of Private John Clancey, of No. 1 Company, and 6 men of his picket, who volunteered to charge forward upon a part of the provisions which were on fire, and the enemy were driven away from it. Three men of the picket were wounded, and Lieutenant Mason reports two of his own men also wounded, but they are all slight wounds.

I trust I may be permitted to bring Lieutenant Brown to the Major-General's favorable consideration, as he is a young officer of promise in his profession: if I may also be permitted to bring Private Clancey to the Major-General's favorable consideration for promotion for his conduct last night, I think it would have a good effect upon his comrades in the regiment.

I have, &c.

W. HILL, Major, Commanding at Pegu.

Inclosure 9 in No. 22.

*Major-General Godwin to the Secretary to the Government of India.*

(Extract.)

*Rangoon, December 11, 1852.*

I HAVE very little time to inform you, for the information of the Governor-General in Council, that since I left a garrison in the Pagoda at Pegu, it has been harassed by strong parties of Burmese from Sitang and Shoee-Gyne.

These were twice beaten off without loss to us, but with severe loss to the enemy; and in a dispatch from Major Hill, of the Madras Fusiliers, announcing these events, I was led to hope all would be quiet there, as some hundreds of families had come in, and the banks of the river were entirely open.

I sent the Major some guns and ammunition on the 1st instant, which were landed safely and reached him; but a boat with bullocks and four carts, following by the next tide with 20 sepoy, was attacked, taken, and the jemadar, naick, and 2 men killed; the remainder reached the Pagoda.

A letter inclosed in wax reached me on the morning of the 9th, brought by some Taliens from Major Hill, informing me he was again beleaguered by a very large force of Burmese, that he required ammunition, and that he could not communicate with the river.

The Commodore sent his boats to open the communication, and I sent, in a steamer, ammunition, and 240 men of the Madras Fusiliers. The boats reached the landing-place after great opposition from the enemy on the banks of the river, and endeavoured to force their way to the Pagoda, but were repulsed with considerable loss.

The enemy appeared so strong that it was deemed impracticable for the 240 Europeans to force their way to the Pagoda, and they have returned with the boats this morning.

I am now (3 o'clock, P.M.) preparing a considerable force, which will embark this evening, and I hope soon to give the Governor-General in Council a good account of these people.

The garrison had had only one man killed, with a few cases of contusions, up to sending the waxed letter.

Inclosure 10 in No. 22.

*Commodore Lambert to the Secretary to the Government of India.*

Sir,

*"Fox's" Boat, Prome, November 14, 1852.*

IN continuation of my letter of the 2nd instant, I request you may be pleased to inform the Governor-General in Council that, as soon as I had transferred the troops from the "Proserpine," "Pluto," and "Nemesis" to the small steamers, I desired them to return to Rangoon, with orders to proceed into the Irrawaddy, under the care of the master of the "Fox," by way of the China Buckeer. The "Pluto" entered the river easily, never having had less than one and a-half fathoms; the "Nemesis" is on her way, but the "Proserpine" had so damaged her bottom while on shore, that I was compelled to order her to Moulmein to be repaired.

On my arrival at Henzadah I found the town to be in perfect safety, since it has been garrisoned by a few troops sent by Major-General Godwin, in addition to the little force I have constantly kept there. The dacoits have disappeared, and the inhabitants are much pleased with the protection afforded them.

Inclosures Nos. 1 to 4 will inform his Lordship in Council of the operations conducted by Captain Loch, C.B., of Her Majesty's ship "Winchester," in charge of the flotilla in the Irrawaddy.

The enemy having taken advantage of our not occupying the heights of Akouk-toung, sent a force to do so, and mounted five guns on them; but by the energy and skill of Captain Loch, who stormed the battery as described in Inclosure No. 2, they were dispersed, the cannon destroyed, and a convoy of cargo-boats coming up the river were consequently saved; since which I have stationed the "Enterprise" off that place, and the General has embarked sixty men on board of her to drive away the enemy in the event of their again attempting to take possession.

The service detailed in Inclosures No. 1 and 4 will probably have a beneficial effect, bringing supplies into Prome, and restoring confidence to the friendly villagers.

His Lordship in Council will, I feel sure, fully coincide with me in my approval of the services rendered by Captain Loch, C.B., the officers, seamen, and marines under his command, on the occasions herein referred to.

The navigation of the Irrawaddy is now intricate, and requires care, owing to the shallowness of the water in many parts; but, by proper attention, the small steamers will find no difficulty in proceeding up and down the river, and the boats under convoy can at all times keep up a supply of provisions and stores; though I would suggest it would be desirable if a small military force occupied the two or three stations on the banks, for the purpose of protecting the people who supply the steamers with wood, &c., from the bands of troops, or dacoits, which are continually lurking in the neighbourhood.

It is my intention to return to Rangoon to-morrow.

I have, &c.

GEORGE R. LAMBERT.

Inclosure 11 in No. 22.

*Captain Loch to Commodore Lambert.*

*Her Majesty's Ship "Winchester's" Gig,  
Prome, November 2, 1852.*

Sir,

I HAVE the honor to report to your Excellency, that this morning I proceeded down the River Irrawaddy, in the East India Company's steamer "Medusa," for the purpose of making a combined reconnoissance with Brigadier Sir John Cheape, K.C.B., of the right bank of the river, from Podangmew to the White Pagoda, a mile and a-half below Prome.

At daylight Sir John embarked with his personal staff and the light company of Her Majesty's 18th Royal Irish, eighty strong; at the same time the boats named in the margin\* having joined us, I quitted Prome and steamed down the river. On passing the White Pagoda (from whence our boats have been frequently annoyed with a distant fire of jingals and musketry), I perceived that a strong breastwork was in the course of construction on its right, not a vestige of which was perceptible when I quitted Prome on the 13th instant; and that some two and a-half or three miles inland the jungle was being cleared, and two stockades were being built.

Leaving the boats, with the exception of my gig, anchored out of musket-range of the enemy's shore, we stood down the river, and at 8.30 A.M. anchored

\* "Winchester's" boats—Gig, Commander F. B. Seymour, volunteer; Mr. Gregory, naval cadet; 5 men, 3 marines. Barge, Lieutenant Hillyar; Mr. Round, mate; Mr. Slade, assistant surgeon; 15 men. Pinnace, Lieutenant Pearse; Mr. Bond, mate; 13 men. "Sesostris" boats—Pinnace, Lieutenant Lewis; Mr. Capel, midshipman; Dr. Walsh, assistant surgeon; 14 men; 11 marine artillerymen. 1st Cutter, Lieutenant Windus, 11 men. 2nd Cutter, Mr. Duval, mate; 11 men. "Medusa's" cutter, Mr. Harris, midshipman; 10 men; 6 marine artillerymen.—Total force landed, 74.

abreast the East India Company's steamer "Enterprise," off Podangmew. I directed Captain Neblett to proceed to the anchorage under the heights of Akouk-toung, and remain there until he received further orders.

I then steamed back to the boats anchored within 300 yards above the White House Pagoda, and disembarked the brigadier, his escort, and the naval brigade. Sir John Cheape ordered an advance, and immediately on our crowning the terrace beneath the Pagoda, the enemy's skirmishers, who lined the jungle, were discovered, evidently expecting that we should have come on by the lane beneath the Pagoda; on their being driven in, a fire was opened by them from the high ground inland, their stockade being unoccupied. They were immediately driven from their different posts with the utmost expedition, until we attained our object, viz., a distinct view of the two stockades, which they are throwing up, and a knowledge of the country in the vicinity.

At this time, the enemy were in possession of two commanding positions between us and their stockade, which they were immediately driven out of. The heat was now so intense, and three men having received strokes from the sun, I halted under cover of the enemy's look-out houses for an hour.

Having accomplished our reconnoissance, I caused the naval brigade to return to the river stockade; Sir John Cheape recalled the Royal Irish at the same time; and we burned the greater part of the lower breastwork, leaving the larger and more valuable timbers on the beach to be brought to Promé tomorrow, for the use of the steamers.

It is with much satisfaction that I have to express my approbation of the zeal, good conduct, and bravery of every officer and man of the force employed.

I have to mention the conspicuous zeal and gallantry displayed by Commander F. Beauchamp Seymour, R.N., serving with me as a volunteer, from whom I received most useful and ready assistance.

I beg to bring before your Excellency's favorable notice the zeal and gallant conduct of Lieutenants Hillyar and Pearse, of the "Winchester;" also Lieutenants Lewis and Windus, of "Sesostris;" and I have to notice the officers named in the margin, all of whom merit my thanks and approbation.

Lieutenant Hillyar has, while serving in the Irrawaddy, always shown himself foremost in the performance of every duty required of him.

I am happy to state that the reconnoissance and destruction of the stockades was effected with only the single casualty of a marine artilleryman\* of the "Medusa," wounded badly in the arm.

The loss of the enemy I am unable to state, for they retreated through thick jungle.

I have, &c.

GRANVILLE G. LOCH,  
Captain and Senior Naval Officer in the Irrawaddy.

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Inclosure 12 in No. 22.

Captain Loch to Commodore Lambert.

Her Majesty's Ship "Winchester's" Gig,  
Promé, November 5, 1852.

(Extract.)

I HAVE the honor to inform your Excellency that I landed with the seamen and marines named in the margin,† stormed the heights of Akouk-toung, and captured five guns, defended by 350 or 400 men, yesterday afternoon, between the hours of 3 and half-past 5 P.M., and I am happy to say without the loss of a man.

The landing was covered by the fire of the East India Company's steamer "Medusa," Lieutenant Fraser commanding, which was so admirable that to it I attribute our good fortune in being able to ascend a narrow pathway, winding

\* Christopher Byrne.

† "Winchester's" boats—Gig, Commander F. B. Seymour, volunteer; Mr. Gregory, naval cadet; 4 men; 3 marines. Barge, Lieutenant Hillyar; Mr. Round, mate; Mr. Slade, assistant surgeon; 15 men. Pinnace, Lieutenant Pearse; Mr. Bond, mate; 13 men. East India Company's steam-frigate "Sesostris," Lieutenant Lewis; Mr. Duval, mate; 22 seamen; 8 marine artillerymen. East India Company's ship "Medusa," Mr. Brazier, mate; Mr. Harris, midshipman; 15 seamen; 12 artillerymen.—Total force landed, 82.



up the ridge of the hill to the outer breastwork, every yard of which might have been defended by a handful of men, screened from sight in the dense underwood growing on either side, against almost any number of assailants. We found a Burmese, wounded by a shell from the steamer, lying in the intrenchment; he told me the troops were before us, so on we went, and at last were met by a partial fire, which, after an immediate and rapid charge, was never renewed, nor could we again see the enemy, through jungle everywhere as thick as a bramble-bush.

The guns were loaded and primed, with the exception of one which was fired with a volley of musketry and some jingals at the "Medusa" as she approached the cliff, just before anchoring; four of them were iron, 9-foot 18-pounders, one an iron 6-foot 9-pounder: having no powder to burst them, I threw them over the cliff, and moved the force slowly back to the boats, protected by a rear-guard. When it was embarked, I directed Lieutenant Fraser to anchor the "Medusa" for the night at the entrance of the creek, facing the creek, and commanding its entire front.

I experience great pleasure in having so soon again to bring before your Excellency's notice the gallant bearing and good conduct of all the officers and men engaged.

When they landed, they saw the difficulty and apparent danger of the pass, and they knew the superiority in numbers of the enemy: they had no reason to contemplate so easy a victory; yet they formed with as much steadiness as old soldiers, and with that cheerful alacrity which always distinguishes British seamen and marines. Lieutenant Hillyar, of the "Winchester," commanded under me, and again added to his well-known character of an able, zealous officer.

Lieutenant Lewis, first of the East India Company's steamer "Sesostris," formed and led his marines and seamen in a masterly manner; and I gladly recommend him to your Excellency's notice.

Mr. Brazier, senior mate of the "Medusa," landed with his men, and attracted my attention by his zeal.

To Lieutenant Fraser, commanding the "Medusa," much is due for the able way he handled his vessel in the strong tides and eddies where he had to anchor; and the most effective aid he rendered by his fire. He is a most zealous officer, and has, and is rendering daily, most valuable service to the naval and military force at Prome.

I cannot refrain mentioning, that a quarter of an hour did not elapse from the time the "Medusa" anchored, before my people were formed on the beach, and the boats safely moored under charge of men to fight their guns.

Commander F. Beauchamp Seymour, a volunteer serving up this river, landed with me, and was always to be found in the front.

The capture of these three guns has again opened the river to Prome; and I rejoice that the information I received of their having been planted there, reached me in time to secure the safety of the expected steamers from Rangoon, laden with troops.

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Inclosure 13 in No. 22.

*Captain Loch to Commodore Lambert.*

*Her Majesty's Ship "Winchester's" Gig,  
Prome, November 10, 1852.*

Sir,

I HAVE the honor to inform your Excellency that, having received intelligence from the officer commanding the gun-boat which I left to watch the heights of Akouk-toung, to the effect that the men had reappeared there in force, armed with jingals and musketry, with which they had opened a fire on him, and that he was apprehensive during the night they might possibly succeed in mounting guns there; I decided immediately on proceeding there with a detachment of seamen and marines, to which Sir John Cheape kindly added a party of twelve sappers under Lieutenant Denison; and I accordingly quitted Prome yesterday morning in the "Medusa" steamer, accompanied by Major Allan, Quarter-

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master-General of the Forces in Burmah. On arriving off the village, situated a little above the slope leading to the upper ridge of the heights, I disembarked, and, after ascending them, detached Lieutenant Hillyar, with thirty men; to endeavour by a circuitous route to get into the enemy's rear; we then continued our march along the ridge, and at 3 P.M. reached the position where we captured the enemy's guns on the 4th instant, which appeared much in the same state as we had left it, with the exception that the enemy had partially succeeded in raising one of the guns, which had fallen on a ledge below the parapet.

At this moment the "Bentinck," bearing your Excellency's pendant, was descried beneath us, and at the same time the party under Lieutenant Hillyar joined us, having met a few of the enemy, and captured some of their muskets.

Having with much difficulty succeeded in getting the only two guns which had not fallen into the river into a position where we might burst them, and it being nearly dark, I re-embarked the men, and next morning sent them ashore under Lieutenant Hillyar, who effected the destruction of the guns by bursting them:

I have, &c.

GRANVILLE G. LOCH.

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Inclosure 14 in No. 22.

*Captain Loch to Commodore Lambert.*

*Her Majesty's Ship "Winchester's" Gig,  
Prome, November 12, 1852.*

Sir,

THE attack and capture of the forts opposite Upper Prome took place so immediately under your Excellency's notice, that but little is left for me to detail.

The force placed by you under my orders consisted of the steamers and boats named in the margin.\*

I intended the "Sesostris" to take up a position to cover the advance of the two small steamers containing troops; but on observing her take the ground, I desired the commander of the "Mahanuddy" to proceed ahead of her, pass the batteries, and anchor his ship close to the bank above them. The "Medusa" was to follow us, but that vessel having unfortunately got into the Chow-chow water, was unable to keep her station, notwithstanding Lieutenant Fraser used every exertion to do so.

On arriving within range of the forts, they opened a steady and well directed fire on the "Mahanuddy," which was returned with shell; and having most fortunately passed them without a casualty, I disembarked at a landing-place just above them, which the native guide pointed out. We formed on the beach, and I found myself at the head of a reduced force of 42 men, who, with 50 men of Her Majesty's 80th Regiment under Captain Montgomery, made a total of 104 officers and men.

We advanced by a narrow pathway leading to the rear of the Upper Stockade. When in sight of this work, I had the gratification also of seeing the "Bentinck," bearing your Excellency's pendant, open fire upon it. We advanced at the double, charged into the fort, and found that the enemy had retreated to the second.

Leaving a party in possession, we at once moved rapidly on to the Lower Stockade, which was also deserted by the time we entered it, and I regret to say

\* East India Company's steamer "Mahanuddy," H. Simpson, Esq., Commander, towing "Winchester's" gig, 6 men; barge, 15 men, Lieutenant Hillyar, Mr. Round, mate, and Mr. Slade, assistant surgeon; launch, 21 men, Lieutenant Nelson, Mr. Hinde, mate, and the Hon. H. D. Lascelles, midshipman. East India Company's steam-frigate "Sesostris," Commander Campbell. East India Company's steamer "Medusa," Lieutenant Fraser, commanding, towing "Winchester's" pinnace, 8 men, Lieutenant Pearse, and Mr. Bond, mate; cutter, 9 men, Mr. Allingham, midshipman, Mr. Gregory, naval cadet. "Sesostris" and "Medusa's" landing party, Lieutenant Lewis, Mr. Duval, mate, 42 men; Lieutenant Fraser, Mr. Douglas, mate, 25 men. "Feroze," Mr. Hurlock, midshipman, 8 men.

that the enemy had here succeeded in removing their ordnance. From the position we found the guns in on the larger work, it was evident that they were in the act of withdrawing them also, when we appeared. We captured five guns and a jingal, besides a considerable supply of ammunition.

Although your Excellency visited the works yourself, might I be permitted to call your attention to their admirable construction. They were casemated stockades, formed in the shape of a horse-shoe, with three strong lines of abattis in their front; within, they had circular shell-proof galleries, into which they could retreat, and also use them for magazines.

The officers and men behaved with spirit and coolness, and I have great satisfaction in repeating to your Excellency names mentioned on previous occasions.

Commander F. Beauchamp Seymour again volunteered, and was forward on every occasion.

Lieutenant Hillyar brought up his small detachment rapidly and well. I left him in charge to burst the guns and destroy the works, in conjunction with the Sappers, which service was effectually performed.

The "Medusa" came up after we had captured the forts, and instantly landed the seamen and marine-artillerymen enumerated in the margin, and fifty men of Her Majesty's 51st Regiment, who chased the retreating enemy into the jungle.

The East India Company's steam-frigate "Sesostris," Commander Campbell, after she floated, opened her fire on the forts at a distant range.

The cooperation of the half company of Her Majesty's 80th Regiment, under Captain Montgomery, with my broken party, was most satisfactory, and had we not advanced on the instant, it is my opinion the enemy would have continued longer at their guns, besides lining the jungle with skirmishers, through which the narrow pathway went.

I have, &c.

GRANVILLE G. LOCH.

Inclosure 15 in No. 22.

*Commodore Lambert to the Secretary to the Government of India.*

Sir,

*Her Majesty's ship "Fox," Rangoon, December 11, 1852.*

IN continuation of my letter of the 9th instant, I request you may be pleased to inform the Governor-General in Council that, on the 5th, Captain Loch having observed the enemy re-constructing the forts of Phoo-u-doung, opposite Prome, landed at daylight the next morning a party of 103 seamen from the boats of the "Winchester" and "Sesostris," commanded by Commander Wainwright, under a fire from the Burmese, and advancing at a run, stormed the two forts in succession, capturing one long 9-pounder and two 6-pounder guns, without a casualty; excepting a slight wound received by Lieutenant Windus, of the "Sesostris," from a bamboo spike.

The enemy fled as the seamen stormed, keeping up a fire from a thicket into which they retired, but out of which they were soon driven.

Captain Loch demolished the works, burnt the stockades, and burst the guns. By noon the party had re-embarked.

Captain Loch makes honorable mention of Commander Wainwright of the "Winchester," and speaks in high terms of the conduct of the officers and men under his orders on this occasion.

It appears these guns had been sent as a reinforcement from Meeaday.

I have, &c.

GEORGE R. LAMBERT.

No. 23.

*The Governor-General in Council to the Secret Committee.*

(Extract.)

*Fort William, January 5, 1853. (No. 2.)*

THE annexed dispatches from Major-General Godwin and Commodore Lambert, report the operations connected with the relief of Pegu. Our entire satisfaction has been expressed to these officers at the successful accomplishment of this service.

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 Inclosure 1 in No. 23.
*Major-General Godwin to the Secretary to the Government of India.*

Sir,

*Pegu, December 15, 1852.*

IN continuation of my dispatch of the 11th instant from Rangoon, I have the satisfaction to state, for the information of the Governor-General in Council, that the garrison I left at this place was relieved from its investment by the Burmese, on my arrival here yesterday at one o'clock. The strength of the enemy, added to their formidable position, the very small garrison, and its falling short of ammunition, though strongly posted and with a large supply of provisions, caused me very great anxiety.

At nine o'clock, in the night of the 11th instant, 1200 men were embarked at Rangoon in two steamers and a number of boats, and were disembarked about six miles below the Ghaut, at Pegu, on the morning of the 14th instant, and the whole ready to move off their ground by sunrise.

I had resolved to march and enter the Pagoda by the eastern gate. The last time I was here I did so by the southern gate at its capture, because the enemy from Shoee-Gyne had marched from the east, and established their batteries on that face of the Pagoda. This turned all their defences and their works on and from the banks of the river, and round the Pagoda, and this move brought me directly on their rear, only having to drive in numbers of well-conducted skirmishers, and a force of about 200 men on ponies, which hung on the right flank of the column during its march, against whom, however, I hardly returned a shot.

Three miles from the pagoda I passed a gun-carriage burning, which told me what I apprehended was the case, that, finding themselves between two fires, the pagoda and my own, their defences useless, I should find they had retired; and on coming close to the rear of their defences, and pushing on the advance, we met only a large body of skirmishers, who were gallantly repulsed by some of the Bengal and Madras Fusiliers and the Sikhs.

The march through such a close country without a road was well got over. I had with me two guns from the navy boats, drawn by a party of sailors, under Commander Shadwell, whose excessive labors were most cheerfully borne.

Our loss has been 3 killed and 9 wounded, as they had no chance of injuring us seriously. The Burmese will fight if you take your people up to the muzzle of their guns, but wisely retire when they find they are morally beaten, as they ever have been in this war.

They have hidden their guns, two only have been found as yet; but in the thick grass jungle a gun is easily hidden.

I have had the aid of Brigadier-General Steel, who particularly requested to accompany me.

It was a hard day's work for all, but well accomplished; and I know few moments that have been more gratifying to me than when I met that excellent and brave officer, Major Hill, of the Madras Fusiliers, in the pagoda.

His report cannot be prepared to-day, for there is detail respecting the admirable conduct of the Peguers, whose families came under his protection, and he has wonderfully managed to save them.

I have come the second time to Pegu, with the full intention of going onwards, as ten miles from this, at a place called Sephangoon, on the road to Shoee-Gyne, there are the Pegu families in bond at a Burmese station there, held,

for the fidelity of their husbands, in the Burmese ranks, which I hope to release to-morrow; at all events to follow the force that has been troubling this country, and break it up; but I cannot state how far I can go, as the progress of all soldiers depends upon feeding them, which can never be left to accident.

I have found more carriage than I expected here, which will assist us very much.

I have ordered a land column, under the command of Lieutenant-Colonel Sturt, of the 67th Bengal Native Infantry, to march on the right bank of the river—where I have been informed there is a good hackery road to Pegu,—consisting of half the Madras Horse Artillery, 50 of the Ramghur Horse, and 400 of the 67th Bengal Native Infantry; but with instructions, if he should meet with any serious difficulty, to return: and I hope to have them up at Scephangoon.

I expect soon to furnish the Government with a detailed account of the proceedings of this army.

Commodore Lambert has a steamer ready to convey this dispatch on its arrival at Rangoon.

I have, &c.

H. GODWIN, *Major-General.*

Inclosure 2 in No. 23.

*Commodore Lambert to the Secretary to the Government of India.*

Sir,

*Rangoon, December 18, 1852.*

I HAVE the honor to request you may be pleased to inform the Governor-General of India in Council, that, shortly after my return from Prome, on the 6th instant, I learned that a large flat, which the military authorities had sent up to Pegu, laden with commissariat stores and bullocks, under charge of 24 Sepoys, had been attacked and burnt by the Burmese. A havildar and three of the men being killed, the remainder had by some means reached Pegu, with the loss of their arms and accoutrements.

Considering it desirable to keep open a communication with the garrison at Pegu, and being anxious to ascertain the true state of things, I sent Commander Shadwell, of Her Majesty's ship "Sphinx," with the boats of the squadron specified in Inclosure A, on the 8th instant, on that service.

The day after his departure, a letter was brought to Rangoon by a friendly Burman, who found the greatest difficulty in escaping from Pegu. Major Hill stated he was surrounded on all sides and hardly pressed, and that his ammunition was getting very short. On receipt of this intelligence, Major-General Godwin decided to send 200 European troops to Pegu, and they embarked in the "Nerbudda," and left the same evening, in company with a force of armed boats from the squadron, under command of Commander Rowley Lambert.

On the 11th, Commander Shadwell returned from Pegu, having failed to communicate with the garrison. On reaching the usual landing-place he was received by the enemy with a heavy fire, and on landing he found the Burmese too numerous to contend with. He therefore deemed it prudent to retreat, having in a very short time had 4 men killed and 28 wounded, amongst the latter, 2 officers severely; and his coxswain was shot dead by his side. A return of the casualties on this occasion is inclosed, marked B.

On his return he met the "Nerbudda," but, being quite uncertain as to the extent of the force he would be exposed to, he determined to bring them back.

I immediately consulted with Major-General Godwin, who determined to go himself to Pegu with a considerable force, and I appropriated for this service the "Mahanuddy" and "Nerbudda" steamers, and a number of native cargo boats, the long-boats of the transports, and the boats of the squadron.

Before ten o'clock that night Captain Tarleton had embarked a thousand and fifty men, composing the land force, in the boats, and left Rangoon for Pegu. The armed force under his command, belonging to the squadron, is detailed in Inclosure C.

The steam-vessels "Mahanuddy" and "Nerbudda" had both been disabled, but, through the activity and ability of Mr. Berry, the superintending engineer, they were temporarily repaired; and Major-General Godwin, having embarked with 400 more Europeans in these vessels, started next morning.

A land force, under Colonel Sturt, of the 67th Regiment Bengal Native Infantry, also marched for Pegu, leaving Rangoon on the morning of the 13th.

I will now refer his Lordship in Council to Captain Tarleton's letter of the 16th instant, for details of the naval operations at Pegu.

I fully coincide with the encomiums expressed by Captain Tarleton respecting the officers and seamen of this squadron serving under his orders—who, on this occasion, have been actuated by the same gallant and cheerful spirit to fulfil their duty that they have displayed throughout the war.

I have, &c.

GEORGE R. LAMBERT.

#### Inclosure A.

##### *Memorandum showing the Force of the Expedition to Pegu.*

Her Majesty's ship "Sphinx's" boat; Commander Shadwell.—4 men. Starboard paddle-box boat: 24-pounder howitzer, 1; Mr. Edgar Cookson, Midshipman; 15 men, 6 marines. Port paddle-box boat: 24-pounder howitzer, 1; Mr. Arthur Morphy, Master's Assistant; Mr. John F. Johnson, Assistant Surgeon; 15 men.

Her Majesty's ship "Fox."—Pinnace: 12-pounder howitzer, 1; Lieutenant Mason; Mr. Hudson, Midshipman; 15 men, 6 marines. Barge: 12-pounder howitzer, 1; Mr. Pocock, Mate; Lieutenant Nightingale, Royal Marines, 13 men, 6 marines.

East India Company's steamer "Moozuffer."—Paddle-box boat No. 1: 12-pounder howitzer, 1; Lieutenant Robinson, Indian Navy; the Boatswain; 21 men. Paddle-box boat No. 2: 12-pounder howitzer, 1; Mr. Templer, Midshipman, an Apothecary; 20 men.

Total.—133 officers and men, accompanied by Captain Mallock, Bengal Artillery, and 12 artillerymen, in two cargo-boats.

CHARLES F. A. SHADWELL, *Commander.*

#### Inclosure B.

##### *List of Killed and Wounded at Pegu, December 10, 1852.*

Her Majesty's ship "Fox."—Mr. C. A. B. Pocock, mate, wounded, severely. James Tilman, A.B., wounded, severely. John Jones, A.B., wounded, severely. Michael McAvoy, ordinary, wounded, dangerously. Thomas Christian, marine, wounded, dangerously; since dead. William Tucker, marine, wounded, dangerously; since dead. Henry Budd, marine, wounded, severely. Walter Bell, marine, wounded, slightly. Charles Smith, marine, wounded, slightly.

Her Majesty's ship "Sphinx."—Mr. W. E. Cookson, midshipman, wounded, very severely. Thomas Davis, gunner's mate, killed. William Mitchell, captain foretop, wounded, slightly. James Blanch, captain maintop, wounded, slightly. Stephen Collison, stoker, killed. John Stevens, gunner, Royal Marine Artillery, wounded, severely.

East India Company's steamer "Moozuffer."—John Willis, A.B., wounded, very severely; since dead. John Asbom, gunner, Bengal Artillery, wounded, severely. Thomas Mac Kissick, A.B., wounded, severely. William Robinson, A.B., wounded, severely. James Pearson, gunner's mate, wounded, severely. Daniel Watson, A.B., wounded, slightly. Joseph Fraser, A.B., wounded, slightly. John Barnsley, gunner, Bengal Artillery, wounded slightly. John Bence, A.B., wounded, slightly. William Brown, A.B., wounded, slightly. A Burmese boatman, very severely; in the convoy.

JOHN F. JOHNSON, *R.N.,*  
*Assistant Surgeon, Her Majesty's ship "Sphinx."*

In addition to the above, the detachment of artillery serving with the naval force, sustained the following loss:

1 serjeant, 1 gunner, killed; 1 bugler, 1 gunner, severely wounded, 2 gunners, slightly wounded.

Total.—32. Of these killed in action, 4; wounded in action, 28; since dead, 3.

J. F. JOHNSON.

## Inclosure C.

*Memorandum of the Naval Force employed at Pegu.*

Boats of Her Majesty's ship "Fox," manned and armed.—Captain Tarleton, in command; Commander R. Lambert; Lieutenant W. B. Mason, Mr. R. Sturges, second master; Mr. T. Secombe, assistant surgeon; Mr. Villiers, midshipman; Mr. Rason, midshipman.

Boats of "Sphinx," manned and armed.—Mr. Augustus H. Webb, midshipman; Mr. Arthur Morphy, master's-assistant.

Boats of "Moozuffer," manned and armed.—Mr. Freeman, master; Mr. Templer, midshipman.

Boats of "Berenice," manned and armed.—Mr. Mannerly, master.

East India Company's steam-vessel "Fire-Queen's" paddle-box boats.—Gun party. Commander Charles F. A. Shadwell, Royal Navy, "Sphinx;" Lieutenant Robinson, Indian Navy, "Moozuffer;" Mr. J. S. Hudson, midshipman, "Fox;" Mr. A. A. Smith, midshipman, "Sphinx;" Mr. Dawkins, midshipman, "Moozuffer."

G. W. TARLETON, *Captain.*

## Inclosure 3 in No. 23.

*Captain Tarleton to Commodore Lambert.*

*Her Majesty's Ship "Fox's" Gig, in the Pegu River,  
December 16, 1852.*

Sir,

I HAVE the honor to inform your Excellency that, in pursuance of your instructions, at 2 P.M. of the 11th, 1400 men, under the command of Major-General Godwin, C.B., should be embarked with the greatest dispatch for Pegu, and placing Commanders Shadwell and Lambert under my orders, I put myself in communication with the Quartermaster-General's department; and, after ascertaining the number of native boats that could be supplied for the conveyance of troops, stores, and provisions, with Commander Lambert's assistance, I embarked 1050 men in the boats, and left Rangoon at 11 P.M., leaving Commander Shadwell to follow in the steamer, with Major-General Godwin and the remainder of the troops.

I proceeded with the boats up the Pegu river, and, about 2 P.M., on the 12th, when about two-thirds of the distance, I had the satisfaction of communicating with the Major-General on board the "Nerbudda," and to observe the "Mahanuddy" following: the former vessel preceded us up the river. At the end of the flood-tide at 8 P.M., the boats were anchored within hail of the steamer, twelve miles below Pegu. On the morning of the 13th, the "Nerbudda" leading, I proceeded with the boats, and happily arrived so as to be able to effect a simultaneous landing of the troops, about 5 miles below Pegu, and half-a-mile from the first stockade, at 7 A.M. The "Mahanuddy" not appearing, and the General having expressed his intention to me of waiting the arrival of the troops on board her before he advanced, I proceeded in the "Nerbudda" to bring them up. I found the "Mahanuddy" where we had anchored on the previous evening, she having been detained by her broken rudder-head. I immediately transferred the troops to the "Nerbudda," but by this time the water had fallen so much that she was compelled to wait for the flood-tide to proceed, and did not reach the place of disembarkation till 9 P.M. The troops were landed from her at 4 A.M. on the 14th, and at 7 the army advanced.

I appointed Commander Shadwell to take command of two of the boats' guns fitted as field-pieces, with seventy-five men to drag them, to accompany the force.

Commander Lambert assisted me in the protection of the steamer and boats.

At noon some of the camp followers, having straggled a short distance from the bank, were fired at from a Phoongye house in our vicinity; two were taken, and the others pursued by the enemy, who evinced an intention of coming down to attack us. I immediately landed all the disposable men, leaving only sufficient to work the guns in the boats. This demonstration, and the fire of a few shell and rockets, served to check their advance. At this time the "Nerbudda," on the falling tide, had unfortunately grounded on a stake, and her two foremost compartments filled with water. It became necessary to put her on shore to

repair the damage. To move from our position was therefore impossible, and I proceeded to strengthen it by landing some rockets, felling trees, and throwing up intrenchments. The march of the army to the eastward of the Pagoda had left the enemy in possession of the lower defences on the river's bank, and I was sensible that he had it in his power greatly to annoy us. He reconnoitred our position with a few horse, in the evening, but did not further molest us. At 2 P.M., I had the satisfaction of observing the preconcerted signal that the army had forced its way into the Pagoda, which intelligence was confirmed to me by Commander Shadwell, on the morning of the 15th.

In the evening this officer returned, with his party of seamen and a guard. He informed me of the river bank being cleared of the enemy. and it is, therefore, my intention to move up with the boats with the morning flood-tide. I reconnoitred the river defences now evacuated, and am only surprised that Commander Shadwell should have been able to pass and repass them in his late attempt to communicate with the garrison at Pegu. They are, for the purpose, of the most formidable description, and completely command the passage of the river, for a distance of nearly five miles.

Your Excellency, knowing the nature of the service that has been performed, will appreciate the zeal of both officers and men who have carried it out: but I feel I shall fail in my duty to them, if I did not bring to your notice the exertions made by Commander Shadwell and the men under him, in taking the guns a distance of eight or nine miles through a difficult country, under an ardent sun; by Commander Lambert and Lieutenants Mason, R.N., and Robinson, I.N., and Mr. Freeman, Master, I.N., in their constant attention and watchfulness in bringing up so large a convoy in the boats. Lieutenant Robinson was afterwards attached to the gun party, and Mr. Freeman was most useful to me in directing our rocket battery, and in the construction of our intrenchments. I exceedingly admired the skilful manner in which Captain Porter brought the "Nerbudda" up this difficult river; and the energy that his officers and crew displayed in making her again effective was most praiseworthy.

I am happy to say that only one casualty has occurred on the part of the naval force; Thomas Saunders, A.B., of Her Majesty's steam-sloop "Sphinx," who died of a wound he received while encamped with the army on the evening of the 13th instant.

I have, &c.

J. W. TARLETON, *Captain.*

Inclosure 4<sup>in</sup> No. 23.

*Notification.*

*Fort William, January 4, 1853.*

THE Governor-General in Council is pleased to direct that the following extracts from dispatches relative to recent operations in the neighbourhood of Pegu, shall be published for general information.

The Governor-General in Council has to express his approbation of the alacrity and spirit with which this harassing duty has been performed, and his sense of the services of the Major-General commanding, and of the officers whose names he has specially brought to the notice of his Lordship in Council, in the dispatch of the 24th ultimo.

The Governor-General in Council particularly desires to record his high approbation of the gallant conduct of Major Hill, of the Madras Fusiliers, and of the officers and men under his command, in their defence of the position they held at Pegu.

By order of the Governor-General in Council.

C. ALLEN,

*Officiating Secretary to the Government of India.*



## Inclosure 5 in No. 23.

*Extract from a Despatch from Major-General Godwin.*

December 24, 1852.

IN my last dispatch from Pegu, dated the 15th instant, after having relieved it from the enemy, I had the honor of informing you, for the information of the Governor-General in Council, that it was my intention to advance into the country, and free that garrison from the near position of the Burmese army.

At that time I had been informed they were at Sephangoon; but, from subsequent information, I found them entrenched and entrenching themselves in great numbers on a plain about four miles north of the Pagoda, at a place called Kaleetat. It took till the 17th instant to procure what little carriage was available for the Commissariat stores, when eighteen buffalo hackeries were prepared to contain six day's provisions.

The troops left the Pagoda about 7 o'clock A.M. on that date, to the amount of about 1,200 men, consisting of about 600 of the Bengal Fusiliers, under Lieutenant-Colonel Tudor; 150 of the Madras Fusiliers, under Captain Renaud; 300 Sikhs under Major Armstrong, and 160 of the 10th Bengal Native Infantry, under Captain Munro. I had no guns, for I had no means of drawing them. We had to pass through a very thick jungle for about two miles, when we debouched on a noble plain, miles in extent, covered with ripe paddy. We then had a good view of the position of the enemy, and their probable numbers. They were admirably posted behind an entrenchment with a battie: large spars formed their breastwork, and it appeared to be about a mile long, filled with masses of men, a few hundreds of the Cassay horse, some elephants, and a few guns.

It was from this post that the men were furnished to invest our garrison at Pegu. From my force I had to give a baggage-guard of 200 men; with the remainder I quietly advanced on their position, inclining to my own right to threaten their left, which was open, their right being supported by a large tope of trees, and flanked by a thick jungle. They fired a gun occasionally as we advanced, and from their quiet and determined attitude behind their strong defences, with at least ten men for one of mine, I had great expectation that they would stand our assault. These men were from the garrisons of Shoee-Gyne, Sitang, and Beling; had been very active in giving constant alarms to Martaban and Moulmein; and had the character, too, of being men who would fight, and some of these men had been killed on the walls in their assaults on Pegu.

When I was within about 400 yards of their position, I detached 200 men of the Bengal Fusiliers, under Major Seaton, to drive in two outposts in front of the right of their position, for I changed my mind, and determined to attack them upon their right, in the hope of our meeting. Major Seaton very soon performed this service, the enemy retiring upon their main entrenchments, exchanging musketry.

I now formed the columns of attack, Major Seaton's party of the Bengal Fusiliers, and Major Armstrong with his Sikhs, to attack the tope, with two companies of the Bengal Fusiliers, under Lieutenant Lambert, but attached to Major Armstrong's column.

I stopped Major Seaton's attack, seeing that they had loaded the jungle, which his left flank would have had to pass in gaining the tope, with hundreds of men.

I had strong reserves close up, and ready to assist in the assault. It was a very interesting sight to see our little columns moving up to the attack of this host of people, so strongly posted, and in a plain where every object was visible. I was so confident we should get in amongst them, that when the smoke cleared away after the impetuosity of the attack, it was like magic, their escaping us. The Sikhs at the tope were like lightning at them, and Lieutenant Lambert, who had thrown his column in the very flank of the long entrenchment close to the tope, would have prevented their firing except on each other, and I believe the rapidity with which the advance closed upon them, threw them off all guard, and they considered flight their only safety.

After the action the troops rested in the shade of the tope for an hour; we then proceeded on to Sephangoon, a distance of ten miles, which we reached at 4.30 P.M., marching altogether about fourteen miles. This is the largest and finest village I have seen in the country, with a great many excellent farm-houses in it; it stands on both sides of the river, which is here fordable, and is surrounded by fine plains covered with grain.

We were aware that the enemy had retreated on this village, but they left it on our approach, and the force found good quarters for the night.

The village was totally abandoned; not a soul was seen, nor a grain to be found in it, which I had trusted to for the followers; so they fell back on the Commissariat, which I could with difficulty spare them, and this, added to the breaking down of one of our carts with beef and biscuit, crippled me much.

The next day, the 18th instant, we marched to Montsanganoo, ten miles, where we arrived about 12 o'clock, noon; there the enemy had passed the night. It is an inconsiderable village, and we were in bivouac.

About 3 o'clock P.M. I was informed that some of the enemy were hovering about, who, I believe, were only observing us; but shortly they came down in large masses, and formed in a line about two miles in our front.

Our men were soon under arms, and I marched towards them in two separate columns of an equal division of the force under my command. Brigadier-General Steel took charge of the left column; Lieutenant-Colonel Tudor of the right. Skirmishers were thrown out on both sides, but, as we advanced, they retired for about two miles further, when they took up an alignment close to a long range of barracks, which they had evidently occupied on different occasions. The two columns threw out advanced parties for attack, but as we neared them they again retired, leaving the barracks in our possession. It was now nearly dark, and as they appeared to be going away altogether, we burnt their barracks and retired to our bivouac, three miles, where our baggage and followers had remained under a strong guard.

The next day, the 19th instant, on inquiry into the state of the Commissariat, I found I had not quite three days' provisions left, and very deficient in some articles, and it became imperative on me to return to Pegu, which I did that day. Had I had the means of carrying with me twelve days' provisions, I would have pursued them over the Sitang river; but I am sadly crippled everywhere for want of carriage, except at Rangoon, where I do not require it.

I propose to detach Brigadier-General Steel with a force to Moulmein, where he will find every description of carriage in abundance for tents, and material of all kinds, to proceed to Beling, Sitang, and Shoee-Gyne, and, crossing that river, to return by Pegu to Rangoon, as he may deem practicable, which may force this army north towards Prome—which it must, I think, as it cannot go to Pegu, and which will be the best course for us it can take.

I embarked at Pegu on the 20th, and arrived on the morning of the 22nd, leaving a reinforcement with the garrison at Pegu, and strengthening their party of Sappers as a temporary measure, to allow of their putting themselves in a perfect state of defence.

Now, Sir, I have to ask the estimation of the Governor-General in Council for a service that has been most harassing and arduous, and for which no force ever took the field so little prepared, but which was borne with a cheerfulness and alacrity—where the least chance of a contest with the enemy presented itself—that was enthusiastic, and which confers the highest honor on the whole force.

To Brigadier-General Steel I am most obliged for the warmest cooperation throughout this service.

To Brigadier Dickenson, who was ever ready and anxious to render me his able assistance.

To Lieutenant-Colonel Tudor, who was very often called upon with his regiment, the Bengal Fusiliers, to give parties for assaults; and on the day of my relieving the garrison at Pegu I detached the Lieutenant-Colonel to clear the road communicating with the landing-place on the river. The Lieutenant-Colonel performed this duty most effectually, under a heavy fire.

To Captain Latter, my interpreter, who had the guides always under his charge, and who was present everywhere with his usual gallantry.

To Major Armstrong, with his Sikhs, conspicuous wherever they were called upon.

To Majors Gerrard and Seaton, of the Bengal Fusiliers; Captain Renaud,

commanding a detachment of the Madras Fusiliers; Captain Munro, commanding a detachment of the 10th Bengal Native Infantry; Captain Hawkes, Brigade Major; Lieutenant Lambert, of the Bengal Fusiliers; Lieutenant Elliot, of the Madras Fusiliers; and Lieutenant Harris, of the Sappers, who rendered important assistance, I am much indebted.

The General Staff, Major Mayhew, Deputy Adjutant-General, and Captain Hamilton, Assistant Adjutant-General, Captain Burne, Military Secretary, and Captain Chads, Aide-de-camp, I warmly thank; as also Major Neill, Assistant Adjutant-General, and Major Atkinson, Assistant Quartermaster-General, Madras Division, and Captains Dallas and Travers, Aides-de-camp on the Staff of Brigadier-General Steel, for their uncommon exertions during this service.

To Surgeons McCosh and Balfour, and the Medical Department, the Service is much indebted.

The short interval between the time I received the intelligence of the investment of Pegu from Captains Tarleton and Shadwell, and the embarkation of the troops the same evening, when by 9 o'clock P.M., 1400 men, with their matériel, were sent on board, under the eye of that valuable officer, Captain Tarleton, of the Royal Navy, till its disembarkation near Pegu, and its re-embarkation on return here, was marked by wonderful exertion and arrangement; and that, with the aid and assistance I received from him with the men-of-war's boats, call for every acknowledgment.

To Captain Shadwell I also feel greatly indebted, for his assistance and exertions on this occasion.

I forward to the Governor-General in Council the detailed account of the investment of Pegu by the Burmese army, and the noble defence made by Major Hill and his brave garrison, for the Government to select what in its wisdom it may think proper to publish.

I have this morning received the gratifying information from Major Hill that some thousand families are coming in, and which I hope in a future dispatch to confirm positively. It is my intention to proceed to Prome in three days, and to take the field immediately. I am happy to say that the general health of the troops here, as well as their conduct, is very satisfactory.

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Inclosure 6 in No. 23.

*Extract from a Letter from Major Hill to Major Mayhew.*

December 18, 1852.

A TERMINATION to unremitting assaults from the enemy, from the 5th to the 14th instant, having been brought about by the arrival of a reinforcement of troops under the personal command of Major-General Godwin, Commanding the Forces, I am now enabled to place before the Major-General a detailed report of the operations during that period.

I do myself the honor to report, for the Major-General's information, that, for some days previous to the enemy appearing in our vicinity, several of their advanced posts were seen within two miles of us, in a northerly direction. Elephants and gold umbrellas plainly indicated that their main army was not far off, and as I had been informed that Moung Keya Soungé commanded 10,000 men at Shoee-Gyne, I felt it necessary to keep the garrison alert, in case that portion of his force, which was then so near us, might make a sudden descent upon the garrison.

Shortly after eight o'clock on the night of the 5th instant, a few shots were fired by our sentries, which were answered by the enemy, and soon the firing became general. After 11 o'clock, as the moon rose, the fire slackened and gradually ceased. Large bodies of infantry were seen the next morning, from the elevated post of the Pagoda, moving in different directions, and from 150 to 200 Cassay horsemen; and by half-past 9, A.M., a very heavy fire was opened upon the south-west angle of the pagoda, immediately adjoining which I had stockaded in about 2000 Peguers with their families.

On the 3rd instant I was informed that for some distance to the southward and eastward a very large number of carts were approaching the Pagoda, and by sunset 216, filled mostly with women and children, besides a great many men, arrived, and claimed British protection; I felt this to be a greater charge

than defending the garrison, having perfect confidence in the troops; I resolved, therefore, on the following morning to draw the whole of the Peguers into a compact body under the walls of the Pagoda. Working parties from all the European and Native troops in the garrison, with the officers, besides every disposable public follower, were ready by six o'clock the following morning to clear away a tope of large trees for their accommodation. Every one worked with such hearty goodwill that by mid-day every tree was felled, and the Sappers were in readiness, with the assistance of the Peguers, to make a stockade. By nightfall two sides of the stockades were completed, and the greater portion of the bandies brought within it, thus enabling the families to have both food and shelter in their carts.

The enemy having taken up their position round us, never left it until the day on which General Godwin relieved the garrison. I believe I am speaking within bounds, when I say there must have been fully 6000 men regularly employed in investing the Pagoda, from the space they covered; and so near did they find safe cover from our fire, that it became the more necessary to preserve the greatest vigilance to prevent surprise at any time they wished to attempt it; their attacks were chiefly directed against the Peguers, and on the night of the 8th, a very spirited and well-kept-up assault was made upon them for about two hours.

Night after night gongs were sounding in different parts of the jungle, which, and their shouting, informed us where they were collecting their troops. Several other determined assaults were made on various sides of the Pagoda, which were repelled by our guns and heavy file-firing, which drove them back. The last attack was made the day before the arrival of the troops. On the morning in question (the 13th), at twenty minutes past 5 o'clock, under cover of a dense fog which hung over the ground below the Pagoda, a shout was suddenly heard, and a large body of men rushed across an open piece of ground on the south-east angle of the stockade, which was the weakest point of the Peguers' position. A picket, which was always kept in readiness at the head of the steps, immediately ran to their assistance, the men ranging themselves among the Peguers; and so determined was the attack, that our Peguers and the enemy had a hand-to-hand contest with their spears, and several were dangerously wounded, the pickets also using the bayonet at the same time. There must have been great loss on the part of the enemy, as the ground was open both to our battery and the musketry from our walls; but as the fog hung over the lowlands for some time after, they were able to convey away their dead, and only three or four were found killed close to the stockade.

In conclusion, I beg to say a few words in reference to the officers and men composing this garrison.

Little that I can say with respect to the practical knowledge of Lieutenant Campbell, of the Bengal Engineers, which he has already gained on field-service, could add to his reputation as a good service officer; but his unremitting zeal in planning and carrying out his suggestions has mainly contributed to the small loss sustained by the troops.

Lieutenant James, of the Bengal Artillery, who was the only artillery officer I had to give directions for the working of the guns on the four angles of the Pagoda, has performed his arduous duties much to my satisfaction.

Lieutenant Harris, of the Madras Sappers, who has but recently joined that distinguished corps, has proved himself to be a most efficient sapper officer, from the short time he took to finish the stockade for the Peguers, and the manner in which he executed a plan for a covered gallery to enable the water-carriers to supply the troops with water with safety to themselves.

Lieutenant Dangerfield of the 1st Madras Fusiliers, my Staff-officer, is an intelligent, enterprising, and most promising officer, and I found I could entrust duties to him which required coolness and judgment, with perfect confidence.

The officers and men, both European and Native, composing the garrison, have performed their duties in a most admirable and satisfactory manner. The harassing duties all were exposed to for eight days and nights, without intermission, requires no further comment than by my adding that their constant vigilance and steadiness were conspicuous throughout the whole of the operations.

A return of killed and wounded of the troops, as well as all other classes, accompanies this report.

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*Return showing the number of Killed and Wounded in the Garrison of Pegu,  
from the 5th to the 14th of December, 1852.*

Madras Sappers and Miners.—1 non-commissioned officer, 1 rank and file, wounded.

1st Madras Fusiliers.—1 European commissioned officer, 4 rank and file (1 since dead), 6 followers, wounded.

5th Madras Native Infantry.—1 rank and file, 1 follower, killed; 1 European commissioned officer, 1 Native commissioned officer, 1 non-commissioned officer, 11 rank and file, 3 followers, wounded.

Peguers.—3 killed, 10 wounded.

Total.—1 rank and file, 1 follower, 3 Peguers, killed; 2 European commissioned officers, 1 Native commissioned officer, 2 non-commissioned officers, 16 rank and file, 9 followers, 10 Peguers, wounded.

European officers.—2 wounded.

Native officer.—1.

Non-commissioned officers, rank and file, &c.—37 wounded.

Total.—5 killed; 40 wounded.

Grand total of killed and wounded —45.

*European Commissioned Officers Wounded.*

Lieutenant P. A. Brown, 1st Madras Fusiliers, severe contusion.

Ensign Chadwick, 5th Madras Native Infantry, severe contusion.

W. HILL, Major, Commanding Pegu.

Inclosure 7 in No. 23.

*Extract from a Letter from Lieutenant-Colonel Sturt, Commanding the  
Land Column.*

*Pegu, December 19, 1852.*

LEAVING Rangoon on the morning of the 13th of December, yesterday afternoon my detachment came in sight of Pegu, and I moved my camp only a short distance this morning towards the river, for the purpose of facilitating its crossing when necessary.

Aware of the value of light artillery and cavalry in support of a movement against foes so difficult to be approached as the Burmese, it was my most earnest desire to have placed the services of these two arms, composing a part of the column under my command, at Major-General Godwin's disposal at the earliest possible period, and it was not therefore without a feeling of great regret I found my best exertions ineffectual to secure the above object, the General commanding the forces having left Pegu two days previous to my arrival.

The extent of country traversed by my column, though not exceeding perhaps 72 miles, presented considerable obstacles to the rapid advance of artillery, and a long train of carriages with supplies for the troops.

Three bridges were obliged to be constructed over tidal nullahs, marshy tracts to be rendered firm, roads to be cut, and their course even to be marked out by the friendly Karens.

These people, to the number of upwards of one hundred, made themselves very useful on the road, and the bridges were all constructed by them with a degree of goodwill and promptness, much to the credit of the poor people. I beg to bring specially to the notice of the Major-General the great assistance received from a Karen of much influence with his tribe, named Kyook-khê, who accompanied the column the whole way from Rangoon.

After leaving Rangoon to our rear about 7 miles, the country began to disclose its plains, belted at distances by jungle. The course of the column often lay closely skirting the jungles for miles, and frequently directly through them,—glades suddenly opening out, and again giving place to jungle.

Between Thoug-too-Loo, distant about 15 miles from Rangoon, and Theda-mu-thae, 19 miles from Pegu, nothing could exceed the richness of the soil; in some parts dark alluvial, in others sandy loam; the herbage was of the finest description, and where rice crops were seen, their luxuriance and height

were remarkable; the cattle, invariably in the finest condition, were of a very superior hardy breed, with large carcasses.

The space between Theda-mu-thae to within three or four miles of Pegu was found to be of a dense jungly description, forest trees with low brushwood and bamboos, clumps upon clumps forming the most formidable natural barriers and breastworks. Artillery and baggage-carts once having entered these narrow tracks, skirted on either side by such cover, without the possibility of counter-marching if required, could not possibly escape early destruction at the hands of a small body of resolute determined men, who would themselves be perfectly secure from pursuit. Where occasionally an opening occurred in this wild portion of the march, it presented a clear grass-plain of some five, ten, fifteen, or more acres surrounded by the densest jungle. My column was obliged to halt fifteen times during this march, which occupied the troops ten hours and a-half, and my baggage was not up till night.

Not any enemy was seen throughout our whole course, though evidences of their having lately vacated these wilds were frequently observed.

No. 24.

*The Governor-General in Council to the Secret Committee.*

(Extract.)

*Fort William, January 5, 1853. (No. 3.)*

WE have the honor to forward herewith copies of papers relative to the annexation of Pegu.

The country has, by proclamation, been duly declared a portion of the British Territories. The eastern portion, being the Province of Martaban, and situated to the east of the Sitang River, has been annexed to the Tenasserim Provinces, and placed under Lieutenant-Colonel Bogle, the Commissioner of those provinces.

The remainder of the new country, with that portion of the district of Sandoway which is to the south of the Kintalee Passes, has been placed under Captain Phayre, who has been appointed Commissioner of the Province of Pegu.

Inclosure 1 in No. 24.

*Minute by the Governor-General, concurred in by the Members of Council.*

(Extract.)

*October 22, 1852.*

THE annexation of the Province of Pegu, as one of the results of the present Burmese war, has been advised by the Government of India, and sanctioned by the Secret Committee.

In the contemplation of this sanction I have long been considering the arrangements which may best be made for the Government of that province.

I would suggest that the district between the Salween and the Sitang should be attached to the Commissionership of the Tenasserim provinces, and that the rest of Pegu be made a separate Commissionership.

In selecting an officer to fill this important post in the new territory, I naturally turned first to Lieutenant-Colonel Bogle. His qualifications and his exertions during the war fully entitle him to any distinction the Government may have to confer; but, as I propose to add 500 rupees to his salary, on account of the addition of Martaban,—while his experience and local knowledge would be of value at Moulmein,—I do not propose his removal to Pegu, which will be a Commissionership of less value.

The officer whom I desire to propose is Captain Phayre, now Commissioner of Arracan; his character stands extremely high in every respect; he has had long experience of the Burmese in Arracan and at Moulmein; he speaks and writes their language perfectly, and is especially qualified for the charge of a new province. I beg leave to propose him as Commissioner of Pegu.

Although I do not propose to issue the proclamation forthwith, the presence of Captain Phayre here at present, and at an early date in Pegu, would be of great value.

DALHOUSIE.

I entirely concur.

J. H. LITTLER.

I entirely concur.

F. CURRIE.

I entirely concur.

J. LOWIS.

- Inclosure 2 in No. 24.

*Minute by the Governor-General, concurred in by the Members of the Board.*

(Extract.)

November 17, 1852.

IN pursuance of the conclusions which the Government of India has formed, regarding the policy to be observed in Burmah for the present, I have prepared drafts of a Proclamation of annexation, of a Letter to the King of Ava, and of a Treaty of Peace.

I have made the Proclamation short and simple, stating in it concisely the course of events, the resolution of the Government to retain Pegu, and its intentions as to the future, if its peaceful possession of Pegu shall be seriously disputed by the Burmese. I have inserted the latter clause, in the hope that a copy of the Proclamation may reach the King, though the Letter should never be delivered.

In the letter I have traced somewhat more at length the origin of the war, the conduct of the Court of Ava, and the progress of hostilities. I have intimated the annexation of Pegu, and the determination of the Government of India to retain it.

Reminding the King of the powerful control over the condition of his kingdom and subjects, which is given to us by our possession of Pegu, and urging upon him a consideration of the irresistible character and extent of our Naval and Military power, I have thereby endeavoured to impress upon the King the prudence and wisdom of his taking advantage of the willingness of the Government of India to terminate hostilities; and I have stated the terms on which peace will be restored, and his tenure of his remaining dominions rendered secure.

I have thought it right to conclude by plainly, though not discourteously, setting before the King the certain ultimate consequences of his provoking further hostilities with us.

I have employed the language of warning, as the most likely means of obtaining for us the peace and quiet submission we desire to secure in Pegu.

The Treaty is very short, and has purposely been made general in its terms. Its form is assimilated to that of preceding treaties.

In the preamble the name of General Godwin is inserted, but it may be omitted in the actual Treaty, if he should wish to be absent, as I infer he may, in the Eastern part of the province.

In Article II, the boundary, as it may be fixed, will be inserted.

I propose to entrust these documents to Captain Phayre, for translation, instructing him, while he rigidly adheres to the sense, not to be bound by the literal terms so closely as to affect the clearness or force of the documents in the Burmese tongue, which, from the difference of the two languages, might possibly be the case.

There are no means of printing a Burmese document in Calcutta. It must therefore, be printed at Moulmein. I propose that a large number of copies be struck off, with a view to their being circulated as widely as possible, both in the Lower Province, and, if it can be effected, in Burmah.

The proper time for the issue of this Proclamation of Annexation is

open to some doubt. On the one hand, it seems inconsistent to declare a province ours, while any of the enemy's forces remain within it. On the other hand, all agree that the moral effect of issuing the Proclamation at once would be greatly in our favour. That explicit declaration of our future policy would daunt, it is said, the Burmese troops, and dishearten them for further resistance; while it would give confidence to the Taliens, and encourage them to give more active and effectual assistance to us, especially against the bands of Dacoits, than they have yet ventured to do, while they had no security for the future.

Feeling the latter consideration to be the stronger, I propose to issue the Proclamation so soon as General Godwin can report that the only Burmese force we know of, and which is now near Prome, has been expelled.

I think Captain Phayre should proceed to Prome without much delay. On his arrival, the letter from the Governor-General to the King of Ava, should be dispatched, inclosed in a letter from the Commissioners, which should specify the date on which it is dispatched.

I have already alluded to the difficulty of conveying the letter to the King. To employ British officers on that duty, is not to be thought of; and the reception which the bearer of such tidings has usually received at the Court of Ava has not been such as to encourage any Burman subject to undertake the duty.

This matter of detail should be left to the Commissioners on the spot. It may, however, be worthy of their consideration whether a Phoongye would not be the best messenger whom they could select. Such a person would be protected from violence by his priestly character; and the sense of security, with, if it be necessary, promise of reward, might induce him to accept, and enable him to accomplish the mission.

The Treaty should be retained in the hands of the Commissioners until the Burmese Commissioners shall arrive, or until the time within which they are to arrive shall have expired.

DALHOUSIE.

I fully concur.

J. H. LITTLER.

I fully concur.

F. CURRIE.

I fully concur in these views, and in the course of procedure laid down by the Governor-General.

J. LOWIS.

Inclosure 3 in No. 24.

*Proclamation.*

[December 20, 1852.]

THE Court of Ava having refused to make amends for the injuries and insults which British subjects had suffered at the hands of its servants, the Governor-General of India in Council resolved to exact reparation by force of arms.

The forts and cities upon the coast were forthwith attacked and captured. The Burman forces have been dispersed, wherever they have been met; and the Province of Pegu is now in the occupation of British troops.

The just and moderate demands of the Government of India have been rejected by the King. The ample opportunity that has been afforded him for repairing the injury that was done, has been disregarded; and the timely submission, which alone could have been effectual to prevent the dismemberment of his kingdom, is still withheld.

Wherefore, in compensation for the past, and for better security in the future, the Governor-General in Council has resolved, and hereby proclaims, that the Province of Pegu is now, and shall be henceforth, a portion of the British Territories in the East.

Such Burman troops as may still remain within the province, shall be



driven out. Civil Government shall immediately be established, and officers shall be appointed to administer the affairs of the several districts.

The Governor-General in Council hereby calls on the inhabitants of Pegu to submit themselves to the authority, and to confide securely in the protection, of the British Government, whose power they have seen to be irresistible, and whose rule is marked by justice and beneficence.

The Governor-General in Council, having exacted the reparation he deems sufficient, desires no further conquest in Burmah, and is willing to consent that hostilities should cease.

But if the King of Ava shall fail to renew his former relations of friendship with the British Government, and if he shall recklessly seek to dispute its quiet possession of the province it has now declared to be its own, the Governor-General in Council will again put forth the power he holds, and will visit, with full retribution, aggressions which, if they be persisted in, must, of necessity, lead to the total subversion of the Burman State, and to the ruin and exile of the King and his race.

By order of the Governor-General in Council,

C. ALLEN,

*Officiating Secretary to the Government of India.*

Inclosure 4 in No. 24.

*The Governor-General to His Majesty the King of Ava.*

November 16, 1852.

IN reply to the letter which, some time since, your Majesty caused to be addressed to the Governor-General of India, regarding events that had occurred at Rangoon, your Majesty was made acquainted with the reparation which the Government of India required for the insults and injuries which your servants had inflicted on its subjects there. Your Majesty was further informed, that if such reparation were not afforded within a time which was named, the Government of India would proceed to exact it by force of arms.

Those just and moderate demands of the Government of India were not complied with. Accordingly, your Majesty's cities and forts upon the coast were forthwith attacked and captured by its ships and troops.

The Government of India thereafter afforded to your Majesty ample time and opportunity still to repair the injury that had been done, but your Majesty took no steps for that purpose.

Wherefore, the troops and ships were again advanced. Your Majesty's troops have been defeated and dispersed by them, wherever they could be found; and the Province of Pegu has been conquered, and is now occupied by the British forces.

Since all reparation has been refused by your Majesty, for the offences committed by your servants, since no amends have been made for violation of Treaty; and no submission offered to the State that has been wronged thereby; the Government of India, in pursuance of its word, has exacted for itself the reparation it required. For that purpose, it has resolved and publicly proclaimed, that the Province of Pegu is now, and henceforth for ever, a portion of the British Empire in the East.

The Government of India might justly continue to prosecute the hostilities in which it has been engaged, to the entire extinction of your Majesty's kingdom.

Your Majesty is well aware that the possession of Pegu, and the command of the River Irrawaddy, have placed in the hands of the Government of India full control over the trade and the supplies upon which your kingdom so largely depends, and the stoppage of which, by the British ships, during the past summer, has already brought grievous suffering upon your kingdom and people.

Further, your Majesty can no longer disguise from yourself that the British Government, by its steam-ships on the river, and by the troops which it can dispatch, in overwhelming numbers, from the shores of India, against your territories, could speedily seize and occupy, at its will, the rest of the Burman territories, as surely as it has already conquered the Province of Pegu

But the Government of India desires no further conquest, and does not seek to inflict further injuries upon Burmah. Satisfied with the reparation it has exacted, and with the punishment it has inflicted, it is willing now to consent that hostilities should cease.

If your Majesty desires to secure your remaining territories from further war, and to avert from yourself, and from your subjects, the evils which the Government of India has it now in its power to inflict, your Majesty will take immediate measures for renewing the relations of friendship which formerly existed between the States.

If within one month from the date upon which this letter shall be dispatched from Prome, officers, of fitting rank and duly accredited, shall arrive in Prome, and, on your Majesty's behalf, shall there sign a treaty by which the conquered Province of Pegu, within such limits as may be pointed out by the British officers accredited by this Government, shall be ceded to the Government of India, and by which liberty to trade in security within your Majesty's dominions shall be granted to British subjects; the Government of India, on its part, will bind itself to renew relations of friendship with your Majesty, and to grant liberty to trade in security, within the British Territories, to your Majesty's subjects, permitting the usual trade and supplies of your kingdom to pass its frontier in Pegu, on the payment of such moderate duties as it may fix.

If, your Majesty shall refuse, or neglect, to conclude a treaty in the terms above mentioned, and, above all, if your Majesty, regardless of the danger in which your kingdom is placed, should attempt to dispute with the Government of India the possession of the province it has declared its intention to retain, your Majesty is solemnly warned of the consequences which will follow your acts.

In such case, the Government of India will exercise the control it holds over the supplies and resources of your kingdom; and will again put forth the power it commands, in order to repel, and still more severely to punish the aggression.

Hostilities thus renewed, if your Majesty shall venture to provoke them, can have but one termination. Your Majesty may be assured that they will end, whensoever the Government of India may so determine, in the entire subjection of the Burman power, and in the ruin and exile of yourself and your race.

DALHOUSIE.

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Inclosure 5 in No. 24.

*Draft of Treaty.*

TREATY of Peace between the Honorable East India Company, on the one part, and His Majesty the King of Ava, on the other; settled by his Excellency Commodore G. R. Lambert, Commander-in-chief of Her Majesty's Naval Force in the East Indies, Major-General Henry Godwin, C.B., commanding the British Forces in Ava, and Captain Arthur Purves Phayre, Commissioner of Pegu, on the part of the Honorable Company; and by

on the part of the King of Ava; who have each communicated to the other their full powers.

ARTICLE I.

There shall be perpetual peace and friendship between the Honorable East India Company, on the one part, and His Majesty the King of Ava, on the other.

ARTICLE II.

His Majesty the King of Ava cedes to the Honorable East India Company, in perpetual sovereignty, the Province of Pegu, being the territories to the southward of the boundary hereinafter described; namely:

## ARTICLE III.

The Honorable East India Company, and His Majesty the King of Ava, will each permit the subjects of the other to carry on trade within their respective dominions, and they will give to such traders full protection and security.

## ARTICLE IV.

This Treaty shall be ratified by His Majesty the King of Ava, within one month; the British Commissioners engaging that it shall be ratified by the Governor-General in Council, and delivered to the Burmese Commissioners, within one month, at Prome.

Done at \_\_\_\_\_ this \_\_\_\_\_ day of \_\_\_\_\_ 185

Inclosure 6 in No. 24.

*Minute by the Governor-General, concurred in by the Members of the Board.*

(Extract.)

December 1, 1852.

WHEN recently submitting, for the consideration of my colleagues, drafts of a proclamation for the annexation of Pegu, and of a letter to the King of Ava, I observed, with reference to the period at which these documents should be put forth, that it would appear to be incongruous to declare a country annexed before we were even in general possession of it; and that this Government could not fitly issue the proclamation till it had heard of the Burmese forces having been driven from their position at Ethaymew.

Captain Phayre was permitted to return to Arracan, where he holds himself in readiness to proceed to Pegu at any moment.

The translation of the proclamation which he made was at the same time sent to Colonel Bogle, with a request that he would have it printed at Moulmein, where alone are Burmese types, and would forward the copies to Captain Phayre at Rangoon.

The preliminary measures of the Government are therefore fully prepared; and the present aspect of affairs induces me to advise that the date of their execution should be as much as possible advanced.

I believe it will hereafter appear that there has been very little progress in the conveyance of troops on the river. The river has greatly fallen. Some of the steamers have been unluckily disabled, and the work of moving the second division up to Prome is, of necessity, slow.

I propose not to wait for General Godwin's action at Ethaymew, but to direct Captain Phayre to proceed at once to Rangoon.

A letter of instructions should be addressed to Captain Phayre, which should convey to him official information, that the Governor-General in Council having resolved to annex the province of Pegu to the British possessions in India, has been led by the confidence he has seen reason to place in his ability, judgment, and experience as a civil officer, to appoint him to the important charge of the new province.

A copy of the Proclamation of Annexation and the Letter to the King of Ava (which is to be translated and inclosed in a fitting case) should be sent to Captain Phayre.

He should be directed to proceed at once to Rangoon, and he should be authorized to exercise his discretion as to the time at which the Proclamation should be issued.

Upon its issue Captain Phayre should at once assume charge of the Local Government, and enter upon his functions. He should officially address the Commander-in-chief of the naval force, and the officer commanding at Rangoon, as well as the General in command, and inclose to them letters from the Government of India: these letters should intimate the resolution of the Government to annex Pegu, should inclose the Proclamation, and should direct that a Royal salute should be fired on the occasion.

The first object which would appear to require the early attention of the Commissioner would be the settlement of the northern boundary.

It would seem necessary, therefore, that the Commissioner should proceed at once to Prome, after the issue of the Proclamation, for the purpose; 1st, of dispatching the letter to the King of Ava, by such means as the Commissioner may judge best, care being taken that the date of its dispatch from Prome should be made clear to the King; 2ndly, for the purpose of fixing the new boundary; and 3rdly, for the purpose of forming, as soon as possible, his views regarding the arrangements to be made for the protection of the frontier.

First, with respect to the dispatch of the letter to the King, the mode of doing so is left entirely to the discretion of the Commissioner. British officers, it may be observed, cannot be employed on this duty consistently with the safety of their lives, which ought not to be risked.

Secondly, with regard to the boundary, its position, should be fixed with reference to joint considerations of a military and political character. In considering it, therefore, the Major-General will be associated with the Commissioner. The Commissioner, however, will form his own judgment upon the whole question, and if he should not concur with the General, will report his opinion to the Government of India. It is hoped, however, that the civil and military authority may each arrive at the same conclusion regarding the frontier.

Thirdly, the Commissioner will, in like manner, report fully his opinion to the Government of India, regarding the measures which he would advise for the protection of our frontier, and of our subjects who may be near it.

I have no doubt that Captain Phayre will be able to suggest to us, in what mode it should be given in Pegu. The means by which any proposed arrangements may be effected, are fortunately at our disposal. The Arracan Battalion volunteered for duty in Burmah, and will, I dare say, perform it excellently well. The Sikhs also will be very effective for such service.

For the purpose of signing the Treaty of Peace, if the King of Ava should agree to make one, and for the purpose of settling the boundary, Major-General Godwin will be associated as Commissioner with Captain Phayre. For the purpose of signing the Treaty, the Commodore also should be a Commissioner.

For all other purposes Captain Phayre, after the issue of the Proclamation, is, by his appointment, the sole political and civil authority; and the Major-General will exercise military functions only.

The letter of instructions should next proceed to give directions regarding the civil government of the Province of Pegu.

The inquiries which have been diligently made during the summer have led to the conclusion, that the whole social and existing administrative system in Pegu assimilates so closely to that existing in the Tenasserim Provinces and Arracan, that the details of the administration for the new province, not less than its general form, may be taken from the administration which has long been in force in the provinces on each side of it.

DALHOUSIE.

J. H. LITTLER.

I concur.

F. CURRIE.

I entirely concur.

J. LOWIS.

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Inclosure 7 in No. 24.

*The Secretary to the Government of India to Major-General Godwin.*

(Extract.)

*Fort William, December 3, 1852.*

I AM directed to acquaint you that the Governor-General in Council, having resolved to annex the Province of Pegu to the territories of the East India Company, has been pleased to direct that a Proclamation of Annexation should be issued, of which a copy has been forwarded to you with my separate letter of this date.

In pursuance of the Proclamation, a Civil Government has been organized in the Province of Pegu, and Captain Phayre, now Commissioner of Arracan, has been appointed Commissioner and Agent to the Governor-General in the new province.

The sovereignty of the British Government having been established in Pegu, all political and civil authority is henceforth vested in the Commissioner and Agent to the Governor-General with the following exceptions.

A letter has been addressed to the King of Ava, of which a copy is inclosed, offering him the opportunity of concluding a Treaty of Peace.

For the conclusion of this Treaty, of which a copy has been forwarded to you, you have been named a Commissioner, with his Excellency Commodore Lambert and the Commissioner of Pegu.

The frontier boundaries of the Province of Pegu must be laid down. The settlement of the boundary must depend on joint considerations of a military and political character; you are therefore associated with the Commissioner of Pegu for this purpose.

It is necessary that the boundary to be adopted should be determined upon as soon as possible.

Inclasure 8 in No. 24.

*The Secretary to the Government of India to Captain A. P. Phayre*

(Extract.)

*Fort William, December 3, 1852.*

I AM directed to inform you, that the Governor-General in Council having resolved to annex the Province of Pegu to the British Possessions in India, has been led, by the confidence he has seen reason to place in your ability, judgment, and experience, as a civil officer, to appoint you to the important charge of the new province.

A copy of the Proclamation of Annexation has been furnished to you, with my separate letter of this date; and I am now directed to forward to you the accompanying letter to the King of Ava (which is to be translated and inclosed in a fitting case).

The Governor-General in Council desires that you will proceed at once to Rangoon; and his Lordship in Council authorizes you to exercise your discretion, as to the time at which the Proclamation should be issued.

Upon its issue you should at once assume charge of the Local Government, and enter upon your functions. You should officially address the Commander-in-chief of the Naval Force, and the officer commanding at Rangoon, as well as the General in command, and inclose to them the letters from the Government of India.

The first object which would appear to require your early attention, would be the settlement of the northern boundary.

It would seem necessary, therefore, that you should proceed at once to Prome, after the issue of the Proclamation; 1st: for the purpose of despatching the letter to the King of Ava by such means as you may judge best, care being taken that the date of its despatch from Prome shall be made clear to the King; 2ndly: for the purpose of fixing the new boundary, and 3rdly: for the purpose of forming, as soon as possible, your views regarding the arrangements to be made for the protection of the frontier.

1st. With respect to the dispatch of the letter to the King, the mode of doing so is left entirely to your discretion. British officers, it may be observed, cannot be employed on this duty consistently with the safety of their lives, which ought not to be risked.

2ndly. With regard to the boundary, its position should be fixed with reference to joint considerations of a military and political character. In considering it, therefore, the Major-General has been associated with you as Commissioner. You will, however, form your own judgment upon the whole question, and if you should not concur with the General you will report your opinion to the Government of India. It is hoped, however, that the civil and military authority may each arrive at the same conclusion regarding the frontier.

3rdly. You will, in like manner, report fully your opinion to the Government

of India regarding the measures which you would advise for the protection of our frontier, and of our subjects who may be near it.

The Governor-General in Council has no doubt that you will be able to suggest to the Government in what mode the frontier villages in Pegu can be defended. The means by which any proposed arrangements may be effected are fortunately at our disposal. The Arracan Battalion have volunteered for duty in Burmah, and will, it is presumed, perform it excellently well. The Sikhs also will be very effective for such service.

For the purpose of signing the Treaty of Peace, if the King of Ava should agree to make one, his Excellency Commodore Lambert, and Major-General Godwin, have been associated as Commissioners with you.

For all other purposes, after the issue of the Proclamation, you are by your appointment the sole political and civil authority, and the Major-General will exercise military functions only.

The inquiries which have been diligently made during the summer have led to the conclusion, that the whole social and existing administrative system in Pegu assimilates so closely to that existing in the Tenasserim Provinces and in Arracan, that the details of the administration for the new province, not less than its general form, may be taken from the administration which has long been in force in the provinces on each side of it.

Inclosure 9 in No. 24.

*The Secretary to the Government of India to Commodore Lambert, R.N.,  
Major-General Godwin, and Captain Phayre.*

Sirs,

*Fort William, December 3, 1852.*

THE Governor-General in Council having resolved that the Province of Pegu shall be annexed henceforth to the territories under the authority of the Honorable East India Company, has been pleased to direct the issue of a Proclamation of Annexation, of which a copy is inclosed.

The Governor-General in Council is willing to afford the King of Ava an opportunity of averting the evils of further war, by concluding a Treaty of Peace. A draft of a Treaty is inclosed, by which the Province of Pegu is ceded, relations of peace are restored, and liberty of trade is assured.

The Governor-General in Council is pleased to appoint you to be Commissioners for the conclusion of the aforesaid Treaty, and hereby conveys to you full powers for the purpose, subject to the ratification of the Governor-General in Council.

I have, &c.

C. ALLEN.

Inclosure 10 in No. 24.

*Minute by the Governor-General, concurred in by the Members of Council.*

(Extract.)

*December 9, 1852.*

THERE are several minor points connected with the annexation of Pegu which require the orders of the Government.

It appears to me to be expedient that the Government should have two lines of communication with Prome, if it can be accomplished. It is, I think, already established, that the postal communication between Calcutta and Prome would be as rapid, if not more so, by way of Rangoon, than on any other line.

It appears equally clear that troops designed for Prome would reach it as rapidly, and much more easily, if sent by steam to Rangoon, and up the Irrawaddy, than if they were conveyed by sea to Sandoway, and thence marched across the hills to Prome. But a second line of communication could not be otherwise than advantageous; and would have this further advantage, that it would enable the Government to get rid altogether of the obstacle arising from

the necessity of crossing the sea, and would make every regiment in the service as available for employment in Pegu as the General Service Corps.

The road from Dacca to Chittagong requires little to make it excellent. A survey has already been ordered of a good new road from Chittagong to Akyab. This extended a little further to the neighbourhood of the Thonghoo Pass, and a road engineered across the hills, would open an excellent military line between Bengal and Pegu, by which regiments, if it be necessary, may be marched in relief.

That a good road can be constructed across the hills, is to my mind quite certain. We know that the Burmese themselves formed one by which they carried away into Pegu the colossal image that was famous in Arracan. If the rains are heavy there, they are certainly not so heavy as in Sylhet, where I am told the roads are well kept up. For these reasons I feel confident that a good line may be found, and a good road made and maintained, if it be properly set about.

DALHOUSIE.

I concur.

F. CURRIE.

I concur.

J. LOWIS.

Inclosure 11 in No. 24.

*Minute by the Governor-General, concurred in by the Members of the Board.*

(Extract.)

December 9, 1852.

IN a former minute I stated that it was my intention to propose that the district east of the Sitang, should be attached to the Tenasserim provinces, after the annexation of Pegu, and should be placed under the charge of Lieutenant-Colonel Bogle. The Commissioner, it was added, would be addressed more fully on the subject hereafter.

The several questions connected with Pegu having been decided, as far as can be done at this stage of affairs, it remains to indicate the arrangements necessary for the district of Martaban.

I propose generally that the districts east of the Sitang river should be attached to the Tenasserim provinces. It may prove on further inquiry that the river cannot be taken as a boundary, universally, without some inconvenience. In such case, the actual distribution of districts and villages may be settled between the Commissioners of Tenasserim and Pegu; it being understood that the River Sitang shall, as far as possible, be made the boundary.

This district must be governed by the Commissioner of Tenasserim, under the rules which have been approved of for Pegu. The Commissioner will correspond, in all matters regarding it, direct with the Governor-General in Council.

The account of its revenue and expenses must be kept distinct from those of the present Tenasserim provinces, so as to enable the Government to see at any time the financial result of the annexation of Pegu.

DALHOUSIE.

I concur.

F. CURRIE.

I concur.

J. LOWIS.

## Inclosure 12 in No. 24.

*The Commissioner and Governor-General's Agent in Pegu to the Secretary to the Government of India.*

Sir,

*Rangoon, December 24, 1852.*

I HAVE the honor to report, for the information of the Governor-General of India in Council, that, in obedience to the instructions conveyed in your letter to my address dated the 3rd instant, I proceeded to Rangoon on the East India Company's steam-frigate "Zenobia," and arrived there on the 19th instant. Major-General Godwin being absent at Pegu, I, without delay, visited his Excellency Commodore Lambert.

Being of opinion that the immediate issue of the Governor-General's Proclamation was desirable; and as his Excellency the Commander-in-chief of Her Majesty's Naval Forces coincided therein, I resolved to avail myself of the discretionary power granted to me by the Governor-General in Council, and to issue the Proclamation without delay.

It was accordingly issued, on Monday, the 20th of December, 1852, and on that day read on board Her Majesty's ship "Fox," in the presence of his Excellency Commodore Lambert, Lieutenant-Colonel T. A. Duke, commanding at Rangoon, and several other naval and military officers. A Royal salute was fired on the occasion. A number of printed copies of the Proclamation were posted in the town of Rangoon, and distributed for circulation in the surrounding country.

On the morning of the 21st of December, the Proclamation was read at a general parade of the troops composing the garrison of Rangoon; after which, a Royal salute was fired.

I have reason to believe that the Proclamation will have a powerful effect in inducing the people of the Province of Pegu to combine, and resist the bands of marauders who have, for some time past, infested the country.

I beg to inclose herewith six copies of the printed Proclamation.

I have, &c.

A. P. PHAYRE.

## Inclosure 13 in No. 24.

*The Commissioner in Pegu to the Secretary to the Government of India.*

Sir,

*Rangoon, December 28, 1852.*

THERE are, at the present time, in the vicinity of Rangoon, several bands of marauders, acting under the orders of two well-known leaders, named Myat Htoon and Shewe-ban, which it is desirable to break up, and, if possible, to capture the leaders. These men are the terror of the surrounding country, and are known to keep in captivity a number of women and children, as security for the neutrality of the villagers in their vicinity.

A number of the Talien population, however, have come in, and offered to cooperate in an attempt to capture Shewe-ban. His Excellency Commodore Lambert has dispatched some boats against that leader. Yesterday a considerable number of the Karen tribe came in, accompanied by the American missionaries, Messrs. Kincaid and Vaiton; and offered, if supplied with ammunition, to proceed, with 1000 men of their race, against Myat Htoon, who is the more powerful of the two leaders. I have full confidence in the fidelity of these Karens, and am now endeavouring to procure ammunition to supply to them.

I consider it of importance to disperse the bands of marauders which now exist, as much as possible, by means of the people themselves. But the latter were ill-armed, and have great difficulty in procuring ammunition. I therefore request that the Governor-General in Council will be pleased to direct that I may be supplied, from the arsenal of Fort William, with 500 flint-muskets, 2000 flints, and 30,000 ball-cartridges, in order that I may be able to distribute these arms to such persons as I may think fit to be trusted with



them, for the purpose of effecting the dispersion of the bands of plunderers which now infest the country.

Should the Governor-General in Council see fit to comply with my request, I beg that the arms and ammunition may be sent down by the first opportunity.

I have, &c.

A. P. PHAYRE.

Inclosure 14 in No. 24.

*Minute by the Governor-General, concurred in by the Members of the Board.*

*December 31, 1852.*

IN a private letter, written after his dispatch, Captain Phayre expresses his conviction, that much valuable aid against the dacoits may be obtained from the Karens, who are eager to be employed. He expressed a strong wish to have 500 muskets for use by these people.

Immediately on receiving this letter, yesterday, I directed the Secretary to cause 1000 flint-muskets, 4000 flints, and 50,000 rounds of ammunition, to be sent down on "Phlegethon," which sails to-morrow, and "Tenasserim," on the 4th. They are to be placed in the Magazine, at Rangoon, to meet the indents of the Commissioner.

DALHOUSIE.

F. CURRIE.

J. LOWIS.

W. R. GILBERT.

Inclosure 15 in No. 24.

*The Commissioner in Pegu to the Secretary to the Government of India.*

Sir

*Rangoon, December 28, 1852.*

I HAVE the honor to report, for the information of the Governor-General in Council, I have deemed it advisable to give public notice (of which I beg to inclose a copy), that duties will be levied at the Custom-houses of Rangoon and Bassein, according to the Import Tariff now in use at Calcutta, on and from the 1st of February, 1853. The valuation of articles for the Export Tariff, I propose should be made here; and this will be submitted for the sanction of Government, with as little delay as possible.

I have fixed upon the 1st of February next, as the date on which to commence levying customs duties, in order that persons in the Straits Settlements, and elsewhere, interested in the trade of Pegu, may receive due notice. I trust this will be approved by the Governor-General in Council.

I have, &c.

A. P. PHAYRE.

Inclosure 16 in No. 24.

*Notification.*

*Rangoon, December 27, 1852.*

Notice is hereby given, that, on and from the 1st of February, 1853, duties upon imports and exports, at the Ports of Rangoon and Bassein, will be levied, according to the Tariff now in use at Calcutta.

Provisional rules will be deposited at the custom-houses of Rangoon and Bassein, where they may be perused, on application by parties wishing to do so.

A. P. PHAYRE.

## Inclosure 17 in No. 24.

*The Secretary to the Government of India to the Commissioner in Pegu.*

Sir,

*Fort William, January 3, 1853.*

I HAVE the honor to acknowledge the receipt of your dispatch, dated the 28th ultimo, reporting that you have publicly notified that duties will be levied at the Custom-houses of Rangoon and Bassein, according to the Import Tariff now in use at Calcutta, on and from the 1st proximo.

In reply, I am directed to inform you that the Governor-General in Council is pleased to approve of your proceedings. Any necessary modifications in the Tariff may be made, when experience shall show them to be requisite.

I have, &c.

C. ALLEN.

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**Further Papers relating to Hostilities with  
Burmah.**

(In continuation of Papers presented June 4, 1852.)

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*Presented to both Houses of Parliament by Her  
Majesty's Command, March 15, 1853.*

LONDON :  
PRINTED BY HARRISON AND SON.

RETURN to an Order of the Honourable The House of Commons,  
dated 24 February 1853;—for,

COPIES of the REPORTS of the several COMMISSIONERS ON PUBLIC WORKS at Bengal, Madras, and Bombay, in the Year 1851-2, of the MINUTES of the Members of the Government thereon; and of any ORDERS or DESPATCHES of the Court of Directors relating thereto."

East India House, }  
26 April 1853. }

James C. Melvill.

REPORT of a COMMISSION for INQUIRY into the Superintendence and Execution of PUBLIC WORKS in the Bengal Presidency.

EXTRACT of General Order by the President in Council, No. 653, of  
21st December 1850.

"THE Honourable the President in Council, with the concurrence of the Most Noble the Governor-General, is pleased to appoint Major J. P. Kennedy, Consulting Engineer to Government, Major W. E. Baker, of Engineers, and Mr. C. Allen, Civil Service, to be a Commission for Inquiry into the system of Superintendence and Execution of Public Works in the Presidency of Bengal."

The instructions intended for the guidance of the Commission constituted in the above-quoted General Order, were communicated in a letter, No. 585, of the 21st December 1850, from the officiating Secretary to Government Military Department, referring the Commission to a despatch, No. 2,\* of 30th January 1850, from the Honourable Court of Directors of the East India Company, addressed to the Governor-General of India in Council. Preliminary.

2. "The Commissioners were further directed, after completion of their inquiry, to report its result," and, in so doing, "to submit for the consideration of the Government any suggestions which they may think it expedient to make, either for the modification and amendment of the present system, or for the establishment of some other plan, whereby the execution of the Public Works may be placed under such a system as shall ensure their being planned and executed with the utmost practicable amount of promptitude, skill, and true economy." Instructions furnished to the Commission.

3. The despatch from the Honourable Court of Directors embraces several important questions connected with the Public Works in all the Presidencies of India (as enumerated in the margin),† and calls for a special Report on each and all of these subjects, together with suggestions as to the future management and control of the Department. Reference to a despatch from the Honourable Court of Directors.

4. The Commission has endeavoured to obtain the fullest information available on such of the subjects mooted by the Honourable Court as are more or less connected with the Presidency of Bengal, and to these subjects they will revert in the latter part of the present Report. Steps taken by the Commission.

5. They have also instituted a full inquiry into every branch of the present system of administration of Public Works, and, with this object in view, they have personally examined the Members and Secretaries of the Military Board, and such of Mode of inquiry.

\* Vide Return to the House of Commons, No. 622, of 1851, in which this despatch is printed at pp. 146 to 154.

† 1st, The Great Trunk Road. 2d, The Agra and Bombay Road. 3d, The District Roads of Madras. 4th, The Bombay Road and Tank Department. 5th, The separation for India and Bengal of the Civil Branch of Public Works from the duties of the Military Board. 6th, The education of young natives as Assistant Engineers.

## PAPERS RELATING TO PUBLIC WORKS, BENGAL.

of the Superintending Engineers and Executive Officers as were within convenient distance. They have also entered into correspondence with the Government of India and the Local Government of Bengal and Agra, with the more distant Superintending Engineers, and with the Principal of the Civil Engineering College at Roorkee.

Reference to Evidence.

6. On the information thus procured, and which will be found either in detail or in an abstract form in the Appendices, they have generally based their Report; though at the same time, in weighing the evidence (sometimes of a conflicting nature) which has come before them, they have not hesitated to give effect to the convictions impressed on the individual members by their own experience in the conduct of Public Works.

General Plan of Inquiry and Report.

7. In the prosecution of these inquiries; the Commission have generally followed the plan detailed below, and which will also serve as an index to that part of their Report which relates to the present system of administration of Public Works; viz.—

First. To obtain a perfect knowledge of the existing system of superintendence and execution of Public Works.

Second. To ascertain what are the nature and extent of the practical evils, hindrances, and inconveniences which are felt under the present system by the different branches of the administration.

Third. To obtain from executive officers a statement of the nature and grounds of their objections to the present system, and a detail of the difficulties which they experience in carrying it out.

Fourth. To ascertain what portion of the admitted and alleged evils is attributable to the inherent vice of the present system, and what is due to the fault or negligence of those who have to carry it out, and to consider how far these evils may be remediable under the present arrangements.

Fifth. To lay down the principles upon which the control of Public Works should be exercised, and to arrange the details of an improved system.

### *Organization of the Department of Public Works.*

Military Board. Province.

8. The Province of the Military Board is to control the Departments:—First, of Public Works. Second, of the Army Commissariat. Third, of the Government Studs. Fourth, of the Ordnance, which includes the Foundry, the Gun Carriage Agency, the Powder Mills, the Arsenals, and the Military Equipments of the Army, with the exception of Clothing.

Constitution.

9. The Military Board consists of four members, viz., the Chief Engineer, the Commandant of Artillery, the Commissary-General, and the Stipendiary Member; of these, the two first named are strictly *ex officio* members: the Commissary-General has no separate duties connected with the Commissariat, nor any control over that department, except as a member of the Military Board.

Subdivision of Departments.

10. Three members of the Board, viz., the Chief Engineer, the Commissary-General, and the Stipendiary Member, direct the superintendence and execution of all Public Works, and audit the accounts connected with them. They have an equal vote on all questions arising in the department. The Commandant of Artillery, the Commissary-General, and the Stipendiary Member, control the Commissariat, the Stud, and the Ordnance Department. The four members vote together only on questions connected with the constitution of the Board itself, and with the rules regarding its procedure.

Secretariat.

11. The Secretariat of the Military consists of a Secretary and two Assistants. The Secretary is responsible for and superintends all the business of the office, and lays before the Board all questions submitted for their consideration or orders; but the particular charge of one or more departments is entrusted to each officer.

Duties.

12. It is the province of the Military Board to advise Government on all questions connected with the Public Works, to economize the expenditure of public money,

money, to examine and check estimates and bills, and to exact from the officers and the departments a strict performance of the duties assigned to each.

13. The Military Board communicates with the Governor-General or President in Council regarding the military works throughout the Presidency, and with the Local Governments of Bengal and Agra, regarding the civil buildings and works of those Provinces respectively. Communication with Government.

14. The powers of the Military Board regarding audit of accounts have been regulated from time to time by instructions received from Government; but, in consequence of recent orders, they do not now pass any bills which, in their aggregate amount, or in the several items of detail, shall exceed the estimate previously sanctioned by Government. The Board may sanction estimates for ordinary repairs within the total amount granted annually by Government for that purpose. They have also the power of passing contingent bills, not exceeding (500) five hundred rupees. Powers of Audit.

15. The procedure of the Military is prescribed in certain printed regulations [see Appendix A.], which are not now strictly adhered to; the practice is as follows: a Board of the department of Public Works meets twice a week, when the less important subjects are laid before it by the Secretary, discussed *viva voce*, and, if the members are unanimous, are disposed of at once. Papers connected with more important subjects, or on which a difference of opinion has been elicited at the Board's meeting, also all estimates, bills, and progress reports, are circulated amongst the members, who record their opinions in separate minutes. A draft letter, combining those opinions, if possible, is then prepared and circulated, and, if approved, a letter of the same tenor is written and despatched. If, after repeated circulations, unanimity appears to be attainable, the proceedings, including the several minutes, are forwarded for the decision of Government: should a difference of opinion arise on a question referred by a subordinate authority, the majority may communicate their decision as that of the Board, but are bound to report the circumstance to Government, with a copy of the proceedings. Procedure.

16. There are five regular circles directed by Superintending Engineers, besides the Canal Department, in the North-Western Provinces, with its Director, the Grand Trunk Road, with its Superintendent, and the Iron Suspension Bridge Yard at Allipore. Superintending Engineers distribution.

17. The duties of a Superintending Engineer are defined in General Orders of the Governor-General, No. 235, of 1828, under which he is responsible for the efficiency of the executive system throughout his circle. He is required to make an annual tour of inspection, and to report annually on the various public buildings and works in progress within his superintendency, to inquire into the management of executive officers, and to direct them in professional details, and in employing the resources of the country to the best advantage. He is to examine and comment upon the progress reports sent to his office for transmission to the Military Board. Duties.

He is especially required to inspect the office books in each division, and to satisfy himself that the accounts are kept in the manner prescribed by regulation. Should he perceive any irregularity or deficiency, either in the arrangements for construction, or in the details of the office, he is bound to see it corrected before he leaves the spot. He is to make full reports of his proceedings to the Military Board, bringing to their notice any deficiency of skill or management, as well as all instances of extraordinary zeal and ability in the department of Public Works.

In forwarding estimates and bills, he is not required to check the calculations, but must examine the rates for labour and materials, and report especially on them for the information of the Military Board.

By late regulations, he may discharge any clerk in the executive engineer's office whom he may see unfit for his situation.

18. The circles of superintendency are subdivided into districts, called "First and Second Class Divisions of Public Works," each of which is entrusted to an executive officer, who is allowed assistants, European overseers, and native agents, in proportion to the extent and importance of the works under his charge. Executive Officers. Distribution.

Duties.

19. The Executive Engineer has the care and maintenance of all military works, and such civil ones as are under the Board in his division, and the construction of all that may from time to time be required.

In military cantonments, he performs the duties of barrack-master, having responsible charge of all barrack and hospital furniture, with that of the public buildings. Under instructions from competent authority, he prepares designs for all works required in his division, and frames estimates for them, as well as for annual repairs. After sanction has been obtained, he proceeds to the execution of the work, and arranges for the purchase or manufacture of materials and the provision of labour. He keeps all his accounts of expenditure according to a prescribed form, and, on completion of the work, prepares from these accounts a bill for the total amount expended. He is at liberty to apply to the Superintending Engineer for advice and assistance in all matters connected with his public duty; transmits to him periodical reports of progress, and is bound to report to him the occurrence of any circumstances which may cause a greater expenditure than that contemplated in the estimate.

Subordinate Agency.

20. The subordinate agency for superintendence of works consists of two regularly organized bodies of men, one military and the other civil; each is divided into four grades, and the promotion in each is regulated generally by seniority, but not strictly, or as matter of right.

Denomination.

21. The denomination of these officers is as follows:

If Military, *i. e.* Private Soldiers,  
or  
Non-Commissioned Officers.

Conductors.  
Sub-Conductors.  
Overseers.  
Assistant Overseers.

If Civil, whether European,  
East Indian,  
Mahomedan, or Hindoos.

Supervisors.  
Assistant Supervisors,  
Overseers.  
Assistant Overseers.

All individuals entering the department are first posted as Assistant Overseers, after passing an examination in arithmetic, mensuration, and plan drawing. Europeans are required to have a colloquial knowledge of Hindoostani.

Sub-Assistant Civil Engineer.

22. A new class, under the denomination of "Sub-Assistant Civil Engineer," was constituted in 1845, open to Europeans and natives, but demands high qualifications in mathematics, plan drawing, and surveying. This class is now recruited exclusively from the Roorkee College.

Native Agents.

23. There are further native agents, and daroghas, mohurrurs or writers, head artificers, and chuprassies.

Office Establishment.

24. The office establishment for the preparation of accounts, bills, periodical papers, and for correspondence, consists generally of natives capable of writing English, Oordoo, and Bengalli; but in some divisions there is an European or East Indian accountant or head clerk. A clerk in an executive engineer's office cannot be discharged without the consent and permission of the Superintending Engineer. By recent orders of Government, an office establishment, at an aggregate monthly salary of (150) one hundred and fifty rupees, and (100) one hundred rupees respectively is allowed to each first and second class division, and when extra clerks are required for new works, they may, with the sanction of the Superintending Engineer, be entertained.

#### *Execution of Public Works.*

Estimates how ordered.

25. No Public Works, with exception of the most petty repairs, can be undertaken, unless on estimates previously sanctioned. A design and estimate for a new work may not be submitted by an executive officer, nor called for by a Superintending

Superintending Engineer, without the sanction of the Military Board, though either of these officers may represent the necessity for a work, and request permission to estimate for it.

26. Designs for new works, called for by competent authority, are prepared by the executive officer, and forwarded for transmission to the Superintending Engineer, accompanied by explanatory drawings, and an estimate of cost. The estimate is drawn out in great detail; the work is minutely subdivided under different headings, and the quantity of work under each, with its calculated rate of cost, is separately exhibited. Estimates for annual and quadrennial repairs, and, according to late orders, all estimates for repairs involving an expenditure of more than (25) twenty-five rupees, must be accompanied by the report of a survey committee, attesting the necessity of the proposed work. In forwarding the estimate to the Military Board, the Superintending Engineer reports on the professional details of the design, and its suitability to the required object, but more especially on the assumed rates, which he is bound to examine most minutely, with reference both to the nature of the work and to the cost of labour and materials in the districts where it is to be carried into execution. The estimate undergoes a further scrutiny by the Military Board, who ultimately forward it, with such remarks as they deem requisite, for the sanction of Government. Estimates, how prepared.

27. Supposing the design to be approved, and the estimate passed, the Accountant-General's Department is then instructed to issue to the executive officer an assignment for the amount on the nearest treasury; and at the same time, intimation of sanction is sent through the usual channel to the executive officer, who immediately commences preparations for executing the work, either under his personal inspection, or through his subordinate agency, but always on his own responsibility. Supply of Funds.

28. If the work be one occupying some time in its execution, the Military Board receive accounts of its progress ordinarily by means of the Superintending Engineer's annual inspection journal, and by the progress reports forwarded quarterly by the Executive Engineer, who is also ordered to report specially and immediately all circumstances which may render necessary any deviation from the sanctioned design, and all fluctuations in the price of labour and materials likely to affect perceptibly the cost of execution. Inspection and Progress Reports during execution.

29. The work, when completed, is subjected to examination of a survey committee, generally consisting of regimental officers taken from the general roster for station duty; but civil buildings, especially if distant from a military station, are ordinarily surveyed and reported on by the officer to whose department they belong. The survey report contains a full specification by the Executive Engineer of the building or work, with detailed measurements of its parts, and a description of the materials employed in its construction, and an attestation by the surveying officers that the actual work corresponds with this specification, both as to its dimensions, and to quality of the materials. Form of Survey Reports.

30. The survey report constitutes the voucher for the bill, of which the prescribed form is shown in Appendix B. The heading contains the denomination and locality of the work, with the nature and date of the sanction obtained for its execution. The actual bill consists of a statement in three lines of the cost of labour, materials, and sundries, as per the office books, followed by an abstract of rates that would cover the above amount of expenditure, showing the total quantities of every description of work done (divided into items of detail, exactly corresponding with those of the estimate), the rates at which they have been severally executed, and the cost of each. The aggregate of the items generally corresponds with the amount charged above. The Executive Engineer is then required to add a declaration on honour, that the sums charged in the bill have been expended by him for the purposes set forth. Then follows a detailed comparison of the bill and estimates, showing the total saving or excess, and the portion of each due respectively to work estimated and not executed, or to that executed though not estimated, and to saving or excess of rates, each item of which is severally and separately compared and balanced. Finally, to this comparative statement is appended an explanation of all differences between the estimates and bill, more especially when the estimated rate has been exceeded; and in such cases the difference in particular items may be retrenched from the executive officer (if the Form of Bill.  
explanation



explanation be deemed insufficient), even though the cost of the whole work be within that sanctioned for the estimate.

*Objections to existing Practice in the Department of Public Works.*

Complicated nature of check.

31. The system of check and audit above described, though involving great labour and no slight risk to the executive officer, would at first sight appear calculated to afford some protection to the interests of Government, but practically this object is not effected.

The degree of efficiency in construction and of economy in expenditure which is now attained in the Department of Public Works, is due more to the character of the officer employed than to the stringency of the checks imposed upon him; while the latter, by exacting more than in most cases he can possibly perform, distract his mind, tempt him to show fictitious results, and by so much interferes with his energetic and upright discharge of the duties entrusted to him.

Inquiry into the value of the several checks.

32. It will be useful to consider what is the real value of the several checks on which the Military Board are dependent under the present system.

Value of checks by Progress and Inspection Reports.

33. The only information regarding a work under construction which comes before the Board, is derived from the progress and inspection reports. The former, however, in their present shape, convey no information regarding the cost of a work, and, owing to the multifarious duties and distractions of the Executive Engineer who prepares them, and the delays which they are subject to in their transit through the Superintending Engineer's office, they seldom reach the Military Board in time to be of any use, except as records for future reference. The inspection reports are, as far as they go, a most valuable check; but the extent of a Superintending Engineer's circle does not admit of his visiting a work more than once in the course of a year, unless called upon specially to do so. In practice, therefore, the Military Board know very little about the execution of a work until it has been completed.

Value of check by Bills and Completion Reports.

34. The results exhibited in a bill for finished work, and a completion report attested by civil or military officers, unconnected with the department, containing a minute detail of rates, and a microscopic comparison of the several parts of the work as estimated and executed, is at best a retrospective check, and in most cases more or less fallacious. The completion reports are attested by officers who have no professional knowledge of the subject, who seldom make more than a cursory inspection of the building, who sometimes do not look at it at all, and who never verify the measurement exhibited in the survey report. Such a document may be received as evidence of the existence of a building, and, in some degree, of its fair external appearance, but is no proof that it contains all the work charged for.

Check by minute details of rates.

35. The minute details of rates would be unworthy of much confidence, unless the Executive Engineer should keep the accounts in such details as would admit of his exhibiting the actual cost of each item of his estimates, and this in a large work would involve more labour than he could bestow.

In practice, he generally arranges his expenditure on each work under a few general headings, which, in preparing his bills, he subdivides, so as to bring the items as nearly as may be into conformity with those of the estimate.

The difficulty of accounting for difference of rates, and the fear of retrenchment, have in some cases led to the saving on one work, or portion of a work, being applied to cover the excess of expenditure on another.

Heterogeneous duties of the Military Board.

36. The efficiency of the Military Board is impaired by the various and heterogeneous nature of the departments under its charge, the great extent of territory over which they are spread, and the eccentric position of the Board with reference not only to these territories, but to the governing authorities under whom it acts. The Military Board communicate, regarding Public Works, with the Governor-General or President in Council, and with the Civil Governments of Bengal and Agra. It does not at present communicate with the Board of Administration for the Punjaub; but a proposal has been made to give it, to a certain extent, the audit of expenditure on the Civil Works of that territory.

Inconvenience from the geogra-

37. The position of the Military Board at Fort William, the seat of the Bengal Government, and near the head quarters of the Superintending Engineers of the  
Lower

Lower and South-Eastern Provinces, is appropriate, as regards that portion of the Presidency. physical position of the Board.

It admits of free and rapid discussion between Government and the Military Board, as their professional adviser, and between the Board and the Superintending Engineers, as their deputies for inspecting the Public Works, and controlling the executive department; but with respect to the North-Western Provinces and the Punjab, the case is widely different. Some idea of the extent of what may be called the "geographical" inconvenience of the present arrangement may be formed from the following sketch of the courses prescribed for all correspondence (viz., estimates, bills, and such references as the intermediate authorities do not dispose of) which pass between Executive Engineers and Government.

38. In the Bengal Presidency, references regarding Civil Works pass from the executive office to the Superintending Engineer, a distance of about	300 miles.	Exemplification of this inconvenience.
From the Superintending Engineer and the Military Board	100 "	
From Military Board to the Local Government	-	
And return by the same route	400 "	
TOTAL	800 "	

For the Military Department in Bengal, references would travel the same course above detailed, were the Governor-General in Calcutta, but would frequently have to proceed 2,000 miles further, viz., 2,800 miles.

In the North-Western Provinces, references regarding Civil Works pass from the Executive Engineer to the Superintending Engineer about	300 miles.
From the Superintending Engineer to the Military Board	800 "
From the Board to the Lieutenant-Governor at Agra	900 "
And return by the same route	2,000 "
TOTAL	4,000 "

Regarding Military Works, if sent to the Governor-General in the Upper Provinces, a reference would travel somewhat further than the last-named distance, say 4,250 miles. If to the President in Council, it would go 2,200 miles.

39. But the actual distance travelled is not the only, nor even the principal cause of delay. Official delays. In each of the offices through which the reference passes, it is considered, reported upon, and copied for record. The amount of delay in each office will depend on the nature of the reference, the number of opinions to be collected, and the adequacy of the office establishment. References to the ultimate authority naturally multiply with the multiplication of checks, and with successive limitations of the discretionary powers of the Superintending Engineer and the Military Board. Hence the necessity for a great number of copying clerks, and the constantly recurring demand for augmentation to office establishment.

40. The objections by the several branches of the Government against the present system of control in the Department of Public Works, will be found in the letters named in the margin,\* and which are quoted at length in Appendix (C). Objections by the several branches of Government.

41. The Government of India, as represented by the President in Council, state that considerable inconvenience is now experienced by them from the present system of administration in the Department of Public Works, and specify as instances the delay which occurs in the preparation and submission of estimates required by Government, and the still greater delay which has attended the submission of bills for works at the new stations, which have been formed in the North-Western and Trans-Sutlej Provinces. It is believed that "the whole of the bills for works at Umballa and Kussowlee, sanctioned in 1843, have not yet been sent in." By the Government of India.

42. The Government of Bengal states, that the cases in which inconvenience and mismanagement have been experienced in the Department of Public Works, By the Government of Bengal. are

\* Officiating Secretary, Major Wyllie, No. 34, of 5th February 1851. The Secretary to the Government of Bengal, No. 371, of 3d March 1851. Mr. Secretary Thornton's letter, No. 63 A, of 6th February 1851, with annexures.

are so numerous, that the interval of time, from the 23d January to the 3d of March, has not sufficed to gather them in full detail from the records of Government. A collection of such cases will be forwarded hereafter; but in the meantime instances are alluded to in which the public money has been largely wasted in which the public convenience has been compromised, and life and property over an immense tract of territory have been endangered by the neglected state of the embankments and roads. They remark, that civil buildings, and gaols for 32,000 prisoners, are not built according to a fixed and sound principle.

Alterations are frequently required by one local officer, and, when made, are repudiated by another, that the present system is, in fact, very wasteful and very inefficient.

The Government further observe, that they have no authority over the department to which is entrusted the execution of their civil work, nor any direct means of knowing how the business is conducted.

They suggest that the control of all Public Works be taken from the Military Board, and entrusted to a selected individual, with an effective staff, who will be in immediate communication with the Local Government, and subordinate to them. They allude to the difficulty of carrying out this suggestion, from the Civil and Military Works being under separate branches of Government, and suggest that it would be met by vesting in the Local Government the control of both, in accordance with such directions as might be received from time to time from the Government of India in the Military Department.

By the Govern-  
ment of North-  
Western Provinces.

43. The Government of the North Western-Provinces refers the Commission to two despatches of a previous date (7th June and 10th September 1847), addressed to the Supreme Government, pointing out the necessity for a thorough change in the conduct of Civil Works, and adds, that experience of the last three years has strengthened the Lieutenant-Governor's conviction of the necessity of some such measures as he then recommended. The Lieutenant-Governor feels greatly the want of a professional adviser, as regards both the Civil Works controlled by the Military Board, and those which are executed under local funds and by convict labour.

Objections by the  
Government of  
Agra.

44. With regard to the former class of works, the Military Board are too distant and too little acquainted with local details, to be consulted "with advantage:" they are also overwhelmed with business; and so much delay unavoidably attends all reference to them, that the Lieutenant-Governor is "obliged to dispense with their authority, and by direct orders to a subordinate officer to overrule points on which, in regular course, the Board should have been previously consulted."

With regard to the extensive works of irrigation in Rohilkund, Ajmere, and Nemane, to the expenditure under the Road and Ferry Funds, amounting to (5) five lakhs of rupees a year, and to the application of the labour of 10,000 convicts, the Lieutenant-Governor is thrown on his own resources, and such casual aid as he can obtain from the overworked officers of the engineering department, who are not, properly speaking, under his orders, except with the intervention of the Military Board. The Lieutenant-Governor remarks, "that to bestow these funds wastefully or injudiciously, is to betray the public interest, and to refrain from expending them is to defraud the present contributors of the benefit which they are entitled to receive in return for their payment."

The Lieutenant-Governor considers that the present complicated system of accounts, and cumbrous detail of checks in the department of Public Works, unprofitably occupy the time both of the controlling and executive officers, hamper the latter in the discharge of far more important duties, and leave him no leisure to assist the civil officers of the district with his advice regarding local improvements.

His Honour is further of opinion, that the system of audit by comparison of bills with estimates is as injudicious, and tends to produce large estimates and care-less work.

Proposed remedies.

45. The Lieutenant-Governor purposes to remedy these faults and deficiencies by entrusting the control of the Civil Works in the North-Western Provinces to a selected and well-qualified Engineer, and to place him, as member of the Board of Revenue, in close communication with the civil authorities, whose opinion on the merits of all projects for the improvement of the country it might be desirable to obtain.

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He would introduce a system of rapid audit and adjustment of account, and would leave the Engineer leisure for his executive duties, by transferring the preparation of accounts from him to a responsible accountant, or to a separate office of account.

46. The constitution of the Military Board is in some measure regulated by the heterogeneous nature of the duties entrusted to that body, and is liable to serious objections. The qualifications required in a member for one branch of the business is no guarantee of fitness for the others, and the selection of members will naturally be such as to provide one at least supposed to be acquainted with each of the departments. Thus it will generally happen, that every important question that comes before the Board will be discussed by one qualified and two unqualified members.

Objections arising from the constitution of the Military Board.

Should the members be of a conciliatory disposition, and feel confidence in each other, they will mutually leave each department to be managed by the member most competent for it. Business in such a case will go on smoothly, but the supposed advantage of a Board will be virtually lost, each department being managed by one on the responsibility of three.

On the other hand, when unanimity is wanting in the Board's counsels, it may happen that the opinion of the one qualified man is overruled by that of two possessing little or no knowledge of the subject under discussion, or more frequently that the opposition of one man (proceeding from honest, though mistaken conviction) may so embarrass the proceedings of the Board, as to bring the public business nearly to a stand, and to throw on Government the task of settling questions which the Board are intended to decide, but which they have only complicated by their internal dissensions. A considerable simplification of procedure might be effected by allowing full weight to the decision of a majority, but this is prevented by the order, that all cases of difference of opinion in the Military Board shall be referred to Government.

47. The circles of Superintending Engineers are generally too large to admit of complete annual inspection, unless they travel by dawk, which is unsuitable to the inspection of roads and canals, entails a separation from the office, and a consequent delay in the transmission of papers, and is, besides, not always possible.

As regards Superintending Engineers.

It is also objectionable that he should quarter himself on the officer whose proceedings he has to control, and frequently there may be no other available shelter.

It appears to the Commission that increased facilities for inspection might be obtained by a judicious combination of the modes of travelling, by marching during the cold season to some parts of the districts, and reserving others to be visited by dawk in the hot weather. The itineration of a Superintending Engineer would be much less hampered, were he relieved from the necessity of keeping record copies of the papers which pass through his hands.

48. The General Order, No. 113, of 22d February 1850, fixing a new scale of salaries for the different grades in the department of Public Works, and authorising a fixed office establishment for Executive Engineers, has undoubtedly been of great benefit to the service, but two of its provisions are much complained of by those whom they affect. First, the reduction of a Superintending Engineer's salary from (1,000) one thousand rupees to (800) eight hundred rupees per mensem, is not compensated by the travelling allowance of (8) eight annas per mile, which has been assigned to him. Under the new Order, he receives a lower scale of allowance than the corresponding grades in the Army or Ordnance Commissariat, though his duties are neither less important nor less arduous, and certainly do not require lower qualifications for their efficient discharge. The Commission would beg to draw attention to paragraphs 83 and 86 of Colonel Tremenhoe's letter [Appendix D.]

Late reduction of allowances.

49. Secondly, The travelling allowance, at the rate of four annas per mile, allowed to an Executive Engineer, is quite insufficient to pay his expenses, whatever mode of travelling he might adopt.

Executive officer's travelling allowance.

The Commission would respectfully suggest, that it is unworthy of a Government to assign an allowance for a specified object for which that allowance is obviously inadequate, and that it would be for the interests of the State to hold out an inducement to the executive officer to visit his outposts as often as necessity may require, rather than to deter him from so doing by making his journeys

a source of expense as well as of trouble. They would therefore recommend that the executive officer's travelling allowance be increased to eight annas per mile.

Objections as regards executive officers.

50. The present system of administration of Public Works appears to the Commission in no respect more faulty than as regards the depressed position in which it places Executive Engineers, a class of men on whose professional and moral character everything depends. Their duties, necessarily arduous in a country where they have to depend so much on their own resources, are rendered doubly so by the restrictions multiplied around them; their efficiency as engineers is of the utmost importance to the successful and economical execution of works of public utility, yet it is impaired by the imposition of duties and responsibilities, harassing and distracting in their nature, and for which the professional education of the officers has not prepared them.

Their integrity is the most effective, and, in fact, the only real safeguard against the fraudulent misappropriation of the public funds; yet they have been tempted, and in some cases almost obliged, to falsify their accounts, either to cover the expense of necessary establishments, which they were prohibited from charging openly, or to avoid the risk of heavy pecuniary loss from the want of a minute and useless correspondence between the actual expenditure and the amount of an estimate, framed, perhaps, in ignorance of many circumstances materially affecting the expenditure.

The statements advanced by Lieutenant-colonel Forbes, as recorded in Appendix E., exhibit in a very striking point of view the difficulties, whether unavoidable or officially imposed, with which the Executive Engineer has to contend.

These statements, proceeding from an officer of high character, scientific reputation, and long experience, are very important, and entitled to the fullest confidence.

Defective principle of Audit.

51. The principle on which audit is obtained for expenditure on estimated works is much complained of, and is doubtless objectionable. If there be any excess in one item of a bill over the corresponding item of the estimate, though the whole amount be within the estimate, such excess is liable to be recovered from the private resources of the Executive Engineer, unless the circumstances which led to it were reported at the time of the occurrence, and explained to the satisfaction of the Board.

These conditions, though to appearance not unreasonable, are not always easy of fulfilment. If his accounts, owing to other engagements, sickness, or paucity of office establishment, are not brought up regularly to the day, an excess may have occurred some time before discovery. The inexperience and dishonesty of a subordinate (appointed not by himself) may be another cause of excess, particularly when the work is at a distant station. A statement of such circumstances might not be received by the Military Board as a sufficient explanation, for their view of such cases would vary with the disposition of the component members, and though the enforcement of the penalty might be of unfrequent occurrence, the fear of it would continually act, and would tempt many men to evasions, by trimming their accounts, and to precautions, by sending in large estimates; they would naturally make the amount of their estimates not so much a calculation of the probable cost as the maximum for which they could hope to obtain sanction.

Minute detail in Estimates and Bills.

52. Under existing regulations all estimates for original works or repairs are drawn out in great detail, every description of work, even to the smallest item, being particularized, together with its estimated rate. On preparing the bill, a precisely similar detail is preserved, and a comparison of actual and estimated rates on each item is represented. The principle of requiring full detail in an estimate is unobjectionable.

The executive officer cannot properly prepare his estimate without making at his desk all the calculations which he is now required to show in his estimate. The additional trouble entailed upon him is therefore merely that of copying; and it may further be observed, that the present system forces upon an indolent or careless officer a full previous consideration of all details connected with a projected work; for a similar detail in bills, however, the same arguments cannot be adduced, while, on the other hand, it would entail enormous trouble to keep a separate ledger account for each item, and without such separation the results exhibited cannot be *bonâ fide*, and a habit of trimming and adjusting accounts is not unlikely to be contracted. The Commission would therefore recommend that  
the

the present detail in estimates should be retained, but that the bill should exhibit the total expenditure in each work, omitting the subdivisions.

53. The want of a succinct code of regulations for the Department of Public Works is an inconvenience felt alike by the Military Board, the Superintending Engineer, and the Executive Officer. The rules laid down for the guidance of superintending and executive officers are to be found in an old book called the "Barrack Master's Assistant," now out of print, and in a great measure obsolete; and in a series of written and lithographed circulars, amounting to several hundreds, without index or classification, and many of the more recent cancel, explain or modify others of previous date; the older circulars were issued in manuscript; others are out of print, and have not been supplied to any of the newly-formed divisions.

Want of a code of regulations.

Under such circumstances, it is impossible for an officer to be as well acquainted as he ought to be with the rules under which he is expected to act; nor can the Military Board properly enforce regulations promulgated in so imperfect a form.

54. It is understood that a revised compilation of these circular orders is in course of preparation by Lieutenant-colonel J. T. Boileau, Engineers; but the Commission would urge upon Government the adoption of the promptest measures to supply a want so obviously prejudicial to the department, and unjust to the officers employed in it.

Compilation of circular Orders undertaken by Lieut.-colonel J. T. Boileau.

55. The Commission would beg to draw attention to a valuable suggestion made by Lieut.-colonel Goodwyn, in his letter, No. 1,839, of 4 January 1851 [see Appendix D.], for the preparation of a new manual for executive officers; such a compilation, if judiciously executed, would be of great value to the department.

Lieut.-colonel Goodwyn's suggestion for a new manual for executive officers.

56. There is reason to believe that in some instances the interests of Government have suffered from the executive charge of works being entrusted to ignorant and inexperienced officers, and it appears to the Commission that this source of mischief is not at present effectually guarded against.

Qualifications of executive officers in the Department of Public Works.

57. The officers of engineers receive an education at home, which furnishes them with scientific knowledge sufficient for any duties likely to be entrusted to them; but on their first arrival they are ignorant of the language and resources of the country, and want practical experience in the numerous details involved in the execution of works.

Recommends probation of young Engineers;

Every young engineer, therefore, should, in the first instance, be appointed an assistant to an executive officer, and should not receive an independent charge until he have acquired that proficiency in Hindustani contemplated in General Orders, 9 January 1837, and until he have obtained from a Superintending Engineer a certificate of qualification for an executive appointment. But there are many officers in the department not belonging to the corps of Engineers. A return furnished by the Military Board shows that, out of 95 appointments in the Department of Public Works, 47 are held by engineers, and 48 by officers of other branches of the service. The Commission would be understood as not wishing to cast any reflections on the last-named class of officers, of whose qualifications they have had little opportunity of judging, and who number among their ranks one, at least, of the most scientific engineers in the country (Colonel P. T. Cautley): they would merely record their opinion, that, as a general rule, such appointments would be better filled by officers regularly educated for the duties which they involve.

58. The corps of Engineers however, as at present constituted, cannot supply the number of officers required, nor is it desirable that the Department of Public Works should be closed against qualified officers from any branch of the service, provided always that their qualifications be previously ascertained and certified by an examining committee.

And examination of line officers.

59. The Commission beg to direct the most earnest attention to the unanimous nature of the evidence given by those witnesses who have spoken on the subject, as to the extremely defective qualifications of the subordinate agency, through whose instrumentality the Executive Engineers are expected to construct the Public Works, and to carry on their important duties. The Executive Engineer has no power to punish a careless or dishonest overseer, and cannot procure his

Defective nature of subordinate agency.

removal without much trouble. The native agents are frequently intelligent men, and those who have been long in the department, possess considerable knowledge of the routine duties. They are good accountants, but devoid of geometrical knowledge, and can seldom understand plans. They are believed to be as honest as the natives in other branches of the public service, and, under a system of close check, or where there is no opportunity for fraud, they may be employed with advantage in the execution of ordinary work. The only remedial efforts that are now in progress for the correction of this vital defect are those being made by the Lieutenant-Governor of the North-Western Provinces, through the medium of the Roorkee College. The Commission would earnestly recommend an extension of this valuable institution as regards the training both of Europeans and natives.

Suggestions for improving the corps of Sappers and Pioneers.

60. They feel also bound to refer to another department, the corps of "Sappers and Pioneers," which, with due attention, and some organic improvements, ought to afford efficient aid to the Public Works Department, by furnishing an useful agency for the supervision of work. A member of the Commission, Major Kennedy, states, that even under their existing organization, after a short training, and guided by distinct rules [*see Appendix G.*], he was enabled to conduct with economy and efficiency an extensive work in the Hill States, by using the N. C. officers and privates of a Pioneer company as his overseers and assistant overseers of the works. They are unanimous in their opinion, that the proper application of this important corps' energies would be found in employing them, after a sufficient training, as directors of works, and not as mere labourers.

The present strength of the Sappers and Pioneers corps may be about 1,000 men, and in the vast territories of Bengal, the North-Western Provinces, and the Punjab, the actual work of 1,000 day-labourers, more or less, can be but of slight importance; whilst the accession of 1,000 well-disciplined and well-qualified directors of labourers would form a very important element to secure a due return for money paid to more than 100,000 men, or 100 times more than their own numerical strength of ordinary labourers of the country.

The change thus recommended in their constitution would operate as beneficially for Military as for Civil Works, whether in reference to the construction and repair of barracks and cantonments, the raising of batteries or entrenchments for an army in position, the operations of a siege, or the opening communications through a mountainous or jungly country, for an advancing or retreating force. Under any of these views, their individual exertions as labourers could effect but little, whilst, as well-trained directors of the labours of others, they would offer an enormous resource. For these reasons, it is recommended that the Sapper and Pioneer corps be condensed into one corps of Sappers. That in their enlistment a very choice selection of men only should be received, principally artisans who can write. That they should have an increased number of well-selected European non-commissioned officers always kept efficient, by filling up the places of any who should be drafted from a company for other duties, and that no commissioned officer or sepoy who had proved himself worthless in any other duty, should be thrown back upon his corps.

Finally, that the several companies should be commanded by officers of the corps of Engineers, and should undergo regular and periodical training at the head quarters of their corps, to qualify them, and to maintain their efficiency for the performance of the important duties above contemplated. The Commission would further recommend, that all overseers and assistant overseers of any class should henceforth be furnished with precise rules adapted to the particular works under their charge in reference to the mode of mustering and conducting the working parties, a crowded or disorganized mass of labourers being the mere pickpockets of their employers.

Contingent and surplus Funds

61. The existence of contingent fund accounts in the offices of some of the Executive Engineers, and of surplus cash in the treasure chests of others, have been, in the course of inquiry, brought to the notice of the Commission; and though it is understood that these funds, and some of the abuses which have grown out of them, have already been under the consideration of Government in various ways, both directly and indirectly, and that rules have been passed and arrangements sanctioned which will prevent the recurrence of the practices objected to, still it appeared to the Commission that their inquiry would be incomplete without a thorough investigation of a subject which seemed peculiarly calculated to show the

the real working of the system. They have therefore omitted no opportunity, since the subject was brought to their notice, of obtaining, from executive officers and others examined by them, the most particular information on the origin and application of these funds. They have also called on Superintending Engineers for reports and opinions on the same question, and have obtained from the Military Board copies of all the correspondence which has reference to the same subject. The information thus collected is fuller on some points than any that has been submitted to Government; it may, therefore, be useful to place the whole subject in a clear point of view, tracing to their origin the abuses which have arisen, and apportioning fairly the blame which attaches to the various parties concerned.\* The General Order, dated June 3d, 1819, clearly fixes the salaries of district barrack masters (expected also to perform the duties of civil architect) at 600 rupees per mensem, which was intended to cover all expenses for stationery and office. The duties at that time were simple, and the works comparatively few, involving a trifling expense for office.

62. The extra office establishment required for new works was not within the scope of the Order; for we find, on the 13th July 1822 [*see* Appendix H.] it was ruled by a General Order that all such expenses were to be included in the bills and estimates, and not charged, as theretofore, in contingent bills. It is not quite clear whether extra office was adverted to; but this was the construction placed on the Order by the department generally, and the custom appears to have obtained almost universally (where there was no recognised establishment) to form a contingent fund derived from sums charged to the works over and above those disbursed for labour and materials, and applied to the payment of a portion of the office. This arrangement appears to have been made with the cognizance of the Superintending Engineer and the Military Board; for the books of the fund appear to have been kept publicly in the Executive Engineer's Office, and to have been open to the inspection of the Superintending Engineer: it received the demi-official sanction of one respected member of the Military Board, the late Colonel A. Irvine, c. B (as mentioned in Answer 434, Appendix F.), and is not only sanctioned, but recommended in a letter written by the Military Board for the guidance of a young officer inquiring how the office charges were to be brought forward: a perusal of paragraphs 4, 5 and 6 of the Military Board's letter, No. 8,535, of April 1844 [*see* Appendix I.], will show that the Board were not laying down a new rule, but describing a recognised practice. But even if it were intended that the extra office expenses entailed by new works should be borne by the officers, still there are other contingent expenses incidental to executive operations, and these are universally included in the estimate, and sanctioned in the form of a per-centage, either of 5 or 10 per cent., for contingencies. The mode of apportioning incidental charges by means of a contingent fund, as prescribed by the Military Board in April 1844, and as again explained and justified in the 22d paragraph of their letter, No. 8,836, of 5th March 1850, addressed to the President in Council [*see* Appendix K.], is unexceptionable in principle, and the sums so apportioned, being necessary items of expenditure, might be charged in the Executive Engineer's bills, and attested on honour without the slightest culpability.

Circumstances in which they originated.

63. The practice, however, is dangerous, as experience has proved, and, without the utmost vigilance, is liable to degenerate into very serious abuses, as regards both the source and application of the contingent fund. Instead of being maintained by an uniform per-centage on all expenditure, it has been generally taken in a larger proportion from works executed within the estimate than for those which had reached the sanctioned amount; in short, to adopt an expression used by many of the executive officers, it was usually taken "from the works as they could bear it." Again, the application has been equally misdirected. In some instances, the whole office expenses have been paid out of the contingent fund, and occasionally it has been converted into a profit and loss account, to cover casual losses, and to meet the excess of expenditure over estimate on any particular work.

Abuses of contingent Fund.

64. In

\* It may prevent misconception to state in this place, that a member of the Commission, Major Baker, performed executive duties solely in the Canal department, where a sufficient office establishment was allowed him by Government, and where, therefore, there was no contingent fund.



How far attributable to the Military Board and Superintending Engineer.

64. In pointedly calling attention to these facts, the Commission would record their reprobation of practices which have actually run to such objectionable lengths and might have covered a great extent of fraud and embezzlement. They wish however, in justice to the character of the service, to record also their opinion that the blame must be shared by the Superintending Engineer, the Military Board, and the Government. Superintending Engineers could not have been ignorant of practices which had so generally obtained in the department; for it was their special duty to inspect the books of each executive office, in which, according to the unvarying testimony of engineers, the records of the fund were publicly kept; and if they considered the existence of the fund objectionable, it was more particularly their duty to see that it was properly conducted. The Military Board, as already observed, distinctly recognised the practice.

How far attributable to the acts of Government.

65. But the regulations of the Government have also contributed to these results. When a Supreme Government enacts rules for the procedure of its subordinates, which the latter find themselves unable, under ordinary circumstances, to carry out, or which bear heavily or unfairly upon them, such regulations will be either protested against or evaded: the former is the more upright course, but is attended with difficulty, and frequently with danger to the interests and prospects of a subordinate: the latter is easy, especially under vague regulations, and will be usually adopted. In the present case there are two regulations to which the above remarks apply. The first fixed a salary for executive officers, which was also intended to cover an indefinite charge for office expenses, the deduction on this account being certain to increase with the extent of the office work, and the remuneration, therefore, bearing an inverse proportion to the labour. The second ruled that the audit of his expenditure should be based on the strict conformity of his bills with his estimates, the latter being avowedly a calculation of probabilities, the former professing to be a record of facts. Unless the facts were brought into accordance with the assumed probabilities, the officer was liable to personal retrenchment, and thus incurred all the liabilities of a contractor, without the possibility of sharing his profits. The natural, though certainly not the justifiable consequences of such a principle of audit, have been exhibited in paragraph 63. The Regulation of 1819, regarding the salaries of executive officers, has been since superseded, and provision is now made for an office establishment generally adequate to the current duties of the department, with a prescribed mode of increasing it when there might be a recognised necessity for so doing. The objectionable principle of audit still remains; but the Commission confidently hope that this also will speedily be superseded, either by the adoption of the procedure recommended in this Report, or of some other which the Government may think better suited to secure so desirable an object.

#### *Suggestions for Remedial Measures.*

Necessity for changing the controlling agency of Public Works.

66. Having now discussed in detail the difficulties experienced under the present system by every branch of the service in any way connected with the Department of Public Works, it remains to consider how far the evils complained of may admit of remedy. The Commission, while duly impressed with the conviction that a radical change in the management of an extensive department, if not of obvious and urgent necessity, may be the source of greater evils than those which it is intended to obviate, have, notwithstanding, come to the conclusion, that an entirely new system is essential to the efficiency of the Department of Public Works, as regards both the controlling and executive agencies. In territories of such extent as those comprising the Presidency of Bengal, it has been experimentally proved to be inexpedient that the business connected with the Public Works should be referred to one authority, which has thereby been burthened with more work than it can efficiently perform, and is too far from the scene of operations to carry on its duties with promptitude and energy. The Commission, therefore, recommend that each of the great territorial divisions of the Presidency, viz., the Bengal, the North-Western, and the Trans-Sutlej Provinces, should have its separate and independent agency for the control of the Public Works, subordinate to and in direct communication with the Local Governments.

Advantage of individual responsibility.

67. The agency proposed would be a single selected responsible individual, exercising in each Province the functions now performed over all by the Military Board. The Engineer member of the Board is at present the only competent authority

authority on all engineering questions connected with the Department of Public Works. It would be better, therefore, to dissociate him from the unprofessional members, from whose concurrence his opinion receives no additional weight, while, by their dissent, it is liable to be set aside. In the one case the engineer does not fully bear the responsibility for acts and opinions originating with himself, and, on the other, he is saddled with that which by no means belongs to him. Responsibility is better fixed upon an officer, and is more felt by him when he gives an opinion as his own, than when it goes forth as the collective opinion of a Board. The constitution of a Board acts as a screen, behind which the members shelter themselves from all individual responsibility. The continuity of purpose so essential to the energetic direction of Public Works would be better secured under the direction of an individual than it can be at present, and much of the delay would be obviated which is now incurred in collecting the opinions of several members, and amalgamating them when discordant. The principal argument against the proposal is the possible unfitness of the individual entrusted with so responsible an office. This objection is entitled to peculiar consideration in a service where seniority is the usual rule of promotion, and certainly the Commission would not recommend that such important interest should be placed at the mercy of a man whose only and chief claim to the trust is his being the senior engineer officer in the country. On the contrary, they would distinctly and emphatically record their opinion, that the professional advisers of Government should be the men best qualified for the duties, without much reference to the branch of the service to which they may belong, or to their place in a seniority list.

In cases requiring mature deliberation, it may indeed be questioned whether a Board might not be a safer authority than an individual; but, in the first place, such deliberations, to be useful, must be the deliberations of men properly qualified professionally for the discussion; and, in the second, it must be borne in mind, that the Public Works form a strictly executive department, in which promptitude, skill, and well-directed energy are essentially requisite. It is true, indeed, that the fullest consideration is necessary and imperative previous to the adoption of a design or sanction of an estimate for new works; but in this respect the Military Board, as at present constituted, have no power. Such projects must pass through the Local and Supreme Governments, and if involving more than a small expenditure, are referred to the Court of Directors, thus insuring the fullest consideration and discussion of details.

68. The relative efficiency of a selected individual or a collective body for executive duties is a question which has called forth much discussion, and has given rise to some difference of opinion. The Commission, therefore, are anxious to support their own decided preference of undivided responsibility, by quoting the recorded sentiments of men whose opinion is entitled to the utmost deference. Authorities in favour of undivided responsibility.

69. In a minute, dated 19th November 1846, by the Honourable F. Millett, on the subject of the superintendence and management of Public Works, the following passages occur: Honourable F. Millett.

Para. 18. "I am not favourable to the establishment of a separate Board or Boards. The multifarious duties of the Military Board, embracing the Army and Ordnance, Commissariat, military buildings, and the stud, render it necessary that that Board should consist of several members of varied experience; but for the superintendence of the civil branch of Public Works by itself, I should prefer a single officer for each division of the Presidency, to be selected for his scientific attainments, experience, and personal activity, and to be held responsible for the proper management of the department."

Para. 19. "A project to establish a Board in each division of the Presidency, composed of members entertained and paid exclusively for this duty, would be inadmissible on the ground of expense alone; and I do not think it would be found convenient to associate with the fixed President in the North-Western Provinces, even for a few months in the year, more than one Superintending Engineer. Two is a very inconvenient number in the composition of a Board, and the partial assistance which, under any circumstances, the Superintending Engineer could give, would involve the objection of a divided responsibility, without preponderating advantage, and at the same time interrupt their own immediate duties.

70. The Military Board also, in the 11th, 12th, and 13th paragraphs of their Military Board,  
despatch,

despatch, No. 10,077, of the 27th April 1847 (adverted to by the Honourable Court of Directors in their despatch of the 30th January 1850), propose that the Civil Works in both divisions of the Presidency should be placed under the control of an Inspector, "who would be vested with the duties and functions now discharged by the Military Board;" and the present Chief Engineer, Sir J. Cheape, K. C. B., still advocates the same plan, the adoption of which, he considers is calculated to place the department on a footing of increased efficiency. Lieutenant-colonel W. H. Forbes, an engineer officer of the highest reputation, has expressed a decided opinion [see Appendix E.] in favour of undivided responsibility in the control of Public Works, military as well as civil. The Deputy-Governor of Bengal and the Lieutenant-Governor of Agra have expressed similar opinions to the extent that the Civil Works at least should be removed from the control of a Military Board, and placed under a separate authority.

The Government of Madras.

71. The Government of Madras, in their despatches to the Court of Directors, dated respectively 26th September, 26th October, and 16th December 1844, appear to have advocated a system of "separate and individual responsibility on the part of an officer in the Department of Public Works." And the Honourable Court, in their reply to these despatches (No. 12 of 1845, of 29th May 1845), though not then convinced of the necessity of the proposed change, express themselves willing to entertain the subject, should the Madras Government continue to think such a measure desirable.

Lord Hardinge.

72. The Right honourable Viscount Hardinge, late Governor-general of India, in his despatch to the Honourable Court of Directors, No. 11, of 1845, dated June 1845, proposes to relieve the Military Board from all duties connected with Civil Works, and to appoint an efficient Superintendent to correspond direct with Government on all subjects relating to his charge with inspecting or superintending engineers under him.

Arguments applicable to Military as well as Civil Works.

73. But the arguments which have been adduced for the placing of Civil Works under a separate and single controlling officer, would apply equally to the whole department. For the Military Works in this country, excepting fortifications, of which there are few, and which might be left to the charge of the Chief Engineer, are not essentially different from the Civil. Both require the same qualifications in an Executive Engineer, and might be carried on concurrently with the same machinery of superintendence. If, therefore, it be admitted that the control of the Department of Public Works should be vested in a single responsible individual, the next point for consideration is the necessity for separating the Civil from the Military Works under separate agencies. The Commission are aware that such a separation has been advocated by many able and eminent men, and that the present distribution of administrative power between the Supreme and Local Governments, appears at first sight to render some degree of separation necessary, since, in the present form of the Indian Government, the ultimate authority regarding Civil and Military Works is already divided; the control of the former being vested in the Civil Governors of the Bengal and Agra Provinces, and that of the latter in the Supreme Government.

Proposed organization.

74. The Commission cannot, however, in justice to their own convictions, consent to propose any arrangement based upon a principle which they conceive to be erroneous. They would propose that the Bengal Presidency be divided into subordinate Local Governments, which should be invested with authority to control both Civil and Military Works. Each Province might then be subdivided into compact and manageable districts under executive officers, superintended by an Inspector (aided by two or more deputies), in direct communication with the Local Government. The discretion of the Local Government with regard to the sanction of new projects, and the decision of the more important questions relating to the Department of Public Works, might be limited as at present.

As regards the executive officers, there is, as before observed, no incompatibility in Civil and Military Works, nor any sufficient reason why they should not proceed concurrently under the same executive management.

It is obvious that two officers severally conducting all the executive duties of two districts, would be much nearer their work, and, therefore, better able to attend to it, than if one were to conduct the civil, and the other the military duties of both districts. In short, that if the Civil and Military Works are to be placed under separate management, either the number of executive officers must be greatly augmented,

augmented, or else the size of their divisions, already in many cases too large, will be increased to an inconvenient extent. The same, or analogous reasons, hold good with regard to the inspecting officers; nor does it appear objectionable that the Local Government should (under the control of the General Government in this, as in all other public affairs) direct and audit the expenditure in the maintenance of cantonments, and provision of accommodation for troops; the movement and location of these troops remaining, as at present, at the immediate discretion of the Supreme Government.

75. The Inspectors would remain generally at the head quarters of the Local Government to which they are attached. In forwarding estimates and bills and important references, they would append such remarks as they deemed requisite. Calculations would be checked, and accounts analysed in their office, and they would exercise the same control over the Department of Public Works as is now vested in the Military Board. Duties of Inspectors.

As a general rule, the itineration of the Inspector would be restricted to that of the Local Governor, whom he would accompany in his annual tour; but on special occasions he would be available for inspecting a completed work, or the site proposed for a projected one. In ordinary cases the duty of itineration would be performed by the Deputy Inspectors.

It would be competent to the Lieutenant-Governor to place the Inspector in communication with the Board of Revenue for the discussion of projects, or other matters likely to affect that branch of administration. But the Commission cannot adopt a suggestion which has been made to give the Inspector a seat at the Board of Revenue. Such an arrangement would be productive of delay as regards the Public Works Department, would place the majority of votes in the hands of the unprofessional members, and would injuriously divide the responsibility of the executive management. Every advantage expected from the full discussion of projects for the improvement of the country by the Revenue Board, may be better secured by a separation than by an amalgamation of the powers of the revenue and the engineering authorities. The Inspector would be the best judge of the fitness of a project for its intended purpose, and of the correctness of the estimates for its cost, while the Board of Revenue would have to consider whether the object itself be desirable, and whether it be worth the calculated expenditure.

The Inspector would audit all bills for authorised expenditure, whether on works, repairs, or establishments, under such regulations and with such limitation of discretion as may be deemed desirable. He would forward all audited bills for adjustment to the office of the accountant, whose duty it would be to see that he had not exceeded his powers. He would especially report to Government on all unauthorised expenditure, including bills in excess of sanctioned estimates. The Inspector would report periodically on the subordinate agency, both European and native, in the Department of Public Works, and would bring forward the most deserving for promotion on the occurrence of a vacancy. The Inspector would necessarily require a complete office establishment, and the aid of a commissioned officer, who would be responsible to him for the working of each branch of the office.

76. The Commission have not data for determining exactly the number of Deputy Inspectors that would be required. But the extension of Civil Works, including those defrayed from local funds, would add to the present duties of inspection. They would have no office of record, and would not be tied to particular localities, or rounds of superintendence. They would be entirely subordinate to the Inspectors, and disposable for itineration, or temporary location near particular or important operations. They would not be the medium of correspondence between the Executive Engineer and the Inspector, except when the latter might consider such an arrangement advisable. Deputy Inspector.

77. The duties which the Commission would propose from Executive Engineers vary, in some essential points, from those now imposed upon, or rather expected from, those officers. It may be needful to re-consider the distribution of executive districts, and, in some instance, to reduce the extent of the present divisions; but the Commission are of opinion that, where the duties are now found to be more than the executive officer can efficiently perform, it arises rather from the incongruity than the extent of the duties imposed upon him, and the remedy lies rather Measures of relief to executive officers.

rather in the division of the duties, than in the reduction of the extent of his charge.

Barrack Master's duties, and petty repairs.

78. In the Military Department, a considerable relief might be afforded to the Executive Engineer, by placing the charge of the barracks, barrack and hospital furniture, petty repairs in regimental lines, and the conservancy of stations, in the hands of an invalid or warrant officer, as suggested by Colonel Tremenheere, in the 63d and following paragraphs of his communication [see Appendix D]. This assistance is even now nominally allowed by the General Orders of the Governor-General of 12th July 1816, quoted at page 864, paragraph 20, of the Pay and Audit Regulations [see the Appendix Q.]; but the Order, if ever acted on, is now obsolete. Besides the appointment of such an officer, the Commission would recommend that the petty repairs of civil buildings should, within certain limits, be executed by the officers occupying them.

Separation of engineering duties from those of book-keeping.

79. But the most important alteration in the duties of the executive officer, and the one which the Commission wish to recommend most strongly for adoption, is the entire separation of the strictly engineering and executive duties from those of book-keeping. To quote the words of one of the members of the Commission, in a letter to the Governor-General of (17th September 1850), "As the main security for the economical construction of Public Works depends upon the principal officer in charge, and all his subordinate superintendents being free to devote their entire attention to that construction; there can be little doubt that the expenditure upon Public Works in India would be vastly reduced, and rendered much more efficient, if a distinctly responsible accountant, separate from the engineer in charge, were given to each Public Works district, where extensive operations are in progress."

"The Engineer is not an accountant by profession; and, as the whole responsibility of accounting for large sums of money now devolves upon him, his anxiety to avoid ruin must force him to devote a much larger proportion of his time to his accounts' office than the interests of the constructive department would warrant; and, even after he has done so, to the injury of the works, I have observed that the anxiety of having large unaudited sums of expenditure hanging over him for a long period has created a feeling almost amounting to terror in taking the charge of Public Works; so that many would gladly sacrifice the increased emolument which accompanies such a charge, and rejoin their corps as military officers, to avoid this dangerous responsibility."

"The separation of the accounts from the constructive branch need not produce an increase of expenditure, and it would, besides allowing to the works the full time and attention of the officers charged with their construction, afford an additional security against fraud, inasmuch as the engineers' and the accountants' department would become reciprocal checks upon each other."

Remarks on periodical audits.

80. Another radical change in the system of accounts which the Commission recommend is the periodical rendering of bills, with immediate audit; and they are of opinion that the period should be monthly. The principle has been in operation for above three years on the Ganges Canal, and has worked well. Colonel Cautley, in a very valuable memorandum [see Appendix L.] on the subject, says, "The principle is excellent; it is advantageous to both the director of the works, to the executive officer, and to the Government; the quarterly system now practised might, in my opinion, be improved by a monthly submission of bills, with a monthly audit; but the present arrangement in the department of Public Works of combining the duties of the officer as a civil engineer with those of account, renders both the quarterly and monthly systems open to inconvenience."

"The executive officers like the system, as it gives them the means of seeing, at short periodical dates, the whole of their transactions, and of remedying any irregularities which have obtained previously; they are relieved, moreover, at short intervals from money responsibility."

"To the director of the works the system is a most advantageous one: he has before him constantly the results of operations, and, from the necessity of the executive officers closing their accounts periodically in rapid succession, he obtains the true rates at which work has been executed, and is able to compare the rates of the different divisions, and to draw his inferences accordingly. As a proof of the great value of this periodical comparison, I may state that in nearly every case a progressive decrease of rates has been arrived at.

"In

“ In conclusion, therefore, it will be understood that I not only consider the quarterly system to be good, but that a submission of bills monthly, with a monthly audit, would be still more beneficial; in both cases, however, the system must be combined with a relief to the civil engineer (in some degree at least) from his present double duties of account and engineering. I consider that men who can do both duties efficiently, are exceptions, and that on the Ganges Canal, where so much and such heavy work is in progress, the civil engineer's whole time might, with the greatest advantage, be confined to his now specific duties.” In these sentiments the Commission fully concur, and they have endeavoured to complete the measure by relieving the executive officer from accounts.

81. The accumulation of unaudited balances under the present system has reached an enormous extent. A return quoted in Appendix R. shows that the average amount of bills passed for Public Works in the last six years has been Rs. 37,23,635. 8. 5  $\frac{3}{4}$ . The unaudited balance, as per memorandum, from the Accountant-General's Office [see margin], is Rs. 1,47,46,173. 5. 3., or nearly four years audited expenditure.

NET BALANCE against EXECUTIVE OFFICERS in the Building Department, including both Current and Old Accounts, on 30th April 1849.

In the Military Buildings	-	Rs	87,00,847	13	1
In the Civil Buildings	-	-	22,04,480	3	7
			1,09,05,328	0	8
Inefficient Balance in the hands of executive officers on the N.W P, on 30th April 1849 (Civil)	-	-	38,40,845	4	7
			Rs	1,47,46,173	5 3

The results, injurious to Government, are ruinous to the engineer, who is unable, even on medical certificate, to quit the country without leaving unlimited security. A striking illustration is recorded in the examination of Major Abercrombie [see Appendix F.] sent, with an efficient office, to construct extensive cantonments in a new country; he was unable to keep up his accounts, and was subsequently employed for 18 months (without staff salary) in adjusting his arrears, amounting to seven and a quarter lakhs of rupees. Three months after the submission of his last bills, he arrived at Calcutta, and found that they had not yet reached the Military Board's Office.

The Commission observe, that all executive officers on their appointment are called upon for security to the amount of 5,000 or 10,000 rupees. They object to this rule as applied to commissioned officers; but if enforced, no further security should be required from them under any circumstances.

82. The Commission would strongly urge the general, and, wherever possible, the enforced introduction of an organized system of contracts for all descriptions of work. Tenders might be invited for every sort of materials to be supplied on the spot, for any kind of labour, or for a complete work.

Recommends a system of contract

It would be advisable in the commencement to divide the contracts, that completion might be encouraged, sub-letting prevented, and residents of the place whence the raw material (whether animate or inanimate) is derived, brought forward.

There can be little doubt that the general adoption of contracts is feasible. the East India Railway is being constructed in no other way. Colonel Tremenhoe states [see paragraph 30 of Appendix D.], that he has introduced contract labour for different kinds of work in three divisions of his circle, Loodiana, Ferozepore, and Jullundur, and contracts are now taken to excavate the earthwork of the Ganges and Jumna Canals generally, to repair the embankments of the Lower Provinces, and frequently to manufacture materials in all parts of the country.

83. The specification of every contract should be full and explicit; the time for performance distinctly stated; adequate security lodged; penalties, not over heavy, but invariably enforced on any breach, attached; and the decision of the Engineers, with rare exceptions, final. The general terms and conditions of contracts, especially as regards advances, should be embodied in a few concise rules for the guidance of Executive Engineers, who will receive credit for advances made in conformity with the regulations.

Terms and conditions of contract

The rates for every description of work are well ascertained, and will afford a ready means of testing the fairness of the terms offered. An enhanced cost is to be expected at first, and should not be regarded. It is the nature of all changes to appear in the beginning difficult and expensive; but if the change be a real reform, these will soon correct themselves. A contractor making a fortune by his bargains with the executive officer, raises up a hydra-headed competition, and is the best possible advertisement for future contracts.

The Commission would press upon all concerned, that the contract system requires from executive officers and overseers a strict and constant supervision to prevent inferior workmanship; they will be held responsible for the goodness of the work executed on contract in their divisions. Ample time would be placed at their disposal by the contemporaneous relief from petty details, which is necessarily part of the system.

Recommends immediate adoption.

84. It may be observed, that the extension of the contract system already recognized might be effected at once, without awaiting to consider the other suggestions in this Report. There is no executive system that would not admit of contracts, and would not be simplified by their adoption.

Proposed office of account for all work.

85. Until the general introduction of contracts can be effected, and when circumstances may render necessary the immediate execution of a work for which tenders cannot be obtained, the accounts of expenditure should be kept in such form as will show each charge supported by its voucher of payment, and will admit of monthly audit.

The pecuniary responsibility will rest, as at present, with the Executive Engineer, who will receive advances, and account for them. He will be allowed the assistance of a qualified accountant, and of a native cashier, who will give security in proportion to the current expenditure. The accountant will be held responsible for the accuracy of the book-keeping, and will sign the accounts. The cashier will be held responsible for all money entrusted to him, and will make no payments except under warrants signed by the executive engineer and accountant, the signature of the latter attesting the entry into the cash-book.

Proposed form of accounts

86. Estimates will be submitted in the form and detail now in use. The basis of the accounts will be the day-books, kept separately in the form of a figured abstract for each work, without the subdivisions required in the estimates, and showing the expenditure of every description. The payment of daily labour will be attested on the day-book by the executive engineer or his deputy. Periodical payments of monthly labour will be similarly vouched; materials will be charged at the store prices; their quantities and rates will be susceptible of check by comparison with the store account. The day-books will be totalled every week, or rather quarter-monthly, and forwarded in original to the Executive Engineer, who, after examining and comparing them with the quantity of work done, will make them over to the accountant for incorporation in his bill; they will be transmitted as vouchers with the bill, without retention of copies. The cost and expenditure of stores will be exhibited in a debtor and creditor account, showing on one side the purchase of materials, supported by receipts and the cost of their manufacture, taken from the vouched day-books; and, on the other, the value of the materials issued to works, and of those remaining in store.

The monthly bill will exhibit the expenditure on each work, as shown by the weekly day-books or vouchers, the amounts advanced to contractors, and the difference (whether subtractive or additive) taken from the store account, between the amounts expended in materials and those recovered by issues from store. The monthly progress report will show the quantities of work done under each estimate, and their actual cost contrasted with a valuation at the estimated rates, the quantities of work remaining to be done, and the balance of unexpended cash.

When any work shall have been brought to a close, a completion statement will be compiled from the monthly bills, and (accompanied by a survey report in the usual form) will be submitted to Government. It will exhibit a final comparison between the estimated and executed work, and will correct any errors in measurements which may have crept into the periodical bills. The "cash-book" will be kept by the accountant, and will contain a record of all monies received, and of all warrants on the cashier issued by the Executive Engineer. Money paid by order on the collector will be entered in the cash-book as received and issued.

Advances to contractors and agents on detached works, also sums exceeding Rs. 50 due for materials, will be paid by an order on the public Treasury; the order may be in the present form of a receipt in duplicate, for an instalment in part of a specified assignment, and inserting the name of the payee, and object of the payment, or more conveniently by cheque and pass-book. A cash account current, submitted monthly, will be signed by the Executive Engineer, who will certify that he has counted the cash balance.

87. The combination of European and native agency is the arrangement best calculated to secure an efficient check. The European should be entrusted (under the Executive Engineer) with the general direction, the distribution and muster of the labourers, and the measurement of work. The native agent should also count the labourers, pay them in the presence of the overseer, and act generally as his assistant in supervising the work. The European and native should send in separate accounts daily, at the Sudder station, or weekly at outposts, to the Executive Engineer. The Commission would strongly recommend to Government to complete the subordinate establishment to the extent necessary for carrying out a double check in all the principal works. And they would suggest that it be made obligatory on Executive Engineers to separate the duties of direction and disbursement on the principle above described, however, and as far as they may be furnished with the means of doing so.

Mutual check by subordinate establishment.

88. The Commission have considered the plan of account [Appendix M.] suggested by Mr. Marten, accountant on the Ganges Canal, recommended by Colonel Cautley, and approved by the Lieutenant-Governor of the North-Western Provinces. It is proposed that the day-books, &c., kept by the overseers, *i. e.* the rough material for the accounts, should be sent as received by the Executive Engineer to the director's office, and there digested. The results, in the form of a table of rates, would be sent, as soon as they can be deduced, to the Executive Engineer, with such remarks or warnings as may be necessary. The bills would be prepared in the director's office, and forwarded by him for audit.

Mr. Marten's plan of accounts of the Ganges Canal.

In the first place, the Commission cannot recommend that in any case the accounts of subordinates should pass through the Executive Engineer's hands without such a preliminary examination as would enable him to judge at once of the economical execution of the month's work. The table of rates furnished from the central office would be too late to be of much use.

2dly. In the adjustment of various accounts there will be occasion for frequent reference to the disbursing officer, who should not be too distant to admit of oral explanations.

Both these objections would tell against the general adoption of the plan, but would have less weight as regards the Ganges Canal, which, in fact, is but one great work, the details of which are perfectly known to the Directors; but some previous scrutiny of the accounts by the Executive Engineer would be indispensable, as indeed suggested by Lieut.-colonel Cautley, in the 14th paragraph of his letter [Appendix D].

89. Instruments and certain English stores are supplied on indenture to executive officers from the arsenal and other magazines, and the value is afterwards communicated by the Military Board to the Accountant-General, who debits the officer with the amount.

Magazine stores; mode of issue.

Similarly, when instruments or stores are returned to a magazine, the value is not then settled by, or even known to, the parties giving and receiving; but after the lapse of some time, the officer is told by the Accountant-General that he has been credited with so much of the stores.

90. There are many disadvantages in this system, and several officers have complained.

Inconveniences experienced.

The delay is often very considerable, more particularly when stores are returned. In this case, it is necessary for a committee to be appointed to determine their state, which is not investigated before the officer returning the articles, but at some future period fixed by the Commissary of Ordnance. The committee's report is sent to the Board, who declare the value, and inform the accountant of the amount.

Again, it sometimes happens that the Board assign at different times two values to one article, occasioned by some alteration in the English price, overlooked or unknown on the first occasion; and officers, after the passing of their bills, and the closing of their accounts, have been obliged to make good, out of their pockets, the difference of the two values, both having been calculated, long after the issue, by the same authority. To understand the full hardship and injustice of such a mode of procedure, it is only necessary to remember, that, as far as the executive officer is concerned, the price of magazine stores is in no way a cash transaction, but a mere transfer from one head of account to another, of the value of stores belonging to Government. The Commission beg to refer to a remarkable instance



of this mentioned by Colonel Garstin [*see* Appendix D.], as having occurred to himself.

**Proposed remedies.** 91. The Commission, as a remedy, recommend, first, that all Commissaries of Ordnance be periodically informed of the value of all stores they are allowed to issue. The value must be shown in the receipts required from executive officers, and entered in the accounts without alteration; changes in the calculated cost of articles should not be noticed in an executive officer's accounts, unless he were made acquainted with the change when they were issued from the magazine.

2dly. The state and condition of articles returned to a magazine should be at the time declared. This might generally be settled by the parties without the intervention of a committee; but on the occurrence of any difference of opinion, the Commandant should at once order a committee, whose decision would be final.

Three states are at present recognized, "serviceable," "repairable," and "unserviceable." If the articles were returned in the first state, the executive officer would be entitled to a credit of the exact amount he was previously charged, without reference to any intermediate alteration in the calculated cost: if they were in the second state, he would be entitled to a certain fraction of the original value. At present it is believed that one-third is the fraction, which appears small; but practice must regulate the amount: if they were in the third state, a value must be agreed on by the parties, or they must be sold by auction for Government; but in all cases the value must be adjusted on the spot and at the time.

**Suggestions for the better adjustment of accounts.**

92. The immediate adjustment of accounts for stores received from magazine would allow of a complete "statement of differences" being given by the Accountant-General as soon as he had examined an executive officer's account current. This statement of differences should be final, and be deemed a perfect acquittance to the executive officer for all the disbursements included in the account current, and passed, as far at least that no further vouchers should at any future time be required for such disbursements, errors arising from fraud or intentional misrepresentation, being always liable to revision.

The comparison of the accounts current of officers, with the books and "counter accounts current" kept by the Accountant-General, sometimes brings to light items at the credit of an officer not claimed in his account.

The Commission are of opinion that all such sums should invariably be entered in the statement of differences furnished to executive officers in the same way as mistakes on the other side are shown. It is clear that such a course would frequently aid and accelerate the eventual adjustment of accounts, and never cause the loss of any money fairly due to Government, except through the dishonesty or fraud of the executive officer, an alternative which should not in this way be provided against.

**Annual estimates for repairs.**

93. The rules of the department require the transmission at one season of the year of estimates for all repairs, that the buildings, civil and military, may need, before any commencement is made. It has, consequently, become the practice to transmit "annual estimates" for the most trifling repairs. The Commission are of opinion that many buildings, particularly offices used only during the day, do not need regular annual repairs; and they would recommend that the limit, fixed at present at Rs. 25 for petty repairs (which may be executed without estimate) be extended, and the term be understood to include white-washing and all ordinary repairs; the same to be executed, when necessary, on the authority of the principal person in charge (whether civil or military). The economy of the work may still be tested and compared by entering in the bill the quantities executed, and applying to them the ordinary rates of such work in the division.

**Periodical returns.**

94. No particular objections have been raised to the periodical returns required from engineers, with the exception of the "annual valuation return of buildings," which is frequently a very long statement, differing year by year very triflingly.

It has occurred to the Commission that it would be sufficient to report any change in the value of the buildings that may have occurred during the year. This would enable the record office to make all the requisite alterations in their list.

But the general question of returns may more properly be taken up by the person entrusted with the compilation of the code of regulations. He should narrowly

narrowly examine the different returns, and propose amendments whenever they do not afford the required information in the most clear and succinct form.

95. In pursuance of the intention announced in the 3d paragraph of this Report, it remains to notice such of the subjects alluded to by the Honourable Court of Directors as have not been discussed in the preceding pages, and regarding which, the Commission have been able to obtain some satisfactory information; viz.—

Consideration of subjects by the Honourable Court of Directors.

The Grand Trunk Road;  
The Agra and Bombay Road;  
The Education of young Natives as Assistant Engineers.

96. In their remarks on the Great Trunk Road, the Court deduce a difference amounting to *Co's Rs. 87,83,797* between the original estimate for that work, and the aggregate of the actual expenditure, up to April 1848, together with the estimates for the completion of what then remained to be done. On going over the calculation given on the margin of the Court's letter, the Commission discover an error amounting to 18 lakhs of rupees; thus—

The Grand Trunk Road.

Estimate of 1846 - - - - -	<i>Rs.</i> 43,68,818	8	-
Spent in the three years succeeding - - -	<i>Co.'s Rs.</i> 10,50,108	11	3
Estimate of Dec. 1848	„ 1,03,02,507	-	-
		<u>1,13,52,615</u>	<u>11 3</u>
Difference - - -	<i>Rs.</i> 69,83,797	3	3

Instead of *Rs. 87,83,797*, as above quoted.

But this excess may be still more materially reduced; for it was stated to the Commission by Major Willis [see Appendix F.] that the original estimate of 18 lakhs of rupees for bridging the Soane and the Jumna, as well as the subsequent one of 70 lakhs for the same purpose, were alike and avowedly mere guesses, and not based on data or calculations of any kind. Deducting the difference of these sums, or 52 lakhs, we have still to account for an excess of *Rs. 17,83,797. 3. 3.*, to which the various causes enumerated in the 5th paragraph of the Court's despatch doubtless contributed; but the principal reason of the excess is the defectiveness of the original estimates, which were called for in a hurry (as stated by Major Willis), without time being allowed for preliminary inquiry. No sound estimate for such a work as the Grand Trunk Road could have been framed without previous survey and levels of the ground, and without ascertaining the volume and rapidity of the rivers, and drainage channels, the nature of the soil at the sites of bridges, &c. It appears that where proper estimates were framed, the calculated expenditure has not been exceeded.

97. The Commission have had an opportunity of examining Major Abercrombie, who was for many years employed on the Agra and Bombay Road, regarding the excess of expenditure on that work beyond what had been contemplated by the Indian Government, and sanctioned by the Court of Directors.

Agra and Bombay Roads.

It appears, from Major Abercrombie's statement [see Appendix F.], that the "projected expenditure" was fixed at *Rs. 1,20,000*, with no reference to any estimate framed by either of the officers appointed (successively) to construct the road, and that when the allotted sum was found insufficient to establish a line of communication passable for wheeled carriages during the dry season of the year, separate estimates for sundry necessary or advisable additions were submitted from time to time, and passed by the Government. It does not appear, therefore, that the excess of expenditure can in this instance be fairly attributed to the fault or neglect of any branch of the Public Works Department.

98. The deficiency, both in quantity and quality, of the subordinate agency has been already stated, and may be traced in a great measure to the want, until lately, of any adequate means of training candidates for the department.

Framing of subordinate agency.

The General Order, No. 144, of 10 July 1829, directing executive officers to admit and instruct apprentices, has been rendered practically inoperative, by the subsequent prohibition to appoint men belonging to the military service, and, as regards soldiers, it was only applicable at the stations occupied by the Honourable Company's European troops. Most of the assistant overseers have been supplied

from the corps of Sappers and Miners, and acquired in the regimental school a sufficient knowledge of arithmetic, mensuration, and plain drawing, to pass them into the service. They had no practical knowledge of their duty as overseers, and were frequently ignorant of the only language understood by the labourers.

99. Previous to the establishment of the Roorkee College for civil engineering in 1848, there was no training school for native assistant engineers. The Government colleges at Agra, Benares, and Delhi afforded, indeed, mathematical instruction (and at Agra a little surveying), but had no class for civil engineering, nor was the emolument given to native agents in the building department sufficient to command the services of educated men.

100. The class for natural philosophy and civil engineering in the Hindoo College at Calcutta has not fulfilled its object. The Professor, Mr. E. Sutcliffe [*see* Appendix N.], states, in reply to the Commissioners' inquiries, that his course of lectures, as prescribed by the Council of Education, embraces much which it is essential for a civil engineer to know, but does not touch the practical details of architecture. He mentions also, that the drawing and surveying class is but scantily attended, and attributes the want of interest felt in this branch of study to the absence of any certain inducement to qualify for the department of Public Works.

101. The new college at Roorkee has already afforded valuable aid to the department, and, on its present footing, is calculated to supply annually [*see* Appendix O.]—

- 4 Sub-assistant Engineers.
- 15 Assistant Overseers.
- 6 Senior native Agents, or Surveyors.
- 16 Junior native Agents, or Surveyors.

The course of instruction imparted to these men, and the opportunities they enjoy on the Ganges Canal Works, of forming a practical acquaintance with almost every description of engineering duties, give promise of a high standard of qualification for the public service.

102. To test the sufficiency of the Roorkee College as now limited, to supply the department generally with European overseers, the casualty list [*in* Appendix P.] has been obtained from the Military Board.

The average of vacancies for the last four years has been about 22 per annum; but the strength of the establishment is far below the wants of the service, and should be increased. The proportion between the senior and junior classes, which has been disturbed by the appointment of an unlimited number of assistant overseers, should also be restored. The following scale is recommended, and would not be found excessive:—

Conductors	15
Sub-conductors	20
Overseers	65
Assistant Overseers	200
<b>TOTAL</b>	<b>300</b>

According to the present ratio of casualties, there would, under the proposed organisation, be 33 vacancies per annum; but this might be slightly reduced, as "dismissals" will be less frequent as the preliminary qualification improves. The second class in the Roorkee College might with advantage be doubled, and would then supply 30 overseers per annum, which would probably suffice.

103. The Commission are aware that there may be minor points deserving of investigation, which they have left untouched in the foregoing Report. But the departure of Major Kennedy, and the consequent early termination of the inquiry, has obliged them to confine their attention to the more prominent features of the system. On these points they have spared no pains in arriving at sound conclusions, and have, therefore, had no hesitation in expressing decided opinions.

They cannot conclude without the expression of their unanimous and strong conviction of the unfitness of the Military Board, under any conceivable modification,

as

Colleges in the North-Western Provinces.

Hindoo College at Calcutta.

Civil Engineering College at Roorkee.

Amount of increase required.

Concluding remarks.

as a controlling or directing authority for the Department of Public Works, whether civil or military.

They are persuaded that any attempt of such a body to direct the department must produce the precise state of things now existing—dissatisfaction, irregularities, paralysis, extravagant cost, irresponsibility, and inexcusable delay, to a greater or less degree, in every branch of the department, with all the injurious consequences to the public interests, as well as to the individuals subjected to such a controlling authority.

(signed) *J. S. Kennedy,*  
Major, Consulting Engineer to Government of India.

(signed) *W. E. Baker,*  
Major Bengal Engineers.

(signed) *C. Allen,*  
Bengal Civil Service.

Calcutta, the 5th March 1851.

MINUTE by the Most Noble the Governor-General of *India*.

1. IN obedience to the instructions of the Honourable Court of Directors, conveyed in their despatch, No. 2, 30th January 1850, a Commission was appointed to inquire into the system of superintendence and execution of Public Works in the Presidency of Bengal. The Department of Public Works in the Presidency of Bengal.

The Commission was composed of Major J. P. Kennedy, formerly an officer in the Royal Engineers, and who had recently been nominated by the Honourable Court to be Consulting Engineer to the Government of India; of Major Baker, a distinguished officer of the Bengal Engineers, and who has since succeeded Major Kennedy as Consulting Engineer; and, lastly, of Mr. Charles Allen, a member of the Civil Service, whose ability and experience specially recommended him to me as well fitted to take part in this inquiry.

2. The Commission sat at the Presidency. They were directed to report to the Government the result of their inquiry, and “to submit, for the consideration of the Government, any suggestions which they may think it expedient to make, either for the modification and amendment of the present system, or for the establishment of some other plan, whereby the execution of the Public Works may be placed under such a system as shall insure their being planned and executed with the utmost practicable amount of promptitude, skill, and true economy.” A similar Commission was directed to be formed at each of the Presidencies of Madras and Bombay.

The Bengal Commission has submitted its Report, together with a voluminous Appendix, containing the returns, examinations, and correspondence connected with their inquiry.

No Report has yet been received either from Madras or Bombay; but I do not think it necessary to delay on that account the submission to the Honourable Court of the Report from the Bengal Commissioners, since the system which has for some time prevailed in this Presidency is to be judged by itself; and the plan which it is desirable to adopt for the future here is not likely to be affected in any way by the recommendations which the Commissioners at Madras or Bombay may make of arrangements suited to the circumstances of those Presidencies respectively.

3. The Commissioners have recorded the conclusion at which they have arrived in the closing paragraph of their Report.\* They express an “unanimous and strong conviction of the unfitness of the Military Board, under any conceivable modification, as a controlling or directing authority for the Department of Public Works, whether civil or military.” \* Para. 103.

“They are persuaded that any attempt of such a body to direct the department must produce the precise state of things now existing—dissatisfaction, irregularities, paralysis, extravagant cost, irresponsibility, and inexcusable delay, to a greater or less degree, in every branch of the department, with all the injurious consequences to the public interests, as well as to the individuals subjected to such a controlling authority.”

It is unnecessary for me to introduce at length into this Minute the grounds on which the Commissioners have based their unanimous and decided opinion. The

facts which they recite, their observations and arguments, are clearly and forcibly stated in the body of the Report, and could not be condensed without weakening their statement of the case.

4. Their conclusion, founded on the facts they have collected, and on the inferences to be drawn therefrom, are fully concurred in by every authority in the land.

The Honourable the President in Council testifies to the inconvenience which is felt to arise from the existing system in the department, to the delay in the preparation of works and their estimates, and to the still greater delay in the subsequent adjustment of accounts.

The Government of Bengal declares the instances of inconvenience and mismanagement under the present system to be so numerous, that the collection of them could not be completed at the date of the Report, and it has only lately been submitted, after some five months' labour.

The Deputy-Governor complains of "public money wasted, of the public convenience having been compromised, and life and property over an immense tract of country having been endangered by the neglected state of the embankments and roads;" and his Honour concludes by the expression of his opinion, that the "present system is, in fact, very wasteful and inefficient."

The Lieutenant-Governor of the North-Western Provinces observes, that four years ago he pointed out to the Supreme Government the "necessity of a thorough change in the conduct of Civil Works;" and he adds, that the experience of the intervening years has strengthened the convictions he then expressed.

His Honour enforces this opinion by observations on the mode of control, and on the mischievously complicated system of accounts, and cumbrous detail of checks in the department.

5. Begging that the Honourable Court may distinctly understand that I do not advocate the abolition of the Military Board, I desire to record my entire concurrence in the opinion expressed by the Commission on Public Works by the President in Council, by the Deputy-Governor of Bengal, and by the Lieutenant-Governor of the North-Western Provinces, respecting the inexpediency of any longer entrusting to that Board the charge of Public Works.

I am and have long been convinced, that the existing system of management in the Public Works is altogether unsound, and that the Military Board is not merely ill adapted, but is entirely unfit to be entrusted with the control of that most important branch of the Government of India.

6. Charged with the direction of the enormous department of Public Works, of the Army Commissariat, of the Government Studs, of the Ordnance, and therein of the Foundry, the Gunpowder Manufactory, the Gun Carriage Agency, and the Arsenals, as well as of the military equipment of the Army, excepting only its clothing; charged, moreover, with the account and audit of the expenditure of these several departments, as well as with the executive direction of them; it is physically impossible that the Military Board, even if it were selected and constituted with the utmost care, could satisfactorily conduct so huge and unmanageable a mass of public business, or could get through it at all without those delays which have made the very name of the Board a bye-word throughout India, and which are equally harassing and injurious to the officers of the department, to the Government of the country, and to the public interests.

7. The constitution of the Board itself is ill adapted to render it capable of coping with such formidable duties as have been imposed upon it.

Until very lately the chief magistrate of Calcutta was one of the four persons who had to perform the multifarious functions I have just enumerated: that anomaly was got rid of.

The Board is now composed of three *ex-officio* members, namely, the Chief Engineer of the Army, the Brigadier commanding the Artillery, and the Commissary-General; to these is added one Stipendiary Member, who is an officer of the Cavalry or Infantry.

It is obvious, at the first glance, that a Board so constituted, is in no respect adapted for the consideration and disposal of questions connected with a great department of Public Works of every description, or for the efficient direction thereof.

Para. 42.

From Bengal, No. 991, dated 24 June 1851.

Para. 43.

The Chief Engineer of the Army, indeed the head of that most capable and distinguished body of men, the Engineers of the Bengal Army, will in all probability be qualified to fill the position he occupies.

But the Brigadier commanding the Artillery attains that position solely by the strength of living long enough. Under the present system, which I trust before long to see abandoned, in appointing to the command of the Artillery, as well as to every other high command in the Army, the senior officer becomes Brigadier of Artillery, as a matter of course, unless there be some notorious incompetency, or some scandalous deficiency of character to exclude him.

He must be an old man; he may be a very good and efficient officer; but there is no security whatever against his being a very stupid and useless one.

The Commissary-General is usually the officer who may have stood senior in that department.

The Stipendiary Member is at present a Lieutenant-colonel of Cavalry.

8. Whichever of these members be selected as the trial who have immediate charge of Public Works, the deficiency in the constitution of the Board is equally palpable. As the Commissioners justly observe, "the qualifications required in a member for one branch of the business," and, perhaps, possessed by him in a high degree, "are no guarantee of fitness for the others;" the result is, that, as far as the Department of Public Works is concerned, "every important question that comes before the Board will be discussed by one qualified and two unqualified members."

Para. 46.

Para 46

From the concurrence of the unprofessional members, the opinion of the Chief Engineer "receives no additional weight, while by their dissent it is liable to be set aside. In the one case, the engineer does not fully bear the responsibility of acts and opinions originating with himself, while, on the other, he is saddled with that which by no means belongs to him."

Para. 67

9. The objections to leaving the management of Public Works any longer in the hands of the Military Board, which are to be found in the physical impossibility of their efficiently controlling so great and varied a mass of public business as has been committed to them, and in the faulty constitution of the Board itself, are greatly increased by the geographical position it occupies in the Provinces over which its departmental control extends.

The inconveniences arising from the Board being placed at almost the extremest corner of the Presidency, thus compelling the communications of their officers, and those in reply, to travel over the greatest possible distance, and to consume the longest period of time, are obvious; they are illustrated by the Commissioners in the 38th paragraph of their Report.

These, and the other evils connected with the present constitution of the Board, impressed themselves very early on my notice after my arrival in India. And now, after an experience of three years and a half, I have no hesitation in recording formally my conviction, that the faulty constitution of the Military Board for the conduct of the Department of Public Works; the want of any practical knowledge of the details of Public Works in all the members, except the Chief Engineer. the protracted delays in commencing any work, which are universally complained of, and which have compelled me in many instances in the new Province, where shelter for troops, and consequently men's lives were distinctly involved, to issue orders on my own responsibility; the needless and harassing minuteness of regulation and check which is deadening to the energy and obstructive to the usefulness of officers, while at the same time it has been ineffectual as a safeguard for the interests of the Government; and, lastly, the endless procrastination in the settlement of the public accounts, have long since destroyed all confidence in the department, and have satisfied me that a total and fundamental change is indispensably necessary.

10. The Commissioners allude to various modifications which have from time to time been proposed by various authorities, and conclude their Report by suggesting the general outline of a scheme for the future management of the Department of Public Works.

I entirely approve of the general features of that scheme; and I conceive that the Honourable Court will confer a substantial benefit on these territories, and on the officers of the department, and will materially serve the general interests of the East India Company, if, in compliance with the very earnest recommendation

which I have now the honour to submit to them, they shall authorise me forthwith to establish the new system in the Presidency of Bengal.

11. The objects to be held in view in the establishment of such a system are these :

I. To secure the best professional advice and guidance for the authorities of the State in regard to the construction of Public Works, both military and civil.

II. To impose as far as possible direct responsibility on every officer of the department, whether he advises, controls, or executes.

III. To provide for the prompt transaction of business connected with public Works between the officers who have charge of those works, and the Government which sanctions or directs them, so as to avoid all undue delay in the commencement of necessary undertakings, and to ensure the steady conduct of them afterwards.

IV. To establish a system of timely repairs on Public Works already constructed, without the delays and difficulties which are now interposed by existing rules.

V. To institute such rules as shall ensure that when a Public Work has been sanctioned, its probable cost to the treasury may be ascertained by previous careful estimate; that the executive officer shall be able to give his full attention to directing and checking the work during its construction; that the sufficiency of the work, and its correspondence with plans, shall be certified by competent authority on its completion; that the cost of the work shall be in due correspondence with the estimate, without insisting on such minute correspondence as is not indispensable, and is of no practical advantage to the State; and, finally, that the account of expenditure on the work shall be regularly adjusted, and, after its completion, shall be speedily closed.

12. The Honourable Court can command within its own services the means of attaining in the best manner each of these objects.

I. The most able advice and guidance in regard to Public Works will be secured by selecting one or more officers of engineers, whose pre-eminence in a body of men trained by education and by the practice of their lives to such professional undertakings, points them out as best qualified to direct the Government regarding such Works.

II. Direct responsibility will be imposed on every officer; careful previous consideration of the professional opinions he gives, and active supervision of the undertakings commenced under his advice, will be obtained by not associating him, as at present, with other functionaries, whose opinions add no weight to his, while they may numerically outvote it.

III. The prompt transaction of business will be provided for, by establishing, instead of a collective Board for the whole Presidency of Bengal, one consulting officer for each of the Local Governments into which that Presidency is now practically divided.

IV. and V. The institution of a system which shall ensure regularity of timely repairs, careful estimates, prompt execution, and full information as to regular and steady progress of works, will be the certain result of that better organization of the directing authority which I have proposed above; while the means of control and active inspection on the part of the executive officer, the check and speedy adjustment of his accounts, will be obtained by the separation of the accountant from the executive duties which the Commissioners so strongly recommend, and the advantages of which have been so fully proved in the Canal Department Office.

13. I have respectfully to submit for the consideration of the Honourable Court the following sketch of arrangements which I take the liberty of recommending for their adoption :

I. The Military Board shall be relieved of all authority over or concern with the Department of Public Works.

II. In order to establish a system of control over Public Works, wherein the duty may be carried on with promptitude, energy, and accuracy, the existing Local Governments in the Presidency of Bengal, that is to say, the Governor, or  
Deputy

Deputy Governor, in the Lower Provinces, the Lieutenant-Governor in the North-West Provinces, and the Board of Administration, or any chief authority which may be substituted for the Board, in the territories beyond the Jumna, shall be invested with administrative authority over both Civil and Military Works. The power and discretion of the Local Governments shall be limited by the same restriction as at present in respect to new projects, and to any question of consequence that may arise. Until the great mass of new military buildings in the Punjab shall be completed, it may perhaps be desirable that the immediate control of them should remain, as at present, in the hands of the Governor-General in Council. Para. 73.

III. Under each of the three Local Governments an officer shall be appointed who shall discharge all those functions in regard to Public Works which are now performed by the Military Board. Each of these three officers shall be selected from the corps of Engineers, or from the officers of the Department of Public Works, or from any branch of the service, provided always that the selection of such officer shall be founded on his professional eminence, and on his peculiar fitness for being the responsible adviser of the Government in all matters connected with Public Works.

In order to avoid unnecessary changes in designation, these officers should be termed respectively the Chief Engineer of the Lower Provinces, of the North-West Provinces, and of the Punjab.

The office of Chief Engineer of the Army should be abolished.

Each Chief Engineer will be in direct communication with the Local Government under which he is placed, and will be stationed permanently at the seat of Government, unless when circumstances connected with any important work, or with the management of the department generally, may require him to visit specially any work or place.

IV. Each Chief Engineer shall be assisted by two or more Deputies, who shall be termed Superintending Engineers, and who shall perform the same duty of supervision of the executive officers in their several charges as Superintending Engineers at present perform.

Whether these officers should remain with the Chief Engineers, or should be stationed at distinct points, with a stated round of superintendence, are matters of detail which may be better adjusted hereafter.

As a general rule, they should not be the medium of correspondence between the executive officers and the Chief Engineer.

V. The territories under each Local Government shall be divided into compact and manageable districts, each under an executive officer, as at present.

The Commissioners have very satisfactorily shown that it will be for the public interests that each Executive Engineer should have charge both of the Civil and Military Works in his district. Para. 74.

VI. The conduct of business in the department would not differ essentially from the mode in which it is carried on at present.

On sanction being given to the preparation of any work by the Local Government, the Executive Engineer shall prepare plans and estimates, as at present, in the detailed form suggested by the Commissioners, and he shall transmit them to the Chief Engineer under whom he is placed.

The Chief Engineer shall examine and check all calculations, and shall submit the result to the Government to which he is attached.

If the work is so limited in its extent as not to require a reference to the Supreme Government, the Local Government, on approving the plan, estimate, &c., shall direct the work to be commenced.

If the magnitude of the work should require a reference to the Governor-General in Council, sanction may be given by the Governor-General in Council at once; or if any doubt or difficulty should be felt to exist, the Governor-General in Council will have it in his power to seek the opinions of the several Chief Engineers on the scheme, and to take advantage of the advice of the Consulting Engineer to the Government.

On final sanction for the commencement of the work being received by the Executive Engineer, he will proceed to the construction thereof.

The supervision of the progress of the work will be exercised by the Superintending Engineer at such periods and in such manner as the Chief Engineer may direct.



The existing system of completion surveys by a committee of officers is worse than empty form.

The inspection of any completed building, which is not so unimportant as that it may be properly left to the certificate of the Executive Engineer himself, shall be made by a Superintending Engineer, by several Superintending Engineers, or by the Chief Engineer, according to the importance and value of the work.

Under this system, the Government will have a far better guarantee for the efficient discharge of the duties of executive officers, and for the substantial and economical construction of Public Works, than by the mode of committee survey, which is as yet in practice.

VII. In regard to that most important and difficult branch of the Public Works Department, the rendering and audit of accounts, I heartily commend to the consideration and sanction of the Honourable Court the several recommendations of the Public Works Commissioners.

The nature of the facts which have come before me, the universal testimony of every officer in the department, of whatever degree, and the conclusions of my own judgment, have long since satisfied me, that it is utterly impossible that the various duties of an executive officer can be properly performed unless a separation shall be made between the strictly engineering duties and those of book-keeping. This portion of the subject is fully and conclusively treated in the 79th and other paragraphs of the Commissioners' Report.

If this most necessary change shall be sanctioned, there will be no obstacle to the monthly rendering of bills recommended by the Commissioners in paragraph 80, and to their immediate audit.

Para. 75.

The audit shall be made by the Chief Engineer of all "authorised expenditure, whether on works, repairs or establishments, under such regulations and with such limitations of discretion as may be deemed desirable. He will forward all audited bills for adjustment to the office of the accountant, whose duty it will be to see that he has not exceeded his powers."

14. For the present, I abstain from entering on the question of contracts, the necessity, or at least the expediency of affording some relief to the executive officers in regard to the details of barrack management, and other minor matters to which the Commissioners have adverted in their Report, judging it better to confine myself exclusively to the leading features of the system which the Commissioners have proposed to substitute for the present management of the Military Board.

15. Under the operation of the system proposed, the inconvenience now so sensibly felt, from the enormous territory included in the Presidency being superintended by a single departmental authority at one extremity of it, will disappear.

The administrative authority over works, both civil and military, will in each Local Government be placed under the guidance of the person or persons best acquainted with the country, its circumstances and wants; while the same wholesome control over new projects and expenditure as now exists, will still remain with the Supreme Government.

The chief departmental authority in each of the three Governments will be able to obtain that personal knowledge of the works, and of the districts under his control, which the Military Board could never command.

The abolition of the Superintending Engineer's office, as an intermediate communication between the executive officers of the department and its chief, will quicken the transaction of business, lessen the bulk of record, and diminish its expense, while it will leave the Superintending Engineer disengaged for that work of superintendence which his designation indicates as his principal duty.

The several improvements suggested in the position of the Executive Engineer will set him free, as now he is not, to act in his proper sphere, will ensure an accurate periodical record of the progress of works, and of their actual progressive cost, and will relieve the Government from the risk, and the responsible officers from the misery, which are the necessary consequences of protracted delay in the adjustment of public accounts.

16. It remains for me to consider what will be the additional charges to the State which will be created by the introduction of the system now proposed.

If

If the office of Chief Engineer of the Army shall be abolished, the substitution of three Chief Engineers in the Department of Public Works for the control of the Military Board will not involve any serious expense.

The tenor of the Commissioners' Report leads me to conclude that any re-distribution which may be made of Superintending and Executive Engineers in the department, will not add to the actual number of officers now serving in it, or to the cost.

The addition of an accountant to the office of each Executive Engineer, or to one or more adjacent executive officers, must necessarily impose an additional charge on the Treasury in the first instance; but I feel very confident that the saving which will be effected by means of the additional and closer oversight which the Executive Engineer so relieved will be enabled to give to the progress of Public Works under his charge, will annually repay fivefold the increased outlay which the introduction of accountants will involve.

17. One branch of increased expenditure is indeed inevitable; but it is not caused by the proposed alteration of the system; it must be incurred, whether the control of the department of Public Works remains with the Military Board, or is transferred, in the mode which has been suggested. The Honourable Court of Directors have some time ago intimated their conviction of its necessity; they have informed the Governor-General in Council that they are ready to take into consideration the suggestions he may think it expedient to submit to them for an augmentation of the officers of the Engineer corps.

18. I fully concur with the Commissioners in their remark, that it is not "desirable that the Department of Public Works should be closed against qualified officers from any branch of the service." But the Commissioners, in their preceding paragraph, inform me, that it is shown by a Return they had called for, that of 95 appointments in the department, 48, or more than half, are filled by officers not belonging to the Engineer corps. Para. 58.

Moreover, with few exceptions, the companies of Sappers and Pioneers are all commanded by infantry officers.

The proportion stated above is manifestly too large; some addition to the Engineer corps is indisputably necessary.

The Honourable Court having recently sanctioned the establishment of 12 companies of Sappers, the whole of these should be commanded by officers of Engineers. Every young officer of Engineers on his arrival should be posted to the Sappers, where he should be retained until he shall have acquired those qualifications in knowledge of the native language, &c, which are indispensable to his usefulness in this country; nor should he be entrusted with any separate charge, except under very special circumstances to be set forth, until he shall have gone through a sufficient probation under a senior and experienced officer in executive charge.

For this purpose, and in order to relieve the other branches of the service from that undue withdrawal of officers from the several corps which the public interest at present compels the Government to resort to, an increase of the Engineer corps appears to me to be indispensable.

19. I have not hitherto acted on the permission of the Honourable Court to address them on that subject, because I was desirous before doing so of ascertaining, by experience, as nearly as possible what permanent increased demands in the Department of Public Works would be caused by the annexation of the new province beyond the Sutlej.

The Commissioners unfortunately have not entered into any detail on the subject. I propose now to require an opinion on that head to be prepared at the Presidency, and submitted to me.

It shall be laid before the Honourable Court as soon as I shall have received it.

20. In the meantime, I have resolved to submit to the Court the general question of the re-organization of the Department of Public Works, without waiting for the detail of the proposed augmentation of Engineers, which, as I have already said, is a question altogether separate from any proposal for a change of system.

I shall request my honourable colleagues at the Presidency to record such observations as they may desire to offer to the Court.

The clear and full Report of the Commissioners, and the body of evidence and of information collected in the Appendix, together with the views of the Supreme

Government, which will be contained in the several minutes of its members, will enable the Honourable Court to form their decision on the large question which has now been laid before them.

21. I will not trouble the Court by recapitulating the several recommendations of the Commissioners and of myself, but will simply express my anxious hope that the Court will see good grounds for granting their sanction to the immediate adoption and practical introduction of the system which has now been proposed for the management of the Department of Public Works in the Presidency of Bengal.

24 July 1851.

(signed) *Dalhousie.*

(True copy.)

(signed) *J. Stuart,*  
Colonial Secretary to Government of India,  
Military Department, with the Governor-  
General.

(True copy.)

(signed) *J. S. Banks,*  
Officiating Secretary to the Government of India,  
Military Department.

MINUTE by the Most Noble the Governor-General of India.

Augmentation of  
Engineers.

1. I WISH now to transmit to the President in Council a minute which I have recorded on the Report submitted by the Commissioners of Inquiry on the Public Works Department.

The minute will itself convey to his Honor my views on the important questions discussed in the Report.

2. It is very desirable that the Report, and the opinion of the Supreme Government regarding it, should be laid before the Court without delay.

I have, therefore, the honour to request that the President and the members of Council will be so good as to add to my minute any record of their own views that they may wish to make; and that they will despatch them with the Report to the Honourable the Court of Directors.

The Appendix is extremely voluminous; much time will be consumed in copying it; and the papers contained in it are not necessary for the consideration of the Court—at all events in the first instance. It will, therefore, be advantageous to forward the Report and the Minutes at once, transmitting the Appendix by a subsequent mail.

3. The Commissioners, in their Report, have not entered upon the consideration in detail of the re-distribution of districts and charges, to which they have incidentally alluded.

The mere transfer of controlling authority from the Military Board to a Chief Engineer in each of the three territorial divisions of the Presidency of Bengal, does not necessarily involve any change at all in the division of executive charges.

It may be well, however, to take this opportunity of revising the distribution of charges, with a view to modifying them, or making such changes in them as may be practicable and convenient.

4. The addition to the Engineer corps, which is obviously indispensable to some extent, ought now to be considered and determined, so far as this Government is competent to do so.

The Commissioners appear to me to take a very sound view of the case, when they state their opinion, that the Department of Public Works ought not to be closed against qualified officers belonging to other branches of the service, but that the number of such officers at present holding offices in the department is disproportionately large.

5. Besides the stated charges of executive officers, whose numbers are hereafter not likely to vary, there is a very large demand for qualified officers, arising from the

the works on the Ganges Canal, on the Baree Doab Canals, and on the large extent of roads now in progress, both in the old and new Provinces. The survey occupies some. The 12 companies of Sappers are hereafter to be officered exclusively by the Engineers; and there are other incidental demands now occasionally arising, which will, no doubt, continue to arise.

It is true that in 1854, if the expectations at present entertained are fulfilled, a good many officers will be set free by the completion of the works on the Ganges Canal. But by that time other works of a similar character, and equal utility, will, I hope, have been undertaken, demanding the services of skilled officers.

6. I apprehend, therefore, that the number of officers employed in the Department of Public Works is not likely to be less hereafter than it now is. It has been shown that the numbers of the Engineer corps are quite inadequate to supply the present demand. It has also been laid down that it is not desirable that the corps should be placed on such a footing as to be adequate to supply the demand fully, but that some openings should be left for qualified officers in other branches of the service.

I cannot venture to pronounce an opinion as to the precise addition which ought to be made to the Engineers. As at present advised, I conceive that the numbers of the corps (after deducting a due proportion for officers sick, absent on leave, and, in a small degree, for officers who may be politically employed), ought to be made sufficient to supply the Sappers and their staff, all the fixed and regular establishment of executive charges, and perhaps half the number of appointments, exclusive of the executive charges which are connected with canals, roads, &c.

I throw this out merely as a suggestion, subject to correction and amendment.

7. The question must, however, be entered upon, in order that some specific plan may be laid before the Government.

The departure of Major Kennedy has broken up the Commission, so that the subject cannot be referred again to it.

The best plan which suggests itself to me is, to request the President in Council to refer the question of revision of charges, and increase of the corps of Engineers, to Major Baker, who was a member of the Commission, and is now a consulting engineer to the Government.

8. The consideration of that officer should at the same time be given to the arrangements which will be requisite for adding accountants to the present establishment, if that valuable improvement should be sanctioned by the Court. The expense of such addition should be also calculated.

It appears to me to be worthy of consideration, whether an accountant's office for several adjacent charges might not be substituted for the proposal of adding an accountant to each separate charge; such an establishment would, I conceive, be not less efficient than the other, while it would certainly be less costly as a whole.

9. In considering these details of the Commissioners' scheme, Major Baker may be empowered to consult with, and to obtain the aid of, the Chief Engineer, and of other officers in the department.

(signed) *Dalhousie.*

26 July 1851.

(True copy.)

(signed) *J. Stuart,*  
Colonial Secretary to the Government of India,  
Military Department, with the Governor-  
General,

(True copy.)

(signed) *J. S. Banks,*  
Officiating Secretary to the Government of India,  
Military Department.

## MINUTE by the President of the Council of India.

## Department of Public Works.

THE whole subject connected with the present superintendence and executions of Public Works, seems to have been carefully inquired into, and reported upon, by the Commission appointed for the purpose.

Their condemnatory views of the existing system are coincided in by every other authority that has been consulted.

Experience has, in fact, long ago proved the present system to be radically bad, and I have no expectation that amendment is practicable by any re-organization of the Military Board.

I therefore concur in the necessity of removing the whole Department of Public Works from the superintendence and control of the Military Board.

I have attentively considered the plan proposed by the Governor-General, which appears to me admirably adapted to secure success to the future management of this most important department; and I have only to express my entire concurrence in the views expressed and detailed in his Lordship's minute.

I feel satisfied that if the approval of the Honourable the Court of Directors be accorded to this plan, proposed in substitution of the present system, the result will be of immense importance to the Government interests and the public good.

(signed) *J. H. Littler.*

21/8/51.

(True copy.)

(signed) *J. S. Banks,*  
Officiating Secretary to the Government of India,  
Military Department.

MINUTE of the Honourable Sir *F. Currie*, Bart.

REPORT of the Commission to inquire into the working of the Department of Public Works and Court's Despatch, regarding Increase to the Corps of Engineers.

I ENTIRELY concur with the Most Noble the Governor-General in the remarks and propositions contained in his Lordship's minutes, dated 24th and 26th ultimo, which are, for the most part, in accordance with the suggestions of the Commission. I have long felt the pressing necessity for extensive reform in the administration of this department of the Government, and the expediency of removing the department altogether from the control of the Military Board, which, from its locality and its constitution, as pointed out by the Governor-General, and from the overwhelming multitude of its other duties, would not, under any circumstances of individual efficiency, exercise an efficient superintendence, guidance, and check over this very important department, in which there has consequently been of late years (as I doubt not in former) a most wasteful expenditure of enormous sums of Government money, without providing in anything like a sufficient manner for the execution of necessary works of public utility.

I have no doubt that, if the present suggestions be adopted, three times as much work as has hitherto been performed will be accurately executed at a much less cost than has hitherto been charged in this department to the expenses of the State.

I would not exclude persons who do not belong to the Engineer corps altogether for the more important offices of the department, though it is only, I think, in rare instances that officers of the army who have not enjoyed the advantages of a scientific education are capable of doing full justice to their duties.

(signed) *F. Currie.*

23 August /51.

(True copy.)

(signed) *J. S. Banks,*  
Officiating Secretary to the Government of India  
in the Military Department.

MINUTE by the Honourable *J. Lewis*.

Department of Public Works.

I CONCUR in the views expressed in the minutes recorded, on the 24th and 26th ultimo, by the Most Noble the Governor-General, regarding an organic change in the Department of Public Works, and the desirableness of a considerable increase to the corps of Engineers.

That the existing system works very badly is notorious to all who have in any way had to do with it. To those who have had opportunity of observing its internal machinery, it is matter of surprise, not so much that it works badly, as that it works at all; and I am clearly of opinion that nothing short of the radical alteration suggested by his Lordship will suffice to place the department on a sound footing.

But it is fair to the many meritorious officers employed in the department to say, that the fault lies in the system, and not in them. Illimitable waste of time, and incalculable waste of labour, vexatious interference, and the performance of heterogeneous duties, checks upon the expenditure which are fallacious, and completion reports which are delusive, are some of the hindrances and temptations to which they are exposed. These appear to be inherent in the present system, and, in spite of the honest exertions of the majority of the officers employed, they have, without question, entailed vast loss and injury upon the community and the Government, and must continue to do so, until the proposed change, or some other as comprehensive, is carried out.

The proposed arrangements appear to me to be excellently calculated to secure the ends in view; they will save time and abridge labour, obviate interference, and give unity to duty, and create a real responsibility, by securing a valid check upon expenditure, and getting completion reports from officers who know something about what they are reporting upon.

I have no doubt that a large aggregate saving will be the result of this change, and I would run no risk of failure anywhere by under-officering the department, but would press upon the Honourable Court the adoption of the plan in its integrity, without any delay.

(signed) *J. Lewis*.

25 August /51.

(True copy.)

(signed) *J. S. Banks*,  
Officiating Secretary to the Government of India,  
Military Department.

MILITARY LETTER from the Court of Directors to the Government of Bengal,  
dated 3d March 1852, No. 25.

REPLY to Letter dated 2d September 1851, No. 141.

Para. 1. PURSUANT to the instructions given in our letter in the Public Department, dated the 30th January 1850, a Commission was appointed by you in December of that year to inquire into the system of superintendence and execution of Public Works in the Presidency of Bengal.

Report on the Department of Public Works, Civil and Military.

2. This Commission was composed of the following officers; viz.—

Major J. Pitt Kennedy, H. M. S., Consulting Engineer to the Government of India.

Major Baker, Bengal Engineers.

Mr. Charles Allen, Bengal Civil Service.

3. Their Report bears date the 5th March 1851.

4. After a most careful and elaborate inquiry, the Commission have reported unanimously and decidedly against the continuance of the present system of superintendence of Public Works by the Military Board.

5. It has long been apparent to us that the magnitude and multiplicity of the executive and controlling duties confided to the Military Board were greater than could

could properly be discharged by that Board. We have, in consequence, cordially approved of the measures which have been taken from time to time for detaching a member of the Board to attend on the Governor-General when absent from the Presidency, in order that the Governor-General might be enabled to deal promptly with questions which would otherwise have required a reference to the Military Board, involving great and injurious delay. We have also cordially approved of the Governor-General having ordered, on his own responsibility, the execution of military buildings and other works in the Punjab, and so avoided the loss of time which the distance of 1,000 miles from the Presidency and the forms of office would have necessarily entailed.

6. It is now in the last degree important that arrangements should be made for securing the prompt and efficient discharge of the duties devolving on the department of Public Works, and we view with much satisfaction the Report of the Commission, as containing results and proposals which we trust will enable your Government to accomplish this great object.

7. Without encumbering this despatch with all the details which have led to the results now before us, we will proceed at once to announce to you our approval of the following measures, as proposed by the Commission, and unanimously recommended by the Governor-General, by the Deputy Governor of Bengal, and by the Members of Council.

8. The Department of Public Works, civil and military, to be removed from the superintendence of the Military Board, and placed under the administration of one officer in each of the three great divisions; viz.—

1st. The Lower Provinces;

2d. The North-Western Provinces;

3d. The Punjab, including the territories beyond the Jumna;

to be designated Chief Engineer of those divisions respectively.

Each Chief Engineer to be in direct communication with the Local Government under which he is placed, that in the Punjab being for the present the Board of Administration; and to discharge, under the orders of those authorities respectively, the same functions of check and control within his division as are now entrusted to the Military Board.

Each Local Government to be entrusted with administrative authority over both Civil and Military Works; but, except within certain limits of expense, to be hereafter fixed, the power of sanctioning new works to be restricted, as at present, to the Governor-General in Council.

Each Chief Engineer to be assisted by two or more deputies, designated Superintending Engineers, who shall perform the same duty of supervision of the executive officers in their several charges as superintending engineers at present perform.

The territories under each Local Government to be divided into compact and manageable districts, each under an executive officer, as at present.

9. Under these arrangements, the separate office of Chief Engineer, as at present constituted, will become unnecessary, and will be abolished on the next vacancy, leaving for future consideration such arrangements as may be required for the general conduct of business connected with the engineers as a corps of officers. The officer now holding the office of Chief Engineer, who will be relieved from the duties of the Military Board, will be available for the important duties of Chief Engineer of one of the new divisions.

10. We entirely approve of the suggestion that the establishment of Executive Engineers shall be strengthened by the addition of a well-qualified accountant, so as to enable the Engineer to devote his principal attention to the engineering duties confided to him. It is our intention to cause our engineer officers, under instruction at the Royal Engineer Establishment at Chatham, to go through a course of book-keeping, in order the better to qualify them to supervise the accountants in the performance of their duties.

11. We would call your especial attention to the valuable suggestions of the Commission on the subject of contracts for Public Works, as contained in paragraphs 82 and 84 of their Report,

12. The

12. The arrangements now authorised may, as observed by the Governor-General, be expected to produce the following important advantages :

“The inconvenience now so sensibly felt from the enormous territory included in the Presidency being superintended by a single departmental authority at one extremity of it, will disappear.

“The administrative authority over Works, both civil and military, will, in each Local Government, be placed under the guidance of the person or persons best acquainted with the country, its circumstances and wants ; while the same wholesome control over new projects and expenditure as now exists, will still remain with the Supreme Government.

“The chief departmental authority in each of the three Governments will be able to obtain that personal knowledge of the works, and of the districts under his control, which the Military Board could never command.”

13. We shall look with much interest for the detailed arrangements which you may propose to adopt to ensure the energetic and effectual carrying out of the new system.

14. We await the receipt of your matured opinions as to the increased number of engineer officers required for the public service. Meanwhile we shall continue to commission as engineers from our military seminary all those cadets who have fully qualified themselves for that branch of the service according to the established test.

15. We cannot conclude this despatch without expressing our satisfaction at the manner in which the Commission on Public Works discharged the duty confided to them.

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The Reports of the Commissions of Inquiry on Public Works at Madras and Bombay have not been received.

*Philip Melvill,*  
Secretary Military Department.

East India House,  
the 22d April 1853.

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PUBLIC WORKS (BENGAL, &c.)

COPIES of the REPORT of the COMMISSIONERS on  
PUBLIC WORKS at *Bengal*, in the Year 1851-52,  
with the Minutes of the Members of the Govern-  
ment and of a Despatch of the Court of Directors,  
relating thereto.

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(*Mr. Hume.*)

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*Ordered, by The House of Commons, to be Printed,*  
*27 April 1853.*

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407.

*Under 8 sz.*

GOVERNMENT OF INDIA BILL.

3

RETURN to an Order of the Honourable The House of Commons,  
dated 7 July 1853;—for,

COPIES “of any further CORRESPONDENCE between the Court of Directors  
of the East India Company and the President of the Board of Control,  
respecting the BILL for the future Government of *India*.”

East India House, }  
11 July 1853 }

JAMES C. MELVILL.

*Ordered, by The House of Commons, to be Printed, 12 July 1853.*

FURTHER CORRESPONDENCE.

— I. —

LETTER from the Chairman and Deputy Chairman of the East India  
Company to the President of the Board of Control.

L  
m  
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Pr  
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1

Sir,

East India House, 1 July 1853.

1. IN accordance with the intimation conveyed to you in our letter dated the 2d ultimo, and in furtherance of the resolution of the General Court of Proprietors, of which we, on the 22d ultimo, transmitted to you a copy, we are requested by the Court of Directors to submit the following observations regarding some parts of the plan for the future government of India, which appear to them to be liable to serious objection.

2. To treat, in the first instance, of the Home Government. You are already aware of the decided opinion of the Court of Directors that the changes affecting the constitution of their body are neither necessary nor expedient. We will now briefly explain the main grounds of this opinion, premising that the principle of the pending measure being the continuance of the government of India in the East India Company, the details should be framed in view to increasing rather than diminishing the efficiency and independence of its executive.

3. Her Majesty's Ministers have admitted the constant attention paid by the Court of Directors to the interests and progressive improvement of India, and have expressed their desire to preserve the independence of that body. Throughout the lengthened inquiry which has taken place, no evidence has been adduced to show a necessity for the change now proposed to be made in the constitution of the Court. On the contrary, the Committees of Parliament, in closing their inquiries under the head of “Government,” did not hesitate to call attention in the Report of the Lords' Committee, to “the general tendency of the evidence as favourable to the present system;” and in that of the Commons “to the favourable tenor of the evidence with respect to the operation of the Act of the 3 & 4 Wm. 4, cap. 85, so far as it regards the administration of the government of India by the East India Company, as trustees under the control of the Crown.”

4. The Court submit that the changes now in contemplation are inconsistent with the opinions expressed, as well by the Committees of Parliament as by yourself on behalf of Her Majesty's Ministers. These changes are, first, the introduction into the Court of a certain number of Directors nominated by the Crown; and secondly, the reduction of the total number of Directors, including the nominees, to 18.

5. The proposed principle of nomination does not seem to us to admit of partial application, without danger of either dividing the Court into two sections, with conflicting views and feelings, or producing the still greater evil of habitual subservience in the Court to the will of the Minister, exercised through his nominees. In this point of view we earnestly deprecate the distinction sought to be made between selection and election in the choice of Directors.

6. But if it could be admitted to be desirable to entertain a proposal for such a class distinction, the Court submit that the choice of the selected members should not be vested in the Crown. You have well expressed the anxiety of Her Majesty's Government to "preserve unimpaired the freedom of the Court from all undue political influence, on which" you justly "believe that its efficiency for executing the high trust reposed in it so essentially depends;" and yet the plan of Government contemplates the selection of Directors by the Crown, with no other specific qualification than that of having passed some years, at however remote a period, in the public service in India. There must always exist a sympathy between the nominee and the authority by which he is nominated, and as it frequently happens that persons, after return to England from Indian service, form political connexions and obtain Parliamentary position and influence, the Court entertain the strongest apprehension that the principle of nomination by the Crown must tend to a very intimate relation between the nominees and the Ministry, which cannot fail seriously to impair the independence of the body to which they will belong, and to introduce for the first time the influence of political party into the local administration in India. This apprehension is strengthened by the consideration that it is proposed to allow the nominees to sit in Parliament, and also to subject the tenure of their seats in the Direction to the will of the Crown periodically exercised.

7. It would, in the opinion of the Court, be far safer, and be more consistent with the independence and efficiency of the body, if the duty of selecting the nominees were entrusted to the Court of Directors, subject to the approbation of the Board of Commissioners; but this suggestion is offered merely as an alternative to nomination by Her Majesty's Government. The Court of Directors are of opinion that the system of nomination is in itself objectionable, and that the system of election is that which should be exclusively maintained. Any difficulties arising from the canvass of the constituency might, we believe, be materially mitigated, and a plan devised for limiting the candidates to such as might be previously approved by the Court and the Board. Thus, the great object of securing the services only of persons who are admitted to be well qualified, might be accomplished, without interfering either with the constitution of the Court or the principle of election.

8. With respect to the plan for reducing the number of Directors, we must first observe, that, as affecting the independence of the Court, the reduction proposed is not from 24 to 18, but from 24 to 12, the other six being nominees of the Crown.

9. It is important to remind you, that in 1833 a proposal was made to reduce the number of Directors, upon the plea of the diminution of business caused by the discontinuance of the Company's trade. This proposal was relinquished in deference to the opinion which was then entertained, that a reduction of number was calculated to interfere with the independence of the Court, and also upon the ground that it was necessary to retain a sufficient number of Directors to constitute the committees, through whose agency the details of the business were conducted.

10. We would suggest for your consideration, that the reasons which led to the abandonment of the proposal in 1833, are in greater force now. The duties devolving upon the Court have increased in extent and importance, and are much larger than they ever were, even in the days of the Company's trade.

The

The division of the Court into committees continues, and it is only through such an arrangement that the supervision and control by the Home authorities of the acts and proceedings of the Indian Government can be efficiently exercised.

11. Taking into consideration the magnitude of the British empire in India, the varied circumstances of its vast population, the extent and number of the Native States embraced within the area of the government of the paramount power, or bordering on its frontier; the extent, and in many respects, the different character of the native armies of the three Presidencies; having reference moreover to the variety of revenue systems which obtain in India, and to the large operations of finance as connected with the Government at home and abroad, which require to be undertaken from time to time; and adverting to the fact that the duties of the Court are continuously performed, from day to day, throughout the whole year, without any vacation, it must, we believe, be apparent that to secure the presence in the Court of Directors of the requisite personal knowledge and experience on all affairs relating to this, the largest and most important of the British possessions, the present number of Directors is necessary.

\* 12. We earnestly trust that this part of the plan will be reconsidered by Her Majesty's Ministers, and that the number may be continued at 24.

13. The Court of Directors will not descend to any ground of argument having reference to personal considerations. They content themselves with expressing their persuasion that Her Majesty's Ministers would be glad, if the plan could be so modified as to obviate or mitigate the painful necessity which the present Bill would impose upon the members of the Court, of themselves being made the instrument for severing the connexion which has hitherto bound them together.

14. Referring to that part of the plan which relates to appointments to the civil service of India, we think it right to point out to you, that by making an appointment dependent exclusively on a candidate's own efforts instead of on nomination if found qualified, the proposed change may have an injurious effect on the feelings and subordination of the Company's servants. Without attempting to controvert the obvious advantage of competition as a general principle, we must be permitted to doubt whether the proposed system will work satisfactorily. Our apprehension is, that practically the plan will fail. In support of this apprehension, we would point to the difficulty of so constituting a Board of Examiners, and of framing such rules of examination as shall insure success to the really best qualified, and not to the most favoured, or to those who have merely "crammed" for the examination; and we would also remark, that book knowledge only will be tested by such an examination, while this is far from being the only qualification required for entrance into the civil service.

15. But, admitting that the principle of competition were adopted, the Court would suggest the expediency of introducing the change gradually, as it is only experience which can show whether it will tend to the great object of improving the qualifications of our servants, or whether, without accomplishing that object, it may not result in practically giving the nomination to the examiners.

16. The Court observe, that it is intended to vest in the Board the sole power, not only of appointing examiners, but also of framing the regulations under which they are to act. So long as the nominations remain with the Court, there is an obvious propriety in committing exclusively to the Board the power of regulating the examinations; but if the nominations are to be placed beyond the influence of the Court, we submit that the regulations should be framed by them, subject to the Board's control.

17. The arrangements as respects the military seminary will, we trust, be revised. We cannot understand upon what ground it can be wished to disturb a system which, in the opinion of all competent authorities, so fully accomplishes every object that can be desired for the public service, a result, moreover, attributable to competition within the institution.

18. With respect to the changes proposed in the Indian department of the Government, there are some points to which the Court feel it necessary to call your attention.

19. Sections 15 to 18 of the Bill relate to the eventual creation of a new Presidency in India, and provide for the government of Agra, of Bengal, and of the territory that it may be proposed to form into such new Presidency, being conducted by a Lieutenant-governor until the new Presidency shall be formed; but the Court think that it is now established, that the preferable form of government for the portion of any substantive presidency which may not have its separate army and separate civil service, is that of Lieutenant-governor, whose authority shall be defined by the Governor-general in Council, and be subject to modification as circumstances may suggest. We would especially bring to notice that the sections, as at present drafted, make no provision for the retention, in the hands of the Governor-general in Council, of the management of the army of Bengal, and of the local administration of the presidency town, with its institutions. The Court suggest that the Bill should contain a clause permitting the Governor-general in Council to make such arrangements.

20. The enlargement of the Legislative Council in India is greater and more expensive than the Court would deem necessary. They admit the expediency of some enlargement, but the addition of seven paid members seems to be excessive. One from each of the establishments of Bengal, Madras, and Bombay, with one selected by the Governor-general, would, in the Court's opinion, be ample; and the persons so selected, with the ex-officio members proposed by the Bill, would constitute a Council sufficient to legislate for India. The Court also think, that the Council so constituted, if it be permanent, would be the best tribunal to judge of the measures proposed by the Law Commission since 1834, and that they would have ample time for the purpose; and thus the expense of a separate Commission in England might be avoided. But the Court would suggest, that if the enlarged Legislative Council thus created were to hold periodical sessions, the temporary detachment of members from the other Presidencies would be productive of less inconvenience from the withdrawing of their services from administrative duties, while it would very materially reduce the expense.

21. The Court observe, that the new arrangement is to be continued, "during the pleasure of Parliament," though, under the Act of 1834, the pecuniary interests of the Company as a corporation will continue to be identified with the financial prosperity of India until 1874.

22. The Court will be glad to be favoured, at as early a period as possible, with the sentiments of Her Majesty's Government upon the points embraced in this letter, in order that they may consider the expediency of presenting a petition to the House of Commons, and of further consulting the General Court, whose concurrence, as you are aware, is necessary in any arrangement for the future government of India through the East India Company and their executive.

We have, &c.

(signed) *Russell Ellice.*  
*J. Oliphant.*

The Right Hon.  
Sir Charles Wood, Bart, M. P.  
&c. &c. &c.

## — II. —

LETTER from the President of the Board of Control to the Chairman and Deputy Chairman of the East India Company.

Gentlemen,

India Board, 5 July 1853.

I HAVE had the honour of receiving your letter of the 1st instant, transmitting to me the observations of the Court of Directors of the East India Company, on the proposed plan of Her Majesty's Government for the future administration of India; and, in compliance with your request, I lose no time in replying to your communication.

II.  
Letter from the President of the Board of Control to the Chairman and Deputy Chairman, 5 July 1853.

It was perhaps to be expected, that the General Court of Proprietors and the Court of Directors, should deprecate any change in their constitution and powers and privileges; but I regret to find such strong objections stated on their part to almost every part of our proposals. It, of course, depends upon the wisdom of Parliament what shape the Bill shall ultimately assume; but it is obvious that the Government would not have properly performed its duty if it had proposed the Bill in any other shape than that which it believed to be best calculated to ensure the good government of India.

They had hoped for a greater concurrence of opinion from the Court of Directors; but your letter renders it incumbent upon me to convey to you not only the reasons for the particular changes to which you have stated objections, but also the general views of Her Majesty's Government on the subject of the future administration of Indian affairs.

I may, in the first place, be permitted to remind you of the totally altered position in which the East India Company now stands from that which it has occupied on every former occasion of legislating for the Government of India. Then, they were a company engaged in large commercial concerns, and possessing a large commercial capital in India and elsewhere. Now, their commercial character has ceased, their commercial concerns are substantially closed, the dividends of their stock are indeed secured on the Indian territorial revenue; but beyond this, they have no necessary connexion whatever with India. It may be advisable, that as the instruments of the past government of India, they should again be made available for its future administration, but they have no claim to be continued, except in so far and in such shape as may be conducive to the good government of our Indian territories.

On the other hand, it is obvious, that the attention of Parliament is likely to be more and more called from year to year to Indian affairs. The circumstances of the more rapid and increased communication with India, and the greater number of Europeans visiting that country, are alone quite sufficient to produce this result; and it must be expected that the administration of India will occupy a larger portion of the time and consideration of Parliament.

To Parliament, however, it is not the Court of Directors, but Her Majesty's Ministers, who are responsible for all that is done in regard to India, and with this practical increase of responsibility, a corresponding increase of power becomes necessary, especially in the selection of the persons by whom that administration is to be carried on, of which the ultimate responsibility rests on themselves.

It has indeed, as you must be aware, been strongly urged by many persons, that the present anomalous form of Home Government should be entirely abolished, and that for it should be substituted a simpler form, more in accordance with that which exists as to all the other dependencies of the Crown, and that with the avowed responsibility, the action of the responsible Minister of the Crown should be made more direct and immediate.

It is only right to look forward to the possibility of such a course being adopted at some future time, and it would have been unwise in Her Majesty's Ministers not to have borne in mind this contingency in the measures which they have now proposed to Parliament.

In their opinion, whatever may be the case hereafter, the time is not come for any such extensive change, and they have deemed it advisable to maintain the Court of Directors as an independent body, and an integral part of the Government of India.

Her Majesty's Government have freely admitted the progress which has been made in India during the last 20 years. They concur in the opinion which has been expressed by the Committees of the Houses of Parliament as to the favourable tenor of the evidence with respect to Indian administration in recent years; and without entering into any question as to the share which the Home or the Indian portion of the Government may have had in what has been done, I have felt it to be my duty to defend the Government of India against the exaggerated charges which have been brought against it.

It is entirely in accordance with these views that Her Majesty's Ministers have thought it advisable to preserve the present form of Government.

It does not, however, appear to them, that any view entertained by the Committees of the two Houses favourable to the general character of the Indian Government, or any opinion which has been expressed by myself or any one of my colleagues, implied that it was incapable of improvement. And whilst we preserve the essential elements of the present form of Government, we should not have done our duty if we had neglected this opportunity of introducing such changes into the constitution of the Court, as well as into other parts of the Indian Government, as, we believe, will render it more competent to conduct with advantage the administration of Indian affairs.

I will now proceed to state to you, as concisely as I can, the reasons for the main changes to which the Court of Directors has objected.

The two first points are, the reduction in the number of Directors, and the introduction of persons nominated by the Crown.

In regard to the first point, I would remind you, that both in 1813 and in 1833, it was the opinion of the ablest statesmen that the number might be advantageously reduced to 12. In the dissent of Mr. Tucker, one of the ablest of the then Directors, he stated his opinion that 16 Directors might well conduct the territorial business. It is true, that in 1833 the number of the Court was left at 24, but at that time the commercial concerns of the Company had to be wound up, which operation has now been entirely accomplished.

Considering the Court of Directors in the only light in which it can now be viewed, that of an Executive Council of Government, Her Majesty's Government have been surprised at learning that any person should recommend so large a body as 24: whilst, judging from all experience in other similar cases, a much smaller body would be more likely to perform, satisfactorily, the duties intrusted to it. In retaining so large a number as 18, Her Majesty's Government were actuated more by a regard to the number at present existing than to that really required for the performance of the duty.

They were not unmindful either of the consideration to which you refer—of the independence of the Court—but they entertain too high an opinion of the gentlemen whom they trust to see in the Direction, to believe that, even in much smaller numbers, they would forfeit that character of honourable independence which has always distinguished the Court of Directors.

In regard to the second point, Her Majesty's Government consider it to be conceded on all hands, that some measure should be adopted for introducing more readily into the Court that class of Indian servants who have, according to the almost uniform tenor of the evidence, been very generally excluded by the necessity of a long, and, in some cases, an expensive canvass.

It is very doubtful whether any change can be introduced which will effectually remedy the evils of the canvass; and the introduction of one-third of the members of the Court by nomination of the Crown from Indian servants of a certain standing, was adopted after much consideration, as the mode most likely to ensure the best selection of the individuals, as well as their independence in the Court.

If they were to be selected by the Court itself, beyond the obvious objection to all self-elected bodies, the persons so chosen could hardly avoid feeling themselves dependent upon the majority of their colleagues to whom they owed their seats. It is clear, that any person, however high his qualification for the office might be, who happened to be disagreeable to a bare majority of the Court, could never obtain a seat in the Direction; and if party spirit happened, as in some former times, to run high in the Court, the majority of the day would be able to perpetuate their own power, and overwhelm their opponents by introducing only their own partisans.

It seemed to Her Majesty's Government, therefore, that this mode of selection would necessarily affect the independence of the individuals selected, and might produce an effect upon the Court itself most prejudicial to its usefulness and power.

Nor do they see that the nomination by the Crown is open to the objections stated in your letter. It must be exercised by persons responsible to Parliament and to public opinion for the exercise of their discretion. It is limited to persons having served 10 years in India, who have been very much removed from the influence of the party politics of this country. With the increased responsibility of Ministers for Indian affairs, it is our conviction that they would have no interest so strong as that of selecting the ablest men amongst the persons experienced in Indian affairs.

If the whole body were nominated at once by the Crown, as was proposed by Mr. Wynn in 1833, or even a third of the Court, as now proposed, and permanently, it might create an undue influence in the hands of that political party in the state which made the nomination; but with the opportunity of changing one-third of the number of nominated members every two years, if their conduct should be open to the charge of being actuated by party spirit, it is certain, considering the frequent change of Ministers in this country, that any political party capable of taking the Government would be able to prevent an undue preponderance of power in the hands of its opponents.

The condition of the nominated members has been assimilated in all respects to that of those who are to be elected, and Her Majesty's Government feel the most perfect confidence that their high feeling of duty, their habitual regard for the welfare of India, and the habits of daily intercourse with their elected colleagues, will effectually prevent the nominated members of the Court from either being dependent on the Government, or forming a separate party in the Court.

Her Majesty's Government are not unaware of the personal sacrifices which some of the Directors may be called upon to make, especially in performing the painful duty of selecting those who, according to the proposed scheme, are to form the future Court. That mode was adopted as the one most likely to ensure the best selection of the future Directors. Her Majesty's Government still believe it to be a better mode than other alternatives which have been suggested, the most obvious one being, that the General Court of Proprietors should elect the 15 or 12 Directors who are to remain.

I will only say with regard to your observations on the proposed system of entry by competition at Haileybury and Addiscombe, that Her Majesty's Government is perfectly aware that other qualifications are required beyond mere book learning for both the civil and the military services in India; but they are not aware that there will be any greater difficulty in ensuring the presence of those qualifications under the proposed, than under the present system. Nor do they understand how the nomination can be said to be vested in the examiners in any other sense than that the selection of the best-qualified candidates is necessarily to be made by them, as is that of the candidates for the highest honours at our universities.

In respect to your observations as to the power to erect Presidencies in India, I will only observe that we have not acted as in 1833, in positively creating a new Presidency, but have merely taken the power to do so.

We are well satisfied with the administration of affairs by the Lieutenant-governor of the North Western Provinces; but in so vast an empire as India, it is impossible to foresee what changes may occur, and with an indefinite period for the continuance of the Act, Her Majesty's Ministers thought it wise to provide the power of making any arrangement which future experience and further knowledge might render advisable.

The Commission for the purpose of revising the drafts of laws and incomplete projects of the Law Commission, is proposed only as a temporary measure for this sole purpose. We have the advantage of the presence in this country of many of the gentlemen who took the most active part in that Commission, and it is not intended that it should cause any material expense, nor is it possible that this indispensable work could be either so well or so cheaply accomplished in any other manner. There are, besides the arrangement of the incomplete projects of the late Law Commission, many reforms in the Indian Regulations, which will require no inconsiderable degree of attention; and beyond what may



be attained by the temporary labours of this Commission, Her Majesty's Government believe that there will be still very much labour required, and much to do in revising and consolidating the laws and regulations in India. -

It is with a view to this object, as well as to the current business of legislation, that instead of proposing a separate Law Commission in India, they have proposed an enlargement of the Legislative Council, and they rely upon the exertions of the legislative councillor, and the unofficial members of the Council, to perform this most important and necessary duty. They are impressed with the belief that the presence of members from different parts of India, acquainted with the various habits and native laws and customs of the widely-differing regions of that country, is quite essential for this purpose ; and they believe also, that in this duty they will find full and adequate employment.

I observe that you have stated the extra number of paid members at seven. There is no reason why so many should be appointed, unless there is an actual necessity for it. The Bill provides for the appointment of one member from each Presidency and Lieutenant-governorship. At present, therefore, there would be one for Bengal, Madras, Bombay, and the North Western Provinces, but there would be no absolute necessity in Bengal for appointing a person without other employment, where a civil servant resident at Calcutta, already in the enjoyment of a salary, might be named. In this case, there would be only three paid councillors, and if the fifth province is created, the number of legislative councillors receiving salaries, merely as such, would only be raised to four.

A power is taken to appoint two others if the Governor-general should find the numbers inadequate for the work ; but this can only be done with the sanction of the Home Government. Her Majesty's Government, however, consider the due performance of the duties of the Legislative Council, and its being filled by competent persons, to be of such paramount importance, that no consideration of saving a few thousand pounds ought to interfere with obtaining the services of a sufficient number of competent persons.

Her Majesty's Government trust that this explanation of the views by which they have been actuated in framing the proposals for the future government of India, will tend to remove the objections stated by the Court of Directors. They have been, and still continue, most sincerely anxious that the government of India should be carried on with the willing co-operation of the Court, and of all the persons taking a part, be it greater or less, in the administration of Indian affairs, and they rely on the sense of public duty, by which they are confident that every Director will be actuated, to prevent any inconvenience arising from any partial or temporary difference of opinion.

But Her Majesty's Government would have been alike forgetful of their duty and of the mighty interests in this country and in India, for the present and future welfare of which they are responsible, if they allowed themselves to be deterred by any considerations from the course which they believe to be the best calculated to ensure the good government of our Indian empire.

Russell Ellice, Esq.

I have &c.  
(signed) *Charles Wood.*

**GOVERNMENT OF INDIA BILL.**

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COPIES of further CORRESPONDENCE between the Court of Directors of the East India Company and the President of the Board of Control, respecting the BILL for the future Government of *India*.

*(Mr. Hume.)*

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Ordered, by The House of Commons, to be Printed,  
12 July 1853.

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*Under 2<sup>s</sup> oz.*

PUBLIC WORKS (INDIA).

4

RETURN to an Order of the Honourable The House of Commons,  
dated 15 April 1853:—for,

RETURN “ of all SUMS spent on PUBLIC WORKS (not of a Military kind) in *India*, since April 1834, keeping distinct the Amounts spent on the REPAIRS of OLD, and on the CONSTRUCTION of NEW WORKS, together with the Objects of the Works newly Constructed; and stating, when remunerative, the Amounts received from such Works.”

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East India House, }  
17 August 1853. }

JAMES C. MELVILL,

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(*Mr. Bright.*)

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Ordered, by The House of Commons, to be Printed,  
20 August 1853.

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## MEMORANDUM.

Para. 1. THE Papers Nos. 1, 2, and 3 of the following list of contents will explain the impossibility of a Return being prepared for the exact period embraced, or in the precise form prescribed in the Order of the Honourable the House of Commons.

2. In the printed Return to the Order of the Honourable the House of Commons, dated 4th March 1850, No. 622 of 1851, has been given,

### FOR BENGAL.

The particulars of and total expenditure on Public Works in the Civil Department from season 1839-40 to 1848-9 inclusive.

### FOR FORT ST. GEORGE.

A digest of a general Report by the Superintendent of Roads, dated the 9th August 1848, on the Road Department, from its establishment to the 1st May 1848; also information in regard to district roads, with a statement of the charges incurred for the years 1838 to 1847 inclusive.

### FOR BOMBAY.

As regards the Presidency of Bombay, it was pointed out that a "Return to an Order of the Honourable the House of Commons, dated the 20th December 1847, was presented on the 7th February 1848, which Return contained copy of the annual Reports of the Superintendent of Roads and Tanks within the Presidency of Bombay from the first (viz., that for season 1835-36) to the latest received to that time, or to season 1844-45 inclusive." The Reports for season 1845-46 and 1846-47 formed part of the Return No. 622 of 1851.

Page 166 of the Return.

3. The whole of the further information which can be supplied from the Reports received in continuation of the foregoing is contained in the present Return, and includes, as regards the Presidency of

### BENGAL,

An analysis of a Report of the Military Board, dated the 8th September 1840, setting forth in a tabular form, and in alphabetical arrangement, all the information which the Government of Bengal could obtain on Public Works under the Military Board's general management at the time that the systematic preparation and printing of that Board's annual Reports was first ordered; also a statement compiled from the Reports of the Bengal Military Board for the official year 1849-50 and 1850-51, in continuation of and embodied with the previous statement for the official years 1839-40 to 1848-49.

### FORT ST. GEORGE.

A digest of a further Report by the late Superintendent of Roads, dated the 17th October 1851, being in continuation of that dated 9th August 1848, giving information on the works in progress to the 1st May 1851; also a statement of the more important works executed under the Civil Engineer Department for 1848 and 1849, and of expenditure in the Civil Department of Public Works for the years 1848, 1849, and 1850.

### BOMBAY.

Particulars of the formation of the Road and Tank Department in 1836; together with a tabular statement of the principal works executed by that department from its formation to the year 1850-51 inclusive, and a statement of expenditure compiled from the annual Reports of the Superintendent of Roads and Tanks, and of the Bombay Engineers.

RETURNS to an Order of the Honourable the House of Commons, dated the 24th February 1853, for "Copies of the Reports of the several Commissioners on Public Works at Bengal, Madras, and Bombay in the year 1851-52; of the Minutes of the Members of the Government thereon; and of any Orders or Despatches of the Court of Directors relating thereto," were presented to the Honourable the House of Commons on the 26th April 1853, for the Presidencies of Bengal and Fort St. George. The Return for the Presidency of Bombay will be presented on the meeting of Parliament in 1854.

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### PRESIDENCY OF BENGAL.

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#### APPENDIX, No. 2.

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East India House, }  
 17 August 1853. }

T. L. Peacock,  
 Examiner of India Correspondence.

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*Note*:—The Statements for the Presidency of Bengal for the series of years from 1839-40 to 1850-51 inclusive, and for the Presidency of Bombay, are arranged alphabetically. The preliminary Statement of the Military Board at Bengal, dated the 8th September 1840, and the Statements relating to works executed by the Civil Engineer's Department for the years 1848 and 1849, are preceded by an Index.

## No. 1.

(No. 10.)

**EXTRACT LETTER** from the Officiating Secretary to the Government of *India*, in the Military Department, to the Military Board, dated 14 October 1839.

22. BEFORE closing this notice of the proceedings of your Board in the Department of Public Works, I am directed to inform you that, with the view of materially facilitating the object of diffusing correct information as to the principles by which the Government is guided in its appropriation of funds for such purposes, and on the measures of improvement which have been executed or are in progress, with their results, it is intended that the portions of the annual reports of your Board, referring to works which are intended in any degree for the public convenience and advantage, such as roads, bridges, canals, embankments, conservancy of rivers, &c., shall be printed and made public; and I am instructed to request that your Board will keep the ends of such publication particularly in view in drawing your reports. The President in Council hopes that this view may be acted upon with the report which it is probably the intention of your Board to submit to Government at an early period for the year 1838-39; and his Honour in Council deeming it right that the first publication should be preceded by a brief account, showing, as far as possible, the nature, extent, cost in original execution and subsequent maintenance, (and this, whether the outlay be from public or from private funds,) return or profit, and general results of each important public work under the control of your Board, it is the desire of his Honour in Council that your Board will turn your immediate attention to this important subject, and that your annual report for the past year may be accompanied by a preliminary account drawn up in accordance with the instructions above conveyed.

## No. 2.

(No. 142.)

**EXTRACT LETTER** from the Secretary to the Government of *India*, in the Military Department, to the Military Board, dated 22 July 1840.

21. HAVING thus noticed the more important parts of your Board's reports, his Lordship in Council directs me to conclude with observing, that it is understood that provision will be made in future for submitting, in separate reports, the statements of proceedings regarding public works of general interest, and regarding the operations of the more peculiarly military establishment. Such division of your Board's annual reports is consistent with the orders of the Honourable Court; and the Governor-general in Council understands that it is intended so to prepare the former class of reports as to admit of their being printed and circulated, as may be thought advisable for general information.

## No. 3.

*Note.*—As an introduction to the series of annual reports, and in compliance with the instructions given in the latter part of para. 22 of the letter from the Officiating Secretary to the Government of *India*, in the Military Department, to the Military Board, dated the 14th October 1839, a descriptive outline of works of public utility at the time (8th September 1840) under the Military Board's general management was submitted. In arranging the latter statement the works were classed under the general heads of roads and bridges, canals, embankments, and buildings, commencing with the works situated nearest to the Madras frontier, and proceeding gradually through the four circles of superintendence to the North Western frontier. The following is a brief analysis of this introductory report.

## PRESIDENCY OF BENGAL.

No. 4.

INDEX to a TABULAR ANALYSIS of the Statement by the MILITARY BOARD at Bengal, dated 8th September 1840, of Works of public utility then under their general Management.

<b>ROADS.</b>		<b>No. 36. Feroze Shah's.</b>	
No. 16. Arrah to Sasseeram.		39. Gangum River.	
16. Arrah to Akberpore.		40. Ganges Canals.	
16. Arrah to Brookgunge.		30. Hidjellee Khal.	
22. Ajmere to Nusseerabad.		33. Ishamuttee River.	
8. Burdwan Division.		36. Jumna River.	
7. Calcutta to Kishnegur.		39. Kph River.	
15. Calcutta to Benares.		40. Kunkul on the Ganges.	
8. Culna to Burdwan.		39. Moradabad.	
12. Cachar to Munipore.		40. Mynpooree.	
16. Chupprah to Mozufferpore.		35. Nuddea Rivers.	
16. Chupprah to Mootaaree.		37. Nuzufghur Jheel.	
18. Chunar to Sukroot.		31. Oolabariah.	
23. Cawnpore to Grand Trunk Road.		39. Rohileund.	
24. Cawnpore to Bittoor.		30. Tumlook Khal.	
20. Deccan Road from Mirzapore to Jubbulpore.		34. Tolly's Nullah.	
21. Dhamow to the Deccan Road.		<b>EMBANKMENTS.</b>	
28. Delhi Division.		No. 44. Allahabad.	
4. Grand Trunk Road.		42. Balasore.	
10. Gowahattee to Sylhet.		42. Burdwan.	
27. Gazeoodeenuggur to Meerut.		42. Berhampore.	
16. Hadjapore to Poosah in Tirhoot.		43. Behar.	
2. Juggernaut Road.		43. Central Provinces.	
21. Jubbulpore to Titwarra Ghaut.		42. Gunduch River.	
21. Jubbulpore to Hansi Ghaut.		44. Ganges River.	
21. Jubbulpore to Cullinghee.		42. Hooghly.	
28. Kurnaul Division.		44. Jumna River.	
29. Kumaon Division.		42. Midnapore.	
1. Madras Frontier to Cuttack.		42. South-western Provinces.	
3. Midnapore to Calcutta.		42. Southern and Northern Cuttack.	
15. Moorshedabad to Benares.		43. Sacri Bund.	
17. Mogul Serai to Allahabad.		42. Twenty-four Pergunnahs.	
19. Mirzapore to Gopeegunge.		<b>CIVIL BUILDINGS.</b>	
20. Mirzapore to Jubbulpore.		No. 52. Bathing Ghaut at Hurdwar.	
2. Poree to Bissenpore (known as the Juggernaut Road).		47. Chittagong Jetty.	
14. Patna to Gya and Shergotty.		50. Churches, &c.	
13. Revelgunge to Moozufferpore.		50. Divine Worship.	
25. Rohileund Division.		49. Educational Purposes.	
21. Saugor to Jubbulpore.		45. False Point Lighthouse.	
26. Strand Road.		51. Hospitals.	
<b>CANALS.</b>		52. Hurdwar Bathing Ghaut.	
No. 32. } Balliaghatta.		47. Jetty at Chittagong.	
33. } Beejapore Water-course.		53. Juma Musjid, or Mosque.	
41. Calcutta Canals.		46. Kedjeree Lighthouse.	
32. Circular Canal.		54. Kotub Minar.	
37. Delhi.		45. Lighthouse at False Point.	
38. Dooab.		46. Lighthouse at Kedjeree.	
32. Entallee.		48. Lighthouse at Point Palmyras.	
		53. Mosque, or Juma Musjid.	
		48. Point Palmyras Lighthouse.	



## TABULAR ANALYSIS of the BENGAL MILITARY BOARD'S Preliminary Statement, dated 8 September 1840.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>ROADS AND BRIDGES IN THE SOUTH-EASTERN CIRCLE: -</b>							
(1.) New road from the Madras frontier at Chutterghur to Cuttack.	-- To make the Dawk communication between Madras and Bengal more direct and secure than by the circuitous route by the sea coast, as likely to be advantageous for facilitating the march of troops between Cuttack and the northern division of the Madras army, and highly useful to the extensive tract of country known as the Khoordah estate, by affording the means of conveying its produce to the market of Cuttack.	- Measures 73½ miles, was commenced by the Collector, but transferred to Department of Public Works in 1835.	Cuttack - - -	<i>Rs.</i> 1,28,957	<i>Rs. a. p.</i> • 3,553 5 10	- -	-- This road is open for dry weather communication, but some of the bridges and drains are still wanting, and bungalows and wells have to be constructed. -- This road has at present 109 bridges; it is likely to be very useful when completed to Ganjam. The expense is borne entirely by the State.
(2.) Road from Pooree, through Cuttack and Midnapore, to Bissenpore, on the Grand Trunk Road.	-- This road is known as the Juggernath road, its construction having originated in a donation by Rajah Sookmoy Roy of 1,50,000 rupees for the construction of a road to the Temple of Juggernath.	- 261 miles in length, was commenced in 1822.	Bissenpore - - -	15,21,696 or 5,415 per mile	- - - -	Completed in 1830 -	-- This road has 816 bridges and drains. The whole of the outlay, with the exception of the 1,50,000 rupees, was borne by the State. Its annual repair, including the value of convict labour, averages 28,166 rupees. The road is almost invaluable as affording the means of communication throughout Orissa, and thence to Bengal.
(3.) Road from Midnapore to Calcutta, crossing the Hooghly at Oolabarriah	-- Intended for general use, and accordingly employed for the conveyance of the Madras and Bombay mails, and used by parties proceeding to Juggernath from the Eastern Provinces.	Commenced in 1826	Calcutta - - -	<i>Rs. a. p.</i> 72,090 13 4	- - - -	Completed in 1830 -	-- The Hooghly, Damoodah, Roopnarain, and Cossye Rivers on this line were (with the exception of the last) extensive tideways, and are all crossed by ferries. The annual repair is about 2,078 rupees
(4.) Grand Trunk Road from Calcutta to Delhi.	-- Of this road, only a very small portion is in the South Eastern Provinces. It may be considered as the main artery of land communication throughout Bengal and Hindostan.	- - - The whole length is 770½ miles, its general breadth is 30 feet, which is increased to 40 when it approaches important towns.	Delhi - - - -	- - - -	- - - -	About <i>Rs.</i> 10,00,000 - - - -	-- This road is raised above the flood level in the rainy season. It has already 1,402 bridges of various sizes up to a waterway of 400 feet, and others have to be completed; it is metalled where the soil requires such protection, and is under the charge of seven executive engineers, and is provided with 47 staging bungalows, towards the cost of which 14,657 rupees have been contributed by Rajah Seebchunder Roy and Nursingchunder Roy, and the whole of the remaining outlay, which is 20,603 rupees, exclusive of convict labour, is borne by the State.

(continued)

No. 5.—TABULAR ANALYSIS of the Bengal Military Board's Preliminary Statement, dated 8 September 1840—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
ROADS AND BRIDGES IN THE LOWER PROVINCES:							
Paras 7 to 15 of Report.							
(5.) Presidency	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - The roads are maintained by the chief magistrate. The Military Board are not aware of their cost, but judging from the expensive nature of the material used, and the heavy traffic on them, it is doubtless large.
(6.) Suburbs of Calcutta	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - The roads are maintained by the civil architect, under the control of the superintending engineer. Of their original construction the Military Board is not cognizant, but their present maintenance costs, on an average, 10,000 rupees a year.
<i>1st Division:</i>							
(7.) Road from Calcutta to Kishnaghur; forms part of the road to Berhampore.	- - - - -	57 miles in length	- - Kishnaghur. It is to be extended 240 miles to the new Sanatorium at Darjeeling.	-Original cost, Rs.2,69,630. The cost of the portion between Kishnaghur and Berhampore (51 miles in length) is not known.	- - - - -	- - - - -	- - It has of late years been kept in repair by the magistrates, but it is now to be repaired by the Department of Public Works; it is to be extended to Darjeeling; the last 30 miles are to be entirely carried through the hills; it is a work of immense labour, and is not yet finished.
<i>Burdwan Division:</i>							
(8.) Road leading to Culna	- - For the personal convenience of the Rajah of Burdwan.	- - - - -	Culna - - - - -	Rs a. p. 42,666 10 8 assigned by the Rajah.	- - - - -	- - - - -	- - In this division several roads are maintained at the public cost, but of the expense of their original construction the Board can give no account. They are not individually of great importance, though doubtless of much local utility. The average cost of their maintenance amounts to 7,100 rupees, and is defrayed by the State.
<i>Division Eastward of Calcutta, viz, Dacca, Burrisaul, and Arracan Divisions, including the Province of Assam:</i>							
(9.) Iron suspension bridge over the Boorolla Nulla at Gowahatty.	- - - - -	- - - - -	- - - - -	Rs. 5,311	- - - - -	- - - - -	- - In this division the roads are not under charge of the Department of Public Works, but have been constructed and maintained by the civil officers. More bridges are in progress under the executive engineers, which may be noticed in future reports.
(10.) Road over the Cosayah Hills from Gowahatty in Assam via Cherra Poonjee to Sylhet.	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - This road was surveyed, and estimated by Lieutenant Sale, of the Engineers. Its construction is in progress by the political officers at Gowahattes and Cherra Poonjee respectively.

<i>Butrisaul Division :</i>							
(11.)	Military road from Dacca through Daodeendy and Chittagong to Teck Naf.	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - It is contemplated to complete this road by the substitution of masonry bridges along the whole line for the temporary wooden structures, which would require renewal every year; also to open a navigable communication through the interior of the Chittagong District to Arracan.
(12.)	Road from Cachar through the Naga Hills to Munnipore.	-- To facilitate the communication between the Eastern frontier and the Burmese country.	-- Length not stated, the width is to be 10 feet. Commenced in 1837, under the superintendence of Lieutenant Guthrie of the Engineers	Munnipore	- -	-- 30,600 rupees, exclusive of the pay of a detachment of sappers and miners.	Not stated - - Not stated - - -- It is intended for foot passengers and laden cattle, and will have several bridges on its line, it is cut almost entirely through a mountainous and extreme'y difficult country.
<i>3d, or Dinapore Division .</i>							
(13.)	Road from Revelgunge, near the junction of the Ganges and Gogra, via Chupprah and Rewa Ghaut on the Gunduck, to Mozufferpore, the chief town in Tirhoot.	- - - - -	55 miles in length	Mozufferpore	- -	-- The Department of Public Works is cognizant of an outlay of no more than 89,322 rupees on this road, but much more must have been expended.	- - In this division the roads maintained at the public expense are numerous. That from Revelgunge to Mozufferpore is one of the chief.
(14.)	Road from Patna to Gyah and Shergotty.	- - - - -	-- Length 80 miles. This road was not originally constructed by the Department of Public Works.	Shergotty	- -	Not known - - - -- The drainage being imperfect, the road is about being renewed and improved at an estimated cost of 70,222 rupees, under the executive officer.	Not stated - - -- The repairs made heretofore have been effected by convicts.
(15.)	Continuation of the road from Calcutta to Berhampore (see previous statement) by a series of district roads through Monghyr, Patna, Dinapore, Arrah, Buxar, and Ghazeeapore to Benares.	- - - - -	Length 430 miles	Benares	- -	Not known - - - -	- - These roads are not generally maintained by the Department of Public Works, but portions of them have been occasionally repaired by the executive engineers, by whom several very useful bridges have been built.
(16.)	Other roads in this division, which are under the charge of local agents, such as the road from Arrah to Sasseeram; road from Arrah to Akbarpore, road from Arrah to Brookgunge, Hadjore to Poosah in Tirhoot; Chupprah to Mozufferpore, Chupprah to Mootearee in Chumparun, &c.	- - - - -	- - - - -	- - - - -	- - - - -	Not known - - - -- The repair of these roads by the Department of Public Works is under discussion, and estimates amounting to Rs 72,880 13a 10 p. have been sanctioned	These roads are highly useful.
<b>ROADS AND BRIDGES IN THE CENTRAL PROVINCES:</b>							
<i>5th, or Benares Division .</i>							
(17.)	Road from Mogul Serai, on the Grand Trunk Road, eight miles from the Ganges at Benares to Allahabad, via Chunar and Mirzapore.	-- Connects the Trunk Road with the great commercial mart of Mirzapore, without crossing the Ganges, and also the Grand Trunk Road with that from Mirzapore through Jubbulpore to the Deccan.	Length 92 miles	Allahabad	- -	Not known - - - -- The whole line has lately been surveyed Its completion by the Department of Public Works is now in progress. No detailed estimates have yet been received.	- - This is a work of considerable importance, and its cost must, it is presumed, be borne by the State.

(continued)

No. 5.—TABULAR ANALYSIS of the Bengal Military Board's Preliminary Statement, dated 8th September 1840—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion	Probable Time of Completion.	REMARKS.
ROADS AND BRIDGES IN THE CENTRAL PROVINCES—continued.							
5th, or Benares Division—continued.							
(18.) Road from Chunar, southward to Sukroot.	-- To facilitate the traffic with the southern portions of the district.	Length 16 miles	Sukroot - - -	- - - - -	6,325 rupees - -	- - - - -	-- This work is intended to form, in the first instance, only a fair-weather road.
(19.) Road from Mirzapore, on the south bank of the Ganges, to Gopeegunge.	-- To join the Grand Trunk Road at Gopeegunge.	Length 16 miles	Gopeegunge - - -	-- The drains only were built by the Department of Public Works, at a cost of 1,495 rupees.	- - - - -	- - - - -	-- The earth-work was constructed by the magistrate. Other roads in this division, viz., from Benares to Jounpore, from Ghazeepore to Jounpore, and from Jounpore to Azinghur and Goruckpore, are not under the charge of the Department of Public Works.
(20.) Deccan Road from Mirzapore to Jubbulpore.	- - - - -	-- Length 239 miles; breadth, 30 ft. Commenced 1824.	Jubbulpore - - -	-- A little more than 8,00,000 rupees, including repairs, but exclusive of the labour of from 300 to 500 convicts for 15 years.	- - - - -	Lately completed -	-- This road is provided with 479 bridges and drains of masonry, having openings varying in size from 6 to 78 feet, and 213 causeways or pavements
(21.) Other roads in the Saugor and Nerbudda Territories of which the Department of Public Works has cognizance: viz., From Saugor to Jubbulpore, via Puttereea and Dhamow. From Dhamow to the Deccan Road at Jokeye. From Jubbulpore to Tilwarra Ghât on the Nerbudda. From ditto to Jhansi Ghant. From ditto to Cuttinghee	- - - - -	Length, 48 miles " 65 " " 5 " " 23 " " 20 "	- - - - -	Nearly 2,00,000 - -	80 rupees per mile - -	- - - - -	-- They are to be completed as fair-weather roads, i. e., roads which are passable at all seasons except in the rains.
(22.) Road connecting Ajmere with Nusseerabad.	- - - - -	" 13½ "	Nusseerabad - - -	- - - - -	8,000 rupees - -	- - - - -	This road is in progress of construction.
(23.) Road connecting Cawnpore with the Grand Trunk Road.	- - - - -	" 12 "	Grand Trunk Road -	- - - - -	26,000 rupees - -	- - - - -	This road is not quite complete.
(24.) Road from Cawnpore to Bithoor, the residence of the ex-Peshwa.	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	-- This road is under construction. Its expense is defrayed by the Peshwar, aided by the labour of prisoners supplied by civil authorities.

of masonry for crossing the more shallow streams; one of these latter, however, is over the Belun river, and is 950 feet in length. The chief obstacle to the construction of this road was the ascent from the plains to the table land of Rawah; this is effected at the Khutra Pass, up an ascent of 690 feet by a winding path 2½ miles in length, and nowhere less than 18 feet wide. The slope is 1 in 20, and the work is considered highly creditable to the skill of Major Drummond. The work is extremely valuable as facilitating the traffic of the district near which it runs; but its full value cannot yet be appreciated, as the district roads are as yet seldom passable for carts.

## ROADS AND BRIDGES IN THE NORTH-WESTERN PROVINCES.

8th, or Rohilkund Division :							
(25.)	Roads and bridges	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -
						-- 27,070 rupees have been allowed by Government for the construction of some bridges. The sum already expended by Government for bridges and drains in this division is 1,29,675 rupees.	-- The subject of the Rohilkund roads generally has been referred to the Home authorities; in the meantime the repair of existing roads is managed by the local committees.
10th, or Agra Division :							
(26.)	Strand Road	- - - - -	- - - - -	- - - - -	- - - - -	3,76,790 rupees	- - - - -
		-- Considered to be of the greatest advantage to the city and station of Agra, both in appearance and utility.	-- Length two miles along the river face of the city. Average breadth 80 feet; raised 11 to 13 feet in height above the natural soil of the river's bank.				-- Of the sum 3,76,790 rupees, the sum of 3,55,105 rupees was paid to the starving poor, who could give but very inadequate returns in labour for the support they received. The remainder, 21,685 rupees, was expended for tunnels, ghauts, bridges, &c., required for the road. It is stated that the whole road having now had a trial of three rainy seasons, may be considered as safe and permanent. The whole sum expended by Government in the Agra division in employing the pauper population during the season of 1838, is stated at 6,12,431 rupees
11th, or Meerut Division :							
(27.)	Branch from the Grand Trunk Road at Gazeeodeenuggur, on the west bank of the River Hindun, to Meerut.	- - - - -	Length, 29 miles	Meerut	- - - - -	- - - - -	- - - - -
						Rs. -For earth work 10,000 For bridges and drains - 7,763 For metalling - 75,788  TOTAL - Rs 93,551	-- The earth-work is managed by a local committee. The bridges, drains, and metalling are to be constructed by the executive engineer. This will be a work of great utility, as the old road had, from long use, been worn to a lower level than that of the adjacent fields, and was consequently converted into a ditch in wet weather.
						A further expenditure of 94,000 rupees is anticipated, 1,38,813 rupees have been expended on bridges by the Department of Public Works.	
Delhi and Kurnaul Division :							
(28.)	Drains and small bridges, exclusive of those on the Grand Trunk Road.	- - - - -	- - - - -	- - - - -	- - - - -	20,571 rupees	- - - - -
							-- The roads in this division are under the charge of the civil authorities.
Kumaon Division :							
(29.)	Bridges and staging bungalows.	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -
						-- 45,688 rupees, and for annual repairs 2,300.	-- In this division the roads are all mountain paths adapted for Hill Coolies, and on one line, viz, that from Bomourie to Almorah, for bullocks and tatoes. Their construction has been effected chiefly by detachments of the pioneer corps; but the bridges and bungalows have been erected by the Department of Public Works. There are 12 iron suspension bridges, four wooden bridges, and four staging bungalows, built by Government in this province.

The total outlay for roads, as above, is 57,34,223 rupees, but this does not include any sums which may have been expended by the civil authorities without the cognizance of the Military Board. In some districts the zemindars have agreed to contribute one per cent. on the land revenue, to form a fund for the improvement of internal communication, the proceeds of the fund are under the management of local committees, of which the executive officer of Public Works is generally a member, but the proceedings of the committees are not under the control of the Board. The profits arising from the farms of Ferries, are generally made available for the construction of roads, &c., "but as this is constituted by Regulation XIX. of 1816, a branch of the revenue," and its employment on roads is believed to be quite optional with the Government, the Ferry funds cannot be regarded as returns for money expended on works of utility.

(continued)

No. 5.—TABULAR ANALYSIS of the Bengal Military Board's Preliminary Statement, dated 8th September 1840—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>CANALS IN THE SOUTH-WESTERN PROVINCES.</b>							
(30.) Navigation Khals of Hjellee and Tumlook.	-- Are much used in the Salt Mehals for the transport of this article of trade; are invaluable in the south-west monsoon, as forming a safe line of communication, at a time when the open sea, and even the southern portion of the river Hooghly, is too rough for country craft.	- - - - -	- - - - -	- - Average cost about 5,000 rupees per annum.	- - Some works have recently been executed on these khals at an estimated expense of 23,138 rupees.	- - - - -	- - A toll is levied on boats navigating these khals, on which money is expended, and which it is believed defrays the expense. The tolls are not managed by the Department of Public Works. Some of the Nullahs, such as the Bunka Nullah, between the rivers of Huldee and Roopnarain, are under the control of the officers of the Salt Department.
(31.) Oolabariah Canal - -	- - Was formed by the excavation necessary for raising the earth-work of the road from Midnapore to Calcutta, crossing the Hooghly at Oolabariah (alluded to in the fifth paragraph of this report).	Length 15 miles	- - - Extends in a westerly direction to the Damooda at Murreeha, thence to the Roopnarain at Colar Ghaut.	- - As no separate bills were furnished of this canal, its construction may be considered in the cost of the road itself. Its annual clearance costs 1,321 rupees, and the tolls levied on boats using it have averaged 2,092 rupees for the last two years.	- - - - -	- - - - -	- - It is used only for boats coming down from the Burdwan and Hooghly Districts to Calcutta, and returning. It shortens the distance on the Damooda by about 22 miles, and about 36 by the Roopnarain, besides avoiding those portions of the rivers which are dangerous for country boats in the south-west monsoon.
(32.) Calcutta Canals: viz. 1st. The Circular Canal. 2d. Ballaghatta. 3d. Entaltee.	- - These canals form an easy and convenient navigable communication round the greater part of Calcutta, and are a source of great convenience to the town.	Length 3 $\frac{1}{2}$ miles " 1 $\frac{1}{2}$ " " 1 "	- - From Chitpore to the junction with the Estallee Canal. From the end of the Circular Canal to the Salt Water Lake. From the Circular Canal to the east end of the Dhurramtollah Straits	- - 16,45,404 rupees, including six * bridges, and the roads along the bank. The cost of their annual maintenance averages 31,646 rupees, and the tolls levied on boats, &c, for the last three years, 66,225 rupees.	- - - - -	- - - - -	- - Comprise a line of navigation, extending from the Hooghly at Chitpore to the Salt Water Lake. The amount of tolls realised during the official year 1849-50, was Rs. 1,82,989. 2.; the current expenses of the toll department amount to Rs. 15,853. 6. 6.; the lands, ferries, and fisheries attached to the canals realised 1,877 rupees. * Koolea Wooden Bridge. Ballaghatta Iron Suspension Bridge. Nurkuldanga - ditto. Manichtolla - ditto. Barrackpore - ditto. Dum Daun - - ditto
(33.) Canal from the east end of the Ballaghatta Canal through the Salt Water Lake, thence by several natural Nullahs, aided by some artificial cutting to the Ishamuttee River.	- - By this route boats proceeding from the eastern ports of Bengal may reach Calcutta without approaching so near to the large estuaries and to the open sea as is done by the ordinary Sunderbund route.	Length 40 miles	- Ishamuttee River	- - 3,77,188 rupees. Their maintenance involves an average outlay of 2,000 rupees per annum.	- - - - -	- - - - -	- - They gave no separate returns, as tolls are not levied further eastward than the Salt Water Lake. This passage is only used by boats of light draught, except in the rainy season.
(34.) Tolly's Nullah, to the south of the Esplanade of Fort William.	- - Forms a communication from the Hooghly River to the Sunderbunds, and to the Eastern Canals at Tarda.	Length 16 miles	- Tarda - - -	- - Its original cost is not known; its clearance costs 620 rupees per annum. Seven † bridges have been thrown across it at a cost of 1,79,381 rupees. The cost of the largest, the Hastings Bridge, which has a central opening of 176 feet, was partly defrayed from funds raised by subscription. The tolls amount, on the average of the last three years, to 49,381 rupees per annum.	- - - - -	- - - - -	- - This is an enlargement of a natural Nullah, which was rendered navigable many years ago by the agency of an officer whose name it bears. † Kalgiant Suspension Bridge. Kilderpore - ditto. Tollygunge - ditto. Gurrahaut - ditto. Hastings - ditto. Allipore - - ditto. Prannath - - ditto.

**CANALS IN THE LOWER PROVINCES:**

(35.) No artificial canals. Clearance of the Nuddca Rivers to facilitate the navigation in the dry season.

-- By which a communication between Calcutta and the Ganges is maintained.

-- Average cost of the last 10 years, 32,840 rupees, including salary and establishment, average toll collections for the same period 1,44,858 rupees per annum, after deducting the expense of collection.

-- The balance of the toll collections in hand, to the 30th April 1840, is believed to be considerable, though its exact amount is not known. A hope is expressed that the judicious employment of this balance may ultimately lead to a more effectual opening of the rivers, so as to admit of the inland steamers passing through at all seasons, instead of adopting the circuitous route of Channel Creek and the Sunderbunds.

**IN THE CENTRAL PROVINCES THERE ARE NO CANALS.**

**CANALS IN THE NORTH-WESTERN PROVINCES.**

(36.) Feroze Shah's Canal from the Jumna.

-- The canals in the North-Western Provinces, though navigable for various portions of their length, and at certain times of the year, were all constructed with a view to irrigation.

-- Length 295 miles. It was originally constructed in the 14th century by the Emperor whose name it bears.

-- Neighbourhood of Hissar.

-- Cost of reconstruction about 10,33,170 rupees. Total amount expended to the end of April 1840, 15,66,502 rupees. The direct return is obtained by water rent paid at the rate of eight annas per biggah for each crop, or one rupee per biggah per annum. The amount levied as water rent in 1839 was Rs. 2,58,826. 10. 9; the total amount realised has been 21,57,731 rupees. The value of the indirect return cannot be stated, as it depends entirely on improved agricultural produce, on the security which artificial irrigation affords against the effect of drought.

-- These three canals form what are called the "Canals west of the Jumna." The original cuts had fallen into disuse and consequent decay during the disturbed period which marked the fall of the Mogul Empire, and their condition having attracted notice soon after the country came into the possession of the British Government, they were surveyed by Lieutenant Blane of the Engineers, in 1817, and the necessary expenditure having been sanctioned, they were opened in 1820.

-- The utility of the Feroze Shah Canal may be conceived from the fact of the wells in the neighbourhood of Hissar being generally 130 feet deep, and the water obtainable from them being all more or less impregnated with salt. The extent of ground irrigated from these canals amounted to 2,58,626 biggahs in 1839.

(37.) Delhi Canal

-- Intended to convey water from Feroze Shah's Canal, near Kurnaul, to the capital city of the empire.

-- Length 85 miles. Was constructed in the 17th century by an opulent nobleman named Ali Murdhun Khan.

Kurnaul

(38.) Branch from Feroze Shah's Canal, near Kurnaul, to Rohtuck.

--

Length 45 miles

Rohtuck

**CANALS IN THE NUJUFGIUR JHEEL COUNTRY:**

Canal from the west end of the Jheel to the Jumna above Delhi.

-- For draining the country, which is over-flooded every rainy season, the land of which, when the waters are dried up, is extremely productive.

Jumna River

--

58,782 rupees

-- The work is now on the eve of completion.

-- It is supposed that the rent of the recovered land will very soon repay the expenditure.

Doab Canal. Its line runs from where the Jumna leaves the hills.

-- These canals are used for floating timbers, and for the conveyance of lime on small boats, but their employment as navigable communications is insignificant, when compared with their use as channels for the conveyance of streams for irrigation.

-- Length about 130 miles, supposed to have been constructed in the time of Mahomed Shah, one of Aurungzebe's successors. It had been entirely abandoned, and in some places its

Delhi

-- Cost of restoration 4,67,512 rupees.

Restored in 1831-32

-- Captain Cautley has met with many unforeseen difficulties in the efficient maintenance of this valuable work, which have arisen chiefly from the slope of the country, and the sandy nature of its bed. The absence of all measures for providing against this difficulty, is a sufficient proof that the work could scarcely ever have been in full use in former days, but by the construction of locks and falls of masonry, the evil has been remedied, though at considerable cost. When it is considered that the drought of 1837-38 was the occasion not merely of loss of revenue, but of great loss

trace quite lost, when the Seharunpore district came into the possession of the British Government. Examined by Lieutenant Tod in 1810. Complete survey, with plans, sections, &c, made by Lieutenant De Bude, Engineer, in 1822-23. The re-opening of it was entrusted to Captain R Smith, Engineers. Since its restoration, it has been under charge of Captain Cautley, Artillery, the outlay since he received charge of the works has been 5,79,164 rupees, and the return from water rent, mills, &c., 5,13,150 rupees.

of life from absolute starvation, it must be allowed that the utility of a canal like this, by which full 71,530 biggahs were enabled to give a good average crop, is not easily measured by mere money valuation.

(continued)

No. 5.—TABULAR ANALYSIS of the Bengal Military Board's Preliminary Statement, dated 8th September 1840—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion	REMARKS.
<b>MORADABAD CANALS:</b>							
(39.) Canal between the Koh and Ganjam Rivers.	Irrigation - - - - -	- - - This work was sanctioned on the 19th April 1839, after a survey, and on plans, &c. prepared by Lieutenant Anderson, Engineers.	Ganjam River - -	- - - - -	- - - - -	- - - - -	- - - There appears every reason to hope, that the system of artificial irrigation, so happily exemplified in the Jumna Canal, may be very generally adopted in Rohilcund.
(40.) Proposed Canal from the Ganges to Kunkul, to pass near Meerut and Coel, and finally to join the River Esun, near Mynpooree.	Irrigation - - - - -	- - - In 1836, Captain Cautley, Superintendent of the Doob Canal, suggested the practicability of making the waters of the Ganges available for irrigation on the eastern side of the Doob, and was instructed to make surveys.	River Esun - -	- - - - -	26,04,749 - -	- - - This work is at present under the consideration of Government.	-
(41.) Beejapore water-course in the Dehra Dhoon, between the Touse, the Arsun, and the Bundal Rivers.	Irrigation - - - - -	- - - - -	- - - - -	15,000 - -	- - - - -	-- Not yet quite complete.	- - Its utility is considered likely to be very great, as compared with its cost, and to be the means of bringing an extensive tract of forest land into cultivation.
The total amount expended on Canals, as above, is 49,63,288 rupees; and the returns in water rent, tolls, &c., is now 3,47,380 rupees per annum.							
<b>EMBANKMENTS, SOUTH-WESTERN CIRCLE:</b>							
(42.) Embankments, in—							
Northern Cuttack	- They are intended, near the sea, to protect the interior of the country from inundation on occasions of high tides, and in inland tracts, to prevent floods of the rainy season from overflowing the banks of rivers.	- - Aggregate length, 3,450 miles, their height and mean thickness varying from 20 feet by 65 feet to the smallest size.	- - - - -	- - Came under charge of Military Board in 1831, since which period the amount expended is 16,67,822 rupees, including the charges of superintendence. The annual average outlay is 87,130 rupees.	- - - - -	- - - - -	- - The system at present followed, is believed to have been in force before the land came under the control of the British authorities. All that has since been done, has been to endeavour to introduce a gradual improvement in the dimensions and position of the earth-work, and to establish conjointly with the Zemindars, who would more immediately benefit by the change, sluices of masonry in the banks. These works are as yet few in number, but are coming by degrees into more general use. As regards returns for the expenditure, the maintenance of the embankments is believed to constitute
Southern Cuttack							
Balasore - - -							
Midnapore - - -							
Hooghly - - - -							
The 24 Pergunnahs							
Burdwan - - - -							



## EMBANKMENTS, LOWER PROVINCES:

Embankments on the Hooghly River, in the Berhampore Division.

- - - - -

-- Have cost, since 1831, 1,34,286 rupees, and their annual maintenance costs about 11,000 rupees.

- - - - -

Bunds on the Gunduck River, in the Dinapore Division.

- - - - -

-- Have cost, since 1830, 1,90,826 rupees. Their average annual maintenance costs 19,000 rupees.

- - - - -

## EMBANKMENTS, CENTRAL PROVINCES:

(43.) Sacri Bund, in the Behar District.

-- For the purpose of diverting the stream of the Sacri River towards the western portion of the Behar District.

-- Has been lately constructed.

- - - - -

18,218 - -

- - - - -

(44.) Bunds on the Ganges and Jumna, at Allahabad.

-- Protect the town, and a considerable extent of land near the junction of the rivers, from inundation.

- - - - -

-- Have cost 30,190 rupees in the last (10) ten years.

- - - - -

one of the items of detail on which the gross rent, paid by every ryot, is calculated; in some cases the Government receive this, and in others the Zemindars, on this point no certain information can be given, but it is known that the Rajah of Burdwan pays to Government 53,742 rupees per annum on this account, and that the whole of this sum is not expended; there is no reason to suppose that in any estate throughout the embanked districts, the sum assigned as Pool Bunde falls short of the actual expenditure

-- Are of the greatest utility. They were breached in 1838 by a flood of unprecedented height, when a considerable portion of the town and neighbouring country were inundated, and very great loss ensued.

The total amount expended on Embankments, as above, since 1831, has been 20,41,342 rupees; there is no reason to suppose that the assessments under the head of Pool Bunde are not equal to the outlay.

## BUILDINGS OF GENERAL UTILITY, CONSTRUCTED UNDER THE DEPARTMENT OF PUBLIC WORKS, IN THE SOUTH-EASTERN, LOWER, CENTRAL, AND NORTH-WESTERN PROVINCES

(45.) Lighthouse at False Point

- - - - -

-- Built in the year 1837-38.

- - - - -

-- Cost, including superintendence, 59,245 rupees for the building, and 23,750 rupees for the light-room, or lantern, total, 82,995 rupees. It is presumed, that the pecuniary returns derived from this building, are included in the port dues of Calcutta.

- - - - -

-- The building contains apartments for the lightkeeper, and has separate rooms for the native establishment.

46.) Lighthouse at Kedjeree

- - - - -

- - - - -

-- Not known. Cost of annual repairs about 450 rupees.

- - - - -

-- This building is of similar nature as the preceding.

(47.) Jetty at Chittagong

- For landing goods - - - - -

-- Projects 115 feet into the tideway.

- - - - -

6,706 - -

Just completed

-- Of this work the local officers make very favourable reports

(48.) Lighthouse at Point Palmyra.

- - - - -

- - - - -

Not known - - - - -

- - - - -

-- This was of a similar construction to the lighthouses at False Point and Kedjeree, but the encroachment of the sea on the sandy soil at its base has caused its abandonment.

(continued)

No. 5.—TABULAR ANALYSIS of the Bengal Military Board's Preliminary Statement, dated 8th September 1840—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement	Place of Termination, or of Intended Termination	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion	REMARKS.
<b>BUILDINGS OF GENERAL UTILITY, CONSTRUCTED UNDER THE DEPARTMENT OF PUBLIC WORKS, IN THE SOUTH-EASTERN, LOWER, CENTRAL, AND NORTH-WESTERN PROVINCES—<i>continued.</i></b>							
(49) Buildings for educational purposes.	- - - - -	- - - - -	- - - - -	-- 2,20,444 rupees, exclusive of five of small value, of which the cost is not known. Cost of annual repairs about 4,408 rupees	- - - - -	- - - - -	-- There are (11) eleven of these buildings under charge of the officers of the Public Works Department.
(50.) Places of Divine worship	- - - - -	- - - - -	- - - - -	- Aggregate value, 7,83,361 rupees; cost of annual repairs, 15,667 rupees; some portion of the original cost is believed to have been defrayed by private subscriptions, but to what extent is not known.	- - - - -	- - - - -	-- There are (22) twenty-two of these on the books of the Public Works Department.
Hospitals - - -	For insane and other sick persons	- - - - -	- - - - -	- - Cost of construction, 46,740 rupees; cost of repairs, about 934 rupees per annum.	- - - - -	- - - - -	-- There are (5) five of these, exclusive of those provided for the military, or for prisoners in gaols.

The total sum expended on public buildings, as above, is 11,40,246 rupees, but there are in addition several miscellaneous works constructed at the expense of the State, regarding which, from their not being included in the Returns of Executive Officers, the information is very imperfect. Thus the following works are known to have been constructed at the expense of Government:

Stone bathing ghauts at Hurdwar.	-- In consequence of a fatal accident which occurred at the great fair of Koom Mela, in 1820.	Constructed in 1821	- - - - -	- - 20,000 rupees, including the cost of superintendence.	-	-	
Repair of the Great Mosque, or Juma Muajid, at Delhi.	-- In consequence of injury caused by lightning.	-- Constructed in 1820-21.	- - - - -	20,000 rupees.	-	-	
Repair of the Kotub Minar	- - - - -	Constructed in 1823	- - - - -	25,000 rupees	- - - - -	- - - - -	-- The adjacent buildings were also cleared.

The Military Board remarked, "while the works of various descriptions of which we have some knowledge appear to have cost in the aggregate 1,39,64,000 rupees, that sum cannot be considered as the total amount expended by Government for works of public utility, nor have we the means of ascertaining what that amount may be."

Report dated Fort William, 8 September 1840.

The following Statements have been prepared from the series of the Board's annual Reports from the official year 1839-40, to that of 1850-51 inclusive.

No. 6.

STATEMENT compiled from the REPORTS of the MILITARY BOARD at BENGAL, from Season 1839-40, to 1850-51 inclusive.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement	Place of Termination, or of Intended Termination	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES.</b>							
Roads from the Town of Aeng, in Arracan, to Nagatongu and Thorowah, and for the construction of Bridges	- - - - -	Sanctioned 1840-41 -	- - - - -	Rs. a p. 17,823 7 4	- - - - -	Season 1840-41 -	-- Seven of the bridges to be restored, were destroyed by the Burmese in their flight from Arracan to Ava, in the year 1824
<i>Akyab.</i> Construction of two wooden Bridges over the Peck Tock Kying Nullah	-- To replace old bridges; which were originally constructed of indifferent materials by the Mughls of the Province.	-- Sanctioned 12th January 1841.	Akyab - - - -	5,869 11 1	5,470 11 3	Completed 1842-43 -	-- The breadth of these bridges, as first sanctioned, was 18 feet for both, but, subsequently, the Government authorised the width of one to be increased to 22, and the other to 24 feet. This has consequently increased the expense by Rs. 608. 2. 7.
Construction of five masonry bridges over Nullahs.	-- For maintaining an uninterrupted communication at the station.	-- Sanctioned 16th February 1841.	- - - - -	6,076 10 7	5,272 - 2	-- Completed season 1842-43.	-
Construction of Pucka Drain Bridges in the town	-- The necessity for this work, was brought to the notice of Government by the local civil officers.	-- Sanctioned 18th May 1841.	- - - - -	875 - 1	- - - - -	-- Constructed season 1842-43.	-
Construction of two Pucka Bridges.	- - - ditto - - - - -	-- Sanctioned 27th April 1841.	-- One on the road towards Nagapara, and the other in the town, on the bank of the Peck Sik Kyong.	1,445 12 2	- - - - -	- - ditto.	-
Restoration of the Bund and Sluice at Akyab, and clearance of Jungle.	-- For the purpose of drainage, and as essentially necessary to the salubrity of the station.	-- Sanctioned 3d April 1843.	Akyab - - - -	3,482 6 10	7,203 9 2	-- Completed season 1843-44.	-- This work, which was sanctioned in 1841-42, at an estimated cost of Rs. 6,637. 14. 6., was completed for Rs. 7,527. 10. 4., but it was destroyed by an irruption of the sea, during a violent storm, on the 15th May 1842, through a want of sufficient height. It was raised five feet above the highest spring tides; nevertheless the sea, on this occasion, overtopped the bund by five feet. The saving has accrued chiefly by a reduction of the rates, and also by the employment of convicts on a portion of the work.
Construction of two Bridges at, in the Arracan Division.	-- Required to keep open the communication between the station and the point bungalows, belonging to the residents.	-- Sanctioned 18th August 1840.	- - - - -	4,375 10 2	5,523 3 9	-- Completed season 1842-43.	-
Construction of two Pucka Drain Bridges in the town of Akyab.	- - - - -	-- Sanctioned 28th November 1842.	- - - - -	351 7 2	- - - - -	- - ditto.	-

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES—continued.</b>							
<i>Aeng Road and Pass:</i> Construction of a Bridge, and repair of seven others, and of Travellers' Houses.	-- These works are intimately connected with the interests of the trading community.	-- Sanctioned 9th September 1844.	- - - -	Rs. a. p. - - - -	Rs. a. p. 1,161 11 1	—	
<i>Agrachour to Balidah.</i> Construction of a Foot Road, connecting the Centar with the Cuttack Road.	-- To facilitate the transmission of the daks between Centar and Midnapore.	-- Sanctioned 16th April 1845.	Baldah - - -	1,873 6 8½	1,886 8 7	—	
<i>Akyab.</i> Repairs to the Phoongaparrah Bridge.	- - - - -	-- Sanctioned 23th June 1848.	Akyab - - -	928 14 4	- - - -	Season 1849-50	-- The planking, beams, rails, &c., have been renewed.
Construction of a wooden Bridge on the Gaol Road.	-- The necessity for this work was pointed out by the officer commanding at Akyab.	-- Sanctioned 19th October 1850.	ditto - - -	- - - -	1,371 - -	- - - -	-- The estimate is exclusive of the costs of excavations, which will be performed by convicts.
Construction of a wooden Bridge at Nazerparah.	- - - - -	-- Sanctioned 6th November 1850.	ditto - - -	- - - -	1,672 12 9	- - - -	-- An estimate was passed in 1846 for a masonry bridge, but, owing to the badness of the soil, it was considered preferable to construct a wooden one.
<b>ROADS AND BRIDGES, LOWER PROVINCES:</b>							
<i>Assam Roads.</i>							
<i>Lower Assam.</i> From Rahu to Gobba	- - - - -	Length. 27 miles	Assam - - -	- - - -	981 7 5	} - Completed season 1842-43.	-- These are unmetalled roads, and their width is 16 feet; they have been raised where necessary.
From Talia Mhookutta to Lowkhoa.	- - - - -	10 " } Sanctioned 9th January 1838.	ditto - - -	- - - -	9,917 7 11		
From Nowgong Division Roads	- - - - -	9 " }	ditto - - -	- - - -	972 9 -		
From Borallygong to Soonaree	- - - - -	8 " }	ditto - - -	- - - -	297 10 7		
From Nowgong to Demooroo-goree.	- - - - -	2 " }	ditto - - -	- - - -	533 8 -		
Repair of the Road from Kulling River to Kollabur.	- - - - -	72 " } Sanctioned 22d August 1842.	- - - -	- - - -	2,474 1 -	-- Completed season 1842-43.	-- This road will be made 12 feet wide, with 100 wooden bridges and drains. Proposed width, 15 feet.
From Kollabur to the Dunsary	- - - - -	60 " }	- - - -	- - - -	- - - -	- - - -	
Repair of Road between Nowgong and Tespore.	- - - - -	17 " } Sanctioned 26th April 1843.	- - - -	4,924 - 8	4,924 - 8	} Completed 1846-47	-- Width, 12 feet, with 22 bridges and drains.
Repair of Road from Rah to Daboka.	- - - - -	23½ " }	- - - -	5,152 15 3	6,528 3 6		-- Width, 12 feet, with wooden bridges and drains. The saving of Rs. 1,375. 14. 3. on the estimate has been effected by the reduction of rates.
<b>ROADS AND BRIDGES, CENTRAL PROVINCES:</b>							
<i>Ajmere and Nussערabad Road.</i> Metalling of.	-- Metalling of such portions as, from the nature of the soil, may require the construction of a hard artificial surface.	-- Length of road, 13 miles 4 furlongs; aggregate length requiring to be metalled, 6 miles 4 furlongs and 6 yards. Sanctioned 12th January 1848.	- - - -	- - - -	6,472 15 -	—	

087.	<i>Agra and Bombay Road :</i> Construction of Bridges over the Bubbookee Nuddee and the Bhowkerie Nuddee.	- - - - -	- - Sanctioned 9th September 1849.	- - In the Province of Malwa.	1,749 3 11	{ For bridge over the Bubbookee Nuddee } { For bridge over the Bhowkerie Nuddee }	1,802 5 9 1,597 - -	- - Completed season 1849-50.	- - Both bridges are on the territory of the Maharajah Scindia.
	Construction of a Bridge over the Muddy Nullah.	- - The construction of this bridge is necessary, and is considered to come within the scope of the original intentions in regard to the Agra and Bombay Road	- - To consist of one arch of 24 feet span. Sanctioned 15th October 1849.	- - The Nullah crosses the main road about one mile north of the Residency at Indore.	- - - - -	- - - - -	2,862 - -	- - - - -	- - In the territory of the Maharajah of Holkar.
	Construction of a Bridge over the Mhow Nullah	- - Commenced under instructions from the Lieutenant-governor, by whom it is considered desirable to bridge over as many of the small muddy nullahs as may be practicable, which abound on this road, and materially obstruct all traffic, and to improve the fords which cross the rocky beds of rivers	- - The bridge is of one arch, 12 feet span. Sanctioned 28th October 1848.	- - On the Agra and Bombay Road.	739 3 5 ½	- - - - -	872 - -	- - - - -	- - - - -
	Ford on the Parbutty River	- - To provide for a passage for wheel carriages across the Parbutty River on the general level of the channel during the dry season only	- - Sanctioned 6th September 1849.	Near Barsud - -	2,910 8 5 ½	- - - - -	- - - - -	Completed - -	This to be a paved ford.
	Construction of a Bridge over the Muddy Nullah.	- - Considered necessary for a fair-weather road.	- - The bridge to be of one arch of 30 feet span. Sanctioned 4th February 1850.	At Chuper Kajhora -	- - - - -	- - - - -	4,167 - -	- - - - -	- - - - -
	Construction of a Bridge over the Muddy Nullah.	- - With a view to make the line of communication more perfect.	- - The bridge is of seven arches of six feet span each. Sanctioned 2d December 1848.	- - At Dolterin, between Bisura and Puchore.	1,477 2 6 ½	- - - - -	1,711 13 5	- - - - -	In the territory of the Rajgurh Raja.
	Construction of Bridges over the Muddy Nullah.	- - ditto - - ditto - -	- - One bridge of two arches, eight feet span; one bridge of three arches, seven feet span; one bridge of eleven arches, six feet span. Sanctioned 12th September 1849.	- - Over the Boranna, the Par Muddy, and Belloda Village Nullahs.	- - - - -	- - - - -	2,706 - 10	- - - - -	- - - - -
	Construction of a Bridge over the Kukooba Jheel.	- - - - -	- - This bridge is of three arches each, of 7 ½ feet span. Sanctioned 4th April 1850.	- - Crosses the main road about 7 ½ miles south of Agra.	- - - - -	- - - - -	966 - -	- - - - -	- - - - -
	Construction of a Bridge over the Gudha Muddy Nullah.	- - - - -	- - This bridge is of six bays, each four feet wide. Sanctioned 25th March 1850.	- - Crosses the main road between Sossam and Gohur.	- - - - -	- - - - -	1,338 - -	- - - - -	In the territory of Maharajah Scindia.
	<b>ROADS AND BRIDGES, NORTH-WESTERN PROVINCES.</b>								
	<i>Agra Strand:</i> Bridging of drains on the.	- - - - -	Sanctioned 1848-49.	Agra - - - -	7,910 15 -	- - - - -	9,620 7 1	- - Completed season 1842-43.	- - - - -
	<i>Agra Bridge:</i> Over the Doorukar Ravine.	- - On account of the inconvenience experienced by the public, who have occasion to pass by the bridge and bazar near the Tripolish <i>vid</i> Cauzeepara, owing to there being but one narrow confined road at this entrance of the town.	- - Sanctioned 7th December 1840.	- - - - -	910 8 2	- - - - -	1,113 2 4	- - Completed season 1841-42.	- - - - -

(continued)

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No. 6 — STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>ROADS AND BRIDGES, NORTH-WESTERN PROVINCES—continued.</b>							
<i>Agra to Mynpooree:</i>							
Construction of Bridges over the Jhera River and Guddakhur Ravine, and over the Peelakar Rivulet.	-- This road is of much importance, being a direct communication between Agra and Futtoghur.	Sanctioned 1840-41	Mynpooree - - -	Bridge over the Jhera - - 7,069 8 6 Ditto over the Peelakar Rivulet 5,151 10 - <hr/> Rs. 12,215 2 6	Rs. a. p. 13,017 12 5	- - Completed season 1842-43.	- -
Construction of a Bridge over the Urind Nuddee.	- - - - -	- - Of three arches of 40 feet span. Sanctioned 3d January 1845.	- - Crossing the Agra and Mynpooree Road, 15 miles from Mynpooree, at the village of Kulhore.	17,071 - 1	23,874 3 7	- - Completed season 1846-47	- - The savings on the sanctioned estimates, viz, Rs. 6,803. 3. 6., and Rs. 10,681. 15. 8. respectively, are owing to much of the masonry work having been dispensed with, in consequence of the soil being more favourable than was originally expected, and to other judicious deviations from the plan. A reduction of rates has also contributed in effecting these savings.
Construction of a Bridge over the Singar Nullah.	- - - - -	- - To consist of two elliptic arches; the centre one of 45 feet, and the two arches on each side of 40 feet respectively. Sanctioned 3d January 1845.	- - Crossing the Agra and Mynpooree Road, 23 miles from Mynpooree, at the village of Nrown.	22,951 5 7	33,633 5 3		
<i>Agra and Bombay Road:</i>							
To the Nerbudda River - (See Paras. 13 to 17 of Court's Despatch, 30th January 1850, at page 148 of Parliamentary Return, No. 022, of 1851.)	- - A fair weather road adapted for hackeries or wheel conveyances, being much required between Agra and Bombay, it was determined in 1840 to improve, with occasional diversion, the existing road; the improvement was to comprise the removal of the principal obstructions in the ghauts, jungles, and in the passage of rivers and nullahs, or mountain streams.	Length, 1st portion: Agra to Indore - Ms. fs. yds. 370 3 102 Length, 2d portion: Indore to Akberpore on the Nerbudda - - 51 0 167 Length, 3d portion: Akberpore to Sindwa, 43 1 0 Length, 4th portion: Sindwa to Bombay 270 1 179 <hr/> TOTAL - - - 734 7 8  Commenced in 1840.	Bombay - - -  -- The expenditure within the Bengal Division to November 1847 is stated as follows, viz,  Rs. Newwork of road, 1,94,310 Superintendence, 1,13,106 Repairs, &c. - 47,542 <hr/> 3,54,958  The sum expended on two divisions of the road within the Bombay Presidency to 30th April 1848, exclusive of repairs, was - - - 9,74,811 There has also been a further sum sanctioned for various useful purposes of about 7,000  Making a } Total of } Rs. 13,30,769	11,00,000 - - (eleven lacs) without metalling.	- - - - -	- - Major Drummond has brought his survey of the portion of the line between Agra and Nerbudda to a close; and with reference to the enormous expense which must be incurred for such a road as would be available throughout the rainy season, the Government has come to the resolution to limit the work to an improvement of the existing roads, and in a great degree to give up the new lines which had been proposed. The Government on the 30th June 1840 sanctioned an estimate of 1,20,000 rupees, exclusive of engineer's salary and establishment, for improving the worst parts of the road between the Chambul River and Suppre, 115 ½ miles; and between Indore and the Nerbudda River, 70 ½ miles; so as to be practicable for wheeled carriages, including a branch road from Suppre to Gwalior. An increase in the width of the Ghauts from 10 to 14 feet was authorised on 3d January 1843. Returns were called for in 1848 with a view to undertaking the improvement of such detached parts along this great line of road as urgently required either construction or repair, when the following estimates were submitted, and recommended for immediate sanction, viz.:	
							Rs. 1,00,000 For completing part of the road under charge of the Civil Engineer, a distance of 93 miles, with bridges and drains - 2,40,514 For bridging a portion of the road between Soonghur and Dhoolia - - - - - 65,000 For completing the unmetalled portion of the line in Kandelish 3,00,000 <hr/> TOTAL - - - Rs. 7,11,514
<p>These works, however desirable, were considered too costly to be undertaken at present. A sum of 4,224 rupees was sanctioned in June 1849 for converting into a fair-weather road the line of 43 miles in length, between Scindwa and the Nerbudda, his Highness Holkar having contributed a moiety. The Court, in January 1850, sanctioned the annual expenditure of 28,700 rupees for the maintenance of this road within the Bengal Presidency.</p>							

Construction of a well at the top of the Kilner (Gara) Ghaut.

-- On a representation from the Resident at Indore of the very serious inconvenience experienced by troops and travellers from the want of water at that spot.

-- Sanctioned season 1845-46.

-- Between Deodat and Akbarpore.

594 14 8

760 14 5

-- Completed season 1846-47.

Agra. Proposed construction of a Suspension Bridge over the River Jumna.

Agra - - -

{ 5,39,378 - - }  
4,51,749 - - }

-- The first estimate is for a bridge of two spans of 500 feet each, with two half spans of 225 feet each, and a roadway 28 feet broad, supported by three

chains; the other, with the same openings, supported by two chains. These estimates, together with others on the taper chain, or Dredgian principle, were held over, awaiting a report of a special committee on the causes of the failure of the Balli Khall Bridge on the Dredgian principle. Subsequent to these proceedings, the construction of bridges on the taper chain, or Dredgian principle, was generally prohibited by the Home Authorities. An estimate for a masonry bridge was then submitted, but the Lieutenant-governor being doubtful whether the same site would suit a railway bridge as would be selected for the ordinary traffic of the country, has suspended any ulterior proceedings. The proper site for a railroad bridge, it is supposed, would approach Agra by Ferozabad, two marches short of Agra.

CIVIL BUILDINGS, SOUTH EASTERN PROVINCES—JUDICIAL

Akyab

Construction of a Cutcherry -

-- To replace the existing cutcherry, not worth repairing.

-- Sanctioned 1st August 1839.

Akyab - - -

4,869 8 5

4,742 8 3

-- Completed season 1841-42.

Construction of a new Gaol -

-- To replace old buildings are unserviceable and unwholly of repair.

-- Sanctioned 23d March 1841.

Akyab - - -

12,159 9 4

14,362 7 1

-- Completed season 1843-44.

-- The new gaol is equal to the accommodation of 320 prisoners.

Construction of a Sanitarium Bungalow, with bathing rooms and out-offices.

-- It is not stated for whose use the building is designed.

-- Sanctioned 9th January 1838.

-- Situated at the end of the Farque's Rocks, two miles from the station of Akyab.

4,813 9 10

-- Constructed in 1840-41.

Construction of a Treasury Record Room, malkanah, and cash-room, at the civil station.

- - - - -

-- Sanctioned 19th October 1841.

Akyab - - -

5,741 15 6

6,414 15 9

-- Completed season 1843-44.

Amherst. Construction of a new Gaol at.

-- In consequence of the insufficient accommodation afforded by the existing gaol.

-- Sanctioned 11th January 1842

Amherst - - -

3,445 4 4

5,106 14 3

-- Completed season 1843-44.

-- The gaol is intended for the accommodation of 280 convicts. The difference is owing to the employment of convicts, and to a reduction of the accommodation, with the concurrence of the commissioners. The dimensions sanctioned were 240x50, while those of the new gaol are 157x48.

Allpore Gaol. Construction of a Barrack and a Picket Shed.

-- For the gaol guard. The old guard-rooms were partly blown down by the storm of 3d June 1842.

-- Sanctioned 9th January 1843.

Allpore - - -

5,494 12 1

5,776 13 1

-- Completed season 1843-44.

-- These buildings are required for the accommodation of 211 men. The walls will be of masonry, and the roofs of tiles.

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board of Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>CIVIL BUILDINGS, SOUTH EASTERN PROVINCES—JUDICIAL—continued.</b>							
<i>Akyab:</i> Construction of a Gaol Wall, with Sentry-boxes.	-- In consequence of a suggestion by the Commissioners of Arracan that all men sentenced to more than one year's imprisonment should be located at Akyab.	-- Sanctioned 17th May 1838.	Akyab - - -	<i>Rs. a. p.</i> 9,100 14 2	<i>Rs. a. p.</i> - - - -	Season 1838-39.	-
Construction of Wards within the above Gaol Wall.	-- The existing gaol buildings have become old, and unworthy of further repair.	-- Sanctioned season 1840-41.	ditto - - -	14,362 7 1	14,362 7 1	-- Completed season 1840-41.	-- The new wards will accommodate 120 prisoners.
Construction of a Sudder Hospital at	-- Rendered necessary by the existence of a military police, the flotilla establishment, crews of vessels, &c., all requiring medical aid, in consequence of the insalubrity of the climate, as well as the ruinous condition of the old hospital.	-- Sanctioned 6th February 1843.	ditto - - -	1,703 1 -	1,397 11 9	-- Completed season 1844-45.	-- The new hospital will be 60 x 24, with a 10 feet verandah all round, the corners of which are to be partitioned off into separate rooms for the native doctor, dispensary, and operating rooms.
<i>Allipore Gaol:</i> Alterations and improvements to.	-- To improve the gaol, as regards cleanliness, salubrity, and discipline.	-- Sanctioned 22d June 1841.	Allipore - - -	20,734 13 10	22,377 15 8	-- Completed season 1843-44.	-
<i>Akyab:</i> Construction of six Drain Bridges.	-- Necessary to the cleanliness and salubrity of the town.	-- Of one arch of six feet, sanctioned 20th August 1845.	-- On the Chowreggya road.	1,942 5 8	2,202 - -	-- Completed season 1846-47.	-
Construction of a Bridge at Talee Bazar.	-- Required to replace bridges of wood, reported to be unsafe for wheel carriages; and as the line of road on which they are situated is considered the most important at Akyab, it is considered that they should be of the most durable description.	-- One arch of 20 feet span.	Akyab - - -	- - - - -	6,313 - -	-	
Construction of a Bridge at Nazirpah.		Twenty-four feet span	ditto - - -	- - - - -	4,998 - -	-	
<i>Allipore Gaol:</i> Putting up a Pump.	-- For raising water from the large tank in the gaol to the reservoir above it, to supply the different wards with drinking water.	-- Sanctioned 20th August 1845.	Allipore - - -	402 8 -	402 8 -	-- Completed season 1846-47.	-
<i>Akyab:</i> Construction of the Budder Mokam Stone Sluice.	-- This sluice, together with the bund at Akyab, was destroyed by a storm on the 15th May 1842.	-- Sanctioned 28th May 1845.	Akyab - - -	1,783 15 8	1,783 15 8	-- Completed season 1846-47.	-- The roadway over the sluice has been made sufficiently large to be safe and practicable for wheel conveyances. The reconstruction of the bund was reported in 1844.



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Allipore Gaol. Alterations and improvements	-- To improve the gaol as regards cleanliness, salubrity, and discipline.	-- Sanctioned 22d June 1841.	Allipore - - -	20,734 13 10	22,377 15 8	-- Completed season 1843-44.	-- The works sanctioned are as follows : The construction of aqueducts to carry water to the reservoirs in the several court yards, for drinking and other purposes, the construction of privies; the filling up of wells, the construction of partition walls with a view to the separation of the convicts into squads of about 100 men; the removal of the existing solitary cells to a more airy site, and the construction of an additional ward and working shed.
Construction of a Balagustee Guard-room to the.	-- This building will be of more durable materials than the last, which has been entirely destroyed by white ants.	-- Sanctioned 22d June 1845.	Allipore - - -	606 - -	606 - -	-- Completed season 1845-46.	-
Akyab. Additions and alterations to the Cutcherry at.	-- For the better accommodation of the different civil officers.	-- Sanctioned 3d June 1844.	Akyab - - -	- - - -	2,306 9 3	- - - -	-- This building has been lengthened about 40 feet.
Allipore Gaol. Construction of a Retiring-room, with Anti-room, to the Cutcherry of the additional Judge.	-- These works were undertaken under a representation from the additional Session Judge of their necessity.	-- Sanctioned 25th May 1848.	Allipore - - -	953 5 3	- - - -	-- Completed season 1849-50.	-- Additions and alterations to the cutcherry itself were also effected.
Allipore : Renewing the Roof of the Sepoy Guard-room.	-- In lieu of the old roof, condemned by a committee.	-- Sanctioned 20th June 1850.	Allipore - - -	- - - -	2,302 1 8	-	-
Alterations and Additions to the Gaol Hospital.	-- Under a representation from the superintendent of the gaol, of the necessity for a better classification of the patients	-- Sanctioned 18th October 1850.	Allipore - - -	- - - -	3,084 - 1	- - - -	-- The superintendent observed, that in the large gaol at Allipore the different kinds of prisoners are kept as distinct as can be; but in the hospital all the above classes, from the most atrocious and desperate convicted felon to the respectable freeman, male or female, are mingled together.
CIVIL BUILDINGS, LOWER PROVINCES--JUDICIAL							
Arrah. Sudder Ameen's Cutcherry.	- - - - -	-- G. O. 23d January 1839.	Arrah - - -	1,559 - -	- - - -	Season 1839-40.	-
Akyab. Construction of a Cutcherry at.	- - - - -	-- Sanctioned 1st August 1839.	Akyab - - -	4,742 - -	-	-	-
Arrah Construction of a De-wanny or Civil Gaol.	-- No separate provision had been made for the confinement of civil prisoners, and, in consequence, persons of this class were mixed up with the common felons of the gaol.	-- Sanctioned 1st November 1842.	Arrah - - -	3,437 12 7	4,649 10 5	-- Completed season 1844-45.	-- In the new gaol, and, at the suggestion of the Judge, separate accommodation is provided for prisoners of rank and caste.
Arrah Gaol: Construction of 60 Ventilators, and lowering Compound Walls.	-- For the better ventilation of the criminal wards.	-- Sanctioned 17th February 1848.	Arrah - - -	492 7 10	412 4 6	Season 1848-49.	-

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No. 6 — STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>CIVIL BUILDINGS, CENTRAL PROVINCES—JUDICIAL:</b>							
<i>Allahabad</i> . Sudder Ameen's Cutcherry.	- - - - -	-- Sanctioned 28th August 1839.	Allahabad - - -	<i>Rs. a. p.</i> 1,279 6 8	<i>Rs. a. p.</i> 1,579 8 -	-- Completed season 1841-42.	-
<i>Ajmere Gaol</i> : Alterations to the.	- - - - -	-- Sanctioned 24th December 1840.	Ajmere - - -	1,700 - -	1,700 - -	Season 1840-41.	-
<i>Azimghur</i> : Construction of a Record Room.	-- For the use of the Collector and Magistrate.	-- Sanctioned 23d March 1844.	- - - - -	2,225 7 9	2,238 6 9	-- Completed season 1846-47.	-
<i>Allahabad</i> . Construction of an additional Room to the Judge's Cutcherry.	-- For the accommodation of the records.	-- Sanctioned 7th January 1851.	Allahabad - - -	- - - - -	1,998 4 6	- - - - -	-- The necessity for this additional accommodation was pointed out by the local civil authority.
<b>CIVIL BUILDINGS, NORTH WESTERN PROVINCES—JUDICIAL:</b>							
<i>Allyghur Gaol</i> : Construction of an additional Ward.	-- In consequence of the insufficiency of space in the gaol.	-- Sanctioned 30th August 1841.	- - - - -	1,484 4 10	- - - - -	-- Constructed season 1842-43.	-
<i>Agra</i> : House for the Magistrate and Collector, and his Deputy.	-- The house which had been rented was no longer in a fit state for a public office.	-- Sanctioned 11th September 1842.	Agra - - - - -	- - - - -	11,956 13 9	Season 1842-43.	-
Erection of Offices for the Court of Sudder Dewanny.	- - - - -	-- Sanctioned April 1843.	- - - - -	20,392 9 3	17,501 - -	-- Completed season 1844-45.	-- These new offices will be built near the Secretariat Buildings, and the whole of the public buildings will be enclosed by a low wall.
Erection of Offices for the Board of Revenue.	- - - - -	-- Sanctioned April 1843.	- - - - -	- - - - -	11,067 - -	- - - - -	-- The excess of expenditure is owing to a rise in the price of timber in the bazaar.
Construction of a Hospital Ward at the Foujdarry Gaol.	For the use of females - -	-- Sanctioned 4th November 1843.	Agra - - - - -	849 6 7	909 12 9	-- Constructed season 1843-44.	-- The necessity for this work was reported direct by the civil authorities to the Government.
<i>Allyghur</i> : Construction of a Gaol in the Fort.	-- To relieve the district gaol, by the withdrawal of life prisoners, and to lessen the expense for increased guards for the custody of convicts.	-- Sanctioned 2d March 1844.	Allyghur - - -	-- These works suspended in season 1844-45.	66,980 1 -	- - - - -	- This gaol is intended to accommodate 1,200 male and 200 female convicts. The whole of the buildings are to be surrounded by a ditch 14 feet broad and 12 feet deep, with a pukka wall 14 feet high in the centre. The slopes are to be secured with masonry revetments, and the bottom of the ditch and a few feet of the bottom of the slope to be substantially faced with masonry, and the ditch to be made considerably wider at top.
<i>Agra</i> : Construction of a Court House.	For the Sessions Judge - -	-- Sanctioned 3d June 1845.	Agra - - - - -	6,436 10 -	8,558 12 9	-- Completed season 1846-47.	-

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<i>Allyghur</i> . Construction of Cutcherries for the Sudder Ameen and Omlahs.	-- During the last rains the old buildings became too dilapidated for use.	-- Sanctioned 25th March 1840.	Allyghur - . .	3,355 13 10	3,003 - -	-- Completed season 1846-47.	-
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—REVENUE:</b>							
<i>Akyab</i> . Additions and Alterations to the Treasury and Record-room.	- - - - -	-- Sanctioned 9th September 1844.	Akyab - - -	1,025 - -	1,025 - -	-- Completed season 1845-46.	-- The works executed consisted of an arcaded puca verandah in lieu of a thatched one; additional alterations to doors and windows, and renewing the terrace roof.
<b>CIVIL BUILDINGS, CENTRAL PROVINCES—REVENUE:</b>							
<i>Allahabad</i> . Pilgrim Hospital, additions to.	- - - - -	20th December 1839	Allahabad - -	1,475 1 -	1,475 1 -	-- Completed season 1840-41.	-
Office of the Sudder Board of Revenue.	-- Repair of injury done by storms on the 2d and 3d May 1848.	18th October 1838	- ditto - - -	8,540 - -	8,540 - -	-- Completed season 1839-40.	-
Construction of four Tehsildarry Cutcherries.	- - - - -	-- Sanctioned 27th August 1840.	- - These cutcherries are situated at Menjah Chail, Kurchunna, and Munjeirpore.	10,812 4 5	20,423 2 4	-- Completed season 1842-43.	-
<i>Azimghur</i> : Construction of a Tehsildarry Cutcherry.	- - - - -	-- Sanctioned 31st March 1838.	At Cheerkote - -	5,730 - 4 1/2	- - - - -	-- Completed season 1841-42.	-
<i>Allahabad</i> . Construction of a Treasury Room to the late Judges' Cutcherry.	-- This cutcherry has been transferred to the Collector of Allahabad.	-- Sanctioned 27th March 1847.	Allahabad - -	- - - - -	3,869 - -	-	-
<b>CIVIL BUILDINGS, NORTH WESTERN PROVINCES—REVENUE:</b>							
<i>Agra</i> . Construction of a Cutcherry for the Commissioner of the Division.	- - - - -	-- Sanctioned 11th August 1846.	Agra - - -	0,561 6 -	10 573 - -	-- Completed season 1846-47.	-
Addition of Outbuildings to the Cutcherry of the Commissioner.	-- Consisting of a guard-house, godown, and shed.	-- The necessity for these works was brought to the notice of the Lieutenant-governor, who at once directed the executive officer to commence on the buildings.	- ditto - -	1,200 5 7	1,533 - 3	-- Completed season 1847-48.	-
<i>Allyghur</i> : Construction of a Tehsildarry Cutcherry at Eglass.	-- The Tehsil duties have been carried on with much inconvenience at the Sudder Station, which is a distance of 15 miles.	-- Sanctioned 7th July 1843.	Eglass - - -	- - - - -	4,002 12 0	-	-
<b>CIVIL BUILDINGS, SOUTH EASTERN PROVINCES—GENERAL</b>							
<i>Akyab</i> : Enclosure of the Bural Ground.	- - - - -	-- Sanctioned 16th May 1842.	- - - - -	- - - - -	1,985 12 3	-	-
<i>Allipore</i> . Removing and setting up a Steam-engine in the Iron Bridge Yard.	-- This engine, which has been transferred from Chaund Paul Ghaut, is of 10 horse-power.	-- Sanctioned 23d October 1813.	Allipore - - -	7,240 - -	7,020 - -	-- Completed season 1844-45.	-

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No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL—continued.</b>							
<i>Allipore</i> —continued. Construction of new buildings.	-- For the establishment attached to the Mathematical Instrument Department.	-- Sanctioned 16th January 1844.	Allipore - - -	Rs. a. p. 3,794 12 8	Rs. a. p. 3,794 12 8	Season 1843-44.	-
<i>Akyab</i> ; Protection of the Beach, and formation of a Landing-place.	-- The necessity for this work was brought to notice by the Marine Board and the Commissioner of Arracan.	-- Sanctioned 19th June 1843.	Akyab - - -	10,120 - 7	13,868 11 2	-- Completed season 1845-46.	-- This outlay is to be defrayed from the port dues. The saving on the work is 3,748 rupees, in consequence of 7½ groins having been constructed instead of 10. The pier provided in the sanctioned estimate has not been executed. The above amount has been placed at the disposal of the Commissioner of Arracan for completing the pier or breakwater.
Constructing of a Large Shed with Verandah, to serve as an Exchange.	-- A place of this description is much wanted at Akyab, where merchants, agents, captains, &c. may assemble under shelter from sun or rain.	-- Sanctioned 17th November 1845.	- - - - -	- - - - -	1,500 - -	Season 1845-46	-- The shed is to be 66 by 20, with a verandah 12 feet on four sides.
Construction of Three Marine Wells.	- - - - -	-- Sanctioned 20th March 1844.	- - - - -	767 3 3	- - - - -	-- Completed season 1845-46	-
<i>Allipore</i> ; Additions, &c. to the Iron Bridge Yard.	-- For increasing the accommodation to afford shelter to the carpenters, who at present work in the open air; for English smelting coal, to prevent its wastage from wind and rain; and also to provide sufficient space to meet heavy demands.	-- Sanctioned 27th May 1846.	Allipore - - -	4,260 2 6	4,199 - -	Season 1848-49.	-
Construction and setting up of an additional boiler to the Steam-engine at the Iron Bridge Yard.	-- Necessary to secure the efficiency of the establishment and prevent delays, which would prove detrimental to the public service.	-- Sanctioned 17th May 1845.	- ditto - - -	3,280 15 9	3,280 15 9	-- Constructed season 1846-47.	-
<i>Amherst</i> : Provision of a Pilot Station on the Island off Amherst.	- - - - -	-- Sanctioned October 1848.	Amherst - - -	487 11 11	500 - -	-- Reported season 1846-47.	-
<b>CIVIL BUILDINGS, LOWER PROVINCES—GENERAL:</b>							
<i>Akra</i> : Additions to the Semaphore Tower.	- - - - -	-- Sanctioned 12th August 1846.	Akra - - -	573 10 1½	- - - - -	Season 1847-48.	-
<b>CIVIL BUILDINGS, CENTRAL PROVINCES—GENERAL:</b>							
<i>Allahabad</i> : Ghaut on the Jumna, &c.	- - - - -	-- Sanctioned 1830-40.	- - - - -	5,790 12 -	3,500 - -	-- Completed 1840-41.	-- The excess over the estimated amount is owing to the execution of the work on a more complete plan than was intended, in accordance with the advice of the magistrate, who had promised aid to the extent of 2,000 rupees towards the undertaking.

<i>Agra</i> Provision of accommodation for the Establishment with the Governor-general.	- - - - -	-- Sanctioned season 1843-44.	Agra - - -	2,611 15 11	- - - -	Season 1843-44.	-
<i>Allahabad:</i> Enlargement of the Burial Ground.	-- The ground in the existing cutcherry was completely occupied with graves, and the burial-place required extension.	-- Sanctioned 14th February 1848	Allahabad - -	529 2 11	564 5 3	-- Completed season 1848-49.	-
Landing-place for Goods and Passengers, and Apparatus for landing Goods, &c.	-- Under a representation from the agent Government steamers of the necessity of the works.	-- Sanctioned 29th December 1849.	Allahabad - -	- - - -	7,108 4 5	- - - -	-- In consequence of the increased influx of stores to be sent per bullock train, the steam agency is not at all times sufficient to contain the whole of the goods in store. With reference to the Ghaut, &c., it is stated that the crews of the vessels work much harder than the Bandarries or Coolies, so that with the aid of the machinery and works provided for in this estimate, it is expected that a Government vessel may be cleared of the largest cargo ever brought to Allahabad in six or eight hours, which at present occupies 1 ½ to two days.
<b>CIVIL BUILDINGS, NORTH-WESTERN PROVINCES--GENERAL.</b>							
<i>Agra</i> Enclosure of the new Burial Ground.	- - - - -	-- Sanctioned 17th October 1842.	Agra - - -	38 1 -	- - - -	-- Completed season 1842-43.	-
Construction of a Record Room.	-- For the accountant North-Western Provinces.	-- Sanctioned 6th October 1845.	Agra - - -	2,181 10 10	2,168 - -	-- Completed season 1846-47	-
Erection of a new Staging Bungalow.	-- In lieu of the present building, which is not suited for the accommodation of travellers	-- Sanctioned 14th August 1845.	Agra - - -	1,756 5 9	2,102 - -	-- Completed season 1846-47.	-
Construction of a Post Office and Godown, with Compound Wall.	-- At the instance of the Post-master-general	-- Sanctioned 10th July 1849.	Agra - - -	- - - -	5,511 - -	-	-
Construction of a Theatre, with Museum attached, as a Wing to the College.	• Under orders of the Lieutenant-governor.	-- Sanctioned 13th July 1850.	Agra - - -	- - - -	13,840 8 -	- - - -	-- The grounds for the preparation of this estimate were not made known to the Military Board.
<b>CIVIL BUILDINGS, LOWER PROVINCES--POLITICAL:</b>							
<i>Assam, Upper</i> Construction of various Buildings at.	-- At Subsaugor treasury, record room, magazine, with guard room. At Detroghur. record rooms, treasury, powder magazine, store room.	-- Sanctioned 3d August 1840.	Upper Assam - -	- - - -	11,913 9 9	Season 1840-41	-
<b>CIVIL BUILDINGS CENTRAL PROVINCES--POLITICAL:</b>							
<i>Ajmere:</i> Construction of Residency Buildings	- - - - -	-- Sanctioned 31st August 1840	- - - -	1,024 3 5	1,160 15 11	-- Completed season 1841-42	-
<b>CIVIL BUILDINGS, NORTH-WESTERN PROVINCES--POLITICAL.</b>							
<i>Agra:</i> Construction of additional Buildings.	-- For the accommodation of the records of the office of the Secretary to Government.	-- Sanctioned 13th February 1846	Agra - - -	2,789 9 10	- - - -	- Constructed season 1846-47.	-- The new record room measures 30 by 18 feet, with two side and one end verandah, 10 feet in the clear.

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No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1833-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>MARINE BUILDINGS, LOWER PROVINCES:</b>							
<i>Akyab</i> : Construction of a Lighthouse on the Great Savage Rock.	- - - - -	- - Sanctioned 9th November 1842.	- - - - -	<i>Rs. a p.</i> Cost of Light-houses - 33,587 10 4 Buildings attached - 1,501 9 6 Lantern - 15,000 - - <hr/> <i>Rs. 50,089 3 10</i>	<i>Rs. a p.</i> 33,425 8 7 The cost will be defrayed from the funds of the port, which are believed to amount to 20,000 or 30,000 rupees. The lantern to be used, which is valued at about 21,000 rupees, will be supplied from the marine stores in Calcutta.	-- Completed season 1843-44.	-- Thirty-five feet of the rock downwards has been removed, and a base thus obtained for the superstructure. The rock is now 49½ feet above high-water mark, and the lighthouse will be raised to the height of 50½ feet, so that it will be 100 feet above the highest spring-tides. The lantern was lighted on the 7th March 1844.
<b>EMBANKMENTS, SOUTH-WESTERN PROVINCES.</b>							
<i>Burdwan Division</i> : Restoration of the Kaunes Khal Bunds.	- - - - -	- - Sanctioned 15th July 1841.	Burdwan - - -	- - - - -	1,075 12 -	Season 1841-42	-- The length of embankments in the Burdwan Division is represented, in 1839-40, to be 285 miles, and the estimated cost of annual repairs, 4,619 rupees.
New Bund on the Adjye River.	-- To prevent injuries to lands by the overflows of the river	Sanctioned 1841-42	- - - - -	1,884 11 -	- - - - -	-- Completed season 1841-42.	-
<b>EMBANKMENTS, SOUTH-EASTERN PROVINCES:</b>							
<i>Bogree</i> : Construction of a new Bund on the Selu River.	-- To replace the old bunds, which were pronounced to be quite insusceptible of efficient repair.	- Length, 10,460 feet; sanctioned season 1843-44.	Bogree Pergunnah -	2,437 14 1	- - - - -	-- Completed season 1843-44.	-- It is expected that about 814 beegahs of land will be fertilised.
<i>Burdwan</i> : Construction of a new line of Bund from Salai-pore to the Canna Nuddee, and repairs and renewals to the Burdwan Bunds generally.	-- The new bund is proposed for construction at a point where the old one has frequently failed, causing great damage to the country.	- Length of new bund, four miles; sanctioned season 1847-48-49.	Burdwan - - -	- - - - -	72,176 12 0 16,469 - - <hr/> 88,645 12 0	-	-
<i>Burdwan Bunds</i> : Repair of a breach at the Ragulpore Bund.	-- This bund was breached during the floods of 1848, nearly opposite to Burdwan, at a point where the whole force of the Damoodah acts upon it.	-- Sanctioned season 1848-49.	Near Burdwan -	7,291 7 10	- - - - -	Completed 1849	-- The length of the new do bundy is 11,600 feet; the centre has an average height of 16 feet; it is 14 feet broad, and has slopes of four to one and three to one. The ends, which are not exposed to the force of the river, 9,100 feet in length, have a height of 10 feet, and a crest of 8 feet.
<i>Balasore Division</i> : Construction of new Bunds, and restoration of others which had been abandoned.	-- Required for the protection of the estate Mouzah Sindecah, Pergunnah Soonhat.	- Sanctioned January 1844.	- - - - -	- - - - -	230 - -	Season 1843-44	-- The average length of embankments in 1839-40, in the Balasore Division, was estimated at 185 miles, and the cost of annual repairs, 1,065 rupees. In 1847-48, the estimate for annual repairs was <i>Rs. 7,097. 13. 0.</i>

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EMBANKMENTS, LOWER PROVINCES:

<i>Berhampore Division: Bunds at Moorshedabad.</i>	- - - - -	- - Length, about 74 miles.	- - - - -	- - - - -	- - - - -	- - - - -	- - The cost of annual repairs for 1850-51, amounted to 4,724 rupees.
<i>Banleah Bunds: New Bund from Huntanshed to Banleah Ghaut.</i>	For the protection of the town	- - Length two miles, one furlong, and 180 yards, sanctioned 6th February 1840, 3,100 feet additional sanctioned December 1840	- - - - -	- - - - -	4,111 - -	- - This work is in progress.	-
<i>Buxee Bund: Construction of a Sluice Bridge at the western end of this Bund.</i>	- - To prevent influx of the waters of the Ganges.	- - Sanctioned 22d February 1850.	- - At the village of Chooter Bogree, Allahabad.	- - - - -	64 8 1½	1,397 - -	- - Completed 1841-42.
					2,223 10 3		- - The west end of the Bund was totally detached from the high ground, with which it ought to be connected, and the waters of the Ganges run up a hollow many hundred feet in rear of the left flank of the Bund.

EMBANKMENTS, CENTRAL PROVINCES:

<i>Behar, Sacri Bund: Reconstruction of.</i>	- - To protect the country on the Western Channel from inundations.	- - Sanctioned season 1838-39.	Behar - - -	12,218 - - Estimate for ordinary repairs, 1,500 rupees.	9,155 2 7	Completed 1840-41	- - The great excess of expenditure beyond the estimate, was occasioned by Lieutenant Ommaney not making a sufficient allowance, for the great distance from which the earth had to be brought. The bund has fully answered the purposes for which it has been reconstructed, and the collector anticipates no difficulty in realising from the Zemindars the amount expended.
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CANALS, NORTH-WESTERN PROVINCES:

<i>Bejapore: Watercourse in the Deyrah Dhoon.</i>	- - For the irrigation of land lying between the Tonse, the Arson, and Bogul Rivers.	Sanctioned 1838-39	Deyrah Dhoon -	15,920 14 7	- - - - -	Completed 1840-41	-
<i>Construction of masonry falls</i>	- - To lessen the rapidity of the stream,	Sanctioned 1838-39	- - - - -	6,364 2 4	- - - - -	- - Completed 1841-42.	-
<i>Brotana Branch Canal: Construction of 50 masonry outlets.</i>	For irrigation - - -	- - Sanctioned 7th March 1837.	- - - - -	4,501 1 4	- - - - -	- - Completed season 1842-43.	-
<i>Bejapore Watercourse: Construction of a masonry Tunnel.</i>	In lieu of a wooden tunnel - -	- - Sanctioned 26th September 1843.	- - Near the village of Dakra.	2,996 14 -	2,996 14 -	- - Completed season 1843-44.	- - The wooden tunnel was a source of much trouble and expense, owing to the repairs which it required constantly.
<i>Construction of a Corn Mill at Dakra.</i>	- - - - -	- - Sanctioned 1st June 1844.	- - ditto - -	682 12 3	- - - - -		

CANALS, SOUTH-WESTERN PROVINCES:

<i>Canal from the Banka Nullah to the New Pertambkhollee Canal in Tumlook.</i>	- - The Banka Nullah Canal forms a navigable communication between the Huldee and Roopnerain River, and is chiefly used for the transport of salt. By the new cut the dangerous route taken by the salt boats of Tangrakhalley and Roopnerain Rivers will be avoided.	- - Length of the new cut 8 miles and 145 feet, sanctioned 24th November 1841.	- - - - -	- - This project was abandoned under orders of Government 17 August 1842.	- - Estimated for the new cut, 17,619 2 -	- - - - -	- - Further inquiry established the fact, that there are no sufficient grounds for entertaining the expectation that it will be possible to locate 300 or 400 Khalines along the sides or in the vicinity of the proposed canal, and that the risk attending the transport of the Ourung salt to Ghut Narampore, as now conducted, ought, with proper precautions, to be quite inconsiderable.
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No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>CANALS, SOUTH-WESTERN PROVINCES—continued.</b>							
Baliaghatta Canal - - -	- - - - -	- - Sanctioned 13th December 1839.	- - - - -	<i>Rs a p.</i> 1,611 4 -	<i>Rs. a. p.</i> - - - - -	- - Completed season 1843-44.	-
Baliaghatta Canal, repair of a portion of the south bank.	- - To obtain a wider road, and improve the slopes of the bank.	- - Sanctioned season 1849-50.	- - - - -	508 13 7½	- - - - -	- - Completed season 1849-50.	- - The dock gates were taken out and repaired at a cost of Rs. 457. 2. 6.
<b>ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES.</b>							
Construction of a Bridge on the Burdwan and Hooghly Road, at Shaickpore.	- - This bridge is required on a part of the road which is liable to be cut through, whenever the floods of the Damoodah Nullah are brought down the Banka Nullah from the neighbourhood of Burdwan.	- - Sanctioned 22d December 1840.	- - - - -	1,588 9 5	1,681 1 10	- - Completed season 1842-43.	- - This is to be a bridge of three (3) arches.
Bancoora and Burdwan Road -	- - A portion of the old line of road bordering on the southern bank of the Damoodah Rivers, by the floods of which it is constantly breached, is to be abandoned, and a more direct one adopted.	- - Length 14½ miles; sanctioned 16th February 1841 and 19th May 1842.	- - - - -	- - Cost of the bridges, 7,890 rupees.	12,000 - - 8,880 14 3	- - Completed season 1846-47.	- - The number of drains and bridges to be constructed, amounts to 34. The road is under charge of the Burdwan Local Committee.
<i>Bissenpore Road:</i> Construction of a new masonry Bridge on the.	- - Indispensable for the safety of the Bissenpore road, of which, owing to insufficiency of drainage, 2,000 feet were carried away by a flood.	- - Sanctioned 28th August 1843; to consist of two arches of 16 feet span each.	Near Gobroo Bazar -	2,120 1 -½	2,498 2 10	- - Completed season 1844-45.	- - This is an important line of communication, as it connects the grand trunk road with Midnapore and the Province of Orissa.
Construction of a masonry Bridge over the Doodiah Khall.	- - To supply the place of an old bridge, which was destroyed by inundation.	- - Of four arches, 20 feet span each, sanctioned 26th March 1845.	- - Between Midnapore and Bissenpore.	7,449 - -	8,646 4 -	- - Completed season 1847-48.	-
<i>Boringham:</i> Construction of two additional Arches to the masonry Bridge at.	- - This bridge was severely injured by the overflowing of the river in September 1843. It is hoped that these arches will reduce the elevation of the waters in some degree, and thus lessen the evil to be feared by the error in construction of not having raised the pier to a sufficient height.	- - Sanctioned 29th June 1844.	- - On the Raepore mail road, in the Nagpore territory.	4,945 13 -	4,945 13 -	- - Completed season 1846-47.	The bridge consisted of three arches.



<i>Ballu Khal Iron Tension Bridge:</i> Construction of " " "	-- A bridge at the spot selected will be a great public convenience.	-- One span of 250 feet, with a 16 feet roadway, sanctioned 3d June 1844.	-- Situated on the right bank of the Hooghly River, near Howrah, opposite Calcutta.	56,680 4 2	48,447 0 -	Completed in 1845 -	-- The inhabitants subscribed 17,800 rupees towards its erection; the requisite disbursement for completing the structure was to be made from the ferry funds of the district. This bridge fell down in June 1845, immediately after its completion, which was attributed to a want of sufficient strength in the central connexion of the chains. The bridge was again put up, greatly strengthened in the central connexion. The Court, in a despatch dated 3d December (No. 9) 1845, disapproved the tension principle, and directed that it should not be further adopted in the construction of suspension bridges.
Restitution of the " " "	- - - - -	-- Sanctioned 28th October 1845.	- - - - -	12,927 9 8	7,431 - -	-- Reconstructed season 1846-47.	- -
Making the approaches to the " " "	- - - - -	-- Sanctioned 16th March 1846.	- - - - -	- - - - -	2,445 9 7	-	-
<i>Bisnapore Road:</i> Strengthening of the Tamal Nullah and Sautbancoorah Masonry Bridges.	-- In consequence of injuries sustained by the floods of season 1844.	-- Sanctioned 27th August 1845.	-- Situated in the Midnapore Division.	2,172 1 -	3,572 - -	-- Completed season 1847-48.	-
<i>Bankipore to Jehannah:</i> Reconstruction of a Bridge and two small Drains.	-- These works were carried away by a high flood on the 22d August 1844.	-- Sanctioned 7th May 1845.	- - - - -	- - - - -	1,901 10 1 and 10,000 for drainage.	-	-
<i>Behar District:</i> Construction of Drain Bridges on the line of the Grand Trunk Road.	-- For the drainage of the road	-- Sanctioned 30th April 1845.	- - - - -	8,177 13 4	8,177 13 4	-- Constructed season 1846-47.	-
<i>Budge-Budge Road:</i> Construction of four Drain Bridges, and repairs thereon.	-- With a view to render the road more practicable for mail-carts.	-- Sanctioned 24th December 1845.	- - - - -	2,440 - 0	2,440 - 9	Season 1845-46.	-
<i>Bisnapore Road:</i> Repair of the Masonry Bridge over the Tamal Nullah.	- - - - -	-- Sanctioned 9th May 1847.	- - - - -	- - - - -	1,219 15 1	-	-
<b>ROADS AND BRIDGES, LOWER PROVINCES :</b>							
<i>Beyalal to Diamond Harbour:</i> Repairs to the Pucca Road and Bridges on.	- - - - -	-- Length, 24 miles; width, 14 feet, sanctioned 28th July 1845.	Diamond Harbour -	35,000 - -	35,000 - -	-- Completed season 1845-46.	-- The estimate for annual repairs to the pucca centre of this road amounts to 3,091 rupees.
<i>Barripore to Calpee:</i> Construction of a Cutch Road.	- - - - -	-- Length, 32 miles, sanctioned in 1844.	Calpee - - -	19,048 6 6	- - - - -	-- Completed season 1847-48.	-
<i>Burgatchy to Dinagepore:</i> Raising of the Road.	-- This line was adopted in lieu of the old road <i>via</i> Malda, when the settlement at Darjeeling was first formed.	-- Length, 91 miles and 71 yards, sanctioned 20th October 1847.	Dinagepore - -	15,224 6 6	16,010 2 9	-- Completed season 1849-50.	-- A portion of this road, a distance of 60 miles, has been raised above the level of inundation mark.

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive --continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement	Place of Termination, or of Intended Termination	Amount of Expense Incurred	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>ROADS AND BRIDGES, NORTH-WESTERN PROVINCES:</b>							
Bridge over the Bargool River on the Peelibhet Road, in the district of Rohil.	- - - - -	- - Sanctioned in season 1839-40.	- - - - -	Rs. a. p. 11,298 3 3½	Rs. a. p. 9,158 8 -	- - Completed season 1841-42.	- - The excess, Rs 2,139. 11. 3, of expenditure beyond the estimate is owing to the difficulties encountered in the execution of the work, and to convict aid to the extent contemplated not having been afforded.
<b>CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL.</b>							
Baraset Gaol: Rebuilding of the Compound Wall.	- - The former wall was pulled down when the alterations to the gaol, for the receptions of the followers of the Ameers of Scinde, were undertaken.	- - Sanctioned 18th July 1844.	- - - - -	1,057 9 2½	- - - - -	- - Completed season 1844-45.	- - Government subsequently decided on sending the ex-Ameers to Hazareebaugh.
<b>CIVIL BUILDINGS, SOUTH-WESTERN PROVINCES—JUDICIAL:</b>							
Balasore Gaol: Construction of additional Wards.	- - Owing to the insufficiency of accommodation.	- - Sanctioned season 1839-40.	Balasore - - -	4,740 - -	4,005 - -	- - Completed season 1841-42.	-
Improvements to the drainage of.	- - - - -	- - Sanctioned season 1841-42.	- - - - -	1,005 2 1	- - - - -	- - Completed season 1841-42.	-
<b>CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL:</b>							
Bauleah Gaol: Additions to, and Drainage.	- - To provide for better ventilation, &c.	- - Length of drain, 361 feet.	Bauleah - - -	8,027 8 9	7,726 - - for additions.	- - Completed season 1840-41.	-
Behar: Construction of an additional Record-room.	- - For the records of the office of the Judge.	- - Sanctioned 11th September 1843.	Behar - - -	1,239 3 -	1,239 3 -	Season 1843-44	- - The necessity for this additional accommodation was brought to notice by the Sudder Dewanny Adawlut.
Burnagore: Construction of a small Gaol, with Out-offices.	- - For the prisoners employed at Burnagore.	- - Sanctioned 12th December 1845.	Burnagore - - -	1,396 - -	1,396 - -	Season 1846-47.	-
Baraset Gaol: Additions and alterations to.	- - To render it secure as a place of confinement.	- - Sanctioned 20th April 1846.	Baraset - - -	7,184 14 4½	6,945 - -	- - Completed season 1847-48.	- - The contemplated works are the substitution of iron for the wood work of the windows, &c., and raising the surrounding wall from nine to 13 feet.
Bauleah: Addition of a Verandah to the Principal and two Sudder Ameens' Cutcheries.	- - In consequence of the crowded state of these cutcherries, and also with a view to make the buildings more comfortable.	- - Sanctioned 0th September 1846.	Bauleah - - -	1,817 1 -	1,959 2 8	- - Completed season 1847-48.	- - The lowness of the wall, only 12 feet 6 inches below the beams, rendered them exceedingly close and hot.
Baraset: Construction of a new Pucca Stable to the Joint Magistrate's Cutcherry.	- - Undertaken under a representation of the joint magistrate.	- - Sanctioned 7th May 1849.	Baraset - - -	- - - - -	575 3 7	- - Completed season 1849-50.	- - The roof of the ystabling will be thatched.
Bauleah: Construction of a Cutcherry for the Sessions Judge, &c.	- - The additional accommodation to be provided was urgently needed.	- - Sanctioned 6th September 1850.	Bauleah - - -	- - - - -	15,388 9 1	- - - - -	- - The construction of the new building will enable the Government to give a building which has been rented at 100 rupees per mensem.

<i>Bareilly Gaol.</i> Construction of two experimental Wards	- - - - -	- - Sanctioned 7th October 1842.	Bareilly - - -	11,170 9 1½ 10,000 rupees have been paid for the site of the building	12,436 5 8	-- Completed season 1842-43.	-
Construction of additional Public Buildings.	- - For a mill-house, guard-room, and cook-room.	- - Sanctioned 17th February 1843.	Bareilly - - -	2,143 4 10	2,355 10 -	-- Completed season 1844-45.	-
Budaon Gaol	- - - - -	Sanctioned 1838-39	Budaon - - -	13,981 - - And Rs. 469. 8 4. for draining.	- - -	-- Completed season 1844-45.	- - This gaol consists merely of an enclosure wall, a hospital, guard-room, sentry-boxes, and wells. The convicts to build their own huts.
<i>Bareilly:</i> Construction of a Thowalat, at	- - For the accommodation of prisoners under trial.	- - Sanctioned 15th November 1851.	- - - - -	- - - - -	2,634 5 -	-	-
<i>Boolundshuher Gaol.</i> Alterations to.	- - For the improvement of the prison discipline, and for two separate rooms for juvenile offenders.	- - Sanctioned 16th December 1842.	- - - - -	602 10 8	1,433 4 4	-- Completed season 1843-44.	- - Two rooms for juvenile offenders have been constructed; the rest of the improvements estimated for were not considered absolutely necessary.
<i>Bowannah.</i> Construction of Tuhsildarry Cutcherry, at.	- - The old cutcherry was in ruins, and inconveniently situated.	- - Sanctioned 22d November 1842.	- - - - -	5,641 3 1	5,641 3 1	-- Completed season 1842-43.	-
<i>Bhandaree.</i> Construction of Police Guards and Gaols.	For prisoners under trial - -	- - Sanctioned 27th April 1844.	- - In the districts of Kutchwagur and Bhandaree.	2,200 - -	2 200 - -	Season 1844-45.	-
<i>Boolundshuher Gaol.</i> Construction of Out-buildings and Cook-rooms.	- - - - -	- - Sanctioned 20th August 1844.	Boolundshuher -	1,601 1 1	1,600 5 1	-- Completed season 1844-45.	-
<i>Bhutteeana</i> Cutcherry for the Superintendent.	- - For the accommodation of the superintendent English officer, Post Office.	- - Sanctioned 1st October 1849.	Bhutteeana - -	3,000 - -	- - -	Season 1849-50	- - This building was purchased from the estate of Lieutenant Mackeson at Sirsa.
<b>CIVIL BUILDINGS, CENTRAL PROVINCES—JUDICIAL.</b>							
<i>Benares</i> Additions and Alterations to the Insane Hospital.	- - For the better classification and custody of the insanes, two of whom lost their lives from the want of means of separating the harmless from the violent	- - Sanctioned 26th February 1845.	Benares - - -	5,459 6 6	6,173 7 4	Season 1848-49	- - In the contemplated alterations part of the compound wall will be taken down, and 29 suitable and commodious cells will be built. Provision has also been made for improving the drainage.
<i>Bedur Gaol.</i> Alterations, &c.	- - For security of the prisoners, and ventilation of the gaol.	- - Sanctioned 9th May 1843.	Bedur - - -	714 14 2	714 14 2	Season 1843-44.	-
<i>Bandah Gaol.</i> Construction of a Pucca Well.	- - Required to replace an old one, which has failed.	- - Sanctioned 18th August 1846.	Bandah - - -	- - -	1,804 1 -	-	-
<i>Bartool.</i> Construction of a Pucca Gaol.	- - To replace the gaol constructed by the civil authorities, which was reported to be in a defective state.	- - Sanctioned 29th December 1846	Bartool - - -	22,582 4 11	26,849 - -	-- Completed season 1850-51.	- - The new gaol was to consist of two ranges, one 160 by 20, and the other 145 by 20; each range being divided into four wards, with hospital houses for native doctor, dispensary, and out offices, the station of Bartool has been transferred to the Madras Presidency.

(continued)

No. 6 — STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>CIVIL BUILDINGS, CENTRAL PROVINCES—JUDICIAL—<i>continued.</i></b>							
<i>Bandah</i> : Construction of a new Cutcherry for the Collector.	- - The cutcherry is at present held in a hired building in Cantonment, but it is required to be given up to the military.	- - Sanctioned 3d April 1847.	Bartool - - -	Rs. a. p. 14,709 11 6	Rs. a. p. 7,164 - -	-- Completed season 1848-49.	- - This cutcherry has been made of permanent materials on a revised plan.
<i>Benares</i> . Construction of a well outside the Gaol Compound.	- - The only well outside the gaol which supplied water to the establishment of the Burkundauzes had fallen in.	- - Sanctioned 17th June 1847.	Benares - - -	830 4 9	571 5 9	-- Completed season 1847-48.	-
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—JUDICIAL :</b>							
<i>Burrisaul</i> :							
Cutcherry for the Magistrate and Registrar.	- - To replace the cutcherry destroyed by fire in February 1838.	- - Sanctioned 15th January 1839.	Burrisaul - - -	7,052 4 7	- - - -	Completed 1840-41.	-
New Cutcherry for the Principal Sudder Ameen.	- - This was rendered necessary in consequence of the existing cutcherry being far removed from that of the Judge, and thus occasioning much inconvenience to suitors and pleaders.	- - Sanctioned 16th November 1841.	- ditto - - -	2,695 13 11	2,894 15 3	-- Completed 1843-44.	- - The old cutcherry has been made over to the local committee of public instruction at Burrisaul, to be used as a school-house.
Piling of the bank of the River	- - In consequence of an encroachment of the Burrisaul River on the town.	- - Sanctioned 12th March 1842.	- ditto - - -	2,330 9 10	2,664 6 -	-- Completed season 1843-44.	- - The labour will be performed by convicts. These measures proved a failure. The executive officer submitted a project for the purpose of turning the current of the river, which, in execution, would cost about 1,00,000 rupees; the Government declined to sanction the work, deeming it inexpedient to incur further expense.
<i>Bograh</i> : Construction of a new Circuit Bungalow, with Out-offices.	- - - - -	- - Sanctioned 20th November 1844.	- - - - -	4,682 14 7	4,000 5 -	-- Completed season 1846-47.	-
<i>Burrisaul</i> : Construction of a new Circuit House and Out-offices.	- - On the requisition of the Commissioner of Dates, who represented that there was no circuit house for his accommodation, as well as that of his office, and that the transfer of a large section of the Soonderbunds to the Collector's jurisdiction, demanded that a great portion of his time should be devoted to the affairs of this col-	- - Sanctioned 16th December 1846.	Burrisaul - - -	5,446 10 2	- - - -	-- Completed season 1850-51.	-

<i>Burrisaul Gaol</i> : Construction of four Solitary Cells, and Drainage of.	-- The necessity for these works was originally brought to the notice of Government by the local civil authorities.	-- Sanctioned 28th December 1846.	Burrisaul - -	1,718 1 3	1,843 15 11	-- Completed season 1849-50.	-
<i>Burdwan Gaol Hospital</i> : Construction of an additional Ward.	- - - - -	-- Sanctioned 24th November 1847.	Burdwan - -	- - - - -	1,000 - -	- - - - -	-- To be constructed by the convicts, under the immediate superintendence of the magistrate, assisted in respect of plans by the executive officer of the division.
<b>CIVIL BUILDINGS, LOWER PROVINCES—REVENUE</b>							
<i>Bhaugulpore</i> : Additions to the Collector's Cutcherry.	-- On a representation from the Collector to the Commissioner of the great inconvenience felt from the small size of the cutcherry.	-- Sanctioned 11th August 1847.	Bhaugulpore - -	3,199 5 8½	3,269 4 9½	-- Completed season 1849-50.	-
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—REVENUE.</b>							
<i>Burrisaul</i> : Additions to the Collector's Cutcherry.	-- Required on account of the crowded state of the record-room, and also for the accommodation of two deputy collectors, recently added to the collectorate of Backergunge.	-- Sanctioned 26th November 1845.	Burrisaul - -	5,848 14 10	6,533 - -	-- Completed season 1847-48.	-
<b>CIVIL BUILDINGS, CENTRAL PROVINCES—REVENUE:</b>							
<i>Bundelcund</i> : Enclosure of the Tehsildarry Cutcherry at Koonch	-- In consequence of an attempt made to plunder the treasury.	-- Sanctioned 29th March 1842.	Koonch - - -	1,173 4 4	1,441 3 11	-- Completed season 1842-43.	-
<i>Benares</i> : Construction of a Verandah to the Collector's Cutcherry.	-- The necessity of this work was brought to the notice of Government by the local civil authorities. These verandahs will make the cutcherries cooler, and afford greater facilities for putting up tatties during the hot season in the upper rooms	-- Sanctioned 26th April 1846.	Benares - - -	1,683 2 11	1,683 2 11	-- Completed season 1846-47.	-
<i>Banda</i> : Construction of an additional Record-room.	-- For the use of the Collector's office.	-- Sanctioned 14th August 1849.	Banda - - -	- - - - -	6,697 - -	-	-
<b>CIVIL BUILDINGS, LOWER PROVINCES—GENERAL</b>							
<i>Bulloah</i> : New Salt Cutcherry	-- For the use of the Salt agent	Sanctioned 1839-40	At Noacolly - -	2,646 - -	- - - - -	-- Completed 1839-40	-- The former building was altogether unfit for the purpose, for want of sufficient accommodation, and from the dampness of the floors.
<i>Barrackpore</i> , Government House. Construction of new Out-houses.	- - - - -	-- Sanctioned 4th November 1840.	- - - - -	4,646 4 3½	- - - - -	-- Constructed 1840-41.	-
<i>Bagundce</i> : Construction of a New Guard-house.	For the Sepoy guard - -	-- Sanctioned 3d January 1841.	- - - - -	502 11 1	543 2	-- Completed 1841-42.	-- Great sickness and mortality occurred in the Sepoy guard, which, in the general opinion of the officers as well as of the civil surgeon, was owing to the proximity of the old guard-room to the Salt godowns.

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>CIVIL BUILDINGS, LOWER PROVINCES—GENERAL—continued.</b>							
<i>Barrackpore:</i> Enlargement of the Burial-ground.	-- The extension is urgently required.	-- Sanctioned 6th September 1844.	Barrackpore - -	Rs. a. p. 1,044 10 5	Rs. a. p. 1,025 7 8	-- Completed season 1845-46.	-- The additional space to be included measures 380×100 feet.
Conversion of a Building in the Park into an Aviary.	- - - - -	-- Sanctioned season 1845-46.	- - - - -	7,558 13 4	7,558 13 4	-- Completed season 1845-46.	-
<i>Bauleah.</i> Construction of a Post-office.	This is a pucca building - -	-- Sanctioned 10th February 1847.	Bauleah - - -	1,109 7 11 ½	1,226 11 1	Completed 1847-48.	-
<i>Bhaugulpore</i> Repair of the Mausoleum of Mirza Abraham Hoossien	- - - - -	-- Sanctioned 6th October 1848.	Bhaugulpore - -	355 10 10 ½	355 10 10 ½	Season 1849-50.	-
<i>Bauleah:</i> Construction of a School-house.	- - - - -	-- Sanctioned 1st August 1850.	Bauleah - - -	6,336 11 11	- - - - -	-- Constructed in season 1850-51.	-- This building measures 81 feet by 61 feet, and is intended to contain 200 children.
<b>CIVIL BUILDINGS, CENTRAL PROVINCES—GENERAL:</b>							
<i>Busar Chapel;</i> Repair of the, and construction of a Verandah.	- - - - -	-- Sanctioned season 1846-47.	-- Situated midway between the fort and the buildings occupied by invalids.	1,714 8 11	1,874 11 2	Completed 1847-48 -	-- This chapel was assigned over to Government by the Missionary Society; it measures 40 feet by 20 feet (interior dimensions).
<i>Benares.</i> Construction of an additional Godown.	-- To extend the accommodation of the opium factory premises.	-- Sanctioned 17th February 1847.	Benares - - -	4,317 - -	3,917 - - A further sum of 400 rupees sanctioned for alterations to the boundary-wall of the factory.	Season 1847-48.	-
<b>CIVIL BUILDINGS, LOWER PROVINCES—ECCLESIASTICAL:</b>							
<i>Barrackpore Church:</i> Construction of a Wall.	To enclose the church - -	-- Sanctioned 9th October 1839.	Barrackpore - -	- - - - -	1,100 10 7	Season 1830-40.	-
<b>EMBANKMENTS, SOUTH-WESTERN PROVINCES:</b>							
<i>Culmeejole Division</i>	- - - - -	-- Length, 426 miles; estimated cost of annual repairs, 1839-40, Rs. 18,323. 9.	- - - - -	- - - - -	- - - - -	- - - - -	-- The average cost of annual repairs in the Culmeejole Division was, in 1850-51— To Government bunds, Rs. a. p. Including sluices and inspection bungalows - - 24,628 6 10 Zemindary - - 12,334 6 0 <u>Rs. 36,962 15 4</u>
<i>Cuttack</i>	- - - - -	Length, 500 miles -	- - - - -	- - - - -	- - - - -	- - - - -	-- The cost of repairs to the embankments in the Cuttack Division, in 1847-48, was Rs. 22,322. 14. 7. In Report 1840-41, para. 19, it is

stated that in Central Cuttack alone, during the last 10 years, 11,09,427 rupees have been remitted on account of loss from drought and inundations. A report was received in 1850 on the protective works undertaken as a temporary measure for the safety of the Cuttack Revetment, from which it appeared, that, notwithstanding the occurrence of unusually high floods in the Kujoree river, the revetment has stood well without sustaining the slightest injury. These works have had the effect of giving the current a favourable direction, by which the station and town of Cuttack have, in all probability, been saved from destruction.

ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES:

Construction of Wooden Bridges on the Road between Chittagong and the Fenny River in Arracan.	- - - - -	- - - - -	- - - - -	- - - - -	3,625 6 8	- - - - -	-- The executive engineer will consider the future maintenance of this road as part of his ordinary duty.
<i>Culna Road.</i> Repair of	- - - - -	-- Length, 35 1/2 miles; sanctioned 1841-42.	-- From Burdwan to the Hooghly River.	3,282 12 10 And Rs. 1,282. 1 10. for drain bridges.	- - - - -	Completed 1841-42 -	-- The expenses will be paid by the Rajah of Burdwan.
Metalling of the	- - - - -	- - Sanctioned 6th June 1844.	- - Ditto	12,419 - -	11,937 6 3	- - Completed season 1846-47.	-
<i>Chittagong.</i> Construction of a Drain Bridge	-- In the place of a bridge destroyed in the rains of 1843.	- - Sanctioned 15th January 1845.	- - - - -	333 11 10	- - - - -	-- Constructed season 1845-46.	-
Construction of Ramps in the Nullahs on the Chittagong Road.	-- These ramps are intended for the passage of cattle, with a view to the preservation of the wooden bridges.	- - Sanctioned 28th January 1846.	-- Between Chittagong and the Big Fenny River.	1,165 4 -	1,521 - -	-- Constructed season 1846-47.	-- A large trade in cattle is carried on between Arracan and the Bengal districts to the north; and it has been ascertained that so many as 8,000 have passed down the road in one month.
<i>Calcutta to Barrackpore:</i> Repair of the road.	- - - - -	- - Sanctioned 2d September 1845.	-- From Shambazur Bridge to Pettah Ghaut.	- - - - -	57,713 15 11 1/2	- - - - -	-- The road is to be repaired with three-inch gouting.
<i>Chittagong City</i> Construction of a Bridge.	-- In lieu of a bridge destroyed by inundation during the rains of 1841.	- - Sanctioned 31st March 1847.	Chittagong	- - - - -	1,551 - -	- - - - -	-- The new bridge will be of two segmental arches of 10 feet span, each versed 1 1/2 of span.
<i>Chittagong:</i> Road to the Big Fenny River.	-- Additional flooring to six masonry bridges, to prevent their destruction by undermining.	- - Sanctioned 11th January 1848.	Big Fenny River	1,212 9 10	1,260 8 7	-	-
<i>Chittagong and Daood Kandy Road.</i> Improvements by making Slopes	-- The present road is cutcha, which renders it necessary that a distinct space be allotted as a berme, to serve both as a base to the slopes intervening between them and the side open drain, and as a prevention to encroachment.	- - Sanctioned 19th February 1850.	- - - - -	- - - - -	78,281 13 11	- - - - -	-- This estimate was called for by Government on a recommendation from the Military Board of the necessity of the work.
ROADS AND BRIDGES, LOWER PROVINCES:							
<i>Chupprah to Mootearee</i>	- - - - -	-- Length, 61 miles; estimated for in August 1839.	- - Mootearee, in Chumparum.	- - - - -	47,286 7 4	- - Its completion not reported.	-
<i>hupprah to Rewah Ghaut</i>	- - - - -	-- Length, 22 1/2 miles; estimate dated 4th June 1839.	- - - - -	7,448 1 9	8,602 5 7	Season 1841-42.	-

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement	Place of Termination, or of Intended Termination	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS
				<i>Rs. a. p.</i>	<i>Rs. a. p.</i>		
<b>ROADS AND BRIDGES, LOWER PROVINCES—<i>continued.</i></b>							
<i>Colmere Ghaut to Buxar; Construction of Bridges and Drains.</i>	-- For keeping open the communication between Ghazepore and Dinapore.	- - - - -	Buxar - - - -	- - - - -	67,783 8 8	Not reported - -	-- This road, though it forms part of the communication by land between the military station of Ghazepore and Dinapore, is no great military thoroughfare, the communication between them being always open by water, it is, however, of importance to the traffic of one of the richest and most populous districts in India, and should be kept up, if possible, from local resources.
Cachar to Munnipore - -	-- To make the communication between the eastern frontier and the Burmese country comparatively easy.	-- Length, about 93 miles; commenced in 1837.	Panksandy, in Cachar	About 39,947 10 4	- - - - -	-- Completed season 1842-43	-
<i>Chota Nagpore</i> Bridge over the Nullah at Dorundah.	-- For keeping up the communication in the rainy season between the military and civil stations at Dorundah.	- - Sanctioned 2d May 1842.	Dorundah - -	1,406 18 11	1,406 18 11	Season 1842 43	-
<i>Comillah Road</i> : Construction of 16 new Jungle Wood Bridges.	- - - - -	- - Sanctioned 8th July 1844.	- - Situated between Comillah and the Big Fenny.	- - - - -	886 3 6	Season 1844-45.	-
<i>Cossyah Hills to Assam</i> : Repair of the Road and Bridges over the,	- - - - -	-- Length, 85 miles, sanctioned 13th November 1844.	- - From Purreeya Ghaut to Paneegong, in Assam.	4,569 - -	4,845 11 6	-- Completed season 1846-47.	-
<i>Circular Canal</i> : Construction of a Pucca Road along the eastern bank of the Circular Canal.	-- With a view to facilitate the communication with the Government new rum distillery.	- - Sanctioned 17th April 1850.	- - Situated between the Manicktollah and Ultadanga suspension bridges.	- - - - -	1,883 9 6	- - - - -	-- This work was undertaken in furtherance of the strong recommendation of the civil officers, as well as of the Board of Customs, Salt, and Opium.
Construction of Iron Suspension Bridges over the Boga and Budnapes Torrents.	- - - - -	- - East Bridge, six feet in width; sanctioned 10th July 1839.	Cossya Hills - -	14,657 11 1½	14,827 14 4	- - - - -	-- Although the bridges are defective in some points of construction, they are believed to be, in all essential respects, substantial and suitable. The Bogapanee bridge has one span of 94 feet between the points of suspension, with suspended approaches, one of which is 28 and the other 30 feet long; and the Burpanee consists of two spans, one of 88 feet, and the other 65 feet between the points of suspension.
<b>ROADS AND BRIDGES, CENTRAL PROVINCES;</b>							
Chunar to Sookroot, in the Mirzapore District.	To supersede the old road - -	-- Length, about 19 miles; estimated in September 1839.	Sookroot - - -	6,998 7 9	6,325 - -	-- Completed season 1841-42.	-



CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—JUDICIAL.									
Chunderree Construction of a small Gaol and Cutcherry Bungalow.	- - - - -	-- Sanctioned 4th January 1845.	Chunderree - - -	600 - -	600 - -	-- Constructed season 1844-45.	-		
CIVIL BUILDINGS, SOUTH-WESTERN PROVINCES—JUDICIAL.									
Calcutta House of Correction - Construction of Solitary Cells at the.	- - Twenty-four cells have been constructed, with improved accommodation for prisoners.	- - - - -	Calcutta - - -	9,586 3 10	- - - - -	Completed 1839-40 -	-	-- The cost has been defrayed from funds realised by the prisoners' labour. The chief magistrate considers the cells to have answered their intended object so well, that the construction of 24 additional ones is contemplated.	
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—JUDICIAL.									
Cuttack Gaol Hospital Construction of three Wards.	For insane patients - - -	- Sanctioned 23d July 1840.	Cuttack - - -	646 12 2	495 2 -	-- Completed season 1840-41.	-		
Commallah. New Court Room for the Magistrate.	- - - - -	-- Sanctioned 5th November 1840.	Commallah - - -	2,426 1 7	,307 2 8	Completed 1841-42 -	-	-- This work was completed for a sum of Rs 881. 1. 1. less than the estimated cost, owing to the labour having been done by convicts	
Calcutta Penitentiary: Construction of six Wards -	- - - - -	Season 1841-42 -	- - - - -	30,800 - 7	32,900 8 9	- - Completed season 1842-43	-		
Alterations and additions to -	- - In consequence of defects having been discovered, whereby the security of the prisoners was compromised	-Sanctioned 10th May 1843	- - - - -	2,296 15 8	2,296 15 8	- - Completed season 1844-45.	-		
Calcutta Aqueducts Setting up a Steam-engine, and alterations and enlargement of the Aqueducts, from the Reservoir at Chundpaul Ghant to the south-west corner of Esplanade-row East	- - To raise water for filling the aqueducts, the enlargement of the aqueducts was rendered necessary, consequent on the enlarged supply of water to be expected from the substitution of a 20 for a 10-horse power engine.	-- Sanctioned 6th January 1841	Calcutta - - -	-- Cost of setting up the engine, Rs 11,074 12 7. Cost of new aqueduct, Rs. 8,194 8. 6.	- For setting up the engine, Rs. 11,074. 12 7 -- For enlarging the aqueduct, Rs 9,863. 11. 3	-- Completed season 1842-43. -- Completed season 1845-46.	-	-- The engine, which is of 20-horse power, is valued at Rs 11,008 12 11 1/2, and was sent to India in 1828-29 with the saw-mill machinery, it is now transferred from the Arsenal of Fort William	
Calcutta Police Hospital Construction of two additional Wards.	- - For the sick poor of the town, and as a place for the resort of the poor from the neighbouring district for surgical operations	Sanctioned 1841-42 -	Ditto - - -	1,317 2 -	1,317 2 -	Season 1841-42.	-		
Construction of a tiled Shed at the Sudder Dewanny	-- For the convenience of vakeels and others who attend the Court.	-- Sanctioned 19th September 1842.	Ditto - - -	1,340 4 9	1,358 5 3	- - Completed season 1843-44	-		
Calcutta Penitentiary Construction of six Wards -	-- For civil and criminal Supreme Court prisoners	- - Sanctioned 16th June 1841.	Ditto - - -	30,900 - 7	32,900 8 9	- - Completed season 1842-43	-		
Construction of a new steam-engine house.	- - For a 20-horse power engine, transferred from the Arsenal of Fort William to the town of Calcutta.	- Sanctioned 7th September 1841.	- - Situated at the Chaund Paul Ghant.	11,074 12 7	11,074 12 7	- - Completed season 1842-43.	-		

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<i>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—JUDICIAL—continued.</i>							
<i>Calcutta Penitentiary—continued.</i>							
Construction of other works connected therewith.	- - - - -	-- Sanctioned March 1844.	- - Situated at the Chaund Paul Ghant.	<i>Rs. a. p.</i> 16,252 1 7	<i>Rs. a. p.</i> 16,252 1 7	- - Completed season 1843-44.	-
<i>Chittagong Gaol</i> : Additions and Improvements to.	- - In consequence of the offensive state of the gaol, the want of proper ventilation, and dampness of the floor of the gaol hospital.	-- Sanctioned 17th October 1842.	Chittagong - -	1,288 11 9	1,288 11 9	- - Completed season 1842-43.	-
<i>Calcutta</i> : Construction of Machinery in the House of Correction, and erection of a building.	- - To employ the power of cast-iron treadmill received from England.	-- Sanctioned 16th September 1844.	Calcutta - -	12,292 12 7	9,674 12 10	- - Completed season 1846-47.	- - The power is intended to be applied in turning a soorkee mill and grinding corn, but neither objects have as yet been efficiently attained. The value of the treadmill made over from the Arsenal in June 1843 to the D. P. Works is 3,406 rupees. The additional machinery has proved an entire failure, the treadmill being complete in itself as an engine for punishment, and having no power to work machinery attached to it.
Filling a Tank in the House of Correction, and sinking Wells.	- - The water of the tank was represented to be in a putrid state, and threatened to affect the health of the prisoners.	- Sanctioned 7th June 1847.	Ditto - - -	- - - - -	2,801 13 -	Season 1849-50	- - The wells will supply water for bathing, washing, &c., while the tank can be used as heretofore for drinking and culinary purposes.
<i>Calcutta General Hospital</i> : Excavation of two Tanks.	- - For watering the roads in the vicinity of the General Hospital.	Season 1846-47	Ditto - - -	- - - - -	- - An estimate has been called for; in the meantime an annual outlay of 2,248 rupees has been authorized for the payment of bheesties for watering the roads.	- - - - -	- - The excavation of the proposed two tanks will reduce the labour and consequently the outlay for the bheesties, to 1,364 rupees per annum.
<i>Chittagong Gaol</i> : Construction of 22 Ventilators.	- - A more thorough ventilation of the gaol being considered necessary by the local and medical authorities for the improvement of its salubrity.	-- Sanctioned 20th May 1846.	Chittagong - -	731 11 8	758 - -	- - Constructed season 1846-47.	-
<i>Calcutta House of Correction</i> : Construction of a Pucca Tiled Shed.	- - To replace a very old shed, which has fallen into ruin.	-- Sanctioned 19th May 1847.	Calcutta - -	1,174 - -	1,174 6 10	- - Completed season 1847-48.	-
New Residence for the Deputy Superintendent.	- - - - -	-- Sanctioned 26th July 1848.	Calcutta - -	4,437 9 10	- - - - -	- - Completed season 1850-51.	-

<i>Calcutta</i> · Construction of Quarters for four Sergeants.	- - In compliance with a recommendation from the Chief Magistrate.	- - Sanctioned 19th May 1847.	- - Situated in the north-west corner of the Police Compound at Calcutta.	5,589 - -	5,714 7 -	- - Completed season 1849-50.	-
<i>Comillah</i> Additions and Improvements to the Judge's Cutcherry.	- - The necessity of these additions was brought to notice by the Civil and Sessions Judge.	- - Sanctioned 24th September 1850.	- - - - -	- - - - -	9,524 11 -	- - - - -	- - The works originally intended to be executed were two additional upper rooms, one of 41½ × 15½ and one 53 × 14½; the raising of the walls of the three old upper rooms, to make them convenient as record-rooms, and the supplying of record racks. It having been found, however, that the walls were not sufficiently strong to admit of a second story being added, it has been found necessary to construct a new Circuit House and additional record-rooms, &c.
<i>Calcutta</i> · Alterations and additions to the Supreme Court's House.	- - For the better accommodation of the prisoners, and separation of those confined for heinous and slight crimes	- - Sanctioned 11th October 1850.	<i>Calcutta</i> - - - - -	- - - - -	3,172 - 7	- - - - -	- - The necessity for this work was brought to notice by the acting registrar.
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—REVENUE.</b>							
<i>Calcutta</i> Alterations of a portion of the Audit Office.	To provide for a Stamp Office	- - Sanctioned 19th May 1841.	<i>Calcutta</i> - - -	4,050 9 5	4,220 5 9	- - Completed season 1841-42.	-
Construction of a Portico to the office of the Sudder Board of Revenue	- - - - -	- - Sanctioned 28th November 1842.	<i>Calcutta</i> - - -	819 7 6	- - - - -	- - Completed season 1843-44.	-
Erection of Sheds at the Iron Bridge Yard for 20 additional Forges	- - In consequence of the heavy demand for iron suspension bridges from all quarters, particularly for the Grand Trunk Road	- - Sanctioned 3d May 1843.	<i>Calcutta</i> - - -	5,046 1 10	- - - - -	- - Constructed season 1843-44.	-
<b>CIVIL BUILDINGS, SOUTH-WESTERN PROVINCES—REVENUE.</b>							
<i>Cuttack</i> Revenue Survey-office and Record-rooms	- - For the revenue surveyors and establishment.	- - Sanctioned 16th January 1838.	<i>Cuttack</i> - - -	2,071 9 4	2,071 9 4	- - Completed season 1839-40.	-
<i>Cachar</i> Construction of a Treasury and Record-room.	- - For the reception of the treasure and records	- - Sanctioned 16th January 1843	<i>Cachar</i> - - -	195 6 4	195 6 4	- - Completed season 1839-40.	- - The smallness of the outlay was caused by the employment of convict labour.
<b>CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—REVENUE</b>							
<i>Chunpore</i> · Construction of a Tuhsildarry Cutcherry.	- - Rendered necessary with reference to the new settlement of land revenue in the North-Western Provinces	- - Sanctioned season 1838-39.	<i>In Zillah Bijnore</i> -	3,264 - 6	- - - - -	- - Completed season 1840-41.	-
<b>CIVIL BUILDINGS, CENTRAL PROVINCES—REVENUE</b>							
<i>Coilsa</i> · Repair of the Tuhsildarry Cutcheries at.	- - - - -	- - Sanctioned 27th May 1840	- - - - -	4,894 15 2	- - - - -	- - Repaired season 1842-43.	-

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion	REMARKS.
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL:				<i>Rs. a. p.</i>	<i>Rs. a. p.</i>		
<i>Calcutta Mint</i> : Construction of a Guard-house and Stabling	-- To replace buildings destroyed by a storm on the 29th of April 1839.	-- Sanctioned season 1839-40.	Calcutta - - -	18,850 8 10	20,626 9 1	-- Completed season 1840-41	-- The proposed dimensions and architectural decorations were considered superior to what are usual or necessary for similar works in the place. The work is stated to have been satisfactorily done
<i>Calcutta Treasury</i> . Improvements at the.	-- To remedy the inconvenience felt for want of office accommodation.	-- Sanctioned 4th March 1840.	- - - -	- - - - -	23,138 4 6	- - - -	-- The house used for the Savings Bank is altogether removed, and a new building erected on the entire frontage between the Treasury and the Accountant-General's Offices. The new building will be carried up to the full height of the Treasury, and will provide accommodation for the General Treasury, the Accountant-General's Offices, and the Savings Bank.
<i>Chittagong</i> . Repairs to the Breakwater in front of the Salt Golahs.	-- For the safety of the salt in store during the rains.	-- Sanctioned 1st April 1842.	Chittagong - - -	12,478 6 7	14,633 1 -	-- Completed season 1843-44	-- A saving of <i>Rs</i> 2,154. 10. 5. occurred on the amount authorised, in consequence of a reduction in the quantity, as well as in the rates of the work.
<i>Calcutta Custom House</i> : Construction of additional Buildings	-- To accommodate the increasing trade of the port.	-- Sanctioned 31st March 1841	Calcutta - - -	20,954 - -	19,710 1 10	-- Completed season 1842-43.	-
Reconstructing the Import and Export Godown Sheds.	-- A committee report stated that the sheds were unserviceable and in a dangerous and tottering condition.	-- Sanctioned 30th July 1849	Calcutta - - -	4,756 5 6	- - - -	-- Completed season 1850-51	-
<i>Calcutta General Treasury</i> . Additions to.	-- To afford additional accommodation.	-- Sanctioned season 1838-39.	- - - -	26,021 15 6	- - - -	-- Completed season 1841-42.	-
<i>Calcutta</i> Construction of a House in the Botanical Garden.	For an assistant overseer - -	-- Sanctioned 22d September 1841.	- - - -	1,913 11 4	1,803 2 9	-- Completed season 1842-43.	-
Construction of a Record-room.	-- For the General and Financial Departments.	-- Sanctioned 26th March 1842.	- - - -	4,289 15 4	4,289 15 4	- - ditto.	-
Raising the Floors of two Godowns.	-- They were subject to inundation in heavy rains.	-- Sanctioned 14th September 1842	- - - -	1,325 10 6	1,412 4 8	- - ditto.	-
New Roofing of the Circular Cutting-out Room at the Mint.	-- In consequence of some of the beams having failed.	-- Sanctioned 8th March 1843.	- - - -	- - - - -	2,224 11 5½	-- Completion not reported.	-- The estimate framed is for a new roof, supported on iron beams.

Quadrennial repairs to the Government House and Out-offices.	- - - - -	- - Sanctioned season 1842-43.	- - - - -	26,983 14 -	26,983 14 -	Season 1842-43.	-
Construction of Lecture-rooms and School-rooms at the Hindoo College	- - For the General Committee of Public Instruction	- - Sanctioned March 1843.	- - - - -	18,152 4 5	19,634 3 -	- - Constructed season 1844-45.	- - The expense will be borne, in nearly equal shares, by Government and the College.
Repairs to the General Treasury premises.	- - - - -	- - Sanctioned 8th March 1843	- - - - -	435 11 -	-	-	-
<i>Calcutta Medical College</i> Construction of Quarters for the House Surgeon and Staff Serjeant.	- - In consequence of insufficient accommodation.	- - Sanctioned 18th September 1843.	Calcutta - - -	6,091 6 5	6,319 6 11 <i>Rs. 2,000 also granted for the purchase of ground required to be added to the Medical College premises.</i>	- - Completed season 1844-45.	-
Construction of a Verandah to the Male Hospital.	- - Under a representation of its necessity from the Council of Education	- - Sanctioned 14th July 1843.	- ditto - - -	967 14 1	1,019 3 10	- ditto - -	- - This work was necessary to the comfort, efficiency, and internal economy of the establishment.
<i>Calcutta Medical College</i> Construction of a new Dissecting-room.	- - It was considered necessary to remove the dissecting operations to a distinct building; they had been carried on in a room in close proximity to the Female Hospital and quarters of the Secondary School.	- - Sanctioned 2d October 1843.	- ditto - - -	5,119 5 7	5,119 5 7	Season 1843-44.	-
<i>Calcutta</i> Additions to St. James' Church	- - The works consist of a new wooden gallery, laying a marble floor, &c	- - Sanctioned 15th March 1843.	- ditto - - -	4,007 3 10	- - - - -	- - Constructed season 1843-44.	- - Of the amount expended, Rs. 2,344. 2 9. have been recovered from the vestry of the church, such being the engagement under which the work was executed
<i>Calcutta Government House</i> Construction of an Entrance Gate.	- - To the gardens south of the building.	- - Sanctioned 14th February 1843	- ditto - - -	851 15 3	871 10 1	- - Completed season 1844-45.	Ordered by the Governor-General.
New Supreme Court House and Insolvent Court	- - In consequence of the existing buildings and arrangements not affording the necessary accommodation for the distribution of business	- - Estimates called for 7th June 1842	- - - - -	- - - - -	3,94,530 - -	- - - - -	- - The present Court-house is a public building, valued at 80,000 rupees, and the Insolvent Court is held in an adjoining building, rented at 500 rupees per mensem.
Construction of new Salt Golahs on the banks of the creek, between the islands of Kankra and Kissenpore.	- - - - -	- - - - -	- - - - -	- - - - -	16,236 2 6	- - - - -	- - The estimate is for ten golahs, each calculated to hold 75,000 maunds of salt, and for a maund raised 7½ feet, 717 × 264 feet for the golahs to be built on. The excavation of the work entrusted to the officers in the Salt Department, there being no officer of the Department of Public Works available for the duty

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No. 6 — STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued.*

NAME OF WORK.	Object of Construction	Length, and Date of Commencement.	Place of Termination, or of Intended Termination	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion	REMARKS.
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL—<i>continued.</i></b>							
<i>Chittagong</i> Construction of a new tiled roof Custom-house, and purchase of a Site.	-- Required to replace a thatched shed, which is out of repair and inconveniently situated, being separated by a large nullah from the pier at Chittagong.	-- Sanctioned 8th March 1843.	Chittagong - -	Rs. a p. 5,150 1 -	Rs. a p. 5,448 - 9 Cost of site, Rs. 5,000	-- Completed season 1846-47.	-- The bridging of the Nullah would have been more expensive than the building the new Custom-house.
<i>Calcutta General Post-office</i> : Additions to	-- Represented by the Post-master-general to be indispensable, with reference to the increased business transacted in the Post-office.	-- Sanctioned 2d July 1845.	Calcutta - - -	-- The work was suspended, the erection of an entirely new Post-office being contemplated by Government.	9,485 - -	- - - - -	-- The additions will comprise an upper room 50 × 35, a room 16 × 16.
<i>Calcutta Medical College</i> : Construction of additional Rooms.	-- For cook-rooms to the Female Hospital.	-- Sanctioned 28th January 1846.	- - - - -	551 9 1	505 - -	-- Completed season 1847-48.	—
Construction of a new Coach-house.	-- Required in lieu of the former one, which had settled and cracked.	-- Sanctioned 7th November 1845.	- - - - -	1,143 - -	1,143 - -	Season 1845-46.	—
Alterations and additions to the.	-- For the better accommodation of the Military Class Students.	-- Sanctioned 26th June 1850.	- - - - -	- - - - -	8,442 5 1	- - - - -	-- The works contemplated are to make over to the use of the students a portion of the western ward; to construct a new close flat-roofed verandah to be added along the whole of the west side, Military Class Ward, of the Medical College, 289½ × 97; to remove the doors between the proposed verandah and ward.
<i>Calcutta Mint</i> : Building and fitting up an Electrotpe Refinery.	- - - - -	-- Sanctioned 13th December 1844.	- - - - -	3,510 - -	- - - - -	-- Constructed season 1846-47.	—
<i>Calcutta Stamp-office</i> : Construction of a Drying-room over the Stables attached to the Stamp-office.	-- The necessity for this work was brought to the notice of Government by the Board of Customs, Salt and Opium.	-- Sanctioned 20th October 1847.	Calcutta - - -	2,165 1 1	2,176 13 3	-- Completed season 1849-50.	—
<i>Cuttack</i> : Repairs to the School-house.	-- Damage was occasioned to the school-house by a fire, which occurred on the 7th of May 1846.	-- Sanctioned 9th September 1846.	Cuttack - - -	865 1 4	- - - - -	Season 1847-48.	—
<i>Calcutta Post-office</i> : Construction of Sheds in the Compound of the General Post-office.	-- To provide residences for the distributing peons on the spot, so that their services may be available at all hours.	-- Sanctioned 19th May 1847.	Calcutta - - -	2,194 11 -	2,199 - -	-- Completed season 1848-49.	—

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<i>Calcutta General Post-office</i> - Construction of a Stable, Cart, and Overland Van Sheds, in the Compound of the Post-office.	- - The Postmaster-general considered the proposed works absolutely necessary for conducting the greatly increased business of the office, and more particularly of the steam branch.	- - Sanctioned 19th July 1847.	Calcutta - - -	2,505 9 11	3,107 8 9	- - Completed season 1848-49.	-
<i>Calcutta Episcopal Residence</i> -	- - A request of the Bishop of Calcutta to change the episcopal residence, for reason assigned by him, was complied with on the understanding that it should not involve the Government in any expense.	- - Sanctioned 31st March 1849.	Calcutta - - -	- - Value of the new palace, Rs. 81,718, being the purchase cost, Rs. 55,080. 8. 10., added to the sum expended in making alterations to the building.	- - - -	- - - -	- - A house in the Chowringhee road, lately occupied by the Hon. W. W. Bird, Governor of Bengal, has been purchased by the Bishop, and will be brought on the books as a Government building - the old episcopal residence was purchased by Government in 1838 for Rs. 80,000. Government, on the 15th September 1849, authorised the title deeds of this building to be placed at the disposal of the Bishop to enable his Lordship to dispose of the premises.
<i>Calcutta. Extension of the Jetty at Bank's Hall.</i>	- - Rendered necessary in consequence of the silting up of the river bank.	- - Sanctioned 24th July 1850.	Calcutta - - -	- - - - -	2,047 2 2	- - - -	- - The silting up of the river bank had removed the low water mark full 15 feet from the crane used by the Marine Department for landing anchors.

## CIVIL BUILDINGS, LOWER PROVINCES—GENERAL :

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<i>Chinsurah Church</i> Repairs to	- - The roof, owing to the decayed state of the beams, was reported to be in a dangerous state.	- - Sanctioned 23d February 1842.	- - - -	2,674 7 1½	2,674 7 1½	- - Completed season 1842-43.	- - This is an old Dutch building, and is supposed to have been built in the year 1685.
<i>Cheera Coal Mines</i> - Construction of a Roadway.	- - For facilitating the means for the conveyance of coals from the Cheera Hills to the plains.	- - Sanctioned 5th October 1842.	Cheera - - -	- - - - -	66,584 11 -	-	-
<i>Chinsurah</i> . Enlargement of the Burial-ground.	- - - - -	- - Sanctioned 15th February 1847.	Chinsurah - - -	- - - - -	- - The payment of Rs. 2,788. 11. was sanctioned, as well as the remission of Rs. 25. 4., or Company's Rs. 26. 15., on account of annual revenue.	Season 1846-47	- - An estimate amounting to 452 rupees was sanctioned on the 28th July 1848, for the enclosure of the newly purchased ground.
<i>Calcutta</i> : Renewing the Crane at the Bank's Hall, and some of the Beams and Posts of the Jetty.	- - The crane gave way whilst an anchor of about 56 cwt. was being towed off from the jetty.	- - Sanctioned 21st July 1849.	Calcutta - - -	- - - - -	1,227 15 6	Season 1849-50.	-

## CIVIL BUILDINGS, SOUTH-WESTERN PROVINCES ; ECCLESIASTICAL :

<i>Circular Road</i> ; Purchase of Land.	For a burial-ground - - -	- - Sanctioned 28th August 1839.	- - - -	1,988 1 10	19,700 - - for grounds, and Rs. 2,385. 9 5. to adapt it for the object intended.	- - Completed season 1840-41.	- - The saving of Rs. 397. 7. 7. within the estimated amount, is owing to the material for the pathways having been obtained from certain buildings which it was found necessary to clear off the ground purchased.
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(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—ECCLESIASTICAL:</b>							
<i>Chittagong Church</i> Construction of.	- - - - -	- - Sanctioned 9th October 1840.	- - - - -	Rs. a. p. 10,335 - -	Rs. a. p. 9,947 3 3	- - Completed season 1843-44.	- - Of the amount, 3,518 rupees has been paid by Government, and the remainder (6,817 rupees) by the community and the Church Building Fund
<b>MARINE BUILDINGS, SOUTH-WESTERN PROVINCES</b>							
<i>Calcutta</i> Construction of a House and Offices for the Master Attendant.	- - Residence for the Master Attendant and offices and godowns for naval stores.	- - - - -	- - - - -	- - - - -	46,000 - -	-	
<b>MARINE BUILDINGS, LOWER PROVINCES</b>							
<i>Chittagong Pier</i> Construction of	- - - - -	- - - - -	- - - - -	6,504 14 10	6,504 14 10	Completed 1839-40.	-
Repairs to the	- - In consequence of injuries done to it by marine worms.	- - Sanctioned season 1842-43.	- - - - -	1,213 14 10	- - - - -	- - Completed season 1842-43.	-
<i>Chittagong</i> Construction of a tiled-roof Custom-house.	- - To replace a thatched shed, which is out of repair and inconveniently situated.	- - Sanctioned 8th March 1843.	- - - - -	- - - - -	5,448 - 9	-	
<b>CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL</b>							
<i>Chupprah:</i> Construction of a Hazut Tusweez Ward.	For the Magistrate of Sarum	- - Sanctioned 24th May 1843.	Chupprah - -	4,782 - 6½	5,409 1 3	- - Completed season 1846-47.	-
<i>Chitpore</i> Construction of a Thannah House near the Suspension Bridge.	- - To replace the former thatched building, which was destroyed by fire.	- - Sanctioned 4 7th July 1847	Chitpore - -	1,150 15 7	1,150 15 7	- - Completed season 1847-48	- - As the thannah at this locality has been burnt down three times during twelve years, the present estimate provides for the erection of a pucca building.
<b>CANALS, NORTH-WESTERN PROVINCES:</b>							
<i>Doab Canal</i> Construction of five additional Falls and Locks.	For irrigation and navigation	- - Estimates sanctioned in 1839.	- - Doab; the falls are to be at Lerkurie, Hullallpore, Meg Chupper, Ruree, and Balpore.	52,356 8 1 The conversion of the 11 falls as locks from Belkee to Balpore, in Pergunnah Behut and Saharunpore, has been also effected at a cost of Rs. 21,040. 11. 7.	69,171 - - sanctioned for additional falls and locks.	- - Completed season 1840-41.	- - The raising of the banks of the Doab Canal was sanctioned in 1838-39; the cost was Rs. 70,644. 8. 6, and the entire length of the work done 385,132 feet; the additional bunding up of the main stream of the Jumna, in order to convey the water to the canal, puts an entire stop to the timber trade from the hills, but when the canal has been made navigable, this inconvenience will cease. The total amount expended on account of the Doab Canal, in 1840-41, amounted to Rs. 1,15,156. 12. 1., and the direct return to 1,65,965 rupees.
Introduction of Rajbuhars in the tract between the Canal and the River Hindun.	- - These rajbuhars are water channels, which, diverging from the main stream of the canal, flow to a considerable distance from its line, and serve to extend the irrigation to numerous villages, which could not, without much inconvenience and many disputes, obtain water direct from the canal itself; they are very useful works, and likely to afford a good return for the outlay expended on them.	- - Estimates sanctioned May 1839.	- - - - -	20,000 - -	20,000 - -	Season 1839-40	- - This sum of 20,000 rupees was placed at the disposal of Captain Cantley, for the introduction of rajbuhars, or watercourses, on a tract of land lying between the Doab Canal and the River Hindun, a great part of which had fallen to the British Government by the death of her Highness the Begum Sumroo.



987.

Plantations of trees on the banks of the.	- - - - -	- - From 1830 to 1840-41.	- - - - -	14,391 12 7 Amount realised from cuttings, 10,435 rupees.	- - - - -	- - - - -	- - - - -	- - The number of trees on the banks of the Doab Canal, to 30th April 1843, was 235,327, and their value was estimated at 30,000 rupees; a sum of Rs. 9,872. 4. 4. had been realised by the sale of timbers.
Connexion of the, with the Dumola River.	- - - - -	14th September 1839	Doab Canal - -	- - - - -	13,800 - - sanctioned for the construction of aqueducts.	- - - - -	- - - - -	- - - - -
Delhi Canal - - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - The amount of expenditure incurred on account of plantations on the banks of the Delhi Canal to the 30th April 1847, was Rs. 27,363. 5. 7.; the amount realised Rs 52,025 12. 6 ; and the estimated value of the trees on the banks of the canal, Rs. 5,66,998. 5. 4. Orders, were reported in season 1848-49, for the removal of 5,746 trees; the number remaining amounted to 369,646 of different ages, and their value was estimated at Rs. 5,57,828. 2. 8.
Deyra Dhoon. Construction of a Masonry Tunnel in lieu of a wooden one on the Beejapore Canal.	- - The wooden tunnel was a source of much trouble and expense, owing to the repairs which it constantly required.	- - Sanctioned 26th September 1843.	Situated near the village of Dakra	3,358 1 6 Rs. 6,244 sanctioned for the construction of falls, or masonry descents, for the passage of the waters.	2,996 14 -	- - Completed season 1844-45	- - - - -	- - - - -
Rajpore Watercourse - -	- - To supply pure and wholesome water to the town of Deyra for domestic purposes.	- - Length 7½ miles; sanctioned 8th March 1841	- - From the hills at Rajpore to the town of Deyra.	42,984 11 9	41,207 2 4	- - Constructed season 1844-45.	- - The object for which this watercourse was constructed has been fully obtained, the water running in a clear and pure stream.	
Setting up of a Saw Mill - -	- - The watercourses in Deyra are stated to be peculiarly applicable to machinery of all kinds.	- - Sanctioned 11th September 1843.	At Dhurrumpore - -	3,567 3 7	- - - - -	- - Constructed season 1844-45	- - The cost includes the adapting of machinery to the building erected; the machinery to be applicable to vertical as well as circular saws.	
Construction of 12 small Reservoirs on the Rajpore Watercourse.	- - Intended for watering the village cattle, and they will relieve the main stream intended for drinking purposes from impurities, of which it could not be kept free so long as cattle resorted to it generally	- - Sanctioned 14th June 1844.	In the Deyra Dhoon	1,608 - -	1,608 - -	- - Constructed season 1844-45.	- - - - -	
Construction of 4 Corn Mills on the Beejapore Watercourse.	- - The construction of those mills will be advantageous to the Government, as well as to the inhabitants, who now carry their corn to other mills distant between four and five miles	- - Sanctioned 15th June 1844.	- - ditto - -	2,500 - -	2,500 - -	- - Constructed season 1844-45.	- - - - -	

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CANALS—NORTH-WESTERN PROVINCES—continued.							
<i>Delhi Canal</i> Masonry bridge over the Bouranee Outlet Nullah, on the Delhi Canal.	-- In lieu of an old bridge, two arches of which had fallen.	-- Sanctioned 4th October 1839.	-- Situated near the village of Shahpore.	Rs. a. p. 2,315 3 10	Rs. a. p. 3,330 9 9	-- Completed season 1840-41.	-- The savings are ascribed to the substitution of gratings at the depth of six feet, instead of cylinders, under the wing walls.
New cut for protecting the Channel, and for the security of the Dadoopore Dam	-- To protect the Delhi Canal from injury by incursions of the Soanee River.	-- Length 11,200 feet, width 75 feet, average depth 9 feet.	Delhi - - -	1,779 13 2	1,779 13 2	-- Completed season 1843-44.	-- The cut has since been widened by the action of the current to twice its original dimensions.
Protection to the west flank of the Dadoopore Dam	-- For securing the right bank of the Sombe River from the attacks of the current after it leaves Baker's Cut	- - - - -	- - - - -	5,005 4 1	5,632 9 10	-- Completed season 1849-50.	—
Bridge over the Delhi Canal at Rhudour.	-- To promote the traffic of the town of Rhudour.	-- Sanctioned 15th August 1837.	- - - - -	9,577 5 2	- - - - -	-- Completed season 1841-42.	-- The roadway is of timber, and is supported on masonry piers.
Construction of an Iron Suspension Bridge at Indore, over the.	-- With a view to the maintenance of the communication of the country.	-- Sanctioned 24th August 1838.	- - - - -	13,267 7 5	- - - - -	-- Completed season 1840-41.	—
New channel under the Indore Bridge.	- - - - -	-- Sanctioned 24th August 1838.	- - - - -	15,717 14 2	18,122 15 5	-- Completed season 1842-43.	-- The soil through which the new cut was to be excavated proved to be so saturated with water as to prevent a greater depth of excavation than four feet being attained. The action of the current has however cleared out the channel to the depth of eight or nine feet.
Construction of a Dam Bridge across a ravine at Dadoopore.	-- In lieu of an overfall drain bridge, which was carried away during heavy rains in 1841.	-- Sanctioned 15th April 1843.	- - - - -	- - - - -	548 15 10	—	—
Construction of two Inlet Bridges over ravines, entering the Canal near the Pucca Tank, west of Hissar.	-- These inlet bridges are necessary to preserve the continuity of the embankments, and to check the influx of silt, at a point between the pucca tank of Hissar and the village of Solumno Shekspore, where both banks of the canal are interrupted by ravines, which enter the canals at opposite points.	-- Sanctioned 19th June 1847.	- - - - -	- - - - -	1,141 - 10	—	—
<i>Deyrah Doon:</i> Construction of Corn Mills	- - - - -	-- Sanctioned 6th July 1844, and 30th August 1844.	-- Under the town of Rajpore.	4,938 2 -	For 8 mills, Rs. 5,414 " 6 " 3,960 <u>Rs. 9,374</u>	-- Constructed season 1845-46.	—
Compensation to individuals for loss of property and profit.	-- In consequence of the water from the old Rajpore watercourse having been turned into the masonry channel.	-- Sanctioned 18th May 1845. Sanctioned 24th July 1845.	- - - - -	2,732 13 - 4,205 - -	- - - - -	- - - - -	-- Ten miles already constructed by Government on the watercourse, have been rented for upwards of 4,000 rupees per annum.
Reconstruction of the Dakra Aqueduct.	-- This aqueduct was severely damaged by heavy rain on the 27th July 1844.	-- Sanctioned 2d December 1844.	- - - - -	1,542 10 1	1,480 - -	-- Completed season 1845-46.	—

Repair of 13 Tanks -	-- To making them serviceable as reservoirs for irrigation.	-- Sanctioned 10th July 1845.	- - - -	5,004 10 7½	5,004 10 7½	Season 1845-46.	-
Doab Canal -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	-- Total amount expended on account of canal works, including current expenses to 1st May 1847 - - - - 23,20,868 11 7 Deduct value of dead stock - - - - 8,01,983 12 2 <hr/> 15,18,884 15 5 Amount realised by revenue - - - - 14,63,196 4 11 Deficit, Co.'s Rs. - - - - 55,688 - -
Restitution of the Newgong Dam, and construction of a Retaining Dam.	-- Greatly injured by a flood on the 21st June 1841.	-- Sanctioned 24th March 1843.	- - - -	36,694 4 5	30,745 - -	-	-
Constructing the Outlets of the Head of the Puthne Rajbaha, in the North Division of the.	-- With the intention of protecting the head supply, as well as giving the power of delivering water into the rajbaha, or irrigation channel, with greater facility.	-- Sanctioned 20th September 1844.	- - - -	656 9 -	661 8 8	-- Completed season 1846-47.	-
Clearance of the Khorra Head of the Canal.	-- In consequence of a change which took place in the main channel of the Jumna towards the close of last rains.	-- Sanctioned season 1844-45.	- - - -	- - - -	1,871 4 6	Season 1844-45.	-
Dadoopore Dam. Protection of the East Flank of the.	-- By securing the right bank of the Jumna against further encroachments of that river.	-- Sanctioned 26th July 1845.	- - - -	6,717 6 9	6,073 - -	-- Completed season 1846-47.	-
Measures for the security of the Canal Works.	-- The floods of July 1845, from their long duration and extreme violence, did considerable injury to the crib spurs intended for the protection of the right bank of the Jumna, to the earthen bund on the Sombe.	-- Sanctioned 19th March 1846.	- - - -	15,211 - -	14,647 - -	-- Completed season 1846-47.	-
Delhi Canal Improvements of the Embankments of the.	-- With a view to confine the canal within certain limits.	-- Sanctioned 9th September 1845.	Near Hissar - -	9,290 - -	9,290 - -	- - - -	- In consequence of too great an economy in the original construction, the canal constantly floods the land in the vicinity of Hissar.
Delhi Canal Construction of 20 second-class Chowkies, and furnishing Chowkies	-- Necessary to enable the superintendent and his establishment to pass with convenience and rapidity along the line.	-- Sanctioned 1st December 1845	- - - -	- - - -	6,714 - -	Season 1845-46.	-
Delhi Canal Construction of five first-class and six second-class Chowkies.	-- Sanctioned, after personal inquiry as to their necessity.	-- Sanctioned 7th May 1845.	- - - -	- - - -	9,133 4 10	-- Completed season 1845-46.	-

The amount expended on account of plantations on the banks of the Doab Canal, to 30th April 1847, was Rs. 21,182 12 a. 2 p. The amount realised, Rs. 6,505. 8 a. 9 p., and the value of the trees on the canal banks, 1,46,793 rupees.

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>CANALS, NORTH-WESTERN PROVINCES—continued.</b>							
<i>Dooab Canal:</i> Construction of three Bridges on the.	- - To facilitate the communication of the country. At present the villagers, with difficulty and inconvenience, ford the canals at their respective ghauts.	- - Sanctioned 3d April 1846.	- - At Admerpore, Kyampore, and Behlap, in the South Division.	Rs. a. p. 4,004 - 9	Rs. a. p. 4,394 - -	- - Completed season 1847-48.	-
Alterations to 15 Bridges on the.	- - With a view to give an increased and less impeded waterway.	- - Sanctioned 28th March 1846.	- - In the centre division.	7,270 3 9	8,528 - -	- - Completed season 1847-48.	-
Digging of the Mant Rajbeeha on the.	- - To give a supply of drinking water to 33 villages in the district of Seharunpore, and for irrigation.	- - Sanctioned 22d November 1841.	- - - - -	- - - - -	- - An advance of 19,120 rupees sanctioned on the 22d November 1841.	- - - - -	- - The return to the State will be about 5,500 rupees per annum.
Construction of a Dam with Bridge for.	- - For securing all the Dooab Canal escape water for the Delhi Canal.	- - Sanctioned 23d October 1841.	At Fysabad - -	13,981 3 1	13,304 - - for a bridge Rs 3,021. 3	- - Completed season 1843-44.	- - This outlay will soon be repaid by the return derived from the employment in irrigation of the quantity of water now lost, and by the annual saving of the expense of temporary bunds.
Construction of Drains for irrigation.	- - - - -	- - Sanctioned 31st May 1831.	- - - - -	16,221 8 2	16,376 8 2	- - Completed season 1841-42.	-
<i>Dooab Canal:</i> Construction of a third Chamber at the Ghinca and Megla Falls.	- - To facilitate repairs, and to avoid the necessity of forming cuts around the Falls for the passage of water, and thereby admitting silt at the same time into the canal.	- - Sanctioned season 1838-39.	- - - - -	20,761 11 -	13,518 5 3	- - Completed season 1841-42.	- - The estimate is exceeded by the amount of Rs. 7,243. 5. 9., owing to the difficulties which had to be overcome.
Construction of a third Chamber at the Rundole and Bobyla Falls.	- - - - -	- - Sanctioned season 1838-39.	- - - - -	7,996 3 1	10,178 - 2	- - Completed season 1841-42.	- - There not having been any natural difficulties to overcome in this work, the charge is by Rs. 2,181. 13. 1. less than the sanctioned estimate.
Construction of a Fall at Behut, between the Mis-karra Dam and Bekle Falls.	- - To lessen the velocity of the water in that part of the Dooab Canal, and its injurious effects on its bed and sides.	- - Sanctioned 14th March 1837.	- - - - -	22,885 15 6	14,743 - 9	- - Completed season 1841-42.	- - Owing to the difficulties met with in the execution of the work, the bill has exceeded the estimate by Rs. 8,142. 14. 9.; but no blame attaches to the executive officer.
Construction of an additional Tail to the Nowgong Dam.	- - Necessary for the safety of the dam.	- - Sanctioned 19th April 1842.	- - - - -	16,486 11 9	18,000 - -	- - Completed season 1842-43.	- - This dam was almost entirely destroyed by a severe flood on the 21st June 1841.
Dadoopore Dam - - -	- - Repair of breaches made by floods in July 1845.	- - Sanctioned 18th August 1846.	- - - - -	1,756 6 1	- - - - -	- - Completed season 1846-47.	-
<i>Delhi Canal:</i> Construction of a Pucca Re-vestment.	- - This work will conduce to the appearance of the Canal, and to the comfort, and perhaps even the health of the inhabitants of Delhi.	- - Sanctioned 3d September 1846.	- - - - -	- - - - -	9,277 - -	-	-

987.	Construction of 114 Masonry Outlets on the banks of the Canal.	- - - - -	- - Sanctioned season 1846-47.	- - - - -	16,059 12 2	- - - - -	- - Completed season 1846-47.	- - These are fitted with lever frames, lever sluice and shutters.
	Doab Canal Improvement to the Romilla and Kandraoh Bridges.	- - To remedy the inconvenience experienced in the free transit of boats between Sehmpore and Shaml.	- - Sanctioned 8th June 1846.	Doob Canal - -	2,347 13 5	2,338 -	- - Completed season 1847-48.	- - The superstructure of these bridges has been raised.
	Construction of 60 Cross Drains attached to the ramps of 30 Bridges.	- - The ramps are high and massive, and as they intersect the natural drainage of the country at right angles, the rain water, without these drains, would have accumulated on the upper side of the ramps, and noxious swamps have been formed.	- - Sanctioned 5th March 1847.	- - - - -	- - - - -	5,174 6 -	- - - - -	- - - - -
	Protection of the Gundewar Bridge by a masonry Tail.	- - Considered indispensable to the safety of the bridge, which has been considered for some time past in a precarious state	- - Sanctioned 17th December 1846.	- - - - -	- - - - -	3,021 2 -	- - - - -	- - - - -
	Construction of a first-class Chokee at the Kharra or upper head of the Canal.	- - It was considered desirable to have a depôt for tools and stores at the head work, instead of having to depend on that at Nyaskur, the nearest first-class chokee, which is at a distance of 6½ miles from the Kharra head.	- - Sanctioned 10th December 1846.	- - - - -	1,191 9 8	1,193 7 4	- - Completed season 1849-50.	- - - - -
G 2	Delhi Canal Repair of the Madhulpore Bridge over the.	To increase the waterway - -	- - Sanctioned 23d June 1847.	Madhulpore - -	- - - - -	2,490 - -	- - - - -	- - The eastern abutment of the bridge was turned by the floods of August 1846, and as the Canal is about 20 feet wider than the length of the bridge, it is proposed to reconstruct the abutment as a pier, and to add an arch of 22 feet to the bridge.
	Doab Canal Reconstruction of Watermill's Range.	Nos. 17 and 18 - - - -	- - Sanctioned 13th March 1847.	Delhi - - - -	681 - -	681 - -	- - Re-constructed season 1847-48.	- - - - -
	Delhi Canal Formation of Road Embankments.	- - These artificial banks, constructed on low ground, confine the waters of the canal within their limits, and prevent the formation of swamps.	- - Sanctioned 19th September 1845.	- - - - -	13,974 6 6	- - - - -	- - Completed season 1847-48.	- - The swamps originated in too great an economy in the construction of a canal, which was led through low and broken ground without any measures being adopted to confine its water.
	Construction of Buildings	- - For a dispensary and quarters for the sub-assistant surgeon appointed to the medical charge of the canals at Dadoopore.	- - Sanctioned 17th February 1848.	Dadoopore - -	960 15 9	1,029 - -	- - Completed season 1848-49.	- - - - -
	Defining the Boundary of Canal property in the city of Delhi.	- - It was impossible to recognize the boundary of the property.	- - Sanctioned 23d October 1849.	Delhi - - - -	958 - -	958 - -	Season 1849-50.	- - - - -
	Construction of new Chokies	- - For the convenience and efficiency of the canal establishment	- - Sanctioned 21st February 1850.	- - At Gungatole Narnoand, Landakherra and Kylana.	- - - - -	2,805 - -	- - - - -	- - - - -

(continued)

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<i>CANALS, NORTH-WESTERN PROVINCES—continued</i>							
<i>Delhi Canal—continued.</i> Construction of masonry Bridges.	-- To replace the cross bridges of wood, which were not considered sufficiently strong to bear the heavy traffic of that country.	-- Sanctioned 8th October 1849.	-- At Jooah d Chota Thannah.	- - - - -	-- For Jooah Bridge, 1,978 rupees; Chota Thannah, Rs. 1,062. 0. 2	Season 1849-50	-- The Jooah bridge to have one arch, with a waterway of 34 feet, the Chota Thanna bridge one arch, 30 feet span.
Alteration of one mile of the Canal, between the Bridges Kuttra and Bolak Begum, near the city of Delhi.	-- To render the Delhi branch available for rafts and boats up to the walls of the city.	-- Sanctioned 24th October 1850.	Delhi - - - -	- - - - -	-- Rs. 7,730. 5. 2. and 1,200 rupees as compensation for the land.	- - - - -	-- The canal on its new line, will have open clear banks for inspection or preservation, instead of obstructions by old enclosures, gardens, tombs, &c; boats and rafts will be enabled to pass down to the city walls and to the Cabul gate, through the removal of old bridges, &c.
<i>Dooab Canal</i> Construction of masonry Heads to nine Rajbuhas.	For the protection of the banks -	-- Sanctioned 5th June 1847.	Dooab Canal - -	- - - - -	3,631 11 -	-	-
Construction of two Flour Mills on the Cardbunna and Madhoopore Rajbuhas.	-- In order that advantage might be taken of water-power available in these rajbuhas.	-- Sanctioned 5th August 1847.	- - - - -	2,214 7 7	2,378 2 8	-- Completed season 1849-50.	-- There is every reason to believe that the outlay will be turned to good account.
Mangoe Gardens, under the Superintendent of the Dooab Canal.	-- For supplying the mangoe fruit and grafts of the trees.	-- Sanctioned 29th November 1849	-- The gardens are at Mamckmew, Berkherree Dowlah, Surrowlie and Selmpore.	- - - - -	8,040 5 9	-- Completed season 1849-50.	-- The only garden which had reached the self-supporting stage was that at Surrowlie, which had paid 8 per cent. on the outlay. The fruit and grafts were in great demand by the natives; notwithstanding the price of the grafts had been raised from 2 annas to 6 annas, there was no diminution of the demand.
Cut to complete the drainage of the country round the town of Shamlie.	-- To excavate a straight channel for the Shamlie Nullah, from the escape of the Shamlie Mills to the Khern outlet cut.	-- Sanctioned 22d June 1848.	- - - - -	2,068 13 -	2,260 - -	-- Completed season 1849-50.	-- The total length of this cut is 14,476 feet; the expense of this cut, and of its future repairs, is to be charged in equal proportion to the canal and local funds.
Construction of a second Head to the Seharunpore Mill Cut.	-- To prevent the stoppage of the mills when the supply is cut off from the first head, to enable the workmen to clear away the silt, which is freely deposited in this channel.	-- Sanctioned 28th August 1847.	- - - - -	1,815 2 4	2,198 - -	-- Completed season 1849-50.	-
Construction of the Amith Mhaw Cut, with two masonry Bridges.	-- This cut was made to enable the natural drainage of a large tract of ground to pass freely through the canal embankments.	-- Sanctioned 30th May 1846.	-- In Pergunnah Gungo, Zillah Seharunpore.	1,436 3 3	- - - - -	-- Constructed season 1847-48.	-- The land thus relieved from standing water is now available for cultivation.
<i>Deyrah Doon:</i> Repairs to the Rajpore Water-course.	-- The Ruspimah River has been turned back to its old channel.	-- Sanctioned 12th May 1847.	- - - - -	1,573 - -	1,573 - -	-- Completed season 1847-48.	-

ROADS AND BRIDGES, SOUTH-WESTERN PROVINCES :		ROADS AND BRIDGES, LOWER PROVINCES :					
987. <i>Diamond Harbour and Barrapore Roads</i> · Repair of the portion between Gurriahaut and Barrapore	-- Both these lines are much out of repair, and are much wanted to enable the cultivators to bring the produce of their lands to Calcutta.	-- Sanctioned 6th April 1841.	In the 24 Pergunnahs	10,190 12 2	10,190 12 2	Season 1841-42	-- An attempt was made to obtain the assistance of the landholders ; but nearly all the estates along the line were under the management of the Government officers, and accordingly the State was, in fact, the Zemindar.
<i>Daudpore to Sheerpore</i> Construction of a new Road.	-- In lieu of a road which had been carried away by encroachments of the River Ganges.	-- Length 13 miles, sanctioned 4th June 1839.	Sheerpore - -	1,592 4 -	1,592 4 -	Season 1839-40	This new line is taken well inland.
<i>Doudcondy to Mungdo</i> Construction of 40 wooden Bridges.	- - - - -	-- Sanctioned 27th May 1841.	-- Chittagong to the Ferry near Company Kattath.	3,625 6 8	3,625 6 8	-- Completed season 1841-42.	-- All the masonry bridges on this line are being repaired, great damage having been done by an unusually severe flood.
<i>Darjeeling and Calcutta Road</i> -	-- To perfect the communication between Calcutta and Darjeeling, which new station is becoming a place of general resort for invalids.	-- Length about 363 miles ; sanctioned season 1840-41. Berhampore to Baraset, 120 miles, Baraset to Kishnagur, 50 miles.	Calcutta - - -	-- The work has been performed under divisional superintendence No general return of the amount of advances has been prepared, but so far as can be ascertained, the amount expended for road works, bridges and bungalows, to the period of its completion, has been about 95,957 rupees.	- - - - -	-- Completed season 1843-44.	-- The old line of road between Berhampore and Dinagepore <i>vid</i> Malda, has been abandoned, and a new line, 30 miles shorter, adopted. This road was reported to have been put in a perfect state of repair as a dry weather communication, and it would only require ordinary repairs after the rains of each year. It had been intended, when the road was first projected, to employ convicts extensively on it, but, owing to great sickness, the convicts were entirely withdrawn.
93 <i>Darjeeling Road</i> from, to the foot of the Hills.	-- This work, when finished, will be eminently useful.	-- Length 33 miles and 181 yards ; sanctioned 30th November 1840 and 1841.	-- Hills above Darjeeling.	-- The aggregate cost of this line was 66,829 rupees, including that of bungalows, &c.	28,396 11 2	-- Completed season 1840-41.	-- This road has been opened for foot passengers by Lieutenant Napier, of the Engineers, and is quite practicable to travellers and laden coolies. Of this line 23½ miles are opened to the full width of 11 feet, 3 miles to 9 feet, and 6½ to 6 feet The execution of the work has been attended with great labour. The excess of expenditure is owing to the employment of hired labour in lieu of the Sebundy sappers, a sufficient number of whom could not be spared.
<i>Darjeeling Road</i> · First Division ; construction of three Bridges and six Drains.	- - - - -	-- Sanctioned 28th December 1841.	Berhampore - -	7,087 10 2½	7,087 10 2½	-- Completed season 1844-45.	- -
Second Division ; construction of Wells.	-- For the convenience of travellers.	- - - - -	-- Between Burgat- chee and Dinagepoor.	436 6 6	436 6 6	-- Constructed season 1842-43.	- -
Construction of roads in the neighbourhood of, including the "Auckland Road"	-- For facilitating the means of communication.	-- Length about 4½ miles ; sanctioned season 1844-45.	Darjeeling - -	4,499 8 -	- - - - -	-- Completed season 1844-45.	- -
Construction of a wooden Bridge.	- - - - -	-- Sanctioned 17th September 1849.	-- Over an embanked road across the Jheel, connected with the Barrow Karry, on the south side of the Pransawgor Tank, on the Darjeeling road	841 8 10¼	756 - -	-- Completed season 1849-50.	-- The bridge is on saul framework, of three openings of 14 feet wide by 7 feet high, the Pransawgor embankment is in length 3,309 feet, and in height 7 feet, and dams up the Barrow Karry on its northern side, the Karry passes through the embankment by a bridge, affording a waterway of 277 feet in length by 12 feet in height, and there are also two small planked drains in the bund, which, at its southern end, is annually inundated, and cut away by the rush of water which tops the embankment, owing to the waterway afforded being insufficient. This can only be prevented by the construction of the bridge.

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued.*

NAME OF WORK.	Object of Construction	Length, and Date of Commencement	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion	Probable Time of Completion.	REMARKS
<b>ROADS AND BRIDGES, LOWER PROVINCES—<i>continued</i></b>							
<i>Darjeeling Road—continued.</i> Formation of a new piece of road on the Darjeeling route.	-- In lieu of the road between Burgutchy and Godagaree, which was liable to be cut away and inundated.	-- Length 5 miles and 33 yards. Sanctioned 14th March 1848.	-- On the Darjeeling route.	<i>Rs. a. p.</i> 1,136 9 11	- - - -	-- Completed season 1849-50.	-
<i>Dinapore to Bankipore</i> Reconstructing the Pucka portion of this Road.	-- Leading from the Main Guard Bridge at Dinapore to the Parade at Bankipore.	-- Sanctioned 14th May 1845. Length 7½ miles.	Bankipore - -	12,775 11 11½	- - - -	Completed.	-
<i>Darjeeling Road:</i> Dinapore to Bankipore, re-metalling of the Pucka portion of this Road.	-- This road connects the city of Patna with the cantonment of Dinapore.	-- Length about 7½ miles from the Main Guard Bridge at Dinapore to the Parade at Bankipore Sanctioned 17th February 1851.	Bankipore - -	- - - -	14,363 8 -	- - - -	-- The width of the metal is 26 and 20 feet.
Repair of the road between Dum Dum and Cossipore.	- - - - -	-- Length 3 miles Sanctioned 3d December 1839.	Cossipore - -	6,776 - -	6,776 - -	-- Completed season 1839-40.	-- This is a pucka road.
<i>Dinagepoor Bridge</i> , over the Gugraha Nullah at	-- Required in the place of the Creighton's Pucka Bridge, which was destroyed by an inundation in July 1841.	-- The water-way of this bridge is 191 feet in length Sanctioned 9th January 1843.	Dinagepoor - -	6,601 11 6½	8,260 11 2	-- Completed season 1847-48	
<b>ROADS AND BRIDGES, NORTH-WESTERN PROVINCES:</b>							
<i>Delhi to Shamlee via Kurnaul</i> Estimates for bridging and metalling the Road.	- - - - -	-- Estimate submitted July and August 1840	Shamlee - -	- - - -	2,95,056 - -	- - - -	-- The work has been placed in the hands of the local civil officer; the expense to be defrayed from local funds.
<i>Delhi</i> Projects for a permanent communication across the Jumna at.	-- A permanent communication at the point proposed is important in a military point of view, as it would provide the ready means of access to the city of Delhi, and the arsenal it contains, from the neighbouring cantonment of Meerut, in the Dooab. In a commercial point of view it is important to connect Delhi with the grand trunk road, and so form a good means of transit for the valuable merchandize which passes through Delhi in either direction, from the east or west.	-- Submitted to the Lieutenant-governor on the 3d April 1846.	Delhi - - -	1st Scheme. By a causeway and bridge of boats: Causeway - - Bridge of boats - -	<i>Rs.</i> 1,50,000 1,00,000 <u>Total <i>Rs.</i> 2,50,000</u>	- - - -	-- The Governor-general admitted the importance of the work, but was nevertheless of opinion, that in the present state of the finances, other public works of still greater utility must have the preference.
				2d Scheme. By a suspension bridge with causeway: Suspension bridge - Causeway - -	<i>Rs.</i> 7,00,000 1,50,000 <u>Total <i>Rs.</i> 8,50,000</u>		
				3d Scheme. By a masonry bridge and causeway: Masonry bridge - Causeway - -	<i>Rs.</i> 4,50,000 1,50,000 <u>Total <i>Rs.</i> 6,00,000</u>		



987.

Construction of a Causeway on both banks of the River Jumna, having two openings, each duly provided with Pucca Bridge Heads, for the passage of the waters of the river.

- - - - -

- - Sanctioned 22d July 1846.

- - From the terminus of the grand trunk road at Selemore to the Negumbode gate of the city.

- - - - -

1,37,481 - -

- - - - -

- - The less expensive project of a causeway with two openings was sanctioned by the Governor-general in July 1846. The main opening having a span of 2,800 feet, the other, immediately below the Negumbode gate, of 200 feet, making a total of 3,000 feet, or allowing for the floating of 80 boats, 24 feet wide, drawing 1. 6. 0. water (assuming the main depth of the river at 8 feet), an uninterrupted waterway of 2,670 feet.

## ROADS AND BRIDGES, CENTRAL PROVINCES :

Deeskullee Bridge over the Gungee Nullah, on the road from Benares to Ghazeeapore

- - This bridge was required in the place of one built in 1820, which, owing to an insufficiency of waterway, fell in the year 1830.

- - - - -

- - - - -

14,087 - 3

- - The immediate space will be filled by a bridge of boats, which will be formed and maintained by the Ferry Fund Committee.

- - Completed season 1841-42.

- - This bridge is of three arches, of 35 feet span each.

Deodee River Construction of a Causeway across the.

- - To supersede the construction of a bridge which would have cost, by a rough calculation, about 40,000 rupees.

- - Sanctioned 7th October 1846.

- - - - -

7,866 8 5

7,909 - -

- - Completed season 1846-47.

- - The length of the pucca pavement is 201 feet clear roadway, of which 156 feet are level, and raised one foot above the highest dry weather stream.

## ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES

Dum Dum to Baraset, repairs of the Pucca Road.

- - Forms a part of the road to Darjeeling.

- - Length 7 miles; sanctioned 15th April and 31st May 1844.

Baraset - - -

7,153 9 3

7,153 9 3

- - Completed season 1844-45.

Darjeeling Road Construction of 13 Houses.

- - For the accommodation of dawkbearers, and to prevent their resorting in bad weather to the villages at some distance from the road for protection, and thus occasioning much delay and inconvenience to travellers.

- - Sanctioned 23d May 1843.

- - Between Bargat-  
chee and Titalya, vid  
Dumagepore.

635 6 6

- - Completed season 1845-46.

## CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES :

Dhullundah Insane Hospital Construction of Sleeping Sheds for Guards

- - Constructed by orders to the address of the Sessions Judge of the 24 Pergunnahs.

- - Sanctioned 6th October 1848.

Dhullundah - - -

1,455 11 2

1,455 11 2

- - Constructed season 1849-50.

- - This work was executed under a contract.

Construction of additional Verandahs, Cook-rooms, &c.

- - - - -

- - Sanctioned 25th May 1848.

- - - - -

2,528 2 10

- - Completed season 1850-51.

## CIVIL BUILDINGS, CENTRAL PROVINCES—JUDICIAL

Dumoh Construction of a Fortified Gaol at.

- - - - -

- - Sanctioned 16th April 1845.

Dumoh - - -

22,735 9 2

20,460 7 2

- - Completed season 1848-49.

- - Government expressed a desire that the building should be calculated for defence by a small body of men, and

that provision should be made within the gaol for the occasional close confinement of all the prisoners. The new gaol has been accordingly made to consist of a centre barrack of two wards, empty bastions, with tower curtains, solitary cell, airing yard, reservoirs, drains, aqueducts, cesspools, &c. &c.

## CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—JUDICIAL

Delhi Gaol Construction of Gaol Wards, with Cook-rooms and Guard-rooms.

- - - - -

Season 1841-42

Delhi - - -

9,542 5 11

9,999 - 3

- - Completed season 1842-43.

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—JUDICIAL—continued.</b>							
Delhi Hospital	For insanes	Sanctioned 9th March 1841.	- - - -	Rs. a. p. 25,723 - 10 (Exclusive of Rs 399. 5. for clearing and levelling a portion of the site for the asylum.)	Rs. a. p. 26,963 4 1	-- Completed season 1846-47.	-- The plan provides for a main building, a separate place for convalescents, and for a gardea.
Deyrah Gaol	- - - -	Sanctioned 1838-39	- - - -	18,553 11 6	15,808 2 7	-- Completed season 1840-41.	-- The excess of Rs. 2,744. 8. 11. over the estimated cost, is owing to a failure in the executive officer's kilns, and the necessity he was under of purchasing bricks from the bazaar, and also to the execution of additional work.
Delhi Gaol Hospital: Construction of a new Roof.	- - - -	Sanctioned 16th August 1841.	- - - -	2,586 6 1	2,757 15 -	-- Completed season 1842-43.	-
Delhi: Construction of a new Kotewallee for the city, and a Lock-up House.	-- The old Kotewallee is in a dangerous dilapidated state, part having already fallen.	Sanctioned 4th April 1845.	Delhi - - -	-- For the lock-up house, 2,369 10 10	-- For the Rs. a. p. Kotewallee 5,929 1 4 Lock-up house - 2,446 5 - <u>Rs. 8,375 6 4</u>	-- Completed season 1846-47.	-- The execution of these works devolved on the magistrate.
Delhi Penitentiary: Additions to the.	-- In compliance with the orders of the Lieutenant-governor for the introduction of a capstan mill, to be worked by the prisoners.	Sanctioned 23d May 1845.	Ditto - - -	934 4 4	1,358 10 6	-- Completed season 1846-47.	-
<b>CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL.</b>							
Dinapore Gaol:							
Drainage and Ventilation of the.	To improve the salubrity	Sanctioned January 1840 and April 1841.	Dinapore - -	3,227 10 8	3,780 - -	-- Completed season 1842-43.	-
Addition of 13 Skylights	-- Ditto	Sanctioned 28th February 1842.	Ditto - - -	8,149 13 -	8,149 13 -	Season 1842-43.	-
Dacca Insane Hospital:							
Construction of additional Cells.	-- In consequence of the insufficiency of the accommodation.	Sanctioned 24th July 1843.	Dacca - - -	1,228 5 4	1,228 5 4	-- Constructed season 1843-44.	-
Construction of quarters for the Native Doctor and Darogah	-- Ditto	Sanctioned 26th December 1843.	Ditto - - -	- - - -	- - - -	-- Completed season 1843-44.	-
Durrung: Construction of new Buildings.	-- In lieu of the existing cutcherry gaol and thannah, which are in a totally decayed state.	Sanctioned 3d November 1841.	Durrung - - -	1,217 11 7	1,158 11 -	-- Completed season 1844-45.	-

187.	<i>Debrooghur</i> :								
	Construction of a Gaol at -	-- For the accommodation of 136 prisoners, males and females.	- Sanctioned 3d April 1843.	- - - -	6,495 1 10	6,506 5 7	-- Completed season 1844-45.	-	
	Construction of a Circuit Bungalow.	-- In consequence of the inconvenience experienced by the Deputy Commissioner in holding his Court, from the want of proper buildings.	- - Sanctioned 14th August 1843.	Debrooghur - -	1,160 2 11	1,746 2 6	-- Completed season 1845-46.	-	
	<i>Dumoh</i> : Construction of a new defensive Gaol.	- - - - -	- - Sanctioned 27th January 1844.	Dumoh - - - -	- - - - -	10,662 14 -	- - - - -	-	-- Government expressed a desire that the buildings should be calculated for defence by a small body of men, and that provision should be made for the occasional close confinement of all the prisoners, so as to enable a small body of troops to retain the prisoners.
	<i>Deebrooghur</i> : Construction of a new Cutcherry.	-- In lieu of a similar one condemned by the annual Survey Committee.	-- Sanctioned 3d February 1846.	Deebrooghur - -	900 - -	5,822 1 7	Season 1847-48 -	-	- The purchase of Captain Pagan's bungalow for 900 rupees, for a cutcherry, was authorised on the 9th June 1847, as the site was better than any other that could be obtained.
H	<i>Dinapore</i> : Improvements to the Magistrate's Cutcherry, by the construction of a Room with Verandahs.	-- The insufficiency of the existing building was brought to notice by the civil authorities, who preferred the present arrangement for improving the buildings to assigning the upper apartments of the judge's old cutcherry to the magistrate, which would have been difficult of access to the poor.	- - Sanctioned 7th July 1847.	Dinapore - -	3,766 1 6 1/2	3,927 - -	-- Completed season 1849-50.	-	-- The room is to be 40 x 24 feet, with a 10 feet verandah on the east, west, and south sides.
	<i>Debrooghur</i> : Construction of a new Gaol Hospital.	-- The new hospital will be built on a better site; the present buildings, owing to the want of ventilation, are very damp and unhealthy.	- - Sanctioned 12th May 1847.	Debrooghur - -	- - - - -	631 1 4	-	-	
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—REVENUE :									
	<i>Datagunge, in the District of Budaon</i> : Construction of a Tehsildarry Cutcherry at.	- - - - -	- - Sanctioned 13th December 1838.	Datagunge - -	4,360 12 -	4,360 12 -	-- Constructed season 1838-39.	-	
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—GENERAL.									
	<i>Delhi</i> :								
	Improvements to the Staging Bungalow.	-- The alterations consist in the addition of new dressing and bath rooms, the construction of a verandah, and throwing a thatch roof over the flat one.	- - Sanctioned 9th April 1845.	Delhi - - - -	1,849 10 -	1,849 10 -	-- Completed season 1845-46	-	
	New College at - - -	-- Altering the residency buildings to adapt them for a college.	- - Sanctioned 26th November 1846.	- - - - -	5,099 1 3	6,242 8 6	-- Completed season 1847-48.	-	

(continued)

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion	REMARKS.
<b>CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—GENERAL—continued.</b>							
<i>Dongurtal, on the road between Nagpore and Seonee.</i> Construction of a Staging Bungalow.	For the convenience of travellers	-- Sanctioned 3d August 1840.	- - - - -	Rs a. p. 1,068 5 6	Rs. a. p. 1,075 6 1	-- Completed season 1841-42.	-- This route is much frequented by persons on their way to or from Bombay.
<i>Dumow;</i> Construction of a Dawk Bungalow and Out-offices.	- - - - -	-- Sanctioned 21st June 1842.	Dumow - - -	1,478 14 7	1,478 14 7	-- Completed season 1843-44.	—
<i>Dearee</i> Enclosure of the Burial-ground.	- - - - -	-- Sanctioned 26th September 1844.	-- On the Burdwan and Benares road.	552 10 6	612 4 -	-- Completed season 1846-47.	—
<b>CIVIL BUILDINGS, LOWER PROVINCES—GENERAL:</b>							
<i>Dacca College</i> - - - - -	- - - - -	-- Sanctioned season 1842-43; estimate revised 16th October 1844.	Dacca - - - -	33,707 14 - $\frac{1}{2}$	20,568 5 10	-- Completed season 1848-49.	-- The additional outlay of 11,874 rupees was found necessary for the construction of a building in every respect suited to the purpose intended.
Construction of a surrounding Wall and Out-offices.	- - - - -	-- Sanctioned 30th September 1846.	- - - - -	-	-		
<i>Debrooghur Road to Jaipore:</i> Construction of two Seraees on the.	- - - - -	-- Sanctioned 30th April 1845.	- - - - -	3,137 - -	3,137 - - 500 - -	-- Constructed season 1846-47.	—
<i>Darjeeling:</i> Construction of Staging Bungalows at Carrogolah Ghaut, Purneah and Kishengunge.	-- For the use of Europeans and their families proceeding from the Western stations, and from Calcutta to Darjeeling.	-- Sanctioned season 1846-47.	Darjeeling - -	7,500 - -	7,500 - -	- - - - -	-- The superintendent of Darjeeling represented the very great inconvenience experienced from the want of such accommodation.
New Shingle Roof to the Church.	-- On the recommendation of a committee, who stated that the church wall threw out a green moss annually, probably owing to the leakage from the roof.	-- Sanctioned March 1847.	Darjeeling - -	650 - -	650 - -	-- Completed season 1849-50.	—
<i>Dacca:</i> Rebuilding the Enclosure of the old Burial-ground.	-- The old wall fell during the rains of 1845.	-- Sanctioned 23d September 1846.	Dacca - - - -	680 - 8	-	Season 1847-48.	—
<i>Dum Dum:</i> Repair of the Roman-catholic Chapel.	-- The chapel had become greatly dilapidated.	-- Sanctioned 8th September 1849.	Dum Dum - - -	1,167 11 3 $\frac{1}{2}$	-	Season 1850-51	-- This church was built in 1821-22, and re-roofed in 1827-28, in consequence of the timbers having been destroyed by white ants.
Renewing the Roof of the Church.	-- In consequence of the unsoundness of many of the timbers.	Sanctioned in 1851 -	- - - - -	-	5,681 4 10	- - - - -	-- On the present occasion saul beams will be used instead of teak, which are to be well charred or tarred at the ends; and instead of being built into the walls, they are to be placed with open spaces all round, to facilitate inspection and removal when necessary.

<i>Darjeeling Church</i> : Construction of a Verandah, and repairs.	-- To protect the outer walls from the constant drizzling rain.	-- Sanctioned 7th March 1851.	Darjeeling - - - - -	2,634 2 7	- - - - -	-- This church was built in the year 1844, at a cost of 9,500 rupees.
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**CIVIL BUILDINGS, LOWER PROVINCES—POLITICAL:**

<i>Debroo Mookh</i> : Grant for Temporary Buildings at the new Station of.	-- This station promises to become a place of considerable trade, being particularly convenient for many of the tea localities, and for the export of grain and cotton from Mattock.	-- Sanctioned 5th February 1840.	-- The site is on the bank of the Debroo River, near its junction with a branch of the Berhampooter River, called the Mechla Gooter, three miles up from the main stream of the Berhampooter.	2,700 - -	- - - - -	Season 1839-40.
--	--	----------------------------------	---	-----------	-----------	-----------------

<i>Darjeeling</i> : Construction of Public Buildings at the Civil Station of.	-- These consisted of a magistrate's cutcherry, a hospital, thanah, bazaar, shops, out-offices, tanks.	-- Resolution of Government, Political Department, 23d May 1838.	- - - - -	15,087 5 7	- - - - -	-- Completion reported season 1843-44.
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**CIVIL BUILDINGS, CENTRAL PROVINCES—POLITICAL:**

<i>Dumoh</i> : Construction of Buildings.	-- As quarters for the adjutant and non-commissioned officers of the 2d Police Battalion.	-- Sanctioned 11th March 1844.	Dumoh - - - - -	4,605 - 5	4,652 15 5	-- Completed season 1846-47.
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**CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—POLITICAL:**

<i>Delhi</i> : Excavation of a new Tank.	-- Required in front of the Delhi Palace.	-- Sanctioned 3d February 1845.	-- On the site commonly called the Goolabae Bagh.	25,117 7 -	22,345 3 -	-- Completed season 1846-47.
<i>Delhi Palace</i> : Repairs to	- - - - -	-- Estimate submitted 27th February 1846.	Delhi - - - - -	6,533 12 4	50,573 - -	-- Completed season 1849-50. - Repairs to the extent of Rs. 6,533.12. 4. may have been executed, as the remainder was not considered absolutely necessary.

**CANALS, SOUTH-EASTERN PROVINCES:**

<i>Entalle Canal</i> : Excavation of Mud from the bed of the.	- - - - -	-- Sanctioned 9th January 1843.	- - - - -	3,248 15 8	3,679 15 5	-- Completed season 1844-45.
<i>Eastern Canals</i> : Clearance of the Embankments.	-- To complete the tracking communication along them.	-- Sanctioned 25th September 1843.	- - - - -	3,726 11 8	4,368 11 8	-- Completed season 1844-45.
<i>Entalle Canal</i> : Excavation of Deposit from the bed of the.	- - - - -	-- Sanctioned 16th April 1846.	- - - - -	4,470 8 -	5,172 - -	-- Completed season 1846-47. - The deposits which had silted up the bed of the canal have been removed, and the bed has been deepened.

**ROADS AND BRIDGES, LOWER PROVINCES:**

<i>Bridge at Ekhtarpore</i> , on the road from Jounpore to Buxar.	- - - - -	-- Of five arches of 20 feet span each; sanctioned 6th February 1838	- - - - -	4,197 11 6	4,197 11 6	-- Completed season 1840-41. - The cost of this bridge will be defrayed from the funds under the management of the local agent at Shalabad.
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**CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—JUDICIAL:**

<i>Etawah New Gaol</i> : New Gaol Buildings.	-- Offices for the Magistrate and Collector.	-- Sanctioned May 1840.	- - - - -	26,761 14 4	13,857 5 7	-- Completed season 1841-42.
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**CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—GENERAL:**

<i>Etawah</i> : Construction of Staging Bungalows.	-- For the accommodation of travellers.	-- Sanctioned 7th January 1846.	Etawah - - - - -	4,497 - -	4,647 - -	-- Completed season 1846-47.
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(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued*.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>CIVIL BUILDINGS, EASTERN SETTLEMENTS—GENERAL:</b>				<i>Rs. a p.</i>	<i>Rs. a p.</i>		
<i>Eastern Settlements:</i> Singapore	Hospital for convicts - -	Sanctioned June 1837	- - - -	2,670 7 9	-		
	Market at Company Glam - -	-- Sanctioned January 1836.	- - - -	5,703 2 4			
	Enclosure to gaol - - -	Sanctioned July 1836	- - - -	10,290 5 10			
				<u>Rs. 18,663 15 11</u>			
	New market at the Chins Town at Singapore.	- - Sanctioned September 1834.	- - - -	23,980 2 7	- - - -	Completed 1839-40 -	-- This market covers an area of twice the size of the old one, in order to meet the daily increasing necessities of the settlement.
<i>Fish Market:</i> Construction of a new.	-- In consequence of the present market being liable to inundation.	-- Sanctioned season 1840-41.	- - - -	2,216 2 4	- - - -	Completed 1841-42.	-
<b>ROADS AND BRIDGES, NORTH-WESTERN PROVINCES:</b>							
Road from Ferrah to Horal, on the route from Agra to Delhi; Estimate for Drains and Bridges.	- - - - -	-- Length 102½ miles	Horal - - - -	- - - - -	14,884 - -	- - - - -	-- This work has been placed in the hands of the local civil officer at Agra, and the expense will be provided for from the local funds.
Road from Ferozepore to Shikarpore.	For a military road - - -	-- Sanctioned season 1841-42. Length 415 miles.	Shikarpore - -	11,145 9 6	- - - -	Season 1841-42 -	-- The bill for the work was submitted by Captain Hatton, attached to Shah Soojah's force.
<b>CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—JUDICIAL:</b>							
<i>Ferozepore:</i> Construction of a Gaol at.	-- Undertaken in consequence of the necessity of retaining a gang of convicts to supply the place of hired labourers, of whom a sufficient number for carrying on the numerous works in progress could not be obtained.	-- Sanctioned season 1846-47.	Ferozepore - -	1,402 3 5	- - - -	-- Completed season 1846-47.	-
<b>CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL:</b>							
<i>Furreehpore:</i> Additions and alterations to the Gaol.	-- To improve the salubrity of the building.	-- Sanctioned 9th April 1845.	Furreehpore - -	4,104 10 10	3,623 11 10	Season 1846-49 -	-- The floors will be built on flues four feet from the ground; some division walls, which obstruct the free circulation of air, will be removed.
<b>CIVIL BUILDINGS, CENTRAL PROVINCES—JUDICIAL:</b>							
<i>Futtehpore:</i> Construction of a Judge's Court-house and Out-offices.	-- A new court-house was much required; the records were kept in almost irreparable bungalows, and were exposed to much risk of destruction.	-- Sanctioned April 1847.	Futtehpore - -	- - - - -	14,962 - -	- - - - -	-- The building will be constructed of pucca materials, with flat roof, and consist of nine rooms, with a surrounding verandah.
<b>CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—REVENUE:</b>							
<i>Furruckabad:</i> Construction of Tehsildary Cutcherries.	- - - - -	-- Sanctioned 11th April 1843.	- - At Terirah and Ayrwah.	At Ayrwah 3,955 3 5	8,870 4 6	-- Completed season 1846-47.	-

<p><i>Futtehpore:</i> Enlargement of the Circuit-house to accommodate the Collector and Magistrate and their Records; and construction of a Cutcherry for the Huzoor Tubseel, and a Guard-room for 70 men.</p>	<p>-- This concentration of offices has been sanctioned to put an end to the existing inconvenient arrangement of these functionaries holding their offices in separate buildings, and being separated a distance of one mile from their records</p>	<p>-- Sanctioned 17th August 1843.</p>	<p>Futtenghur - -</p>	<p>10,500 1 5 4</p>	<p>11,200 0 4</p>	<p>-- Completed season 1844-45.</p>	
<p>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL:</p>							
<p>False Point Lighthouse - -</p>	<p>- - - - -</p>	<p>-- Sanctioned season 1839-40.</p>	<p>- - - - -</p>	<p>-- The breakwater has been completed at a cost of Rs. 2,204. 6., or 296 rupees less than the amount sanctioned.</p>	<p>-- Rs. 731. 14. 5. sanctioned for plastering the building, and 2,500 rupees for a breakwater of rough stone at the eastern bund.</p>	<p>-- Completed season 1841-42.</p>	<p>-- The building is of a red colour, having a large white stone on the sea front, and is easily distinguished by passing vessels. The interior of the lighthouse has been rendered completely habitable. The breakwater was visited by the superintending engineer of the South-eastern Provinces on the 13th March 1843, and was found quite effective in preventing an encroachment of the sea.</p>
<p><i>Fakeer Point.</i> Construction of a Lighthouse.</p>	<p>- - - - -</p>	<p>-- Sanctioned 9th November 1842.</p>	<p>- - - - -</p>	<p>7,082 9 10</p>	<p>5,000 - -</p>	<p>-- Completed season 1845-46.</p>	<p>-- The excess is owing to the necessity of providing red-stained glass and reflectors for the lantern, and other necessary items overlooked in the first estimate.</p>
<p>CIVIL BUILDINGS, CENTRAL PROVINCES—GENERAL:</p>							
<p><i>Futteabad:</i> Repairs to the staging Bungalow.</p>	<p>-- Considered indispensable for the superintendent of the Bhuttana territory, and the residents at Susa.</p>	<p>-- Sanctioned 28th March 1842.</p>	<p>-- Situated between Susa and Hissar.</p>	<p>552 15 1</p>	<p>- - - - -</p>	<p>-- Completed season 1843-44.</p>	<p>-- This building was erected by Major Thoresby, at a cost of 2,000 rupees, and made over by him to the Government.</p>
<p>CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—GENERAL:</p>							
<p><i>Ferozepore</i> Burial-ground; Enlargement of the.</p>	<p>- - - - -</p>	<p>-- Sanctioned 25th March 1846.</p>	<p>Ferozepore - -</p>	<p>- - - - -</p>	<p>3,894 2 -</p>	<p>- - - - -</p>	<p>- - - - -</p>
<p>CANALS, NORTH-WESTERN PROVINCES—GENERAL:</p>							
<p>Gango Canal - - - - (See Appendix)</p>	<p>-- For making the waters of the Ganges available for irrigation on the eastern side of the Doonab.</p>	<p>-- Suggested by Captain Cautley, in the year 1836.</p>	<p>-- To leave the Ganges at Kunkul and pass near to Meerut and Coel, and finally join the river Esau, near Mynpooree.</p>	<p>-- Estimates submitted in season 1841-42. Miles. Length of main line 453 " of Futtenghur Branch 160 " Boolundshur. 70 Etawah - 172 " Cawnpore - 42½ 898½</p>	<p>-- Rs. 66,65,226, or Rs. 58,38,018. 10., exclusive of the sum which would be required for an aqueduct over the Solani River, which work may be avoided by taking a more circuitous route, and by crossing the Solani valley at a higher level.</p>	<p>- - - - -</p>	<p>-- It will be necessary, first of all, to convey the water from the Ganges at Kunkul to Roorkee, a distance of 20 miles, by an expensive series of works, estimated at Rs. 19,64,976. 12., of which sum about 8,63,668 rupees is for the aqueduct over the Solani River. The estimate further provides for carrying the main branch from Roorkee to Chitoora, mean width of canal 150 feet; and thence to Cawnpore, 230 miles, mean width 90 feet, at a cost of Rs. 28,36,281. 0. 6.; and for four branch canals, viz, the Futtenghur</p>
<p>Branch 160 miles, mean breadth 40½ feet, cost 6,53,667 rupees; the Tuppl Branch 70 miles, mean breadth 26 feet, cost 1,93,746 rupees; the Shekoabad Branch 180 miles, mean breadth 38½ feet, cost 7,10,997 rupees; the Allahabad Branch 100 miles, mean breadth 30 feet, cost 3,06,159 rupees. A sudden stop was put to the progress of the work in 1842, the Governor-general being desirous of applying a further test to the scientific and financial calculations on which the scheme is based. This absolute prohibition was, however, partially withdrawn on the 29th June, Government being apprehensive, that if a total stop were put to the work, the money already laid out, about 1,06,000 rupees, would be to a great degree lost, and Captain Cautley was required to confine his operations from the head to the village of Noorpoor, on a line of about 100 miles. On the 7th October 1842, Government was pleased to limit the expenditure on this canal, until further orders, to two lacs (2,00,000) per annum. In July 1844, the assignment was increased to the amount of three lacs (3,00,000) per annum, to which the Court's sanction was given in their Revenue Despatch to the Government of India, dated 20th May (No 12) 1844. The Military Board, in their annual report for the season 1850-51, stated the amount expended up to the 30th April 1850, at Rs. 49,48,295. 13.</p>							
<p><i>Ganges Canal:</i> Construction of a Hospital.</p>	<p>-- For the native establishment and workmen of the canal.</p>	<p>-- Sanctioned 31st December 1845.</p>	<p>At Roorkee - -</p>	<p>1,286 1 7</p>	<p>873 - -</p>	<p>-- Completed season 1847-48.</p>	<p>- - - - -</p>

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>CANALS, NORTH-WESTERN PROVINCES—GENERAL—continued.</b>							
<i>Ganges Canal</i> : Construction of an Inlet at Ranipore Rao.	-- This work is required at a point where the Ganges Canal crosses the Ranipore Rao, a mountain torrent, and is designed to overcome the difficulties arising from its position.	-- Sanctioned 16th July 1849.	-- Northern Division of the Ganges Canal.	Rs.    a.    p. -    -    -    -    -	Rs.    a.    p. 16,202    -    -	-    -    -    -	-- The plan is to give the water of the Rao admission into the Canal by a masonry overfall. Great advantages are anticipated. The inlet will be built almost entirely of boulder masonry, faced with stone.
<b>ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES:</b>							
<i>Grand Trunk Road between Allahabad and Delhi.</i> (See paras. 3 to 12 of Court's Despatch, 30th January 1850, at pages 146 and 147 of Parliamentary Return, No. 622 of 1851.)	-- Of this road only a small portion is in the South-eastern Provinces. This road may be considered as the main artery of land communication through Bengal and Hindostan.		<i>Mls. fgs. ft.</i>	-- Expenditure to 30th April 1848, 48,91,000    -    -	-- The estimated amount for completion in December 1848, was For Roadworks    -    -    - For Bridge over the Soane    -    -    - For Bridge over the Jumna    -    -    -  Rs. 103,02,507	-    -    -    -	-- The Court, in a despatch dated 30th January (No. 2) 1850, observe, "We attach great importance to the completion of the Great Trunk Road, we desire to see it completed with substantial bridges. Those over the Soane and Jumna should be for the present suspended; but you will carefully consider whether the prospect of a railway through the North-west Provinces is sufficiently near to justify the suspension of any other portion of this great work." In season 1850-51 the formation of a firm roadway over the sandy bed of the Soane, in the 2d Division of the road, was proposed, at an estimated cost of Rs. 40,579. 6. 4. The breadth from eastern to western Ghaut in a straight line is 2 miles 3 furlongs and 68 yards, about 1,600 feet of which consists of shifting channels and still water, being about two miles of sandy road to be made practicable for the traffic of the country. This project contemplates a roadway of the best hydraulic concrete 3 feet deep, 12 feet broad at top, and 16 feet at base; the top surface to be level with the bed of sand, and composed of two courses of cut-stone slabs, upon a concrete base, the bed of concrete to have a slope of 2 feet at every 100 feet; an opening covered by a platform of saul wood is to be placed, fastened to longitudinal and cross sleepers, and permanently built into the concrete, to give waterway to the stream percolating through the bed. In December 1850 an outlay of Rs. 2,000 was sanctioned for the construction of 150 yards of causeway, on this plan, experimentally.
		1st Division.					
		-- Pultah Ghaut on the Hooghly to East Burrakur River - - -	730 4 -				
		2d Division.					
		East Burrakur River to the West Burrakur River	96 2 442				
		3d Division.					
		West Burrakur River to Currunnassa River -	142 - 325				
		4th Division.					
		Currunnassa River to Allahabad - - -	180 6 462				
		5th Division.					
		Allahabad to Bhogong, and of the Branch Road from Bhogong to Agra - -	224 7 475				
		6th Division.					
		Bhogong to Ghazeeodeennugur, and of Branch Roads from Allyghur to Agra, and from Koorjah to Meerut - - -	254 5 510				
		7th Division.					
		Meerut to Delhi, which comprises a portion of the Grand Trunk Road from Ghazeeodeennugur to Delhi, the Grand Trunk Road prolongation, now under construction from Delhi to Kurnaul, and the new Branch Road from Meerut to Kurnaul -	179 - -				
		From Pultah Ghaut to Kurnaul, with branches - - -	1,208 - -				



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Continuation of, from Delhi to Kurnaul	- - - - -	-- In length 70 miles, sanctioned 19th February 1850.	Kurnaul - - -	The Earthwork, Rs 32,71' 5 2	4,98,076 - -	Completed 1850-51 -	-- The earthwork of the road is estimated at 43,291 rupees, the metalling at 2,51,038 rupees, the construction of 149 drain bridges and 16 masonry bridges, with 31 arches varying from 20 to 40 feet span.
Restoration of the Iron Suspension Bridge at Muggra	-- Blown down during a storm on the 3d June 1842	-- Length of the bridge 110 feet, and breadth 12 feet, built in the year 1830 by subscription Its restoration sanctioned 1st August 1842	-- Situated 7 miles to the westward of Hooghly.	- - - - -	1,189 1 7	-	
Metalling of the portion of the, within the Benares Division	- - - - -	-- Length 4 miles, 7 furlongs, sanctioned 6th October 1846	- - - - -	- - - - -	11,774 - -	-	
Repairs to the portion from Goopeegunge to Futtehpore	- - - - -	-- Length 114½ miles, sanctioned, season 1846-47	- - - - -	- - - - -	14,482 - -	-	
Construction of a new Masonry Bridge on the	-- Required to replace an old one, with reference to the injury done to it by a breach near it during the heavy rains of the last season	-- Sanctioned 8th July 1846	- - - - -	- - - - -	2,057 9 10	-	
Construction of Wells on the	-- These wells are much required, as travellers halting at the bungalows have felt much inconvenience for the want of water	-- Sanctioned 28th December 1846	-- At Mirzapore and Futtehpore	- - - - -	1,201 6 6	-	
Raising of the Wing Walls and Parapets of Bridges, and Drains, between Futtehpore and Goorshaigunge	- - - - -	-- Sanctioned season 1846-47	Goorshaigunge	9,089 7 5	- - - - -	-- Completed season 1846-47	-
Renewal of a Bridge on the	-- To replace a bridge injured by a breach which occurred on the road near it, during the heavy rains of 1848	-- Sanctioned 8th July 1846	Grand Trunk Road	1,791 11 11	1,791 11 11	-- Completed season 1846-47	-- This is a bridge of two arches of ten feet span
Iron Suspension Bridge over the Tomlah Torrent	- - - - -	Sanctioned in 1843	-- Situated 3 miles east of Undall	9,168 - 10	9,168 - 10	-- Completed season 1844-45	-- This bridge is to consist of two spans of 30 feet, and one of 90 feet, with a 16 feet roadway, and is to be constructed on the dredgian or tension principle
Reconstruction of the	- - - - -	-- Sanctioned 15th September 1847	- Ditto - - -	9,198 12 10	9,198 12 10	-- Completed season 1847-48	-- The bridge first constructed fell down, owing to a deficiency of waterway, and to a want of depth of foundation to the abutment piers

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
ROADS AND BRIDGES SOUTH-EASTERN PROVINCES—continued.				<i>Rs. a. p.</i>	<i>Rs. a. p.</i>		
<i>Grand Trunk Road—continued.</i>							
Construction of an Iron Tension Bridge over the Noonia Nuddee.	- - - - -	- - Sanctioned 31st July 1847.	- - In the district of Beerbhoom.	28,223 13 -	28,223 13 -	- - Completed season 1847-48.	- - This bridge has had some standards of stonemasonry. The centre span is 150 feet, the side spans 63 7/8 feet; embanked approaches, neatly sloped off and turfed, lead to the bridge 1,610 feet long, and having an average height above the country of 10 feet. The embankment is supplied with two drain bridges of stonemasonry of five feet span each.
Construction of an Iron Tension Bridge over the Singharra River.	- - - - -	- - Sanctioned 31st July 1847.	- - In the district of Beerbhoom.	29,733 3 6	29,733 3 6	- - - - -	- - This is a similar bridge, of the same size as the former, but with masonry, part stone, part brick, with three subsidiary drains, each of 10 feet span of masonry, with embankments 2,500 feet long, and averaging 20 feet high.
Laying down Iron Tract Roads over the Noonia, Singharra, and Tomlah Bridges.	- - - - -	- - Sanctioned 21st May 1847.	- - - - -	- - - - -	2,062 4 3	- - - - -	- - The tracts for each will be 16 inches wide, consisting of four plates three inches broad, with intermediate spaces of 1 1/4 inches. Four tracts will be laid for the entire length of each bridge, to admit of two wheeled vehicles passing over the bridge at the same time.
Construction of a Bridge over the Gowarree Nuddee.	- - - - -	- - Sanctioned 25th September 1843.	- - In the district of Bahar.	19,601 12 5 1/2	19,601 12 5 1/2	- - Completed season 1847-48.	- - This is a stonemasonry bridge of five arches, each 36 feet span.
Construction of a Bridge over the Danwah Nullah.	- - - - -	- - Sanctioned 21st August 1843.	- - Ditto - -	16,956 12 1	16,956 12 1	- - Completed season 1847-48.	- - This is a stonemasonry bridge of four arches, each 36 feet span.
Construction of a Drain Bridge.	- - - - -	- - Sanctioned 12th April 1845.	- - Situated between Barah and Muddempore.	5,864 7 8 1/2	5,864 7 8 1/2	Completed 1847-48 -	- - This is a drain bridge of stonemasonry.
Construction of a Dawk Staging Bungalow.	To replace the old bungalow	- - Sanctioned 24th March 1848.	At Jehanabad - -	48 3 8	1,648 3 8	- - Completed season 1847-48.	- -
Metalling of the Road between the Raj Ghaut at Allahabad, and the Raj Ghaut at Benares.	- - - - -	- - Length 75 miles; sanctioned 30th January 1848.	- - - - -	- - - - -	80,258 9 -	- - - - -	- - The metal is to be spread of the average depth of 4 7/8 feet.
Gokoolpore: Construction of a new Bridge on the Tension principle over the Kallee Nuddee, at.	- - The old bridge was severely injured by floods on the 20th June 1842.	- - Sanctioned season 1844-45.	- - - - -	- - - - -	18,517 - -	- - - - -	- - The expanse of water in the valley of the Kallee Nuddee during the flood in June 1842, extended over a breadth of 3,630 feet, and the water-way of the bridge proved insufficient for the passage of this large volume of water. The entire bed of the Nullah under the arches was swept away, and the piers of the bridge, being undermined, sub-

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<p>Googree: Construction of a Staging Bungalow at.</p>	<p>- - - - -</p>	<p>- - Sanctioned 27th June 1846</p>	<p>- - - - -</p>	<p>2,403 7 9</p>	<p>2,403 7 9</p>	<p>-- Completed season 1846-47.</p>	
<p><b>ROADS AND BRIDGES, LOWER PROVINCES :</b></p>							
<p>Gowahatty to the Kullung River in Lower Assam: Re-construction of the Road.</p>	<p>-- This is represented to be one of the most frequented roads in Assam, and a highly important military communication, being a continuation of the road from Bengal, by Gowalparrah and the Cossyah Hills, to this Province.</p>	<p>- Length 33½ miles; sanctioned 15th August 1842.</p>	<p>Kullung River - -</p>	<p>6,535 2 3</p>	<p>9,962 1 -</p>	<p>-- Completed season 1844-45.</p>	<p>-- In this estimate provision is made for 32 bridges of masonry, and 118 of wood. The saving on the estimate is owing to a reduction in the rate, and also in the quantity of work contemplated.</p>
<p>Gya Roads: Annual repairs, 1842-43.</p>	<p>- - - - -</p>	<p>Miles                      - From Gya to Jehanabad on the Patna road } 30                      From Gya to Shergatty on the Trunk road } 22                      From Gya to Surwah on the Trunk road } 20                      -----                      Miles 72</p>	<p>- - - - -</p>	<p>2,132 5 7½</p>	<p>1,911 6 7</p>	<p>- - - - -</p>	<p>- - Of this extent of road, 15 miles are kept in repair by the Gya convicts, and accordingly provision is not made in the estimate for repairing the same.</p>
<p>Golar Ghant to Bor Pathor, through Nagara.</p>	<p>-- The opening of this road will, it is considered, afford the most effectual means of opening an intercourse with and controlling the Nagas.</p>	<p>- - Length, about 30 miles; sanctioned 24th August 1844.</p>	<p>Bor Pathor - -</p>	<p>800 - -</p>	<p>800 - -</p>	<p>-- Season 1844-45.</p>	<p>-</p>
<p>I,                      Gyah Roads:                      Construction of a new line from Doobeen to Gyah.</p>	<p>-- It is contemplated to abandon the two existing lines of road which branch off from the Grand Trunk Road towards Gyah, the one from Shergotty, and the other from Surwah. The new line is not intersected by rivers, whereas to make the old lines practicable for wheel-carriage traffic throughout the year, it would be necessary to bridge four large rivers and four small ones, at a very considerable cost.</p>	<p>- - Length, about 21 miles; sanctioned 20th August 1845.</p>	<p>Doobeen - -</p>	<p>- - - - -</p>	<p>83,895 - -</p>	<p>-- Completion not reported.</p>	<p>-- The old line of communication from Gyah to Jenahabad (29 miles), and from Jenahabad to Patna (about 30 miles), will not be changed.</p>
<p>Construction of two Drain Bridges.</p>	<p>- In lieu of two others destroyed by floods in August 1848.</p>	<p>- - Sanctioned 10th October 1849.</p>	<p>- - On the road leading from Patna to Jehanabad.</p>	<p>- - - - -</p>	<p>1,080 3 10</p>	<p>- - - - -</p>	<p>-- The estimate for annual repairs, and repairing the damage done by the floods of June and August 1848, amounted to Rs 3,057. 12.</p>
<p><b>ROADS AND BRIDGES, CENTRAL PROVINCES:</b></p>							
<p>Great Deccan Road:                      Metalling of the - - -</p>	<p>-- In consequence of the great wear and tear on the.</p>	<p>- Length, 24½ miles, sanctioned 28th September 1840.</p>	<p>- - From Telwarra Ghaut, between Jubbulpore on the Nerbudda, and Mirzapore on the Ganges.</p>	<p>83,924 10 5</p>	<p>86,820 15 4</p>	<p>-- Completed season 1843-44.</p>	<p>-- This road was originally constructed by Major Drummond. A sum of 3,180 rupees was expended on repairs to this road during 1847-48, and an estimate of Rs. 6,648. 11. 8. was sanctioned for the following year. on the 4th January 1850 an estimate of 25,703 rupees was sanctioned for raising and metalling the Kutchee portion of the road.</p>

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>ROADS AND BRIDGES, CENTRAL PROVINCES—<i>continued.</i></b>							
<i>Great Deccan Road—continued.</i> Construction of a Bridge over the Karoundah Nullah.	- - In consequence of the traffic of the country being much obstructed by the bed of the nullah, which is almost impassable during the rainy season.	- - Sanctioned 19th January 1849.	- - - - -	Rs. a. p. 846 6 7	Rs. a. p. 521 9 8	- - Completed season 1849-50.	This bridge is of 10 feet span.
Construction of a Stone-masonry Bridge.	- - - - -	- - Sanctioned 3d August 1848.	- - Across the Harzong Nullah.	639 2 9	639 2 9	- - Completed from 1849-50.	This is a bridge of 12 feet span.
Construction of a line of Road from the top of the Lohagee Pass to its junction with the Great Deccan Road.	- This line of road is the shortest route from Allahabad to the Saugor and Nerbudda Territories, and it appears that whatever traffic exists between Allahabad and the above territories is carried on <i>visâ</i> Mirzapore, which route increases the natural distance some 70 miles.	- - Sanctioned 8th February 1850.	- - At a village called Mungowah.	- - - - -	36,828 9 -	- - - - -	- - The whole distance from the Great Deccan Road, near Mungowah, to the river Jumna is 58 miles, 7 furlongs, and 167 yards. Of this length 34 ½ miles have been already constructed, that is, from the Jumna to the top of the Lohagee Pass; the remaining portion is now sanctioned, including 19 viaducts.
<b>CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL,</b>							
<i>Gyah:</i> Construction of two Record Rooms.	- - For the records of the officers of the judge and of the collector.	- - Sanctioned 2d April 1837.	- - - - -	6,750 12 3	- - - - -	- - Completed 1840-41.	-
<i>Gowahatty:</i> Construction of Buildings	- - For a catcherry for the collector and magistrate.	- - Sanctioned 4th January 1842.	- - - - -	6,705 3 6	6,036 5 10	- - Completed season 1843-44.	-
Construction of temporary Gaol Buildings.	- - To replace buildings burnt down on 4th April 1840.	- - Sanctioned 12th February 1841.	- - - - -	1,150 8 5	1,361 10 10	- - Completed season 1841-42.	-
Construction of a Record Room	- - For the records of the Commissioners' office.	- - Length 50 feet by 20 feet; sanctioned 16th January 1838.	- - - - -	- - - - -	2,526 5 7	-	-
Construction of a Treasury Room.	- - For the use of the Commissioners' office.	- - Sanctioned 4th January 1841.	- - - - -	902 6 6	- - - - -	- - Completed season 1841-42.	-
<i>Gowalparrah (Lower Assam):</i> Construction of a Catcherry for the Magistrate.	- - To replace an old catcherry of temporary materials, which was in a dilapidated state.	- - Sanctioned 5th December 1837.	- - - - -	3,506 9 -	- - - - -	- - Completed season 1841-42.	-
Reconstruction of the Gaol Buildings.	- - In consequence of the decayed state of the present temporary gaol buildings.	- - Sanctioned 20th December 1842.	- - - - -	3,015 3 4	3,425 3 6	- - Completed season 1844-45.	-
<i>Gowahatty:</i> Erection of a Wall around the Gaol.	- Proposed by the Commissioners, to save the expense of keeping the bamboo fences in good order.	- - Sanctioned 20th May 1844.	Gowahatty - - -	2,100 6 9	2,210 10 -	- - Completed season 1845-46.	-
<i>Gyah:</i> Construction of an additional Room to the Judge's Record Office.	- - - - -	- - Sanctioned 11th September 1844.	Gyah - - -	1,141 - 8	1,141 - 8	- - Completed season 1845-46.	-

<i>Gowalparrah Gaol</i> : Construction of Cook-rooms of masonry.	- For the convicts and their guards, in lieu of similar buildings of inflammable materials.	* - Sanctioned 6th August 1845.	Gowalparrah - -	2,812 14 3	2,812 14 3	- - Completed season 1845-46.	
<i>Gowahatty</i> : Addition to the Commissioners' Cutcherry.	-- To afford shelter to the people attending court.	- - Sanctioned 5th November 1845.	Gowahatty - -	602 4 4	602 4 4	- - Completed season 1846-47.	
Construction of a new Record Room for the Collector and Magistrate.	-- The necessity for this work was brought to notice by the civil authorities, who suggested that a room be built over the existing treasury and record room.	- - Sanctioned 19th May 1847.	Gowahatty - -	3,527 12 5	3,454 7 3	- - Completed season 1849-50.	- - The estimate provides for a new building, as the house would not have borne the weight of an upper story.
<i>Gowahatty Gaol</i> Construction of a Criminal Ward	- - To replace an existing ward reported by the Commissioners of Assam to be dilapidated beyond repair.	- - Sanctioned 12th May 1847.	Gowahatty - -	- - - - -	1,768 7 6	-	
<i>Gyah</i> . Construction of a Cutcherry.	- For the Principal Sudder Ameen and additional Moonsiff of Behar.	- - Sanctioned 22d March 1848.	Gyah - -	- - - - -	1,618 - -	-	
<b>CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—JUDICIAL :</b>							
<i>Goorgaon</i> : Construction of a Cutcherry with Out-offices.	-- For the collector and magistrate, the construction of this cutcherry will do away with the renting of buildings, stated by the local officer to be inconvenient and ill-adapted.	- - Sanctioned 27th November 1847.	Goorgaon - -	11,188 15 8	11,465 5 8	- - Completed season 1849-50.	-
<b>CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—REVENUE.</b>							
<i>Gunour</i> . Construction of a Tahsildarry Cutcherry.	- - - - -	-- Sanctioned season 1838-39.	In Zillah Budaon - -	4,581 15 3	- - - - -	- - Completed season 1841-42.	-
<b>CIVIL BUILDINGS, LOWER PROVINCES—REVENUE</b>							
<i>Gya</i> Construction of a Covered Passage from the Collector's Cutcherry to the Record Office.	-- On a representation of the Sudder Board of Revenue, to the effect that the room in which the treasurer transacted his business was inconveniently small, and that the treasury was at a considerable distance from the record office, in going to and fro, by which the Collector and his officers were exposed to rain and snow.	- - Sanctioned 5th January 1850.	Gya - -	- - - - -	887 4 2	- - Completed season 1849-50.	- - The new passage is 340 feet by 8 feet, with wooden posts and tiled roof.
<b>CIVIL BUILDINGS, CENTRAL PROVINCES—REVENUE</b>							
<i>Ghazeepore</i> : Construction of a Guard-room to the Collector's Cutcherry.	-- In consequence of the insufficiency of accommodation for the guard.	- - Sanctioned 25th May 1844.	Ghazeepore - -	575 4 2	575 4 2	- - Completed season 1844-45.	-
<b>CIVIL BUILDINGS, CENTRAL PROVINCES--GENERAL</b>							
<i>Ghazeepore</i> : Extension of the Godown accommodation in the Opium Factory, and Bungalow for the use of the First Assistant.	- - - - -	-- Sanctioned 1st May 1839.	- Ditto - -	11,884 - -	- - - - -	- - Completed season 1841-42	-

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>CIVIL BUILDINGS, CENTRAL PROVINCES—GENERAL—continued.</b>							
<i>Ghazee-pore</i> —continued.				<i>Rs. a. p.</i>	<i>Rs. a. p.</i>		
Construction of an Opium Godown at.	-- Required in lieu of one built in 1835-36, which was reported to be in ruins.	-- Sanctioned 10th September 1845.	Ghazee-pore - - -	2,357 8 3	2,314 14 11½	-- Completed season 1846-47.	- In 1850-51 a sum of Co.'s Rs 601.5. 8. was expended in renewing the terrace of the caking godown.
Construction of a Bungalow and Out-offices at the Opium Factory.	-- For the second assistant to the superintendent at the factory.	-- Sanctioned 17th September 1845.	- Ditto - - -	- - - - -	1,275 - -	Season 1845-46.	—
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL:</b>							
<i>Great Savage Rock:</i> Construction of a Lighthouse on the.	- - This lighthouse will enable vessels of a certain draught of water to cross the bar of the river during the night.	- - Sanctioned 9th November 1842.	- - - - -	33,587 10 4	33,425 8 7	-- Completed season 1843-44.	- - The lantern was first lighted on the night of the 7th March 1844: <i>Rs. a. p.</i> Cost of lighthouse - - 33,587 10 4 Buildings attached - - 1,501 9 6 Lantern - - - - - 15,000 - - <hr style="width: 20%; margin-left: auto; margin-right: 0;"/> <i>Rs. 50,089 3 10</i>  The total cost of the structure, including a building for establishment and stores, has been <i>Rs. 50,089. 3. 10.</i>
<b>CIVIL BUILDINGS, LOWER PROVINCES—GENERAL:</b>							
<i>Ghazee-pore:</i> Enlargement of the Burial ground.	- - The necessity of its enlargement was brought to the notice of Government by the local authorities at Ghazee-pore, through the Archdeacon.	-- Sanctioned August 1843.	Ghazee-pore - - -	1,527 3 4	1,527 3 4	Season 1843-44 -	- - A space of 300 by 330 has been added.
<i>Goolzarbaugh:</i> Construction of a Boundary Wall to the Opium Godown.	- - Considered necessary for the security of much valuable property from fires and plunderers.	-- Sanctioned 3d December 1845.	Goolzarbaugh - - -	4,882 14 3	5,170 - -	-- Completed season 1846-47.	—
<i>Gyah Road:</i> Additions and alterations to the Staging Bungalows on the.	-- With a view to assimilate them to the bungalows on the Grand Trunk Road.	-- Sanctioned 3d September 1845.	Gyah Road - - -	611 - -	611 - -	-- Completed season 1845-46.	—
<i>Gowahatty:</i> Rebuilding the top of the Spire of Christ's Church.	-- Fractured by a shock of earthquake on the 18th June 1846.	-- Sanctioned 12th February 1847.	Gowahatty - - -	187 7 10	200 - -	-- Completed season 1847-48.	- - Twelve zinc pipes, 2½ inches in diameter, were put up in season 1840-50, to carry the water off the roof to the ground outside the building.
Rebuilding of the Gaol Hospital.	- - Ditto - - -	Ditto - - -	- Ditto - - -	151 1 3	- - - - -	-- Completed season 1847-48.	—
<i>Gyah:</i> Construction of an additional Opium Godown.	-- In compliance with the opinion of the Board of Customs, Salt and Opium, in regard to the necessity of the proposed outlay.	-- Sanctioned 13th March 1848.	Gyah - - -	3,907 15 7	3,776 10 3	-- Completed season 1849-50.	- - A supplementary estimate was sanctioned on the 5th February 1850, in consequence of the insufficiency of the rates assumed in the first estimate.

CIVIL BUILDINGS, NORTH-WESTERN PROVINCES--POLITICAL:							
Gwalior Hospital - - -	-- For the sick of the escort of the Resident.	-- Sanctioned 6th April 1840.	Gwalior - - -	2,128 2 8 1/4	2,038 15 7	-- Completed season 1843-44.	-
EMBANKMENTS, SOUTH-EASTERN PROVINCES							
Hidgellee							
Re-construction of the Sea Bunds.	-- To protect the country from inundation	-- Sanctioned 10th January 1851.	- - - - -	-- Rough estimate for re- newing and strengthening the embankments - - -	2,93,930 - -	- - - - -	-- On the 27th April 1850, whilst measures were in progress for the improvement of the embankments, Hidgellee was visited by a severe storm; the whole of the sea bunds were overtopped and extensively damaged, the country being inundated. The reconstruction of the embankments on a proper scale is being carried on (1851) with the utmost vigour under Captain Fagan, of the Engineers.
				-- General estimate, embracing embankments of larger section, and assuming a very low rate for the work to be executed - -	5,54,255 - -	- - - - -	
Embankments in the Russulpore River Frontage.	-- For the protection of large tracts of resumed lands in Hidgellee.	-- Length 56 miles; sanctioned 6th November 1841.	- - - - -	- - - - -	11,648 - 11'	- - - - -	-- The length of the embankments in the Hidgellee division in 1839-40 was 1,046 miles, and the estimated cost of annual repairs in 1850-51 amounted to upwards of 24,300 rupees. In this division 12 sluices have been sanctioned in the Soojamote Pergunnah, which is under the management of the Court of Wards.
Construction of a new Line of Bunds in Pergunnah Khadar.	-- For the protection of the Government estate of Bolakeepore.	-- Length 2 1/2 miles; sanctioned 25th April 1842.	- - - - -	3,314 5 8	3,163 7 6	-- Completed season 1843-44.	-
Excavation of the Koonjore and Mirzapore Khalls	- - - - -	-- Length 8 miles; sanctioned season 1843-44.	- - - - -	3,645 5 9	3,680 6 2 1/2	-- Completed season 1847-48.	-- The width of these khalls varies from 72 feet to 30 feet throughout.
Excavation of Patgoda Canal	- - - - -	-- Sanctioned season 1843-44.	- - - - -	- - - - -	4,030 10 -	-	
Drainage of the Jellamootah Pergunnah.	-- This work is stated to be indispensable to the prosperity of the cultivation of the Pergunnah.	-- Sanctioned 6th June 1844.	- - - - -	- - - - -	- - - - -	-	
Construction of a new Bund	-- To prevent the ingress of salt water to the Kusbah, which now finds its way into the cultivated lands at high spring-tides through certain low channels.	-- The new bund measures two miles and 495 feet, and its average height is nine feet, sanctioned 26th September 1844.	At Kusbah - - -	- - - - -	3,300 3 2 1/2	-- Its completion not reported.	-
Construction of new Bunds -	-- For the protection of the resumed mehals of Ustiacool and Bunderbooriah.	-- Length, four miles and five furlongs; sanctioned 15th January 1845	-- Situated at Pergunnah Paharpore.	1,003 2 5 1/2	1,003 2 5 1/2	-- Completed season 1845-46.	-
Construction and repair of Bunds on resumed estates	-- For the protection of resumed estates, and with a view to increased cultivation.	-- Length, three miles and one furlong, sanctioned 13th January 1845.	-- In Pergunnah Nurroomootah.	1,352 13 -	1,389 6 -	-- Completed season 1846-47.	-

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>EMBANKMENTS, SOUTH-EASTERN PROVINCES—continued.</b>							
<i>Hidgellee—continued.</i>							
Construction of five Inspection Bungalows.	For the use of inspecting officers	-- Sanctioned season 1849-50.	-- In the Hidgellee Division.	- - - - -	3,533 6 7	- - - - -	-- The inspecting officers will be required to be constantly on the embankments, checking the works in progress, and seeing that it is fairly and efficiently executed.
<b>CANALS, SOUTH-WESTERN PROVINCES:</b>							
<i>Hidgellee Canals:</i> Deepening of a Khall leading from Tanropukeriah to Kallynuggur, on the Huldee and Russopolpore.	-- To facilitate the concentration of the salt of the Hidgellee Agency in one set of golaahs; for this object the canal is of great importance, when the strong winds make the coast navigation dangerous.	-- Sanctioned 15th May 1839.	- - - - -	- - - - -	23,138 - -	-	
<b>CANALS, NORTH-WESTERN PROVINCES.</b>							
<i>Hallalpoore and Meg Chupper:</i> Repairs of the Falls and Bridges.	-- With a view to the Doab Canal being hereafter used both for irrigation and navigation.	-- Sanctioned season 1838-39.	On the Doab Canal -	20,725 - -	17,479 - -	Completed 1840-41 -	-- An excess of Rs. 3,247. 15. 11. has been incurred in their execution, owing to the renewal of the old bridges entirely, and a greater depth and solidity having been given to the foundations, with reference to the unfavourable nature of the soil.
<b>ROADS AND BRIDGES, LOWER PROVINCES:</b>							
<i>Hajeepore to Kurrinjah,</i> on the Mozufferpore Road.	-- To supersede the old road to Mozufferpore <i>via</i> Persa Ghaut.	-- Estimated January 1840.	Kurrinjah - -	- - - - -	40,686 12 1	- - - - -	-- This work does not appear to have been carried out.
<i>Hazareebaugh:</i> Construction of Drains, &c., on the Road from, to the Grand Trunk Road.	-- This road connects the military station of Hazareebaugh with the Grand Trunk Road at Barria.	-- Sanctioned 2d April 1841.	Grand Trunk Road -	3,707 14 8	3,753 15 5	-- Completed season 1841-42.	-
<i>Hazareebaugh and Dorundah:</i> Construction of a new Line.	-- To improve the facilities of communication, and will prove a great convenience to the men of the Ramghur battalion.	-- Sanctioned 30th August 1850; length, 62 miles, 2 furlongs, and 500 feet.	Dorundah - -	- - - - -	21,910 - -	- - - - -	This is to be made a fair-weather road.
<b>ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES:</b>							
<i>Hazareebaugh:</i> Construction of a Stone Bridge over the Aarah Nuddee.	- - - - -	-- Sanctioned 16th October 1843.	- - - - -	5,029 - 7	5,029 - 7	-- Completed season 1846-47.	-- This bridge has three arches of 20 feet span.
<b>ROADS AND BRIDGES, NORTH-WESTERN PROVINCES:</b>							
<i>Hindun Bridge:</i> Proposal for converting it into a Suspension Bridge.	- - - - -	- - - - -	- - - - -	- - - - -	1,45,577 10 2 Including the expense of metalling the portion of the Grand Trunk Road between the bridge and Sehimpore, near Delhi.	-- Completed season 1845-46.	-- This bridge was thrown open to the public on the 28th August 1845.



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Filling up deep Pools in front and at the tail of the Bridge.	-- The pools were filled up with blocks of kunkur, to prevent damage to the bridge.	-- Sanctioned 28th May 1847.	- - - - -	- - - - -	546 3 2	-- Completed season 1847-48.	-- The pooling appears to have arisen from the set of the current having turned against the eastern abutment of the bridge, and the outlay was necessary to prevent further damage.
Hydramal Bridge, over the Kallee Nuddee: Metalling the Causeway of.	-- The metalling had worn out, and the roadway surface had sunk generally so much as 9 inches below the mouth of the drain.	-- Sanctioned 14th May 1844.	- - - - -	3,020 15 -	- - - - -	-- Completed season 1844-45.	-- The expenditure was incurred for carting kunkur. The labour was performed by convicts.
Hindun Causeway Construction of a Drain Bridge under the.	-- Required to pass off the waters which collect in the nook or angle formed by the junction of the Meerut Road and Causeway.	-- Sanctioned season 1844-45.	- - - - -	- - - - -	702 9 11	- - - - -	- - - - -
Hurrecpore. Construction of an Iron Suspension Bridge over the Gumbler River.	-- To replace a Shakespearian Bridge, reported unworthy of further repair.	-- Sanctioned 26th July 1844.	-- To be one span of 120 feet, with breadth of roadway 7 feet, situated about 6 1/4 miles from Subathoo.	21,712 13 3	10,721 10 6	-- Completed season 1847-48.	-- This sum exceeds the authorised estimate by about 10,000 rupees, in consequence of the necessity of restoring certain parts of the abutments and revetments, which were injured by the floods; also, in part, by carrying the foundations of the abutments to a greater depth than was originally intended, and by the construction of an additional wing wall, up-stream.
Hurdwar via Roorkee to Seharunpore, Construction of a Road.	-- For the good of the trading community, and for the benefit of the Ganges Canal. By the proposed road, lime, timber and bricks may be conveyed to the works on the canal.	Length, 42 miles	Seharunpore - - - - -	- - - - -	14,700 - -	- - - - -	-- The Seharunpore Local Committee have assented to bear the whole cost; the money will be advanced by Government, the committee returning it by instalments of 2,000 rupees per annum. This work was projected by Lieutenant Strachey, an executive officer of the Ganges Canal, and its execution will be entrusted to him.
Hindun Bridge: Completion of the Causeway leading to the.	- - - - -	-- Sanctioned 16th March 1847.	- - - - -	5,862 6 11	5,862 6 11	-- Completed season 1847-48.	- - - - -
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—JUDICIAL:							
Hyderabad: Conversion of an inclosure into a temporary Civil Gaol.	-- At the recommendation of the Governor of Scinde.	-- Sanctioned 8th August 1844.	Hyderabad - - - - -	- - - - -	1,508 13 4	Not reported - -	-- The gaol will consist of three flat roofed wards, with guard rooms and out offices.
CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL.							
Hazareebaugh.							
Purchase of an Estate, the property of Major Bird, for a Cutcherry for the Principal Assistant Commissioner.	-- The existing cutcherry was represented to be quite inadequate for the accumulated records, and to be too confined for the large number of persons constantly in attendance.	-- Sanctioned 25th January 1841.	Hazareebaugh - -	3,500 - -	- - - - -	Season 1841-42 -	-- The estate is beyond the limits of cantonments.
Construction of a Gaol at Hazareebaugh.	For civil and criminal prisoners -	-- Sanctioned 8th May 1838.	- Ditto - - - - -	4,600 7 - 1/2	4,600 7 - 1/2	-- Completed season 1842-43.	-- The buildings of this gaol are of a temporary nature. A hospital and wards for females are included amongst the buildings which have been constructed.
Purchase and alteration of a Bungalow as a Cutcherry for the Principal Agent, Governor general.	-- Rendered necessary in consequence of the Government cutcherry bungalow having been appropriated to the use of the ex-Ameers of Scinde.	-- Sanctioned 24th January 1845.	- Ditto - - - - -	3,772 8 0	3,772 8 0	Season 1845-46.	- - - - -

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL—<i>continued.</i></b>				<i>Rs. a. p.</i>	<i>Rs. a. p.</i>		
<i>Hooghly Gaol:</i> Supply of Water to the	For the use of the prisoners	-- Sanctioned 25th February 1846.	Hooghly - - -	2,082 9 4	2,184 - -	-- Completed season 1846-47.	-
Construction of two Cooking Sheds and Ventilators.	-- The removal of the present cooking sheds was necessary to prevent the escape of the prisoners; and the other sanitary works were considered essential.	-- Sanctioned 21st July 1847.	- Ditto - - -	1,725 5 8	1,692 10 8	-	
Judicial Buildings	-- The necessity for new buildings was brought to notice by the superintending engineer.	-- Sanctioned 2d September 1850.	- Ditto - - -	- - - - -	5,250 5 4	-	
<i>Hazareebaugh:</i> Transfer of the European Hospital to the Judicial Department.	For the confinement of prisoners	-- Sanctioned 1st December 1847.	Hazareebaugh - - -	- - - - -	1,880 2 11 1/2	- - - - -	-- This arrangement will obviate the necessity there would otherwise have been to enlarge the Kishenpore Gaol.
<b>CIVIL BUILDINGS, CENTRAL PROVINCES—JUDICIAL:</b>							
<i>Hoshungabad Gaol:</i> Construction of additional Wards.	-- The existing buildings, for want of space, admit of no classification or internal goal discipline.	-- Sanctioned 9th March 1846.	Hoshungabad - - -	6,411 3 2	6,094 - -	Completed in 1849.	-
Construction of a Hospital and additional Wards.	-- To provide additional space in consequence of frequent complaints of over-crowding.	-- Sanctioned 3d July 1847.	- Ditto - - -	11,539 - -	14,673 - -	-- Completed in season 1850-51.	-- Notwithstanding the accommodation afforded by the two new wards, completed in 1840, the increase of number above accommodation had been such that scurvy and other gaol diseases had been generated, and had occasioned a heavy monthly mortality.
<i>Hoshungabad:</i> Restoration of the Peshkarree Cutcherry.	-- This cutcherry was destroyed by fire on the 27th May 1846.	-- Sanctioned 2d February 1847.	- Ditto - - -	580 - -	- - - - -	Season 1847-48.	-
<b>CIVIL BUILDINGS, CENTRAL PROVINCES—REVENUE:</b>							
<i>Hoshungabad:</i> Construction of a Peeskar's Cutcherry.	- - - - -	-- Sanctioned 26th December 1838.	- Ditto - - -	1,074 8 6	- - - - -	-- Completed season 1841-42.	-
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL:</b>							
<i>Howrah:</i> Extension of the Burial-ground.	- - - - -	-- Sanctioned 14th March 1842.	Howrah - - -	855 - 6	- - - - -	-- Completed season 1842-43.	-- A space of about 175 x 170 has been taken in and enclosed.

## CIVIL BUILDINGS, LOWER PROVINCES—GENERAL;

<i>Hogghly River</i> : Construction of two Obelisks on the.	-- The actual necessity of these beacons was pointed out by the marine authorities.	-- Sanctioned 20th May 1844.	-- One at Canterbury Point, the other at the mouth of the Hog River Creek.	1,237 4 10½	2,003 12 5	-- Completed season 1845-46.	-- The obelisk at Canterbury Point is to be 50 feet, and that at Hog River Creek 40 feet in height.
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## CIVIL BUILDINGS, CENTRAL PROVINCES—GENERAL.

<i>Hattrass</i> : Repairs and improvements to Hardingunge.	- - - - -	-- Sanctioned 26th July 1841.	Hattrass - - -	3,339 15 7	4,006 1 7	-- Completed season 1843-44.	-
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## CIVIL BUILDINGS, LOWER PROVINCES, POLITICAL:

<i>Hazureebaugh</i> : Repair of Buildings.	-- Purchased for the accommodation of the ex-Ameers of Scinde.	-- Sanctioned 17th January 1845.	- - - - -	529 5 8	529 5 8	-- Completed season 1845-46.	-
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## CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—POLITICAL.

<i>Hawalleagh</i> . Purchase of three Bungalows.	For exiled Hill Ryots	-- Sanctioned 23d August 1849.	Hawalleagh - - -	2,700 - -	-	-	-
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## CANALS, NORTH-WESTERN PROVINCES:

<i>Intally Canal</i> . Excavation and clearance of	- - - - -	-- Sanctioned 14th April 1840.	- - - - -	3,466 9 5	-- An estimate for its clearance, amounting to Rs. 5,151. 12. -, sanctioned 20th February 1851.	-- Completed season 1840-41.	-
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## EMBANKMENTS, SOUTH-EASTERN PROVINCES:

<i>Jeekoorhally</i> Construction of a New Line of Dobundy in the Dooroo Pergunnah.	-- For the safety and protection of the country, the existing bund having been encroached on by the sea.	-- Length, 1 mile and 400 feet; sanctioned 15th May 1849	- - - - -	- - - - -	863 4 3	- - - - -	-- It would seem advisable to throw the embankments back at least 1,000 yards from Kumarpore or Joonpoot to a point north of Singaree.
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<i>Jumna River</i> - - - - -	-- Improvements to the navigation of the.	-	- - - - -	- - - - -	- - - - -	- - - - -	-
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Plantations on the Banks of the Canals west of the Jumna River.	- - - - -	-- From 1830 to 1st January 1841.	Jumna Canals - - -	4,10,626 - -	-- Since 1830 an average yearly outlay of 2,000 rupees has been incurred in rearing plantations. The amount realised by the sale of cuttings from these trees has been 19,966 rupees, and the amount expended, 22,426 rupees.	- - - - -	-- They consist chiefly of babool, toon, saul, and sissoo, which, when they arrive at maturity, will yield a very profitable return.
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Plantations on the Banks of the Eastern Jumna Canals.	- - - - -	-- Sanctioned 14th November 1849.	Jumna Canals - - -	3,000 - -	3,000 - -	Season 1849-50 -	-- The total amount of expenditure up to the 30th April 1849 was Rs 27,865. 5. 9, and the amount realised from the sale of the produce, Rs 20,646. 15. 9., the estimated value of the trees on the banks of these canals was Rs. 1,48,408. 8 - -, the number of trees, 296,817, of different ages.
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(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued*.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>EMBANKMENTS, SOUTH-EASTERN PROVINCES—<i>continued</i>.</b>							
<i>Jumna Bund</i> : Repair and extension of the.	-- For the purpose of relieving the Jumna New Cut and Bund from a portion of the flood-water, and clearing out the mouth of Blane's Cut.	- Sanctioned 3d April 1837.	- - - -	Rs. a. p. Not reported - - -	Rs. a. p. 10,363 11 1	-	
<b>ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES:</b>							
<i>Juggernaut Road</i> - - - - -	- - - - -	- Length, 261 miles; extends from the Old Benares road at Jelalabad <i>via</i> Midnapore to Pooree.	-				
Repairs to the Ghoree Khall Suspension Bridge on the.	- - - - -	- Built by Lieutenant Schalch many years ago; repairs sanctioned 20th July 1841.	-- In the Balasore Division.	3,088 14 6½	2,773 - -	-- Completed season 1844-45.	-- The standards have given way, and the failure is ascribed either to the masonry on which the ground links are built having sunk and allowed the chain to come forward, or to the ground links not having been firmly built into the masonry at first.
Repairs to the Foolnackra Bridge, in the Cuttack Division of this road.	-- Damaged by a flood on the 2d October 1842.	- Sanctioned 5th June 1843.	- - - -	1,309 11 9	1,309 11 9	-- Completed season 1843-44.	-
Construction of a Drain Bridge in the Balasore Division at Ummerrah.	-- To supply the place of a four feet drain, which was carried away by a flood in September 1841.	-- The new drain is of 8 feet span.	- - - -	579 10 7	- - - -	-- Completed season 1842-43.	-
Renewal of the wood-work of the Iron Suspension Bridge at Kuddum Khandee.	- - - - -	- Sanctioned 3d October 1842.	- - - -	886 11 5	903 2 1	-- Completed season 1843-44.	-
Construction of a new Drain Bridge on the.	-- This drain is much required at the spot, which is cut every year by the ryots to let off the water from their fields.	- Sanctioned 23d October 1843. This bridge is to be of 8 feet span.	At Dysurrah - -	313 3 3	313 3 3	-- Completed season 1843-44.	-
Construction of a New Bridge near the present Noonajoory Bridge.	-- With a view to the preservation of the Juggernaut Road, which, at the site fixed on for the new bridge, was constantly liable to be cut through by the floods of the country.	-- Sanctioned 27th August 1844.	- - - -	11,094 2 4	16,856 4 0	-- Completed season 1846-47.	-- This is a bridge of five arches, viz., two of 23 feet, two of 24 feet, and one of 20 feet span. A saving of Rs. 5,762. 2. 5. has been effected by a reduction in the quantity of masonry, as well as in the rates assumed in the estimate.

Repairs to, in the Balasore Division.	-- In consequence of heavy damage sustained by floods.	-- Length about 3½ miles, sanctioned 27th February 1845.	-- Between Goreek-haul and Rajghaut.	1,404 9 11	1,404 9 11	Season 1845-46.	—
Construction of a Drain Bridge on the.	-- The road was every year cut through by the ryots, to let the water off their fields; this practice, it is hoped, will be put a stop to.	-- Of eight feet span; sanctioned 23d October 1843.	At Dysurrah - -	302 8 5	302 8 5	- Constructed season 1843-44.	—
Construction of a Drain Bridge on the.	-- With a view of bringing the water into the villages, instead of allowing it to be carried off to a different direction.	-- Sanctioned 26th April 1844.	At Khurruckpore - -	243 5 11	243 5 11	Season 1844-45.	—
Construction of two Bridges -	For drainage - - - -	-- Sanctioned 8th September 1847.	At Rajghaut - -	777 15 10	Not stated - -	-- Completed season 1849-50.	- Each of two arches of 10 feet span.
Annual repairs from Pooree to Rajghaut, and the Cross Road towards Jehajpore; also for Bridges, Drains, and Serais.	The preservation of the road -	-- Length 183 miles 3 furlongs and 100 yards; and of the cross road 4 miles and 6 furlongs.	- - - - -	- - - - -	5,826 3 3	-- Annual repairs for season 1849-50.	-- These bridges, &c, will be on the south side of the Soobunrukah River.
<b>ROADS AND BRIDGES, NORTH-WESTERN PROVINCES.</b>							
Joah Bridge, under the city of Bareilly, on the road to Moradabad.	- - - - -	- - - - -	- - - - -	- - - - -	15,702 - -	- - - - -	-- A wealthy native gentleman, Dewan Behadoor Sing, offered to defray the cost of this bridge, which had been taken out of the hands of the executive engineers.
Jyaree. Construction of an Iron Suspension Bridge on the taper chain principle, over the Kos-sillah River, at.	-- In lieu of a bridge which was carried away in September 1840, by a sudden rise of the river.	-- Sanctioned 5th April 1842.	Jyaree - - -	10,543 - -	8,581 8 3	-- Completed season 1846-47.	-- This bridge is to consist of five arches of 20 feet span each, with piers 20 feet high.
<b>ROADS AND BRIDGES, LOWER PROVINCES.</b>							
Jamalpore. Construction of Drain Bridges at.	- - - - -	-- Sanctioned 10th May 1844.	Jamalpore - -	950 9 9	- - - - -	-- Completed season 1844-45.	—
Jajpore to Ningroo. Opening of a Road.	-- Military posts having been established at these places, it has been found necessary to open a temporary communication between them.	-- Length 27 miles; sanctioned season 1844-45.	Ningroo - - -	1,075 8 5	989 - -	- Constructed season 1845.	-- The road has been merely cleared of the jungle, so as to admit the passage of troops.
<b>ROADS AND BRIDGES, CENTRAL PROVINCES.</b>							
Jubbulpore to Mirzapore, or the Great Deccan Road: Metalling of the - -	-- In consequence of the great wear and tear on this road.	-- Length 245 miles; sanctioned 28th September 1840.	- - - From Tilwarra Ghaut, between Jubbulpore on the Nerbudda, and Mirzapore on the Ganges.	83,924 10 5	86,826 15 4	-- Completed season 1846-47.	-- This road was originally constructed by Major Drummond.

(continued)

No 6 —STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued

NAME OF WORK	Object of Construction	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS
<b>ROADS AND BRIDGES, CENTRAL PROVINCES—continued.</b>				<i>Rs. a. p.</i>	<i>Rs. a. p.</i>		
<i>Jubbulpore to Mirzapore, or the Great Deccan Road—continued</i>							
Annual repair to the metallated portion of	- - - Also for making wooden bridges, &c.	- - Sanctioned 30th November 1842	Mirzapore - - -	For bridges - <i>Rs</i> 2,448 For repairs - 2,708 <u><i>Rs</i> 5,156</u>	5 168 3 8 ½	- - Completed season 1846-47	- - This estimate also provides for the construction of 15 wooden bridges on the road connecting Jokehia and Dumoh, and clearing the Nuddee Ghauts
<i>Jubbulpore</i> via <i>Seonee</i> to <i>Kamptee</i> Proposed metallating and partial bridging of the road	- - To continue the great road from Mirzapore to Jubbulpore (or Great Deccan Road)	Length <i>M. f yds</i> Jubbulpore to Seonee } 83 7 32 Seonee to Kamptee } 63 7 96 <u>Miles 148 0 0</u>	Kamptee - - -	- - - - - <u><i>Rs</i> 2,37,746 - -</u> Exclusive of the item of bridges.	1,76,246 - - 61,500 - - <u><i>Rs</i> 2,37,746 - -</u>	- - - - -	- - <i>Rs</i> 20,010 5 6 ½ were expended in season 1847-48 in cutting jungle, making proper inclined ghauts, and clearing and smoothing the surface of the ghauts, an advance of 16,000 Company's rupees was sanctioned for the earthwork of the portion of the road in the Nagpore territory, and <i>Rs</i> 24,180. 8. 10. for earthwork between Jubbulpore and Seonee.
With reference to the magnitude of the outlay contemplated, its commencement has been deferred until the estimates have been reported on by the superintending engineer, after personal inspection							
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—JUDICIAL</b>							
<i>Intally</i> Purchase of Ground	- - For the sheds of the conservancy department	- Sanctioned 2d April 1839, and 23d June 1840	Intally - - -	7,000 - -	- - - - -	Season 1840-41.	-
<b>CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL</b>							
<i>Jessore</i> Construction of a flat-roofed Cutcherry	- - For the two Principal Sudder Ameens, to enable them to give up the rooms in which they at present hold their cutcherries for the custody of the records of the Judge and Magistrate	-- Sanctioned 2d May 1842	Jessore - - -	2,696 5 3 ½	2,860 14 5	- - Completed season 1844-45	- - The cutcherry is to be flat-roofed, with tiled verandahs
<i>Jessore Gaol</i> Construction of 12 Necessaries	- - - - -	- - Sanctioned 25th January 1843	Jessore - - -	1,234 8 1	1,113 12 6	- - Completed season 1844-45	-
<i>Jessore</i> Cutcherry for the Sudder Ameen	- - - - -	- - Sanctioned 27th February 1843.	Jessore - - -	2,696 5 3 ½	3,657 10 9	- - Completed season 1844-45.	-

Construction of a Selakhana	-- For the reception of property recovered in cases of dacoity, burglary, &c, and in lieu of an old building inconveniently situated.	-- Sanctioned 28th February 1844.	-- The new building will be erected close to the magistrate's cutcherry.	764 3 5	823 11 10	-- Completed season 1844-45	—
Jessore Gaol Construction of a Dead house and Dispensary	- - - - -	-- Sanctioned 27th May 1846	Jessore - - -	588 4 5 ½	- - - - -	-- Completed season 1847-48	—
Jamalpore Alterations to the Deputy Magistrate's Cutcherry	-- In consequence of the wood work of the roof having become entirely decayed	-- Sanctioned 22d December 1849	Jamalpore - - -	1,459 1 -	- - - - -	-- Completed season 1849-50	-- The cutcherry has been put into thorough repair
CIVIL BUILDINGS, CENTRAL PROVINCES—JUDICIAL							
Jubbulpore Construction of a new Gaol -	-- For the accommodation of 300 prisoners.	-- Sanctioned 10th March 1841.	Jubbulpore - - -	16,044 11 9	15,541 11 1	-- Completed season 1842-43	—
Construction of Public Buildings	-- For the 1st battalion of military police	-- Sanctioned 14th August and 19th October 1843	- - - - -	2,411 7 - ¼	2,805 8 7	-- Completed season 1844-45	—
Construction of a new Gaol Hospital	-- Under a representation that the gaol hospital was not a fit receptacle for the united Thug and Zillah sick prisoners	-- Sanctioned season 1844-45.	- - - - -	8,765 5 3	8,676 7 5	-- Completed season 1846-47	—
Jaunpore Construction of a Court-house	-- For the Collector and Magistrate	-- Sanctioned 25th November 1850.	Jaunpore - - -	- - - - -	6,994 - -	—	—
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL							
James Prinsep Ghaut Contributions towards the erection of	-- To be erected with the aid of Government, by the inhabitants of Calcutta, to the memory of the late James Prinsep, Esq	-- Sanctioned 1840-41	-- To be erected in a situation highly useful for the embarkation or disembarkation of European troops.	Donation, season 1840-41 23 Nov 1842, flag-stones contributed towards its erection to the value of 3 July 1843, a further grant authorised of - }	10,000 - - 600 - - 2,756 - -	- - - - -	-- On the 3d July 1843, the completion of the work devolved on the garrison engineer of Fort William, who, it was understood, had been provided with funds sufficient for that purpose
					Rs 13,356 - -		
CIVIL BUILDINGS, LOWER PROVINCES—GENERAL							
James and Mary's Anchorage Creek Construction of an Obelisk at the	-- The spot is most dangerous for navigation, the obelisk is intended as a day beacon	-- Sanctioned 25th March 1843.	-- Situated below Fulta, on the Hooghly River	2,642 10 4 ¼	1,861 - 10	-- Completed season 1843-44.	Its height will be 80 feet
CIVIL BUILDINGS, CENTRAL PROVINCES—GENERAL							
Inathowna Construction of a Staging Bungalow at	- - - - -	-- Sanctioned 7th May 1843	-- Situated between Sultanpore and Benares	- - - - -	1,881 4 8	Season 1843-44 -	-- This bungalow will be constructed from the funds originally granted for the bungalow at Benares, a bungalow at the latter place being under construction from funds collected by private subscription
Jugadaree Erection of a Staging Bungalow and Out offices	- - - - -	-- Sanctioned 9th September 1843.	-- Situated between Umballah and Kheree	3,244 10 6	2,243 10 9	-- Completed season 1846-47	—

(continued)

No. 6. — STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>CIVIL BUILDINGS, JHULLUNDHUR DIVISION—GENERAL:</b>				<i>Rs. a. p.</i>	<i>Rs. a. p.</i>		
<i>Jullundur:</i>							
Construction of a Cutcherry and Guard-room.	-- For the deputy commissioner of the station.	-- Sanctioned 31st August 1847.	Jullundur - -	26,729 11 -	- - - - -	-- Completed season 1850-51.	-- The old fort at Jullundur, formerly used as a catcherry, has been sold for 40,000 Company's rupees.
Construction of a Dāk Bungalow and Offices.	-- On the recommendation of the Postmaster-general, North-Western Provinces.	-- Sanctioned 4th January 1850.	- - - - -	- - - - -	3,869 15 3	Season 1849-50 -	-- The expense will be defrayed from the North-Western Provinces Staging Bungalow Fund.
<b>CANALS, SOUTH-WESTERN PROVINCES:</b>							
<i>Kamapookreeh Khal:</i> Repair of the Dam across the mouth of the.	- - - - -	Sanctioned 1840-41	- - - - -	813 15 0	825 - -	- Repairs completed 1841-42.	-- The total sum expended for this work since its commencement is 2,045 rupees.
<b>CANALS, SOUTH-EASTERN PROVINCES:</b>							
<i>Kotakhally Nullah, in Chittagong:</i> Excavation of the.	- - - - -	-- Sanctioned 29th May 1838.	- - - - -	1,224 9 11	- - - - -	-- Completed season 1841-42.	-
<i>Khattee Canal:</i> Repair and improvement of.	- In consequence of the abandonment of the Oolabarreeh Canal.	-- Sanctioned 12th February 1845.	-- This canal is a communication between the Damoodah and Hooghly Rivers.	2,000 - -	2,000 - -	-- Completed season 1845-46.	-
<i>Khattee Bund:</i> Raising of the, two feet.	-- To bring it above the level of the inundations which occurred in August 1844.	-- Sanctioned 27th May 1845.	- - - - -	- - - - -	2,508 3 0	- - - - -	-- The greatest part of the earth for this work will be dug out from the Khattee Canal, the improvement of which will thus be effected at little or no expense.
<b>CANALS, NORTH-WESTERN PROVINCES:</b>							
Kunjnoon Escape Nullah	-- Construction of a masonry bridge across the.	-- Sanctioned 4th April 1836.	-- Near the village of Nakroan.	2,142 - -	2,142 - -	- Constructed season 1840-47.	-- This bridge has timber road-way on masonry piers and abutments.
Kutta Puther Canal	-- For the purpose of irrigating a tract of country bounded by the Jumna on the west, by the Asum on the south, by the hills on the north, and on the east by a stream called the Sutwala Raos.	-- Sanctioned 4th February 1848.	- - - - -	- - - - -	88,902 11 1	- - - - -	-- This tract of land to be irrigated contains 20,254 acres (31 square miles), more than four-fifths of which is good land for cultivation.
<i>Kallee Nuddes:</i> Iron Suspension Bridge at Khodagunge, between Cawnpore and Furrackabad.	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	-- Was built by the late Nuwab Mohindie Alee Khan Bahadoor, but having been made over to Government by his nephew, Ahmed Alee Khan Bahadoor, orders have been given to provide for its future repair.



<i>Kumaon</i> : Construction of a Bridge on the taper chain principle over the Kosillah River	-- The old bridge was injured by a sudden and unusual high rise of the river in September 1840.	-- Sanctioned 5th April 1842.	At Jyaree - -	5,800 4 8	9,170 13 1	-- Completed season 1842-43.	--
<i>Kathur Nuddee</i> : Bridge near Subathoo.	-- To replace an old bridge which was represented to be unsafe for travellers.	-- Sanctioned season 1841-42, a revised estimate sanctioned 19th July 1844.	-- On the road from Subathoo and Simla.	940 11 6	420 5 7	-- Completed season 1844-45.	-- This bridge was totally destroyed by the storms which occurred between the 17th and 20th July 1844. It will not be restored.

## ROADS AND BRIDGES, LOWER PROVINCES:

<i>Kubbadduck River</i> : Suspension Bridge over the, on the tension principle of Mr. Dredge, of London.	- - - - -	-- Sanctioned 28th February 1841.	Near Jessore - -	21,056 - 3	22,818 13 4	Completed in 1846 -	-- A wealthy native gentleman, by name Kallee Podar, has made an offer to Government to defray half the cost of this bridge. This bridge had been
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but recently constructed and reported upon (on the 26th August 1846) by a special committee, and while their report was under consideration, accounts were received of its failure on the 30th September 1846, with a loss of 150 lives, in consequence of the whole structure having been thronged with natives witnessing the passage of the Doorgah under the bridge. The estimate for the restoration of the bridge amounts to 5,426 rupees. The Court, in their despatch to the Government of India, dated the 29th September (No. 25) 1847, reiterated their orders of 1845, forbidding the further adoption of the tension principle in the construction of suspension bridges. See Ballee Khal Bridge. This bridge was reconstructed at a cost of Rs. 7,722. 1. 10, the total expenditure incurred, including the cost of testing the bridge, had been Rs. 31,044. 0. 8. A committee of engineer officers was assembled to report on the bridge after its reconstruction; and their report, dated the 24th February 1849, shows that the bridge had been fully tested, and that it is capable of bearing, with perfect safety, the traffic of the country. The bridge has been opened to the public and to the passage of all traffic, excepting elephants. On the 27th June 1849 a report was received from the officiating superintending engineer, Lower Provinces, of the partial failure of the structure, on which Captain Guthrie, of the Engineers, was ordered to inspect the bridge and report the causes of the failure. The following paragraph is extracted from his report, para. 14.—"I await further orders regarding this bridge. I have issued no orders regarding closing it; having stood the test of 70 lbs. to the square foot, it must be fully equal to all ordinary traffic. I have, however, directed the chowkeedar to prevent crowds from assembling, and trains of carts from passing both ways at the same time."

<i>Kamroop</i> : Construction of Bridges on the Mofussil roads in the district of Kamroop, and the town of Gowahatty.	- - - - -	-- Sanctioned 12th September 1842.	- - - - -	1,839 14 5	- - - - -	-- Completed season 1842-43.	-- The amount will be charged partly to the Town Improvement Committee funds, and partly to the Mofussil Road funds.
Koliabar to the Dunsurry River	-- The construction of this road will complete the direct communication between Upper and Lower Assam.	-- Length 67 miles 1 furlong; sanctioned 4th December 1844.	Dunsurry River - -	Not reported - -	24,500 2 2	- - - - -	-- The construction of 240 drain bridges on the line is provided for in the estimate.
<i>Kulling River to Koliabar</i> : Repair of the Road.	-- This road follows the course of the river, and forms a bund to keep out inundation.	Length 72 miles	Koliabar - - - -	6,212 - -	6,212 - -	-- Completed season 1844-45	--

## ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES:

<i>Khoorda Road</i> : Repairs to, and clearance of jungle on.	- - - - -	-- Length of road 69 miles, 5 furlongs and 115 feet, repairs sanctioned 24th November 1840	-- Extends from the Madras frontier to Cuttack.	- - - - -	11,459 10 - 1/2	--	--
Construction of 129 Bridges and Drains on the.	-- To facilitate the means of communication.	-- Sanctioned season 1839-40.	- - - - -	49,702 8 5	60,673 3 6	-- Completed season 1845-46.	-- The saving of Rs. 10,070 11 1 is owing to a reduction of rates, and also to the quantity of masonry.

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES—<i>continued.</i></b>							
<i>Kyook Phyoo</i> : Construction of five first-class masonry Bridges.	- - - - -	- - Sanctioned 18th September 1841.	<i>Kyook Phyoo</i> - -	Rs. a. p. 10,518 14 10	Rs. a. p. 11,356 7 1	- - Completed season 1842-43.	-
<i>Khoorda Road</i> : Construction of large Bridges on the.	- - Required over rivers that intersect the road.	- - The length of the <i>Khoorda Road</i> is 69 miles, 5 furlongs and 115 feet, sanctioned 25th September 1844.	- - One over the <i>Coosmy River</i> ; one over the <i>Sahal River</i> , one over the <i>Consail River</i> .	- - No report of the final completion of these bridges has been received	6,970 14 1	- - - - -	- - For a bridge of seven arches and 20 feet span over the <i>Coosan River</i> .
					9,663 9 2	- - - - -	- - For an iron suspension bridge of eight feet span over the <i>Sahah River</i> .
					30,333 - -	- - - - -	- - For a bridge on the tension principle over the <i>Consail River</i> .
<i>Kyook Phyoo</i> : Construction of two Sluices with self-acting gates to bunds.	- - For keeping out the salt water from the station.	- - Sanctioned 15th April 1846.	<i>Khyook Phyoo</i> -	1,823 4 -	1,451 - -	- - Completed season 1845-46.	-
Construction of 12 pucca Drain Bridges.	- - These works were undertaken at the requisition of the Commissioner of Arracan.	- - ditto - -	At <i>Mugh Bazar</i> -	- - Rs. 1,217. 15. 7. for nine bridges in 1847-48; the three remaining bridges of the 12 authorised were completed in season 1849-50.	1,361 - -	-	
Construction of four Drain Bridges.	- - - - -	- - ditto - -	At <i>Khyook Phyoo</i> -	- - - - -	1,348 - -	-	
<i>Kedgerce Dāk Road</i> : Renewal of Wooden Bridges over the <i>Kolah Khallee</i> and <i>Tangooh Khalls</i> .	- - To replace the present structures, which are in a decayed and dangerous condition.	- - Sanctioned 17th March 1847.	<i>Kedgerce Dāk Road</i>	4,009 7 10	2,230 1 1 1,779 6 9	- - Completed season 1847-48.	- - The bridge over the <i>Kolah Khallee</i> is to be of 70 feet span; that on the <i>Tangoah Khall</i> of 60 feet span.
					Rs. 4,009 7 10		
<i>Kyook Phyoo</i> : Construction of a masonry Sluice.	- - - - -	- - Sanctioned season 1849-50.	- - The sluice is constructed in <i>Jopphe's Bund</i> .	570 10 7	- - - - -	- - Constructed season 1849-50.	This sluice has a self-acting gate.
<i>Kyook Phyoo</i> : Construction of a new masonry Bridge called <i>Budder Mokane Bridge</i> .	- - Constructed on the requisition of the local authorities, the old bridge having fallen down.	- - ditto - -	- - - - -	507 - -	- - - - -	- - ditto - -	This bridge is of 8 ½ feet span.
<b>ROADS AND BRIDGES, UMBALLA DIVISION:</b>							
<i>Kalka to Dugshye</i> - - -	- - With reference to the formation of a new cantonment on the hills at <i>Dugshye</i> , the road from <i>Kalka</i> at the foot of the hills will be extended to <i>Dugshye</i> .	- - Length 18½ miles; sanctioned 28th April 1847.	<i>Dugshye</i> - -	- - - - -	1,20,250 - -	- - - - -	- - Up to the 1st April 1848, a sum of Rs. 45,068. 1. 3. had been expended on the work, the progress of which has also been assisted by three or four companies of the corps of Sappers and Miners.
<b>CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL:</b>							
<i>Kyook Phyoo</i> : Construction of a Cutcherry Bungalow at.	- - To be used either by the assistant at <i>Aeng</i> , or by the commissioner.	- - G. O., 26th September 1839.	<i>Kyook Phyoo</i> -	7,426 5 8	5,335 9 8	- - Completed season 1842-43.	- - The whole, or nearly so, of this excess has been expended on works not included in the original estimate.

987.

<i>Koosbaugh, near Moorshedabad:</i> Repairs to buildings at the Mausoleum of Mohabut Jung.	- - - - -	-- Sanctioned seasons 1840-41 and 1841-42.	Koosbaugh - -	2,308 10 6	2,308 10 6	Season 1841-42.	-
<i>Kishenagur Gaol:</i> Erection of a Dead-house.	- - - - -	- - Sanctioned 23d November 1846.	Kishenagur - -	417 11 4	- - - - -	- - Constructed season 1847-48.	-
<i>Khoolna:</i> Construction of a Cutcherry and Dwelling-house for the Joint Magistrate.	-- The construction of the building was rendered unavoidable in consequence of a tendency to outrage and disturbance existing in that quarter, which called for the constant presence of a joint magistrate.	-- Sanctioned 3d June 1844.	Khoolna - - -	6,796 11 10	7,150 8 9	-- Completed season 1845-46.	-
<i>Kissenpore Gaol:</i> New Tile Roofing to the.	- - The gaol had heretofore been thatched, but a thatched roof, from its liability to take fire, was considered particularly objectionable for a gaol.	- - Sanctioned 16th September 1844.	Kissenpore - -	2,066 5 11	2,616 4 3	- - Completed season 1846-47.	-

CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—JUDICIAL.

<i>Kyook Phyoo:</i>							
Addition of Out-offices to the New Circuit-house.	- - - - -	- - Sanctioned 5th October 1841.	- - - - -	1,082 3 3	1,082 - 3	- - Completed season 1842-43.	-
Construction of new Gaol Buildings.	- - The old gaol wards were quite unworthy of further repairs.	- - Sanctioned 31st July 1843.	Kyook Phyoo - -	- - - - -	20,867 5 2	-	-
Construction of a Sudder Hospital.	- - Indispensably necessary for the accommodation of the sick of the police, the flotilla, and other civil establishments.	- - Sanctioned 24th June 1844.	- - - - -	1,753 10 6	1760 5 -	- - Completed season 1845-46.	-
Construction of two new Wells for the gaol.	- - - - -	- - Sanctioned 31st July 1843.	- - - - -	517 5 9	517 5 9	- - Constructed season 1845-46.	-

CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—JUDICIAL.

<i>Kumaon</i> Construction of a Cutcherry.	- - For the accommodation of the junior Assistant Commissioner and Suddur Ameen	- - Sanctioned 7th July 1841.	- - - - -	685 1 3	779 15 -	- - Completed season 1841-42.	-
<i>Kuchwagur</i> Construction of Police Guards.	For prisoners under trial - -	- - Sanctioned 27th April 1844.	Kuchwagur - -	2,200 - -	2,200 - -	- - Constructed season 1844-45	-

CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—REVENUE.

<i>Kyook Phyoo</i>							
Construction of masonry Sluices with self-acting gates.	- - In compliance with the recommendation of the Commissioner of Ariacan.	- - Sanctioned 4th March, and 20th May 1846.	-- In Freeman's Bund, at Kyook Phyoo.	2,577 2 11	2,577 2 11	- - Completed season 1847-48.	-
Construction of a masonry Sluice with self-acting gate.	- ditto - - - -	- - Sanctioned 15th April 1846	- - In Hopkinson's Bund, at Kyook Phyoo.	982 1 11	982 1 11	- Completed season 1847-48.	-

(continued)

No 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion	REMARKS.
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—REVENUE—continued.</b>				<i>Rs. a. p.</i>	<i>Rs. a. p.</i>		
<i>Kyouk Phyoo—continued.</i>							
Construction of a masonry Sluice with self-acting gate.	-- In compliance with the recommendation of the Commissioner of Arracan.	-- Sanctioned 4th March 1846.	- - In the Fish Village Bund.	598 14 9	598 14 9	-- Completed season 1847-48.	-
Construction of a Sluice Bridge called Chota Nemuch Gollah.	-- With the view of improving the salubrity of the station.	-- Sanctioned May 1847.	Kyouk Phyoo -	860 - 4	860 - 4	-- Constructed season 1849-50.	-- This work was projected by the Commissioner of Arracan.
New Sluice in Freeman's Bund	- - - - -	-- Sanctioned season 1849-50.	- - - - -	949 9 4	949 9 4	-- Constructed season 1849-50.	-- The sanction for this work was obtained from the Government, direct by the Commissioner at Arracan.
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL.</b>							
Kedgerree Tripod - - -	-- For the security of the establishments at Kedgerree, as well as of the inhabitants, in the event of a gale occurring similar to that in 1833.	-- The fabric will be 50 feet high, and of four stories; sanctioned 27th January 1840.	Kedgerree - -	4,189 11 -	4,214 9 9	-- Completed season 1841-42.	-- Three of the stories will be for places of refuge in times of inundation, and the fourth may be used by the Semaphore establishment, and also for the purpose of exhibiting a light, if necessary, for the use of the shipping.
Kidderpore: New Fitting Shop in the Steam Dockyard.	- - - - -	-- Sanctioned season 1838-39.	- - - - -	12,945 - 1	- - - - -	-- Completed season 1841-42.	-- The work has been satisfactorily executed.
Kedgerree: Enclosure of the Burial-ground.	-- The place was represented to be a perfect jungle, without any surrounding wall, hedge, or fence of any kind whatever.	-- Sanctioned 26th April 1842.	- - - - -	754 12 11½	796 5 -	-- Completed season 1843-44.	-
<i>Kyouk Phyoo:</i>							
Construction of Godowns -	For marine stores - - -	-- By order of the Commissioner of Arracan, dated 17 February 1840.	Kyouk Phyoo -	2,550 3 10	- - - - -	-- Completed season 1841-42.	-- These buildings replaced two others which had been pulled down.
Construction of a new Marine Magazine.	-- The old building has been in a state of dilapidation since 1838.	-- Sanctioned season 1842-43.	Kyouk Phyoo -	1,798 9 2	- - - - -	-- Completed season 1842-43.	-
Kootubdea Island: Construction of a Lighthouse, &c.	- - - - -	-- Sanctioned 11th January 1843.	Kootubdea Island -	35,511 - -	29,235 6 5	-- Completed 21st February 1846.	-- The light will be exhibited 100 feet above high water spring-tides, and the lantern is to be 12 feet in diameter.
<i>Kidderpore:</i>							
Additional accommodation in the Steam Department.	- For a new store room, offices and model room.	-- Sanctioned 20th July 1842.	Kidderpore - -	40,036 12	45,376 4 6	-- Completed season 1844-45.	-- The saving of Rs. 5,339. 0. 8. is ascribed to modifications from the original design.

987.	Construction of Pucca Dry Dock.	-- In lieu of the existing catch dock.	-- Sanctioned 19th October 1842, and 5th February 1844.	- - - - -	92,043 7 9½	87,788 7 1	-- Completed season 1844-1845.	-- In consequence of the difficult nature of the undertaking, the floor of the dock resting on a mass of springs, it became necessary to change the mode of laying the foundation.
	Completion of the River Wall, piling and filling up the old Mud Dock and Tank.	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	
	<i>Kidderpore</i>							
	Renewing a Store-room, constructing a Coal-tar Tank, &c., in the Naval Store-keeper's Department.	-- At the request of the Superintendent of the Marine.	-- Sanctioned 9th April 1844.	Kidderpore - - -	6,507 6 9	6,564 4 1	-- Completed season 1844-45.	-
	Construction of Buildings	-- For the reception of the pump and punching machine.	-- Sanctioned 17th June 1844.	- - - - -	8,429 8 9	7,005 3 6	-- Completed season 1845-46.	-
	<i>Kidderpore</i>							
	Construction of a Shed	As a receptacle for coals	-- Sanctioned 28th February 1844.	- - - - -	477 - -	477 - -	-- Constructed season 1844-45.	-
	Dockyard, renewal of a portion of the Retaining Wall.	-- The old retaining wall is in a dangerous state, and the foundations are supposed to be defective.	-- Sanctioned 22d July 1846.	- - - - -	-- This work was suspended in 1845-46, as the entrance to a projected wet dock for steamers will be made on part of the intended site, the revetment wall was reconstructed in season 1849-50, at a cost of Rs. 11,272. 15. 11.	33,557 1 10	- - - - -	-- The section of the new wall will be similar to that of the wharf wall at Sheerness, where the soil somewhat resembles that at Kidderpore
L 2	<i>Kyook Phyoo</i> . Construction of three Jetties or Piers.	-- For the convenience of the salt traders frequenting the port.	-- Sanctioned 16th September 1844.	Kyook Phyoo - - -	- - - - -	3,748 8 -	-	
	<i>Kidderpore Dockyard</i> . Construction of a masonry Platform.	-- For setting up an iron crane, shipped by the Court of Directors.	- - - - -	- - - - -	20,240 - -	17,375 - -	-	
	<i>Kootubdea</i> . Lighthouse Buildings.	-- For a lighthouse tower and lantern, with buildings for the establishment of overseers and Lascars, on the island of Kootubdea.	-- Sanctioned 8th October 1845.	Kootubdea Island -	35,289 - 5	29,235 - -	-- Completed February 1846.	-- The excess over the original estimate was occasioned by the rates assumed by the executive engineer being purely conjectural, in consequence of the isolated spot at which the work was to be carried on.
	<i>Kidderpore</i>							
	Proposed construction of a Basin or Wet Dock.	For inland steamers	-- Submitted for sanction 19th June 1846.	Kidderpore - - -	- - - - -	1,27,211 6 9	- - - - -	-- It is proposed to make the entrance into the wet dock through the dry dock, whereby the expense of constructing a new entrance with locks, &c., will be in great part avoided, while the dry dock will still remain available for the purposes of its original construction, whenever required
	Dockyard; construction of Boat and Coal-sheds, and fitting up a Tank.	-- The necessity for these works was brought to notice by the Acting Superintendent of Marine.	-- Sanctioned 21st June 1847.	- Ditto - - -	- - - - -	16,057 7 6	-	

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL—continued.</b>				<i>Rs. a. p.</i>	<i>Rs. a. p.</i>		
<i>Kidderpore—continued.</i> Dockyard; construction of Dwelling-houses.	-- For the Naval Storekeeper and Marine Surveyor and Builder.	-- Sanctioned 29th April 1848.	Kidderpore - -	- - - - -	19,608 11 8	- - - - -	-- This arrangement will make the present house occupied by the naval storekeeper available for the assistant surveyor and builder. The quarters of the latter, which are unfit for a dwelling-house, the rooms being confined and low, will be converted into godowns, as proposed by the Marine Superintendent.
Additions and Alterations to the Marine Superintendent's house.	-- Most of the beams and burghs were in a decayed state.	-- Sanctioned 7th May 1849.	- Ditto - -	7,803 14 -	7,803 14 -	-- Completed season 1849-50.	-- It was at first contemplated, on account of the almost ruinous state of the building, to substitute a new one at an estimated cost of Rs. 27,898. 2., but a committee of civil architects were favourable to the retention of the old building.
<i>Kyook Phyoo:</i> New Office for the Salt Superintendent.	-- On a representation from the Board of Customs, Salt and Opium, of the necessity for such an office, in lieu of the old dilapidated building previously used:	-- Sanctioned 24th March 1847	Kyook Phyoo - -	11,096 6 10	- - - - -	-- Constructed season 1849-50.	-
Erection of a New Treasury, Record Room, and Guard Room.	-- Under a representation from the Commissioner of Arracan, that the existing buildings were unsafe, having been several times actually on fire.	-- Sanctioned 12th December 1849.	- Ditto - -	- - - - -	3,656 - -	Season 1849-50.	-
<b>CIVIL BUILDINGS, LOWER PROVINCES—GENERAL:</b>							
<i>Kurseong:</i> Construction of a Staging Bungalow.	-- This bungalow is to be in the place of the staging bungalow at Mahalderam, built by the Darjeeling committee, but now in a dilapidated state.	-- Sanctioned 5th August 1844.	Kurseong - -	3,190 11 6	3,107 15 4	-- Constructed season 1846-47.	-- At the suggestion of the superintendent of Darjeeling, the site of the bungalow has been removed to Kurseong, which station is five miles nearer the plains than Mahalderam, at which latter place there has hitherto been, and still is, an hotel for the accommodation of travellers.
<i>Kishenagur:</i> Construction of a Post-office at.	-- The accommodation heretofore afforded to the records of the Post-office in the Collector's office, is no longer available.	-- Sanctioned 6th March 1846.	Kishenagur - -	733 9 5	722 - -	-- Completed season 1847-48.	-- This building is to be of pucca, on account of the great destruction of woodwork at the station.

CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—GENERAL:									
987.	Kurnaul: New Roof to the Roman Catholic Chapel.	- - - - -	-- Sanctioned 6th April 1842.	Kurnaul - - -	577 15 11	- - - - -	- - - - -	- - Completed season 1842-43.	-
	Kussowlee:								
	Construction of a Protestant Church at.	- - - - -	-- Sanctioned 17th January 1845.	Kussowlee - - -	-- This work was suspended in season 1845-46.	25,734 12 6	-		
	Construction of a Staging Bungalow.	- - The necessity for this bungalow appears to have been brought to notice by the Post-master, North-Western Provinces.	-- Sanctioned 23d November 1844.	- - - - -	3,806 12 8	3,913 12 5	- - Completed season 1845-46.	-	
	Enclosure of the Burying-ground.	- - On a representation from the Archdeacon of Calcutta.	-- Sanctioned 6th November 1848.	- - - - -	2,356 6 6	3,555 6 6	- - Completed season 1849-50.	- - The total length of the enclosure wall is 816 feet.	-
	Kurrachee: Erection of a Post-office.	- - Sanctioned by Government in the Foreign Department.	-- Sanctioned 13th July 1844.	- - - - -	849 8 -	- - - - -	- - Constructed season 1844-45.	-	
	* Kumaon: Alterations to four Staging Bungalows.	- - The necessity for these alterations was brought to notice by the Postmaster-general.	-- Sanctioned 10th November 1848.	- - These bungalows are situated at Penra, Ramgar, Bhumtal and Bamourl.	1,909 9 3	1,909 9 3	- - Completed season 1849-50.	-	
CIVIL BUILDINGS, CENTRAL PROVINCES—GENERAL:									
13	Kheree: Construction of a Staging Bungalow.	- - The existing buildings, owing to the inefficiency of accommodation, did not meet the public wants.	-- Sanctioned 9th September 1843.	Kheree - - -	1,947 1 2	2,037 10 2 and Rs. 136. 7. 3. for the requisite furniture.	- - Completed season 1844-45.	-	
CIVIL BUILDINGS, SOUTH-WESTERN PROVINCES—MARINE:									
	Kidderpore: Construction of a Workshop for the Comptroller of Steam Machinery.	- - - - -	-- Sanctioned 22d May 1839.	- - - - -	6,601 12 -	6,893 4 8	- - Completed season 1839-40.	-	
ROADS AND BRIDGES, CENTRAL PROVINCES:									
	Lucknow Canal. Bridge over the, on the r. d. from the City to Constantia, and Bridging of the Watrecourses on that road.	- - These bridges are to be on a new line of road, half a mile less in length than the old road, which is through the King of Oude's private park at Delkoosah; and although his Majesty permits all European gentlemen to use this road, it is apprehended that this privilege would not be extended to all classes of persons proceeding to and from Constantia, after it shall have become a public college.	-- Estimate submitted 26th February 1842.	- - - - -	Not reported - - -	12,565 3 6 and Rs. 682. 7. 10., for bridges.	Not reported - - -	- - The bridge over the Lucknow Canal is to be of three arches, the cost will, it is believed, be defrayed from the Maritime Fund.	-
ROADS AND BRIDGES, NORTH-WESTERN PROVINCES:									
	Loharee Bridge, over the Uril River.	- - Increase of the waterway in consequence of the approaches to it being flooded in the rains.	-- Sanctioned 3d June 1842.	Loharee - - -	11,322 3 5 1/2	11,333 15 1	- - Completed season 1842-43.	-	

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion	Probable Time of Completion.	REMARKS.
<b>ROADS AND BRIDGES, NORTH-WESTERN PROVINCES—continued.</b>				<i>Rs. a. p.</i>	<i>Rs. a. p.</i>		
<i>Lucknow Bridge</i> , and repair of the Causeway.	-- Two lengths of the causeway, measuring 551 and 307 feet respectively, were entirely destroyed by a violent flood on the 20th June 1842.	- - - - -	Near Seharunpore	- - - - -	- - - - -	- - - - -	-- The causeway of the Lucknow Bridge is constructed on land arches traversing a plain of deep sand, and extends to a length of 2,224 feet. The bridges and causeway were constructed in the year 1827, at a cost of 36,000 rupees.  The piers of the main arches of the bridge are carried down 26 feet below the bed of the river to solid soil. Two of the arches having been choked up, and shown symptoms of settlement in 1847-48, a sum of Co.'s Rs. 536. 8. 6, was expended in flooring the spaces between the piers with rough wooden caissons. An estimate, amounting to Rs. 1,907, for metalling the roadway of the bridge, was sanctioned on the 1st May 1850; the traffic over the bridge was represented to be incessant.
<i>Landour Roads:</i> Reconstruction of several portions of the Embankment Walls.	-- These roads were greatly injured by heavy rains in August 1842.	-- Sanctioned 6th January 1843.	- - - - -	5,548 3 8	5,832 7 11	-- Completed season 1843-44.	-
Repair of, and Enclosure of parts of the Road leading from the Barracks to the Hospital, with a rough Railing.	-- These roads were again injured by the heavy rains of August and September 1843	-- Sanctioned 1st December 1843.	- - - - -	2,131 5 3	2,444 5 3	-- Completed season 1844-45.	-- A railing has been erected along the road.
<i>Lohoo Ghaut:</i> Construction of an Iron Suspension Bridge over the Lohoo River, at.	-- This bridge is intended to replace an old wooden bridge, which is considered by the local authorities to be no longer safe.	-- Sanctioned 26th September 1846.	Lohoo Ghaut	- - - - -	2,455 9 7	-	
<b>CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—GENERAL:</b>							
<i>Landour:</i> Enclosure of the Burial-ground at.	- - - - -	-- Sanctioned 1st October 1843.	- - - - -	781 12 9	781 12 9	-- Completed season 1844-45.	-
<i>Lohoo Ghaut:</i> Construction of a Wall around the Burial-ground.	- - - - -	-- Sanctioned 21st July 1843.	- - - - -	261 1 9	261 1 9	-- Completed season 1844-45.	-
<i>Loudiana Church:</i> Addition to	-- In consequence of the accommodation being insufficient for the increased number of European troops.	-- Sanctioned 3d April 1844.	- - - - -	4,043 11 2	- - - - -	-- Completed season 1845-46.	-- An addition of 40 feet has been made to the length of the church.
<b>CIVIL BUILDINGS, CENTRAL PROVINCES—ECCLESIASTICAL:</b>							
<i>Lucknow Church</i>	- - - - -	-- Sanctioned in August 1838.	- - - - -	5,400 - - of which, 1,000 rupees were by private subscription.	- - - - -	-- Completed season 1840-41.	-- The future repairs of the church will be repaid by the State.



CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—ECCLESIASTICAL:									
Landour Church: Construction of.	- - - - -	Sanctioned in 1838 -	- - - - -	6,493 7 6	5,000 - -	- - Completed season 1840-41.	-		
Landour Burial-ground: Construction of a Wooden Railing.	To inclose the burial-ground	- - - Sanctioned 29th November 1839.	- - - - -	- - - - -	937 11 7	-			
CIVIL BUILDINGS, CENTRAL PROVINCES—POLITICAL.									
Lucknow: Completion and repairs of the Constantia House Buildings.	- - - - -	- - - Estimates submitted 13th July 1843	- - - - -	- - - - -	1,96,650 4 4	- - - - -	- - - - -	- - The estimates were returned with an opinion that the design appeared good and the rates moderate.	
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—POLITICAL.									
Lahore Conversion of the Anarkuller House into a Residency.	For the Political Resident -	- - - Sanctioned 8th October 1847.	Lahore - - - - -	- - - - -	24,900 - -	- - - - -	- - - - -	- - The Resident is to be permitted to occupy the building rent-free, on the condition that he shall keep it in tenable repair at his own cost, after the additions and repairs provided for have been completed.	
CIVIL BUILDINGS, PUNJAB CIRCLE—GENERAL.									
Lahore. Fitting up of a large Hall in Dyan Sing's House.	- - - To serve as a place of Divine worship.	- - - Sanctioned season 1849-50.	Lahore - - - - -	1,837 9 2	- - - - -	Season 1849-50.	-		
Fitting up a Residence in Suchet Sing's House.	- - - For the use of the Civil Department.	- - - Ditto - - -	- Ditto - - - - -	703 6 2	-	-			
Erection of a Staging Bungalow, with Offices	- - - On a representation from the Postmaster-general, North-Western Provinces.	- - - Sanctioned 29th November 1849.	- Ditto - - - - -	- - - - -	Not stated	Season 1849-50	-	- - The bungalow is to consist of one large room 30 × 18, with two rooms on each side 16 × 14, the whole to be surrounded by a verandah 10 feet high, this will be enclosed on two sides, forming four rooms 10 × 14, with four bathing rooms each 10 × 10.	
Construction of a Chapel for the Roman-catholics.	- - - - -	- - - Sanctioned 27th October 1849.	- - - - -	- - - - -	4,891 9 -	- - - - -	- - - - -	- - With reference to the removal of the cantonment from Anarkullee to Mean Meer, this chapel will be constructed at the latter place.	
Repairs, &c. of General Ventura's House at.	- - - To adapt it for the residence of the Resident and his assistants.	- - - Sanctioned October 1847.	- - - - -	12,408 7 3	- - - - -	Season 1850-51	-	- - The house is situated in the Anarkullee cantonment	
EMBANKMENTS, SOUTH-EASTERN PROVINCES:									
Midnapore Division	- - - - -	Length 657 miles -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - Estimate for annual repairs of 1850-51, including repairs to sluices and inspection bungalows, amounts to Rs. 35,411. * 1.	
Construction of a new line in lieu of the old Zemindary Khattee Bund, in Pergunnah Mingleghaut.	- - - For the protection of the Oolabareah mail road.	- - - Length, 3 miles 1 furlong; sanctioned 14th February 1842.	- - - - -	7,717 5 9	7,717 5	- - Completed season 1843-44.	- - - - -	- - Large plains, heretofore totally unproductive, have been brought under cultivation. Estimate for repairs to the Zemindary embankments for 1850-51, amounts to Rs. 12,334. 8. 6.	

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>EMBANKMENTS, SOUTH-EASTERN PROVINCES—<i>continued.</i></b>							
Construction of two Irrigation Channels, with Sluices.	- - These works were proposed by the local authorities for the improvement of the Government estate, viz., the pergunnah of Khider Koond.	- - One of the sluices 16,000 feet in length, the other 765 feet in length, from the Cosya River, with two sluice-gates, sanctioned 8th October 1845.	Midnapore - -	Rs. a. p. 2,078 - -	Rs. a. p. 2,078 - -	Season 1845-46.	-
Construction of two Inspection Bungalows.	- - To enable the executive officer to exercise a vigilant superintendence over the works in progress.	Sanctioned in 1847 -	- - Bheetcool and Itchapore.	593 - 5	593 - 5	- - Completion reported in 1849.	-
Middleton Point, Saugor Island: Construction of a new Bund.	- - In consequence of the old bund having been nearly washed away during the gale of September 1846.	- - Sanctioned 17th February 1847.	- - - -	1,625 - -	1,625 - -	-	-
<b>CANALS, SOUTH-EASTERN PROVINCES:</b>							
Mofussil Canals: Improvement of the.	- - By cutting down jungle, repairing and making tow-paths, &c.	- - Sanctioned 28th September 1843.	- - - -	- - - -	4,368 4 6	- - - -	- - These works will materially facilitate the inland communication.
<b>CANALS, NORTH-WESTERN PROVINCES:</b>							
Muskurra River: Construction of Retaining Dam, south of the Masonry Dam.	- - For the protection of the dam, which, during the flood of the 21st and 22d June 1842, appears to have been in great danger.	- - Sanctioned 2d March 1842.	- - - -	10,490 5 -	13,530 - -	- - Completed season 1843-44.	- - This work has fully answered the expectations entertained of it.
Prolongation of the Boxwork Tail of this Dam.	- - Considered indispensable for the safety of the dam.	- - Sanctioned 29th January 1844.	- - - -	5,398 13 10	6,102 8 5	- - Completed season 1844-45.	-
Muskurra Dam: Repair of damage occasioned by floods.	- - The Muskurra River, by the breaking of the bunds at the Kolawalla Pass, and at the Dawalooka, received all the mountain supply which usually passes off down the Hindun.	- - Sanctioned 20th March 1845.	- - - -	- - - -	6,222 - -	-	-
<b>ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES:</b>							
Midnapore: Construction of a new Masonry Bridge.	- - In lieu of an unserviceable bridge.	- - Sanctioned 28th February 1842.	- - - -	781 8 10	- - - -	- - Constructed season 1843-44.	-
Maggra to Chotekund, on the Grand Trunk Road, metalling of.	- - - - -	- - Sanctioned 22d April 1847.	Chotekund - -	- - - -	76,186 10 5	- - - -	- - The distance to be metalled is about 20 miles. The high rate for metalling (amounting to nearly 4,000 rupees per mile) is occasioned by the great distances at which the quarries are situated.

Maumbhoom : Construction of a Bridge over the Jalgarrah Nuddee.	- - - - -	- - Sanctioned 16th October 1843.	Maumbhoom - -	5,920 2 3	8,861 7 1	- - Completed season 1846-47.	- - This bridge is of three arches, of 25 feet span each. The saving of Rs. 2,931. 13. 10. was in consequence of a saving on the quantity of masonry in the foundations, and of a great reduction of rates.
Madnapore to Bissenpore : Construction of 12 Masonry Bridges and Drains.	- - To replace the old dilapidated works	- - Sanctioned 8th September 1847.	Bissenpore - -	1,418 15 7	1,480 - -	- - Completed season 1849-50.	-
Madnapore. Construction of a new Line of Road, and five Masonry Bridges.	- - - - -	- - Sanctioned 30th May 1849.	Midnapore Division -	1,743 2 4 ½	2,094 - 0	- - Completed season 1849-50.	- - One of the bridges is of two arches, 12 feet span, at Bagdooby Shore, two of one arch, 10 feet span, at Katheepottah Khaul, and Kunkabeetha Shore; and two of one arch, 10 feet span, at Ranga Jhore, and Lodhasoh.
<b>ROADS AND BRIDGES, LOWER PROVINCES:</b>							
Munipore Road - - -	- - To make the communication between the Eastern frontier and the Burmese country comparatively easy.	- - Length, 99 miles and 6 furlongs.	- - Bunksandy, in Cachar, to the village of Munipore.	92,427 9 1	1,26,340 4 4	- - Completed season 1842-43.	- - The line of road was considered by the committee appointed in 1843 to have been judiciously selected, and the construction of it generally to reflect the greatest credit on the engineer officer. The road is quite practicable for the passage of guns, except at one point, where, however, the difficulty may be obviated by the use of ropes.
<b>ROADS AND BRIDGES, CENTRAL PROVINCES:</b>							
Mogul Serai to Allahabad -	- - The project is highly advocated, as forming a direct communication between the Grand Trunk Road, East of Benares and Mirzapore, without crossing the Ganges at Benares, and re-crossing it at Mirzapore, as at present.	- - Length, about 93 miles, estimates submitted 28th February 1840	Allahabad - -	- - - - -	- - Estimate for the portion of the road from Mogul Serai to Mirzapore, 113 ½ miles, 1,08,940 rupees.	- - - - -	- - In 1840 the Government stated that the large amount contemplated was more than could be assigned to the object from the general resources of the State, it was not intended to abandon the plan altogether, and the surveys and estimates are, therefore, made over to the Commissioner of the Benares Division, with instructions to apply all available resources for the advancement of the project.
Mirzapore to Jubbulpore - -	- - For opening a communication with the Saugor and Nurbudda territories, and with a view to its ultimate continuation to Nagpore and Oomraotee.	Commenced in 1824 -	- - Jubbulpore (this is a portion of the Great Deccan Road).	7,60,302 - -	60,000 - - also, Rs. 3,573. 7. 2. for the reconstruction of bridges carried away by hill floods in 1839	- Completion reported season 1839-40.	-
Metalling the remaining Kutch portion of the road.	- - - - -	- - Length, 18 miles, 6 furlongs, 25 yards.	- - - - -	24,944 8 5	- - - - -	Completed - -	- - The entire line of this road, measuring 239 miles, is now metalled.
Construction of three Bridges on this Road, between Myhna and Sewagunge.	- - In lieu of bridges carried away by floods in 1839.	- - Sanctioned season 1839-40.	- - - - -	3,506 14 -	3,573 7 2 ½	- - Completed season 1842-43.	-

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS
<b>ROADS AND BRIDGES, NORTH-WESTERN PROVINCES:</b>							
<i>Meerut to Ghazeeooden nuggur: Improvement of the Road.</i>	- - - - -	- - Sanctioned season 1848-49; length, 28 miles, 7 furlongs.	Ghazeeodennuggur-	<i>Rs. a. p.</i> For bridges - 7,745 - 5 For metalling 68,861 14 11 For a pukka dram - 7,745 - 5	<i>Rs. a. p.</i> 77,407 - - Sanctioned for metalling this road.	- - Completed season 1842-43.	- - The construction of this road was first undertaken by the Meerut Road Fund Committee, by whom it was abandoned, after eight miles had been completed, owing to insufficient means; the Committee pledges itself to execute the earthwork, leaving the metalling and bridges to Government. This line of road has been transferred from the Meerut to the 7th division of the Grand Trunk Road; the annual repairs are estimated at 6,825 rupees.
Construction of a Bridge over a Nullah.	For drainage - - - - -	- - Sanctioned 27th October 1842.	- - - - -	620 4 4	620 4 4	- - Constructed season 1843-44.	-
Meerut to Kurnaul - - -	- - Represented to be useful both for commercial and military purposes.	-	- - - - -	- - - - -	9,490 3 0	- - - - -	- - The causeway is of rough stone, dressed with chisel.
<i>Mohana Construction of a Paved Causeway across the River Peorbattee.</i>	- - This work is considered absolutely necessary on account of the roughness of the present crossing, at which vehicles frequently break down, or are so much shaken as to render them almost useless.	- - Sanctioned 10th January 1847	- - On the road between Gwalior and Seepree.	- - - - -	9,490 3 0	- - - - -	- - The causeway is of rough stone, dressed with chisel.
<i>Moozuffernuggur: Restoration of the Bridge over the Kalle Nuddee.</i>	- - Carried away by a flood on the 20th June 1842.	- - Sanctioned 17th November 1843.	At Mulleerah - -	14,404 12 9	11,205 8 2	- - Completed season 1844-45.	- - This bridge was constructed in 1826 by Captain M'Mullin, at a cost of 52,000 rupees. The five principal arches which withstood the flood were founded on wells; those which failed rested only on calssons. To the defect and to the contracted span of the arches, the failure is in a great measure to be ascribed. The piers are to be raised to 14½ instead of nine feet.
<i>Meerut to Koorja: Construction of a Road.</i>	- - - - -	- - Length, 50 miles; sanctioned 24th January 1843.	Koorja - - - -	1,48,919 3 8	93,645 3 8	- - Completed season 1846-47.	- - Twenty bridges will be constructed on the line, and four dak bungalows, viz., Kurkhonda, Ifauppura, Gallowtee, and opposite to Boolundahur. The three former bungalows, it was subsequently found, would not be required. The formation and metalling of the portion of this road between Gallowtee and Koorja (23 miles), which had been left to the Boolundahur Road Fund Committee, was so imperfectly done in the first instance by that committee that a supplementary estimate of Rs. 55,274. 10. was sanctioned on the 27th August 1846, for repairing rats and restoring the metalling.

<i>Mulluck Chund Seraie</i> , to the boundary of the cantonments at Agra: Construction of a raised Metal Road.	- - - - -	- - Length, $1\frac{1}{2}$ miles; sanctioned 20th April 1846.	Agra cantonments -	5,235 4 -	5,235 4 -	- - Completed season 1846-47.	-
<i>Mahwa</i> . Construction of a Bridge over the Nullah at Chittrokheree.	- - The Nullah is bounded for irrigation below the road, and after a favourable rainy season there is sometimes a depth of five feet of water on the ford crossed by the road. The Nullah bed being black soil, and the ford impassable for travellers or carts until the season of irrigation has passed over, the necessity for the construction of the bridge is sufficiently obvious.	- - Sanctioned 5th December 1846.	- - - - -	- - - - -	2,879 - -	- - - - -	- - This bridge is to be of three arches, with raised approaches.
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—JUDICIAL.</b>							
<i>Moulmein</i> Alterations to the Gaol, and construction of Buildings	- - - - -	- - Sanctioned 9th May 1837.	Moulmein - - -	- - - - -	9,398 6 -	Completed 1841-42.	-
<i>Madnapore</i> Construction of an additional Room to the Magistrate's Cutchery.	- - Owing to the small size of the room in which the magistrate's court is held, it has been found necessary to exclude all persons except those whose cases were actually being heard.	- - Sanctioned 18th July 1844.	- - - - -	2,348 5 $\frac{1}{2}$	2,349 5 6 $\frac{1}{2}$	- - Completed season 1847-48.	- - The existing buildings were inadequate for the proper custody of the numerous valuable papers, connected with the survey, resumptions and settlement proceedings, recently brought to a close.
<i>Maumbhom</i> : Construction of a Cutchery for the Native Judge	- - - - -	- - Sanctioned 20th June 1842.	Maumbhoom - - -	1,264 11 -	- - - - -	- - Completed season 1844-45.	-
<i>Moulmein Gaol</i> . Alterations to	- - - - -	- - Sanctioned 22d June 1844	- - - - -	2,084 2 9	- - - - -	- - Completed season 1844-45.	- - The gaol wall, which varied from 9 to 12 feet in height, has been raised to an uniform height of 15 feet all round.
<i>Moulmein Court-house</i> . Alterations to	- - With a view to improve the interior arrangements.	- - Sanctioned 5th August 1844.	- - - - -	1,611 10 2	- - - - -	- - Completed season 1844-45.	-
Construction of Night Privies to the Gaol.	- - - - -	- - Sanctioned 23d April 1845.	- - - - -	426 3 9	426 3 9	- - Constructed season 1845-46.	-
Construction of seven Police Watch-houses	- - Constructed on the emergent requisition of the Commissioner of the Tenasserim provinces.	- - Sanctioned 23d May 1845.	- - - - -	621 - -	621 - -	- - Constructed season 1845-46.	-
<i>Moulmein</i> . Construction of Offices and Sessions Court.	- - For the Commissioner of the Tenasserim Provinces and his principal assistant	- - Sanctioned 17th October 1845	Moulmein - - -	13,877 3 7	10,569 - -	- - Completed season 1847-48.	- - The excess over the estimate is owing to difference of rates, and the execution, of much work which was not provided for.
<i>Mergui</i> . Purchase and Repair of a Building	For a Circuit-house - - -	- - Sanctioned 2d June 1847.	Mergui - - -	1,863 14 9	- - - - -	Season 1847-48 -	-

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—JUDICIAL—continued.</b>							
<i>Midnapore Gaol.</i> Construction of improved Ventilators, and additional accommodation.	-- Fifty-seven ventilators were constructed in 1841-42, which only partially succeeded, in consequence of their inadequate size, being only 1½ feet square, in improving the salubrity of the gaol.	-- Sanctioned season 1846-47.	Midnapore - -	Rs. a. p. 4,483 1 9	Rs. a. p. 4,010 6 -	- Completion reported season 1849-50.	-- The new ventilators are of a larger description, being 8 × 2 in the clear.
<i>Midnapore.</i> Additions to the Collector's and Magistrate's Cutcheries.	-- The construction of seven additional rooms, of pucca masonry, with flat roofs, is required.	-- Sanctioned 16th June 1847.	- - - -	9,612 11 -	9,111 3 -	-- Completed season 1849-50.	-
<i>Mergui Gaol:</i> Construction of a Gaoler's House and Cook-houses.	- - - - -	-- Sanctioned 3d November 1847.	- - - -	1,647 4 1	1,647 4 1	- - - -	-- The cook-houses were in lieu of others considered to be too near to the compound wall, the house for the gaoler was built in consequence of it being deemed necessary that the gaoler should be lodged within the premises, especially at night.
<i>Moulmein Gaol:</i> Construction of a new Granary.	-- Undertaken on the recommendation of a special committee of survey.	-- Sanctioned 15th February 1849.	Moulmein - -	3,420 4 10	- - - -	Season 1849-50	-- The old granary was composed entirely of wood, and covered with thatch, and was reported to be in a very dilapidated and unsafe state.
<i>Moulmein Gaol:</i> Additions to the Gaol Buildings.	-- The Commissioner of the Tenasserim Provinces represented the works to be indispensably necessary with reference to the discreditable and unsafe state of the gaol.	-- Sanctioned 5th February 1851.	Ditto - - -	- - - -	38,545 14 -	- - - -	-- The required buildings consist of additions to the main ward, a hospital, deputy gaoler's house, solitary cells, dead-house, dissecting room, with out-offices.
<b>CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL:</b>							
<i>Moorshedabad:</i> Construction of four experimental Penitentiary Wards.	- - - - -	-- Sanctioned 8th February 1842.	Moorshedabad - -	23,962 - -	23,962 - -	- - - -	These four wards are for 120 men.
<i>Moozufferpore:</i> House of Correction.	- - - - -	-- Sanctioned 7th December 1841.	Moozufferpore - -	14,947 4 1½	13,000 - -	-- Completed season 1842-43.	-- The gaol of this place, in consequence of the encroachments of the river, must ere long be entirely given up. The prisoners of this district sentenced to longer periods of confinement than one year, will be sent to the Patna Penitentiary.
Moorshedabad Imambarrah	-- To replace an old imambarrah in a state of great decay, and which was considered too close to the palace.	-- Sanctioned 7th December 1840.	Moorshedabad - -	Not reported - - -	90,000 - -	Not reported - -	-- This work will be paid for from the Nizamut Deposit Fund.
<i>Monghyr Gaol:</i> Construction of additional Wards.	-- For the accommodation of the prisoners, the existing space being insufficient.	-- Sanctioned 17th November 1840.	Monghyr - -	885 6 4½	695 8 9	-- Completed season 1841-42.	-

<i>Monghyr</i> Construction of a Cutcherry for the Magistrate.	-- Called for with reference to the appointment of a separate officer to the magistracy.	-- Sanctioned 29th July 1844.	Ditto - - -	4,931 - 6	5,190 13 10	-- Completed season 1846-47.	-
Construction of a Circuit House	- - - - -	-- Sanctioned 20th November 1844.	- - - - -	4,572 9 3½	4,999 5 -	Season 1847-48	-- A private house was purchased and converted into a circuit house, in accordance with an estimate sanctioned on the 7th October 1845.
<i>Mooteearee</i> : Construction of a Circuit House and Out-offices.	- - - - -	-- Sanctioned 20th November 1844.	Mooteearee - - -	5,072 10 5	4,999 5 -	-- Completed season 1847-48.	-
<i>Maldah</i> Purchase of a House, and its adaptation for the purposes of a Circuit House.	- - - - -	-- Sanctioned 20th November 1844.	Maldah - - -	5,761 13 11	5,761 13 11	Season 1844-45.	-
<i>Moozufferpore</i> : Purchase of a private Building at	-- For a cutcherry for the Sessions Judge.	-- Sanctioned 28th December 1838	- - - - -	1,700 - -	- - - - -	Season 1841-42	-- This building, which was the property of Meer Abdoollah, and had been hired ever since the year 1803 at a monthly rent of 80 rupees, has been purchased for less than two years' rent.
<i>Monghyr</i> : Additions to the Magistrate's and Collector's Cutcherry.	To afford more accommodation -	-- Sanctioned 2d November 1841.	-	-	-	-	-
<i>Mymensing</i> . Addition of a pukka tiled verandah to the Judicial Cutcherry.	-- For the accommodation and convenience of suitors.	-- Sanctioned 6th July 1841	- - - - -	883 4 10	- - - - -	-- Constructed season 1842-43.	-
Construction of Cutcheries for the Principal Sudder Ameen.	-- The present building is a cutcha building with a thatched roof, and is considered by Government an unfit place (in consequence of its liability to be destroyed by fire) for the reception of documents of great importance, which are now lodged in it.	-- Sanctioned 30th July 1845.	Mymensing - - -	- - - - -	5,038 - -	-	-
<i>Mymensing Gaol</i> Construction of seven Night Privies.	- - - - -	-- Sanctioned season 1844-45.	Ditto - - -	667 13 9½	- - - - -	-- Completed season 1845-46.	-
<i>Monghyr</i> . Construction of a suitable Court-house for the Sudder Ameen and Moonsiff.	-- This building is required in lieu of a private building, the property of the former native judge, which is inconveniently situated, being in the heart of the town, and at a considerable distance from other public offices, which are all within the fort.	-- Sanctioned 16th April 1846.	Monghyr - - -	998 13 1½	1,097 - -	-- Completed season 1847-48.	-
<i>Moozufferpore</i> : Raising the pillars of the verandah of the Judge's Cutcherry.	-- To raise the verandah two feet, and to give it a sloping terraced roof.	-- Sanctioned 30th April 1845.	Moozufferpore - -	1,541 13 6	1,541 13 6	-- Completed season 1846-47.	-
Construction of a House of Correction.	-- For 562 prisoners, including patients in hospital at Moozufferpore.	-- Sanctioned 17th November 1847.	- - - - -	- - - - -	20,601 9 8	-	-

(continued)

No. 6—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion	Probable Time of Completion.	REMARKS.
<b>CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—JUDICIAL.</b>				<i>Rs. a. p.</i>	<i>Rs. a. p.</i>		
<i>Muttra Gaol.</i> Improvements to the.	To increase the accommodation -	- - Sanctioned 29th April 1840.	- - - -	3,238 15 9	4,041 - -	-- Completed season 1841-42.	-
<i>Malhout in the Bhutte Territory:</i> Construction of a well.	- - - - -	- - Sanctioned season 1839-40.	- - - -	1,408 6 4	1,000 - -	-- Completed season 1840-41.	-- The excess of 408 rupees was owing to the necessity for making the well 168 feet deep, instead of 90 feet, as contemplated by the estimate.
<i>Meerut:</i> Construction of houses	- - For the non-commissioned officers of the police battalion.	- - Sanctioned 31st March 1845.	- - - -	3,677 - -	3,658 2 10	-- Completed season 1845-46.	-
<i>Mooradabad:</i> Construction of a record room for the Collector and Magistrate's Cutcherry.	- - The Lieutenant-governor satisfied himself, on a visit to the station, of the necessity for this accommodation.	- - Sanctioned 22d August 1845.	Mooradabad - -	5,238 11 4	5,235 - -	-- Completed season 1847-48.	-
<b>CIVIL BUILDINGS, CENTRAL PROVINCES—JUDICIAL:</b>							
<i>Mirzapore:</i> Construction of a new Gaol Hospital.	- - On account of the confined and unhealthy site of the existing hospital.	- - Sanctioned 10th August 1841.	- - - -	12,405 6 2	12,698 8 2	-- Completed season 1843-44.	-
Construction of a bridge near Wellesley's Thannah.	- - - - -	- - Sanctioned 23d March 1841.	- - - -	610 - 6	- - - -	-- Completed season 1841-42.	-- This work was represented to be very much required.
Construction of a Cutcherry for the Collector and Magistrate.	- - In consequence of the sale of the Custom-house.	- - Sanctioned season 1839-40.	- - - -	15,622 4 5½	- - - -	-- Completed season 1841-42.	-
<i>Mundlaiser Gaol:</i> Additions to	- - - - -	- - Sanctioned 27th November 1841.	- - - -	3,771 - 3	2,941 5 -½	-- Completed season 1842-43.	-- The new building is capable of holding 60 or 70 convicts.
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—REVENUE:</b>							
<i>Midnapore:</i> Additional accommodation to the Collector's Cutcherry.	- - - - -	- - Sanctioned 6th April 1841.	- - - -	2,643 8 5	2,762 6 -	-- Completed season 1842-43.	-
<b>CIVIL BUILDINGS, LOWER PROVINCES—REVENUE:</b>							
<i>Moosufferpore:</i> Construction of two dams in the River Little Gunduck.	- - For the protection of the station.	- - Sanctioned 25th April 1842.	- - - -	682 7 11	- - - -	-- Constructed season 1842-43.	-- This work was proposed by the civil officer and the Durbungah Rajah.
<i>Moorshedabad:</i> Record-room for the Collector's Cutcherry.	- - - - -	- - Sanctioned 16th June 1840.	- - - -	1,685 2 9½	- - - -	-- Completed season 1841-42.	-



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<i>Mymensing</i> Construction of tiled Cutcherry for the Deputy Collector and Law Officer, and rooms for records of the Magistrate and Collector.	-- Rendered necessary in consequence of the crowded state of the collector's catcherry.	-- Sanctioned 21st September 1846.	Mymensing - -	4,948 1 5	35,75 1 2	- - - -	-- As very indifferent roofs are made from tiles at the station, a revised estimate was passed, providing for the substitution of flat roof and pucca superstructure walls, in lieu of tiled roofs and kutcha pucca walls.
<i>Moozufferpore</i> . Construction of two pucca Verandahs.	- - - - -	-- Sanctioned 1st July 1846.	-- To the east and west sides of the collector's catcherry.	408 4 3	408 4 3	-- Constructed season 1847-48.	-
<b>CIVIL BUILDINGS, SOUTH WESTERN PROVINCES—REVENUE:</b>							
<i>Midnapore</i> : Enlargement of the Collector's Cutcherry.	-- To provide accommodation for the joint magistrate and the assistant.	-- Sanctioned 13th September 1836.	- - - -	7,054 10 2	- - - -	- - - -	-- The additions made were four rooms, and verandahs on three sides of the catcherry.
House for the Revenue Surveyors and Establishment.	- - - - -	-- Sanctioned 16th January 1838.	- - - -	2,913 11 4	-	-	-
<b>CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—REVENUE:</b>							
<i>Mynpooree</i> : Construction of a Tehsildary Cutcherry.	For the collector and magistrate -	-- Sanctioned 3d March 1842.	At Ghirole - -	4,009 11 6	4,174 7 2	-- Completed season 1843-44.	-
Alterations and additions to the Sirpoorah Cutcherry	-- To adapt for the Tehsil establishment of the Lukat Eytah Division.	-- Sanctioned 7th October 1842.	Sirpoorah - -	1,728 2 6½	- - - -	-- Completed season 1843-44.	-
<i>Mahun</i> . Construction of a Bungalow.	For the deputy collector - -	-- Sanctioned 18th June 1846.	Scinde Division -	1,964 5 2	1,964 5 2	-- Completed season 1846-47.	-
<b>CIVIL BUILDINGS, LOWER PROVINCES—GENERAL</b>							
<i>Moorshedabad College</i> . Construction of.	- - - - -	-- Sanctioned 6th April 1840.	Moorshedabad - -	76,500 5 4	73,000 - -	-- Completed season 1843-44.	-- In the amount expended is included Rs 2,400. 5. 4, for the purchase of land, &c. for a site, which was not included in the estimate.
<b>CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—GENERAL</b>							
<i>Mohun Chowhee</i> : New Staging Bungalow at.	-- In the substitution of one previously existing at Rajpore.	-- Sanctioned 14th November 1840.	- - - -	1,477 7 3	1,189 13 5	-- Completed season 1840-41.	-- It is expected that the convenience of travellers will be much increased by this arrangement.
<i>Mussooree Church</i> . Construction of a new Roof, and repairs of.	- - - - -	-- Sanctioned 21st September 1841.	- - - -	1,359 - -	- - - -	-- Completed season 1843-44.	-- The cost of furniture is included in the expenditure.
<i>Mozuffernuggur</i> . Construction of Staging Bungalows at Seharunpoor.	-- The executive engineer was directed to commence upon the buildings without delay, as they were urgently required for the accommodation of travellers.	-- Sanctioned 18th November 1844.	Seharunpoor - -	4,122 - -	4,390 3 2	-- Completed season 1845-46.	-
<i>Meerut</i> : Purchase of a House for a Post-office.	-- Provided on the representation of the Postmaster-general North-western Provinces.	-- Sanctioned 25th September 1849.	Meerut - - -	4,500 - -	- - - -	Season 1849-50 -	-- This house was the property of Mr. Charde, the executive engineer considered it well worth the sum asked by the proprietor, and sanctioned by Government for its purchase.

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL.</b>				<i>Rs. a. p.</i>	<i>Rs. a. p.</i>		
<i>Midnapore:</i>							
Construction of a Staging Bungalow.	As a resting-place for travellers	-- Sanctioned 14th July 1841.	Midnapore - -	1,442 8 9½	1,463 - 4	-- Completed season 1842-43.	—
Construction of a new School-house.	-- To replace a building which is stated to have been accidentally burnt down.	-- Sanctioned 1st December 1841.	- ditto - - -	3,217 6 7	3,409 - 7	-- Completed season 1843-44.	—
Addition to the Collector's Cutcherry.	For a post-office - - -	- - - - -	- - - - -	- - - - -	1,042 2 1½	—	
<i>Moulmein:</i> Construction of a new Wharf.	For the principal bazaar - -	-- Sanctioned 17th July 1843.	Moulmein - -	- - - - -	2,672 1 9	- - - - -	-- The suspension of the works was ordered on the 23d September 1843, as some changes were stated to be in contemplation, which might render the construction of the wharf unsuitable at the place originally intended.
<i>Middleton Point:</i> Renewal of the Stockade, with saal posts.	-- This stockade must be maintained for the protection of the Government establishment from tigers.	-- Sanctioned 20th November 1844.	Middleton Point -	2,576 2 3	2,665 13 -	-- Completed season 1845-46.	—
<i>Moulmein:</i> Substitution of tiled for thatched Roofs to certain Marine Buildings.	-- For the protection of naval stores.	-- Sanctioned 11th March 1846.	Moulmein - -	719 9 9	736 - 9	-- Completed season 1847-48.	—
Repair of the Roof of St. Matthew's Church.	-- In consequence of the leakage of the old thatch roof.	-- Sanctioned 4th November 1848.	Moulmein - -	1,138 11 11	1,138 11 11	-- Completed season 1849-50.	The new roof is shingled.
<b>CIVIL BUILDINGS, CENTRAL PROVINCES—GENERAL:</b>							
<i>Mirzapore:</i> Construction of a Staging Bungalow.	-- For connecting the line of bungalows on the Deccan road towards Nagpore with those on the Grand Trunk Road from Calcutta to Delhi.	-- Sanctioned 25th September 1843.	Mirzapore - -	2,340 9 2	2,340 9 2	-- Completed season 1844-45.	—
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—MARINE:</b>							
<i>Moulmein:</i>							
Construction of a Hospital Ward within the compound of the European Infantry Hospital.	-- For the reception of sick men of Her Majesty's ships on the river.	-- Sanctioned 24th January 1842.	Moulmein - -	758 8 10	758 8 10	Season 1842-43.	-- The seamen have hitherto been received into the regimental hospital, but owing to the increase in the strength of the corps, the hospital is now barely sufficient for the men of the regiment.
Construction of a Post-office and five Sheds.	For marine stores - - -	-- Sanctioned 27th April 1842.	- - - - -	4,004 6 3	3,221 5 7	-- Completed season 1842-43.	—

987.

**POLITICAL BUILDINGS, LOWER PROVINCES:**

<i>Moreshedabad</i> ; Repairs to the Mausoleum of Mahobat Jung.	- - - - -	-- Sanctioned season 1840-41.	At Kooshbang - -	1,914 - -	- - - - -	-- Completed season 1842-43.	-
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**CANALS, NORTH-WESTERN PROVINCES:**

Nyashur Watercourse	- - For irrigation - - - -	-- Sanctioned 21st November 1835.	-- This watercourse leaves the main channel just under the village of Tanda, and passes to the east of Nyashur.	4,030 11 3	- - - - -	-- Completed season 1841-42.	-
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<i>Nuggeenah Canal</i> . At Moradabad	- - - For irrigation - - - -	-- Length, 23 miles; sanctioned in 1839-40	- - - - -	33,369 5 7	- - - - -	-- Completed season 1841-42.	-- It is expected that 5,000 rupees will be ultimately realised by water rent.
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Raising of the banks of the	-- In order to admit a sufficient quantity of water.	-- Sanctioned 16th March 1841.	- - - - -	1,049 11 -	- - - - -	Season 1842-43.	-
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<i>Nyufghur Jheel Canal</i> : Formation of a Channel for draining the	-- To enable the people to cultivate such land which in past seasons has been submerged.	Sanctioned 1846-47	- - - - -	- - - - -	58,077 2 -	- - - - -	-- The complete drainage of the Jheel has this year brought a large quantity of land into cultivation.
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<i>Nuggeenah Canal</i> : Construction of a first-class Chowkee.	- - - - -	-- Sanctioned 3d March 1843.	-- Situated near the regulating dam on the Kuroola Nuddee.	932 7 3	932 7 3	-- Completed season 1843-44.	-
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Construction of a second-class Chowkee.	- - - - -	-- Sanctioned 3d March 1842.	-- Situated near Jo-geepara	131 6 3	131 6 3	-- Completed season 1843-44.	-
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<i>Nyashur Dam</i> : Increase to the Waterway of the.	-- In consequence of the excessive body of water thrown on the dam during the rains.	-- Sanctioned 31st March 1845.	- - - - -	- - - - -	2,040 - -	-	-
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<i>Nyufghur Jheel Drain</i> . Annual clearance of the.	- - - - -	-- Sanctioned 3d February 1849.	- - - - -	711 14 4	-	-	-
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**CANALS AND RIVERS, LOWER PROVINCES:**

<i>Nuddea Rivers</i> : Toll Collections.	- - - - -	-- Length of rivers, 420 miles.	- - - - -	- - - - -	- - - - -	- - - - -	-- The toll collections on these rivers, viz, the Blaigerutty, Muttahangah, and Jellinghy, during the year 1847-48, amount to Rs. 2,38,729. 2. 9 The total expenditure on account of establishment, and for the execution of the works undertaken to facilitate the navigation, amounts to Rs. 47,262. 15. 6.; surplus, Rs. 1,91,466 3 3.
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**ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES:**

<i>Nuddea</i> : Construction of an Iron Suspension Bridge over the Islamuttee River.	- - - - -	-- Sanctioned 24th February 1847.	-- At the village of Bungong	- - - - -	48,000 8 - Of which 20,000 rupees will be subscribed by Baboo Kalleepersaud Podlar.	- - - - -	-- The project for this bridge contemplates two spans of 180 feet each, with a roadway 16 feet wide, including the thickness of the half drop bars on each side, the angle of suspension will be 15°
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No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued*.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>ROADS AND BRIDGES, LOWER PROVINCES:</b>							
<i>Nowgong District</i> : Construction of Two Roads: viz., from Nowgong to Sumoogooding, <i>via</i> Deemapore, and from the Golah Ghaut to Deemapore.	- - In consequence of the contemplated operations against the Aagumi Nagas.	- - Sanctioned 18th October 1850.	- Nowgong District	- - - - -	For the former road For the latter road,	Rs. 1,030 Rs. 1,000	
<b>ROADS AND BRIDGES, CENTRAL PROVINCES:</b>							
<i>Nussערabad and Afmere</i> : Improvement of the Road between.	- - To remove the difficulties attending the passage of wheel carriages between these two places, the one a chief military station, the other a depôt for military stores.	- Length 13 1/4 miles; estimate sanctioned 13th November 1840.	- - - - -	5,773 14 10	7,979 2 9	- Completed season 1842-43.	- This road has been made practicable for wheeled carriages.
Further Improvements to	- - By constructing pukka revetments over watercourses which intersect this line.	- Length 13 1/4 miles, sanctioned 5th November 1842.	- - - - -	2,259 4 3	2,204 3 10	- Completed season 1843-44.	-
<b>ROADS AND BRIDGES, NORTH-WESTERN PROVINCES:</b>							
<i>Nowabgunge</i> : Construction of an Iron Suspension Bridge over the Pangyle.	- - In consideration of the great traffic on the line of road, and of the importance of the bridge to the good of the country.	- Sanctioned season 1844-45.	- - On the road between Barsally and Perlibheet.	25,943 - -	27,471 11 2 1/2	- Completed season 1847-48.	-
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—JUDICIAL:</b>							
<i>Noacolly</i> : Construction of a wall around the Gaol Hospital, and one separating the female wards.	- - - - -	- - Sanctioned 15th January 1833.	- - Noacolly - -	1,021 7 11	- - - - -	- - - - -	- - The works were executed a considerable time back, but there has been delay in the submission of the bill.
<i>Noakallee Gaol</i> : Construction of two additional wards.	- - For the Hazut and Dewanny prisoners; to effect a better classification of the prisoners.	- - Sanctioned 4th November 1846.	- - Noakallee - -	1,746 - 2	1,964 - -	- Completed season 1847-48.	-
<b>CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL:</b>							
<i>Nowgong</i> : Temporary Buildings, Roads, &c.	- - The Civil Station of Bungalow has been removed to Nowgong.	- - - - -	- - - - -	2,948 6 6	-	-	
Construction of additional Buildings.	- - As a treasury and record-rooms.	- - Sanctioned 22d June 1841.	- - - - -	6,417 - -	4,950 8 6	- Constructed season 1846-47.	- - The buildings are to be of pucca materials, with a terraced roof. There has been an excess of Rs. 1,460. 2. 6. over the sanctioned amount; and as the executive officer has been able to account satisfactorily for this to the extent of Rs. 752. 10. 1. only, he has been held responsible for the balance.

Construction of an additional Gaol Ward and other Works.	- - - - -	- - Sanctioned 30th March 1841.	- - - - -	908 10 7	- - - - -	- Completed season 1841-42.	-
Construction of 20 Drain Bridges.	For drainage purposes . . .	- - Sanctioned 12th September 1842.	- - - - -	1,722 13 10	1,722 13 10	-	-
Construction of a Cutcherry	- - To replace an old cutcherry, built originally of inferior materials, and now in a decayed state.	- - Sanctioned 23d October 1844.	- - - - -	7,033 5 11	4,354 9 5	- Completed season 1848-49.	- - The amount includes the cost of an additional wing, not provided for in the estimate, but commenced on, in compliance with a requisition by the Commissioner in Assam.
Construction of a new Circuit Bungalow.	- - In lieu of the present circuit bungalow, which is in an unsafe state.	- Sanctioned December 1845.	Nowgong	- - - - -	2,752 - -	-	-
Erection of a Wall around the Gaol Buildings.	- - In accordance with the views of the civil officers.	- - Sanctioned 28th October 1846.	- - - - -	3,302 1 10 ½	3,302 1 10 ½	- - - - -	- - - An estimate amounting to Rs. 3,188. 10. 2., for the construction of a new gaol in 1848, to consist of a criminal ward 160 × 36, a civil ward 72 × 36, hospital 72 × 36, guard-room and malakana 70 × 20 feet, with six ranges of cooking sheds; the buildings to be thatched over, supported on saul posts and walls of whole bamboo. The new buildings are to be constructed within the walls erected, agreeably to the estimate sanctioned in 1847.
Natore: New Roofing the south end of the Judge and Magistrate's Cutcherry.	- - - - -	- - Sanctioned 20th May 1846.	Natore	1,732 5 - ½	- - - - -	- Completed season 1847-48.	-
<b>CIVIL BUILDINGS, CENTRAL PROVINCES—JUDICIAL:</b>							
Nurnngpore. Construction of a Malkana, and additions to the Cutcherry at.	- - - - -	- - Sanctioned 1st April 1844.	- - - - -	4,094 10 5	4,739 9 -	- Completed season 1846-47.	- - The necessity for these works was brought to notice by the Commissioner of the Saugor Division.
Newabgunge: Addition of a Record-room to the Collector's Cutcherry.	- - Great inconvenience was experienced from the distance between the cutcherries of the Magistrate and Collector; the new record-room was to be connected by a covered passage.	- - Sanctioned 14th January 1846.	- - - - -	7,407 3 2	7,164 - -	- Completed season 1847-48.	-
Neemuck: Construction of a Gaol at.	- - The outlay is chargeable to the revenues of the district of Jawud Neemuck, transferred by Scindia to the British Government.	- - Sanctioned 10th October 1846.	Neemuck	14,109 10 10	17,860 3 8	- Completed season 1848-49.	-
<b>CIVIL BUILDINGS, CENTRAL PROVINCES—REVENUE:</b>							
Nuroal. Construction of a new Tehsildarry Cutcherry at.	- - To supersede the old cutcherry at Sorh, which will be sold.	Sanctioned in 1843 -	- - Situated in the Cawnpore District at Soosulampore.	5,687 4 1 ½	5,674 - 7	- Completed season 1844-45.	-

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—REVENUE.</b>							
<i>Noakhally</i> : Construction of a Record-room over the Collector's Cutcherry.	- - The necessity for this work was brought to notice by Mr. Commissioner Ricketts, who stated that all useless papers among the Bulloah records had been destroyed, and that the remaining papers had been arranged with all practicable economy of space, but that there was no accommodation for them.	- - Sanctioned 29th December 1847.	Noakhally - -	<i>Rs. a. p.</i> 3,157 3 1	<i>Rs. a. p.</i> - - - - -	- - Completed season 1850-51.	-
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL:</b>							
<i>Noakhally</i> : Enlargement of the Burial ground.	- - - - -	- - Sanctioned 26th September 1842.	Noakhally - -	307 14 3	307 14 3	- - Completed season 1843-44.	- - The space enclosed measures 92×63.
<i>Nurrungabad</i> : Construction of a Dak Bungalow at.	- - In lieu of the existing bungalow, which is in a ruinous state and not worthy of repairing.	- - Sanctioned 16th September 1846.	- - - - -	3,021 - -	3,021 - -	Season 1846-47.	-
<b>CANALS, SOUTH-EASTERN PROVINCES:</b>							
<i>Oolabareah Canal</i> - - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - The abandonment of this canal was determined on, on the 12th February 1845, owing to its encroachment on the road along its side, and the Khuttee Canal, which is also a communication between the Damoorda and Hooghly Rivers, was repaired and improved.
<i>Ooltadanga</i> : Iron Suspension Bridge	- - - - -	- Estimates submitted 19th May 1840.	- - - - -	12,658 6 5½	12,040 3 6	- Constructed season 1843-44.	- - Under instruction from the Court of Directors.
Construction of Roads to the East and West of the Bridge.	- - - - -	- - Sanctioned 25th July 1844.	- - - - -	1,598 5 7	- - - - -	- - Completed season 1845-46.	-
<b>ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES:</b>							
<i>Oolabareah Road</i> : Construction of a Bridge on, at Sirrerampore.	- - - - -	- - Length 51 miles. sanctioned in March 1841.	- - From the Cossye River to the Hooghly River.	1,619 12 3	2,000 - -	- - Completed season 1841-42.	- - Through this road the communication is at present maintained with Bombay <i>via</i> the Raepore Road.
Renewal of a portion of the -	- - This road, owing to the mistake, in its first formation, of placing the canal to the south or lowest side, instead of the north of the road, is liable to constant injuries during the rains. Owing to this defect, it was found necessary to abandon about 1½ miles, and a new and more retired line was adopted.	- - Length 13½ miles; sanctioned in March 1841.	Ditto - - -	6,504 8 3	6,343 12 3	- - Completed season 1842-43.	- - This new line is at a safe distance from the Canal.

Bridge at Jorehutte on the	-- Required for purpose of general drainage.	-- Of one arch of six feet span; sanctioned 28th November 1842.	Ditto -	390 10 6	390 10 6	Season 1842-43.			
<b>CIVIL BUILDINGS, CENTRAL PROVINCES—JUDICIAL.</b>									
Oorai Gaol. Construction of	-- A statement was received from the local officers, showing the necessity of the work.	-- Sanctioned 9th May 1846.	- In the Gwallor Ceded District of Kuchmarghur, or Bhindaree.	10,813 10 7 ½	- - -	-- Completed season 1847-48.			
<b>CANALS AND RIVERS, NORTH-WESTERN PROVINCES:</b>									
Phoulock Bridge: Repairs to the.	-- The renewal of the east abutment, which failed during the rains of 1844.	-- Sanctioned 22d August 1846.	- - - -	644 - -	- - -	-- Completed season 1846-47.			
<b>ROADS AND BRIDGES, LOWER PROVINCES:</b>									
Patna to Gyah: Raising of the Road.	- - - - -	-- Sanctioned season 1838-39.	Gyah - - -	51,292 18 7	70,222 10 7 ½	-- Completed season 1841-42.			
Patna City Road: Reconstruction of the.	- - - - -	Length 7 ½ miles	- - - -	15,765 11 8	- - -	-- Completed season 1845-46.			
Purneah: Construction of four Pucca Arched Drains across the Station Roads.	-- These drains are required to prevent in future the cutting of the station roads, which are raised from three to four feet in height, for the purpose of letting off the rain-water, which collects within the station lands.	-- Sanctioned 5th June 1843.	Purneah - - -	983 11 -	- - -	- Constructed season 1843-44.			
<b>ROADS AND BRIDGES, CENTRAL PROVINCES</b>									
Putteereah and Dumow: Construction of Drains on the Roads between.	-- This road is crossed by many nullahs, liable to temporary flood.	-- Length of road, 16 miles 6 furlongs.	Dumow - - -	1,484 1 8 ½	- - -	Completed 1840-41.			
<b>ROADS AND BRIDGES, NORTH-WESTERN PROVINCES</b>									
Pangyle Nuddee: Construction of an Iron Suspension Bridge over the, at Newabgunge, on the road between Bareilly and Peellbheet.	- - - - -	-- Sanctioned 1st February 1842.	Newabgunge - - -	- - -	22,000 - -	-- This work was suspended in season 1842-43.			
Pinjore via Khalka and Kussowlee to Subathoo: Construction of a Road.	- - - - -	-- Length 21 miles 6 furlongs, sanctioned 22d March 1845.	Length. Width.		60,787 15 6	67,307 6 11	-- Completed season 1845-46.		
			M. fgs. ft.						
			- 1st Portion, from Pinjore to Khalka -	3				5 ½	48
			- 2d Portion, from Khalka to Kussowlee -	8				5	from 16 to 12
			- 3d Portion, from Kussowlee to Subathoo	9	4	12			

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Place of Termination, or of Intended Termination.	Length, and Date of Commencement.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—JUDICIAL:</b>				<i>Rs. a. p.</i>	<i>Rs. a. p.</i>		
<i>Penitentiary</i> : Plan for a Central one	To contain 2,004 prisoners -	- - - - -	- - - - -	- - - - -	4,41,564 8 5	—	
<i>Pooree</i> : Construction of a Circuit House.	- - For the use of the Commissioner. The temporary building was destroyed by a gale, on the 30th April 1840.	- - Sanctioned 29th September 1840.	Pooree - - -	7,596 8 8½	5,751 8 5	- - Completed season 1842-43.	—
<i>Pooree Gaol</i> : Additional Hospital.	For sick and insane prisoners -	- - The gaol was constructed in the year 1838; the addition of a hospital sanctioned in season 1840-41.	- - - - -	1,332 13 7	1,190 11 3	- - Completed season 1841-42.	—
<i>Pooree</i> : Reconstruction of the Dispensary.	- - In lieu of a building which was blown down by a gale on the 30th April 1840.	- - Sanctioned 21st February 1843.	Pooree - - -	5,256 15 5	5,437 9 1	- - Completed season 1846-47.	—
Buildings for the use of the Treasury Guard.	- - - - -	- - Sanctioned 27th March 1843.	Ditto - - -	2,030 8 4	2,030 8 4	Season 1843-44.	—
<b>CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL:</b>							
<i>Patna Penitentiary</i> : Construction of four Wards.	- - To supersede the present places of confinement situated in different parts of the station and its vicinity, each at an inconvenient distance from the magistrate's office.	- - Sanctioned 27th October 1845.	Patna - - -	36,251 15 3½	23,677 - -	- - Completed season 1846-47.	- - The plan approved is for the accommodation of 240 prisoners.
<i>Purellia Temporary Gaol</i> , Chota Nagpore.	- - - - -	- - Sanctioned 11th October 1836.	- - - - -	- - - - -	2,924 7 6	—	
<i>Purneah Gaol</i> : Estimate for fusing the floors.	- - Owing to the dampness in the existing floors.	- - Sanctioned 17th November 1840.	- - - - -	1,151 13 1	1,220 10 -½	- - Completed season 1841-42.	—
<i>Purneah Gaol Hospital</i> : Additions to.	- - Additional wards for medicine rooms, &c.	- - Sanctioned 12th October 1841.	Purneah - - -	4,825 7 2	5,098 4 5½	- - Completed season 1845-46.	—
<i>Pubna</i> : Construction of a Circuit House.	- - - - -	- - Sanctioned 20th November 1844.	Pubnah - - -	4,414 - -	4,900 5 -	- - Completed season 1845-46.	—
Construction of a Guard-room for the Barkundaues attached to the Judge's Cutcherry.	- - - - -	- - Sanctioned 28th December 1846.	Ditto - - -	334 13 3½	- - - - -	- - Constructed season 1847-48.	—



<i>Purneah Outer Gaol</i> . Construction of Guard-rooms and Sentry-boxes.	-- For the security of the guards over the convicts.	-- Sanctioned 10th February 1851.	Purneah - - - - -	- - - - -	1,270 - -	- - - - -	-- It was considered desirable to allow the convicts a free resort to the inner compound, as at Gyah and Furreedpore, but in order to carry out this plan, it was necessary that the guards should be placed in greater security.
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL.</b>							
<i>Pooree</i>							
Construction of a Wall around the Burial-ground.	- - - - -	-- Sanctioned 28th August 1843.	Pooree - - -	945 2 7	1,108 4 -	-- Completed season 1843-44.	-- The necessity for this work was brought to notice by the magistrate of the Southern District of Cuttack.
Reconstruction of the Pucka Treasury and Collector's Cutcherry.	-- These buildings were injured by a storm.	-- Sanctioned 17th April 1843.	Pooree - - -	2,720 5 8½	- - - - -	-- Completed season 1844-45.	
<i>Puchim Bamney Khall</i> : Construction of an Iron Suspension Bridge over the.	- - - - -	-- Sanctioned 20th January 1847.	-- On the road from Calcutta to Nulloah and Calpee.	15,800 9 4	15,715 4 5	-- Completed season 1849-50.	-- The span of the suspended roadway is 100 feet between the centres of the standards, with 16 feet width of roadway, or 14 feet clear traffic way. The soil of the khall is good, the piers will therefore be built merely of gratings of saul wood, without piles below them.
<b>CIVIL BUILDINGS, LOWER PROVINCES—GENERAL:</b>							
<i>Purneah</i> : Construction of a Cutcherry.	-- For the sub-deputy opium agent.	-- Sanctioned 18th July 1838.	- - - - -	- - - - -	2,048 12 5½	-- Completed season 1840-41.	-- The foundation and plinth of the building are of pukka masonry, the superstructure of cutcha pukka, and the roof of tiles.
<i>Patna</i>							
Donation towards the construction of a new Church.	- - - - -	-- Sanctioned 15th December 1840.	- - - - -	-- Government donation of	Rs. 16,072 - -	- - - - -	-- For this edifice the Protestant residents at Patna have subscribed 5,500 rupees. It is the intention of the Lord Bishop to make up the deficiency from the Church Building Fund.
Construction of tiled Verandah to the Cutcherry of the sub-deputy opium agent.	-- In lieu of an old verandah, which no longer affords the required protection.	-- Sanctioned 17th March 1843.	Patna - - -	1,113 11 9½	1,338 10 11	-- Completed season 1844-45.	
<i>Punkabarree</i> : Construction of a new Staging Bungalow and Out-offices.	-- To replace a similar building constructed by the Darjeeling Committee, which was condemned as totally unserviceable.	-- Sanctioned 18th June 1845.	Punkabarree - - -	- - - - -	3,221 13 1	- - - - -	
<i>Patna</i> . New Buildings at the Insane Hospital.	-- For increasing the accommodation.	-- Sanctioned 8th July 1850.	Patna - - -	- - - - -	5,381 14 9	- - - - -	-- This work was undertaken on the requisition of the magistrate of Patna.
<b>CIVIL BUILDINGS, SOUTH-WESTERN PROVINCES—REVENUE:</b>							
<i>Pooree Pilgrim Hospital</i> : Re-built.	- - - - -	Sanctioned 1838-39	Pooree - - -	1,386 4 2	- - - - -	- - - - -	

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK:	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>CIVIL BUILDINGS, SOUTH-WESTERN PROVINCES—REVENUE—continued.</b>							
<i>Patna</i> : Provision of a Circuit Bungalow.	- - The Special Commissioners' cutcherry has been converted for the reception of the office of the Commissioner of Revenue, in order that that officer's cutcherry may be given over for a circuit bungalow.	- - Sanctioned 25th May 1845.	Patna - - -	Rs. a. p. 861 14 8½	- - - -	- - Completed season 1846-47.	-
<b>CIVIL BUILDINGS, SOUTH-EAST PROVINCES—REVENUE:</b>							
<i>Pooree</i> : Construction of a Treasury Guard-house for the Collector's Cutcherry.	- - - - -	- - Sanctioned season 1839-40.	- - - - -	643 7 5½	1,060 8 4	- - Completed season 1841-42.	- - The difference is owing to its having been found practicable to dispense with eight iron gratings, for which provision had been made in the estimate.
<b>EMBANKMENTS, SOUTH EASTERN PROVINCES:</b>							
<i>Ragulpore Bund</i> : Repairs	- - The bund was breached to a considerable extent in 1848.	-	-	-	-	-	-
<b>CANALS, LOWER PROVINCES:</b>							
<i>Rajmehal Canal</i> : Construction of.	- - For irrigation, and to supersede the changeableness and uncertainty of the channels of the Nuddea Rivers, any permanent improvement of the navigation of which cannot be reckoned on.	- - Length 130 miles; breadth 50 feet, and carrying at the lowest depth five feet water.	- - - - -	- - The scheme was rejected by the home authorities in season 1844-45, but a report was called for on another line, viz., from a point near Chinsurah on the Hooghly to one near Monghyr on the Ganges.	38,47,437 - -	- - - - -	- - The boats proceeding through the canal would reach Rajmehal on the great river by traversing 202 miles instead of 528 miles, as by the Soonderbund route, saving 326 miles in distance, and from 15 to 20 days in time; an impetus would be given by it to the working of the iron mines and coal fields. The income from it is calculated at 5,80,000 rupees per annum, or 14½ per cent. on the gross expenditure, assumed at 40 lacs, to be raised by a toll of two rupees per 100 maunds on all boats.
<b>CANALS, NORTH-WESTERN PROVINCES:</b>							
<i>Rohilcund Canal</i> - - -	Irrigation - - - -	- - Length 48 miles; estimates submitted in 1840.	- - From a point on the Ramgunga to Shahpore, on the banks of the Dhela, near Moradabad, with a series of branches for irrigation.	- - - - -	4,50,000 - -	- - - - -	- - It is probable that 291 square miles will be susceptible of irrigation when the whole of the waters of the Ramgunga are turned into it; the revenue to be derived from it is assumed at Rs. 87,531.4. per annum. The Revenue Board suggested to Government to postpone this scheme until it can be ascertained with greater certainty what advantages it holds out, and whether the undertaking may not interfere with the completion of works of higher importance.
<i>Rajpore Watercourse</i> : Repairs to the.	- - Owing to the unusual height of the floods of the year, some injury had been sustained.	- - Sanctioned season 1846-47.	- - - - -	- - - - -	1,83 7 7	-	-

987.

**ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES:**

*Raepore Road*, From Calcutta to Bombay.

-- For rendering the overland communication with England easy to travellers, and rapid for the conveyance of the mails.

-- Length from Bombay to Calcutta about 1,200 miles, suggested by the Bombay Government in season 1837-38.

Bombay - - - - -

From 30,00,000 - - - - -  
To 50,00,000 - - - - -  
(30 to 50 lacs.)

-- In 1838-39 the Court were advised of measures adopted for improving the communication between Calcutta and Bombay, but the information supplied was too incomplete to enable them to

decide on the line of transit, or the nature of the road which should be constructed. The Resident at Nagpore reported the willingness of the Rajah to contribute 20,000 rupees towards the road, which he was authorized to accept with suitable acknowledgments. Two plans were submitted, first for the construction of a road to be at all times practicable for wheel carriages, for travellers, and for transit of trade between Bombay and Calcutta; second, to facilitate the conveyance of mails between the capitals, by rendering the line of communication practicable for horsemen or foot-runners. Of the 1,200 miles, 232 had been made practicable for horsemen or dawk runners, by means of a grant of 20,360 rupees, which had been already authorised, and 968 miles remained. As the plans involved a very large outlay, the Court were desirous that no portion of that which remained should be commenced until a more satisfactory survey of the line was made, and an estimate of the expense submitted to them; but as the main road on to Bombay could not be completed for some years, the Government were authorised to take immediate measures for forming a road for horsemen and dawk runners from Ahmednuggur to Midnapore, which would be practicable throughout the year. The Court subsequently (under date the 3d January 1845) informed the Government that they could not sanction the construction of an expensive road, and directed that their exertions be confined to the discovery of the best route, on which such improvements only should be made as the transit of the mails imperatively required.

Construction of four large Bridges on the Third Division of this Road.

Of 3 arches, 30 feet span each.  
Of 3 arches, 36 feet span each.  
Of 5 arches, 45 feet span each.  
Of 2 arches, 45½ feet span each; sanctioned 15th January 1845.

At Sakele River - - - - -  
At Sandrawapat - - - - -  
At Choolbund - - - - -  
At Cheekala - - - - -

10,074 7 4  
9,957 4 6  
19,888 13 2  
7,942 10 8

Rs. a. p.  
48,823 2 8

Cutting and rooting out Jungle between Sacra and Soharapallee.

Clearing the road - - - - -

-- Length 43½ miles; sanctioned 3d April 1850.

Soharapallee - - - - -

7,159 - -

*Ruttenpooral Nullah*, on the Grand Trunk Road; Construction of a masonry Bridge over the.

-- Length 222 feet; sanctioned 2d October 1843.

- - - - -

11,325 11 3

11,325 11 3

-- Completed season 1846-47.

-- This bridge is stated to be a handsome and durable structure, leading the road over two very awkward nullahs, and bringing it up to a horizontal level with the heights east and west.

**ROADS AND BRIDGES, LOWER PROVINCES:**

*Rewhar Ghat to Mozufferpore* in *Tarhoot*.

-- Length 23 miles 7 furlongs; sanctioned 22d November 1836.

Mozufferpore - - - - -

63,291 - -

-- Completed season 1839-40.

**ROADS AND BRIDGES, NORTH-WESTERN PROVINCES:**

*Raepore Dhoodlee*: Widening of the Road.

-- Length 14 miles; sanctioned 12th January 1842.

Dhoodlee - - - - -

1,485 11 1

-- Completed season 1843-44.

(continued)

No. 6—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—JUDICIAL:</b>							
Ramree: Construction of a New Gaol.	-- To replace the old gaol, which was represented to be in a dangerous state of decay.	-- Sanctioned 14th August 1843.	Ramree - - -	Rs. a. p. 7,056 8 5	Rs. a. p. 6,739 10 6	-- Completed season 1844-45.	-- The new gaol will be surrounded by a pukka wall 13 feet high, and will consist of one dewanry ward and three foudaree wards, a hospital, guard-room, &c. The walls of these buildings will be composed of planks, and the roof of thatch.
Ramree: New Circuit Bungalow.	- - - - -	-- Length 80 feet; breadth 64 feet; sanctioned 1st August 1839.	Ramree - - -	5,964 16 9	6,071 6 8	-- Completed season 1841-42.	-
<b>CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL:</b>							
Rungpore Gaol: Additions to -	-- To improve the salubrity of the gaol.	-- Sanctioned season 1841-42.	- - - - -	819 6 2	819 6 2	-- Completed season 1841-42.	-- Much sickness had existed at this gaol.
Rungpore: Conversion of an old Judicial Cutcherry into a Gaol Hospital.	- - - - -	-- Sanctioned 28th December 1842.	- - - - -	3,493 6 9	11,228 5 5	Season 1849-50	-- The estimate provides for new roofing part of the building, removing partition walls, and dividing the hospital for the separate accommodation of male and female patients; it also provides a place for the native doctor, and medicines, and for a guard-house, cook-room, and well.
Construction of a Circuit House, Sudder Ameens' Cutcherry, &c.	-- To provide accommodation for the Judges' records, and the property of persons dying intestate at Rungpore.	-- Sanctioned 3d April 1843.	Rungpore - - -	7,728 - -	6,791 2 3	-- Completed season 1845-46.	-- Owing to the porous nature of the tiles made at Dacca, and the consequent leakiness of the roof, it has been found necessary to replace the tiled roof with a flat roof; the excess of Rs. 1,403. 6. 3. has been disallowed by Government.
<b>CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—JUDICIAL:</b>							
Rhotuck: New Gaol	- - - - -	-- Sanctioned 7th December 1839.	- - - - -	7,790 15 7½	6,742 2 8	-- Completed season 1839-40.	-- This gaol is capable of accommodating 350 prisoners; the walls are of cutcha pukka materials, and the roof is of thatch.
<b>CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—GENERAL:</b>							
Roorkee: Construction of Buildings.	For a civil engineering college	-- Sanctioned December 1847.	Roorkee - - -	- - - - -	10,000 - -	-	-
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL:</b>							
Russapuglah: Additions and alterations to the Building occupied as the Office of the Superintendent of the Mysore Princes.	-- To convert it into a school-room.	-- Sanctioned 15th February 1843.	Russapuglah - -	- - - - -	8,851 0 1	- - - - -	-- The Board solicited the orders of Government to be allowed to call for tenders for the execution of the work by contract.

CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—REVENUE:									
<i>Raneea in the Bhutte Territory</i> : Construction of a Tehsildary Cutcherry	- - - - -	- - Sanctioned 7th November 1840.	- - - - -	6,014 14 -	5,653 15 1	- Completed season 1842-43.	-		
EMBANKMENTS, LOWER PROVINCES:									
<i>Sarun and Terhoot Bunds</i> : Construction of a new Bund, about 1,000 yards from the old Bunds.	- - For the protection of the country between the villages of Nowkurrah and Pursades from encroachments of the Gunduck River.	- Length 23 1/4 miles; sanctioned October 1841.	- - - - -	4,877 4 5	5,031 4 9	- - Completed season 1842-43.	- - The length of these bunds is 140 miles, and the estimate for their annual repair, Rs. 26,205. 11. 2, the executive officer has been directed to adopt the standard section, making the bunds three feet above the highest known rise of the river, three feet wide at the top, and giving a slope of three to one towards the river, and two to one in the rear.		
Construction of some new inner Bunds at Sarun, and strengthening of part of the main Bund.	- - Owing to encroachments of the River Gunduck.	- Length four miles, sanctioned 4th April 1845.	- - - - -	6,512 7 -	9,151 4 2 1/2	- - Completed season 1848-49.	-		
Construction of new Bunds	- - In parts where the main bund is encroached on by the River Gunduck.	- - Sanctioned 29th April 1846.	- - - - -	2,781 9 2	3,351 - -	- - Completed season 1848-49.	-		
CANALS, NORTH-WESTERN PROVINCES:									
<i>Seharunpore</i> : Construction of a Corn-mill House.	- To replace the former building, set of mills which were destroyed by the failure of the foundations in December 1844.	-	-						
ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES:									
<i>Sandoway</i> : Reconstruction of the Thoo's Bridge at - -	- - To keep open the communication between his cutcherry and the most populous part of the Sandoway Valley below the village	- - Sanctioned 30th October 1844.	Sandoway - -	648 6 -	1,111 11 -	- - Completed season 1845-46.	- A saving of Rs. 468.2. 6. was effected by a reduction in the rate for carpenters' work.		
<i>Sowrah Bridge</i> : Repairs to -	- This bridge crosses the Sowrah River.	- - Length of the bridge 300 feet, width 20 feet, repairs sanctioned seasons 1845-46 and 1848-49.	- - Crosses the public road between the station and town of Purneah.	1,594 -	- - - - -	- - Completed season 1845-46.	- - This bridge was built in the year 1822, and the woodwork had become decayed, and required to be replaced.		
<i>Shahpore</i> : Construction of two Bridges on the Grand Trunk Road.	- - - - -	- - Sanctioned 1st July 1846.	- Between Burdwan and Gyretty.	- - - - -	18,458 15 8	- - - - -	- - One bridge of three openings of 36 1/2 feet each, and arches to be segments of a circle, rising 14 feet, the other of three openings 20 feet each, with similar arches, five feet in height.		
<i>Satgong to Muggra, on the Grand Trunk Road</i> : Widening of the Road.	- - The metalled portion has been widened and the road straightened.	- - Length two miles and 100 yards, sanctioned 24th March 1847.	Muggra - -	7,113 10 -	7,490 11 1	- - Completed season 1847-48	- - Both khod and gooting have been used in the repairs and extension of the metal.		

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
				Rs. a. p.	Rs. a. p.		
<b>ROADS AND BRIDGES, LOWER PROVINCES:</b>							
Seesaugor to Jypore in Upper Assam.	- - - - -	Length 56 $\frac{1}{2}$ miles -	-	- - - - -	- - - - -	- - - - -	- - - - -
Seesaugor to Borahaut, in Upper Assam; Repair of an Old Road.	- - - - -	Length 50 miles.	Borahaut - - -	- - - - -	3,765 - -	- - - - -	- - This work has been executed by the political officers of Government.
Seesaugor to Debuoghur	- - - - -	Length 17 $\frac{1}{2}$ miles.	-	- - - - -	- - - - -	- - - - -	- - - - -
Seesaugor to Chokey Haut, on the Booree Dehing River.	- - - - -	- - Sanctioned 21st June 1841.	Chokey Haut.	- - - - -	- - - - -	- - - - -	- - - - -
Saikwah to Runyagorah in Assam; Opening of part of the Road.	- - - - -	- - Sanctioned 14th December 1844.	Runyagorah - - -	2,145 13 -	2,145 13 -	Season 1844-45.	-
<b>ROADS AND BRIDGES, CENTRAL PROVINCES:</b>							
Saugor to Dumoh; Change in the line of Road.	- - To obtain a line more accessible to the traffic of the country, to which the imperfectly finished ghauts on the old line presented obstacles.	- - Sanctioned 22d October 1840.	- - - - -	1,031 4 2 $\frac{1}{2}$	1,100 0 10	- - Completed season 1842-43.	- - The ascents over the ghauts on the old line were as steep as 1 in 10 or 1 in 12.
Saugor; Erection of an Iron Suspension Bridge over the Boose River.	- - - - -	- - - - -	- 10 miles east from Saugor.	38,177 6 -	- - - - -	Constructed in 1832	- - This bridge was constructed in 1832 by Major Presgrave. The span is 200 feet; breadth of platform 12 feet; height of pillars and piers 68 feet. Repairs were effected in season 1846-47, at a cost of Rs. 3,448. 5. 0.
Bridge over the Surjoo River at Lot Ghaut, in the District of Azimghur.	- - For the promotion of the traffic between the districts of Goruckpore and Azimghur.	- - Sanctioned 24th January 1848.	Lot Ghaut - - -	8,752 5 11	- - - - -	- - Completed season 1841-42.	- - This bridge is of masonry and of three arches; the centre arch 34 feet span, and the side ones 28 feet each.
<b>ROADS AND BRIDGES, NORTH-WESTERN PROVINCES:</b>							
Sehagur River; Bridge over the	- - To keep open the communication between Futtighur and Etawah.	- - Sanctioned 25th July 1840.	Sehagur River - -	2,513 - -	2,513 - -	Season 1840-41.	-
Seharunpore; Bridge over the Dholla Khallat.	- - In lieu of a bridge of two arches, which was destroyed by a high flood on the 27th September 1841.	- Sanctioned season 1841-42.	Shranpore - - -	2,753 4 0	2,753 4 0	Season 1841-42.	-
Singapore Bridge	- - - - -	- Sanctioned season 1838-39.	- Over the Singapore River.	19,511 5 2	- - - - -	- - Completed season 1841-42.	- - This bridge was constructed under contract, and it is reported to be of a permanent and substantial order.

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<i>Scharunpore</i> : Repairs to the Dumolah Bridge.	-- Injured by the floods of 20th June 1842.	-- Sanctioned 17th November 1843.	- - - -	1,582 3 9	1,645 14 0	-- Completed season 1843-44.	-
<i>Sukkur and Shikarpore</i> : Construction of a Road.	-- To be passable throughout the year for troops and wheel carriages.	-- Length 24 miles; width 40 feet; sanctioned 21st February 1845.	Shikarpore - - -	- - - -	52,008 2 8	-	-
<i>Sombre River</i> : Works on the	-- For the protection of the right bank of the river.	-- Sanctioned 5th July 1848.	- - - -	3,450 8 10	4,561 3 4	-- Completed season 1849-50.	-- The works consisted in diverting the river from its tortuous course by directing the stream into the cut formerly excavated by Major Baker, and in grooving a new splay month to the old channel, and throwing out a spur at its head, formed of clay rivetted in front with cribs, also loaded with clay.
<i>Subathoo to Hurripore Road</i> : Construction of a Revetment Wall.	-- To prevent land slips near the Konjar Nuddie.	-- Sanctioned 28th December 1849.	At the Konjer Nuddie	- - - -	4,949 3 11	Season 1849-50.	-

CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—JUDICIAL:

03

<i>Soory</i> : Construction of a Cutcherry for the Native Judge.	-- The accommodation afforded in the magistrate's cutcherry being quite unfit for holding his court.	-- Sanctioned 20th June 1842.	- - - -	959 - 11	1,176 7 7	-- Completed season 1843-44.	-
<i>Sandoway</i> : Construction of a Treasury Record-room and Guard-room of masonry.	-- In lieu of others of a like nature, which were condemned in the annual survey report of the 26th November 1841.	-- Sanctioned 19th June 1843.	Sandoway - - -	2,600 6 2	2,243 6 5	-- Completed season 1845-46.	-
<i>Sulkea</i> : Construction of a Thanah of Pucca Materials.	-- Intended to replace the existing thatch and bamboo houses, which being situated in the heart of Sulkea, are liable to be burnt down.	-- Sanctioned 11th March 1846.	Sulkea - - -	1,126 12 10	1,055 - -	-- Completed season 1847-48.	-
<i>Soory Gaol</i> : Construction of a new Hospital.	-- In consequence of the crowded state of the gaol, the ward heretofore used as a hospital has been assigned for the use of the prisoners, and the sick removed into a thatched building in the civil gaol.	-- Sanctioned 17th June 1846.	Soory - - -	4,248 1 10	4,334 2 8	-- Completed season 1849-50.	-- The enlargement of the area of the gaol, by building a new surrounding wall on the north side, and the elevation of the outer surrounding wall to the uniform height of 15 feet, is intended.

CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL:

<i>Sandoway</i> : New Thana House in Arracan	- - - - -	-- Measurement 60 feet by 80; sanctioned 14th April 1840.	- - - -	810 3 10	844 13 2	-- Completed season 1841-42.	-- The wall will be of mat, the roof thatched, but the floor will be well raised and planked.
New Circuit House	For the use of the Commissioner	-- Sanctioned season 1838-39.	Sandoway - - -	2,347 9 6	2,406 9 -	-- Completed season 1842-43.	-

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL—continued.</b>							
Seibpore, in Assam	- - - - -	- Cutcherry, 100 by 40 feet; with wings, 30 by 40 feet; a treasury guard, 52 by 33 feet; a criminal gaol, 100 by 38 feet, a dewanny gaol, 100 by 38 feet; a thanah house, 35 by 22 feet; sanctioned 20th February 1839.	- - - - -	Rs. a. p.	Rs. a. p.	-	
				-	2,535 2 10	-	
Shahabad: Purchase of a School-house.	-- For a cutcherry for the magistrate.	-- Sanctioned 4th February 1841.	- - - - -	8,000 - -	- - - - -	Season 1842 - -	-- This building had been newly constructed.
Improvement of the Drainage of the Gaol.	- - - - -	-- Sanctioned 26th January 1842.	- - - - -	1,195 12 6 ½	1,246 6 6	-- Completed season 1842-43.	-
Sebsaugor, in Upper Assam: Construction of a Cutcherry.	-- For the magistrate, in lieu of a cutcherry which was destroyed by fire on the 25th August 1840.	-- Sanctioned 26th January 1841.	- - - - -	1,516 15 10 ½	1,329 9 -	-- Completed season 1842-43.	-- The building consists of a room 80×20 feet, with a wing 30×20, and a 10 feet verandah all round.
Sebsaugor: Construction of a new Gaol Hospital, with a new Bamboo Stockade to the Gaol.	- - - - -	-- Sanctioned 18th February 1840.	- - - - -	887 13 3	- - - - -	- Constructed season 1842-43.	-- The building consists of one centre room 84×20, with an eight feet verandah all round.
Sebsaugor, Lower Assam. Construction of a Gaol at.	-- For 204 prisoners, males and females.	-- Sanctioned 3d April 1843.	Sebsaugor - - -	- This work was suspended in season 1843-44.	9,008 14 4	- - - - -	-- The foundation and plinth of the gaol wards will be of masonry, and the remainder of the building will be composed of temporary materials.
Silchar: Construction of a new Mohafex Thanna and Treasurer's Room.	-- For the security of the records and treasure.	-- Sanctioned 6th November 1844.	Silchar - - -	2,073 1 7	2,239 4 7	-- Completed season 1846-47.	-
Sebsaugor: Construction of a new Treasury and Thannah.	-- In lieu of similar buildings blown down in a storm in May 1843.	-- Sanctioned 21st August 1843.	Sebsaugor - - -	618 3 1	-		
Provision of a new Gaol	-- The permanent hospital constructed for the light infantry is to be converted into a gaol.	-- Sanctioned 3d April 1843.	Sebsaugor - - -	17,884 10 4	17,308 2 1	-- Completed season 1845-46.	-
Sylhet: Improvements to the Gaol Hospital.	- - This hospital, which was originally a mosque, is considered by the medical officer, from its extreme lowness, an unfit habitation for the sick.	-- Sanctioned 15th March 1847.	Sylhet - - -	1,821 1 4	1,885 - -	-- Completed season 1849-50.	-- The estimate provides for raising the roof 6 ½ feet higher; and with a view to improve the ventilation, the surrounding wall, with the guard-room, will be removed to a proper distance.



## Seesaugor:

Rebuilding of the Circuit House.

-- This work was necessary, in consequence of the damage sustained by the old circuit-house during a storm on the 28th April 1846, when the walls were so forced out of the perpendicular as to make the building in imminent danger of falling.

-- Sanctioned season 1847-48.

Seesaugor - -

-- Completed season 1847-48.

Renewal of the Gaol Stockade

-- The necessity for this work was reported by the civil authorities.

-- Sanctioned 8th December 1847.

Seesaugor - -

485 4 1

483 8 9

-- Completed season 1848-49.

## CIVIL BUILDINGS, NORTH-WESTERN PROVINCES--JUDICIAL:

Shajehanpore: Construction of a new Pucca Gaol Hospital and Buildings.

-- In lieu of inferior buildings built by the civil officer.

-- Sanctioned 15th September 1843.

Shajehanpore - -

5,276 8 7

5,207 13 3 1/2

-- Completed season 1845-46

Sirsa: Construction of a Well at

-- For the use of the Judicial Department.

-- Depth 113 feet, diameter 8 feet; sanctioned 26th March 1841.

Sirsa - -

1,193 10 10

1,193 10 10

Season 1841-42.

Seharunpore: Construction of a Pucca Guard-room at the Gaol.

-- Owing to the insufficiency of the existing guard-rooms.

-- Sanctioned 8th December 1843.

Seharunpore - -

930 1 10

930 1 10

Season 1843-44

-- The new building is to accommodate 30 men.

Shikarpore: Conversion of the Fort into a Gaol.

- - - - -

-- Sanctioned 3d April 1845.

Shikarpore - -

4,531 8 2

4,531 8 2

Season 1845-46.

Shikarpore Gaol: Construction of a Hospital, Cook-room, &amp;c., to the.

- - - - -

-- Sanctioned 24th January 1846.

Shikarpore - -

1,521 - -

1,521 - -

-

-

## CIVIL BUILDINGS, CENTRAL PROVINCES--JUDICIAL:

Saugor Gaol: Enlargement of the.

-- In consequence of the removal of 100 prisoners from the district of Dumoh.

-- Sanctioned 16th April 1845.

- - - - -

47,386 - -

45,528 9 8

-- Completed season 1847-48.

-- Government was of opinion that occasions might arise in which this gaol might aid the military defence of the place, and expressed a desire that the building should be calculated for defence by a small body of men; and that provision should be made within the gaol for the occasional close confinement of all the prisoners. The new gaol has been fortified, and is on a much more extensive scale than the Dumoh gaol.

Seoonee Gaol. Additions and Alterations.

-- Under a representation from the Sessions Judge of the want of accommodation for the ordinary number of prisoners of the district.

-- Sanctioned 30th August 1849.

Seoonee - -

8,134 4 2

- - - - -

-- Completed season 1850-51.

-- The gaol accommodation had become quite inadequate, as Government refused to allow the surplus prisoners to be employed in out-gangs.

(continued)

No. 6. —STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Competition.	Probable Time of Completion.	REMARKS.
<b>CIVIL BUILDINGS, EASTERN SETTLEMENTS—JUDICIAL:</b>				<i>Rs. a. p.</i>	<i>Rs. a. p.</i>		
<i>Singapore:</i>							
New Police-offices - - - - -	- - - - -	-- Sanctioned 13th November 1839.	Singapore - - -	4,041 9 7	- - - -	Constructed 1840-41.	-
Construction of a Police Thannah at Campong Clang.	- - - - -	-- Sanctioned 25th March 1840.	Singapore - - -	3,143 7 6	- - - -	Constructed 1840-41.	-
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL:</b>							
<i>Saugor Island:</i> Construction of a Lighthouse on Middleton Point.	- - With a view of replacing the present tripod, which the Superintendent of Marine, after a personal inspection, reported to be in a rickety condition, and accordingly recommended a masonry tower in preference to the reconstruction of a tripod, on the score of ultimate economy, as well as superior efficiency.	-- Sanctioned 18th January 1847.	Middleton Point - - -	- - - - -	25,938 9 4	- - - -	- - The new lighthouse will be a taper column, divided into five vaulted stories, and surmounted by a lantern of copper and plate glass. Total height of the beacon terrace 102 feet; the shaft 82 feet in height, tapering from 20 feet at bottom to 12 feet diameter at top, and surmounted with stone coping and battlement. In season 1847-48 the Military Board reported that the encroachment was so great, that it was feared that the masonry lighthouse must be abandoned, and an iron lighthouse substituted, the rough estimate for which, amounting to 44,130 rupees, had been referred to the Home Authorities. Court, on referring to parties experienced in the construction of iron lighthouses, for their opinions as to the relative merits of Colonel Irvine's, Major Godwyn's, or some other plan, were satisfied that preference was due, on several accounts, to the shell or iron plate mode of construction; they accordingly accepted an offer made by Messrs. Fox, Henderson and Co., to furnish an iron plate lighthouse, with iron staircase, gun metal lantern, glazed with plate glass, and covered with copper, reciprocating light, with silvered parabolic reflectors, together with certain stores and lighting materials, for the sum of 2,164 l., or about 400 l. less than the estimated cost of a structure of masonry.

## CIVIL BUILDINGS, CENTRAL PROVINCES—GENERAL:

<i>Sulkea</i> Construction of New Salt Golahs.	- - - - -	-- Orders of Government, 5th July 1837.	Sulkea - - -	50,001 5 10	57,244 8 4	-- Completed season 1838-30.	-- These golahs, 11 in number, are of pucca masonry, and have been well constructed by Captain Fitzgerald at a cost of Rs. 6,343. 2. 6. less than the sanctioned estimate.
Construction of Division Walls in 27 Salt Golahs	-- In consequence of the loss resulting from the present plan of separating salt of different quantities by mats, in these golahs, as the mats frequently rot, and the salt becomes mixed.	- Sanctioned 19th August 1840.	Sulkea - - -	7,879 4 3	8,606 9 - 2	-- Completed season 1841-42.	-
Renewal of the roofs and Improvements to some of the Salt Golahs.	-- In consequence of the great wastage of salt occasioned by leakage.	- Sanctioned 23d December 1840.	- - - - -	- - - - -	16,470 3 -	-	-
<i>Secundrabad</i> . Erection of a Staging Bungalow and Out-offices.	- - - - -	- Sanctioned 19th August 1843	- - Situated on the Grand Trunk Road between Allyghur and Delhi.	2,072 13 5	2,133 4 4	-- Completed season 1843-44.	-
<b>P CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—GENERAL:</b>							
<i>Shehoabad</i> : Erection of a Staging Bungalow.	-- For the accommodation of travellers proceeding to or from Agra,	- Sanctioned 5th September 1840.	40 miles from Agra -	794 10 6 and 60 13 7 for furniture.	844 13 9	-- Completed season 1841-42.	-
<i>Syree, in the Hill District of Subalho</i> : Construction of a Staging Bungalow.	-- To replace an old bungalow, which did not afford sufficient accommodation to travellers.	Sanctioned 1839-40	- - - - -	- - - - -	1,282 6 9	-	-
<i>Simlah</i> : Construction of Public Offices.	-- For the civil officers of the station.	- - Sanctioned season 1840 41.	Simlah - - -	6,053 4 4	4,643 14 -	-- Completed season 1842-43.	-- The excess was owing chiefly to the erection of out-offices, which were not included in the estimate.
<i>Subathoo</i> : Construction of a Protestant Church.	-- This building is to be calculated to hold 500 persons.	- Sanctioned 7th February 1845.	Subathoo - - -	-- This work was suspended, <i>vide</i> paragraphs 322 and 323 of Report of 1845-46.	16,798 7 6	- - - - -	-- The masonry throughout to be of dressed stone, with lime cement, but without plaster, and the roof to be formed of shingles on battens, rafters, purlins, and trusses.
Proposed construction of a House.	-- To serve for the performance of Divine Service on the Sabbath, and for a school-room on other days,	- - - - -	- - - - -	- - - - -	5,491 15 0	---	-

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
				<i>Rs. a. p.</i>	<i>Rs. a. p.</i>		
<b>CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—GENERAL—continued</b>							
<i>Syree</i> : Construction of additional rooms to the Staging Bungalow.	-- The necessity for additional accommodation was brought to the notice of Government by the Postmaster-general.	- Sanctioned 23d August 1850.	Syree - - -	- - - - -	1,276 12 4	-	
<b>CIVIL BUILDINGS, CENTRAL PROVINCES—REVENUE:</b>							
<i>Seconee</i> : Construction of a Tuhsildarry Cutcherry.	- - - - -	-- Sanctioned season 1839-40.	- - - - -	986 14 8	1,304 13 9	-- Completed season 1841-42.	-
<i>Sumeerpore</i> : Construction of a Bungalow and Out-offices at the Cotton Farm.	- - - - -	Sanctioned July 1842	- - - - -	- - - - -	9,944 10 7	- - - - -	-- The execution of this work was subsequently entrusted to the Civil Department, not however before an outlay of <i>Rs.</i> 1,587. 12. -- had been incurred by the executive engineer in the collection of materials.
<i>Secundra, in Zillah Cawnpore</i> : Construction of a Tuhsildarry Cutcherry at.	-- In consequence of the lapse of the Secundra Jagheer, and the annexation of the Pergunnah to the Cawnpore District.	- Sanctioned 4th November 1842.	Secundra - -	5,491 2 - ½	5,139 13 8	-- Completed season 1844-45.	--
<i>Sheorajpore</i> : Construction of a Tuhsildarry Cutcherry at.	-- To replace the present cutcherry, which is represented to be very confined and insecure, being surrounded by and connected with the houses of the village.	- Sanctioned 9th May 1844.	-- Sheorajpore, in the Cawnpore District.	5,624 2 1	5,679 15 -	-- Completed season 1846-47.	-
<b>CIVIL BUILDINGS, CENTRAL PROVINCES—ECCLESIASTICAL:</b>							
<i>Saugor Church</i> - - -	-- For the benefit of the Christian community and the European soldiery.	-- Sanctioned 30th December 1835.	Saugor - - -	10,272 14 5	- - - - -	-- Completed season 1840-41.	-- This church was surrounded by a wall in 1842-43; the cost, <i>Rs.</i> 1,568. 14. 10., was paid by subscription.
<b>CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—REVENUE:</b>							
<i>Sonapat, in the Northern Division of the Delhi District</i> : Construction of a Cutcherry.	- To replace a cutcherry built by the late Baba Bhuo, which was in a state of disrepair, and in an objectionable situation.	-- Sanctioned 18th December 1838.	- - - - -	6,405 1 4	-		

987.	Shahjehanpore. Additions and alterations to the Collector's Cutcherry	-- Rendered necessary by the union of the offices of Collector and Magistrate of the district.	-- Sanctioned 16th September 1845.	Shahjehanpore - -	7,364 11 6	7,700 - -	-- Completed season 1844-45.	-- The old cutcherry was disposed of, for a sum of 3,100 rupees, to Captain Ludlow.
<b>CIVIL BUILDINGS, NORTH-WESTERN PROVINCES--POLITICAL:</b>								
	Shahjehanpore. Repairs to the Old Agency Buildings.	- - - - -	- Sanctioned 22d July 1844.	Shahjehanpore - -	7,000 - -	7,000 - -	Season 1844-45.	-
	Scinde. Construction of an Office.	-- For the Secretary to the Government of Scinde.	- Sanctioned 9th November 1844.	Scinde - - - -	- - - - -	2,169 4 3	- - - - -	-- The walls will be of brick and mud, and the roof tiled.
<b>EMBANKMENTS, SOUTH-EASTERN PROVINCES:</b>								
	<i>Twenty-four Pergunnahs:</i> Construction of a new line of Bunds from Kalkapore towards Moneergong, and back to Barreabaugh, to include the Village of Gillarchut.	- - - - -	- Sanctioned 1st June 1841.	-- Twenty-four Pergunnahs.	5,398 14 -	8,333 14 4	- Completion reported season 1844-45	-- A considerable saving on the estimate was effected by dispensing with a portion of bund where the damming of a khall had sufficed. The estimate for annual repairs of 1850-51 amounts to Rs. 15,642. 14. 2
	Construction of 11 Bungalows on these Embankments.	-- For the use of the superintending engineer and the superintendent while on inspection duty.	-- Sanctioned 24th May 1843	- Ditto - - - -	1,070 1 -	- - - - -	- Constructed season 1844-45.	-- The inspection bungalows on the embankments in these provinces have been made available to the Magistrates, Collectors, and other Government officers, for occasional use when their duties call them into the interior.
<b>EMBANKMENTS, LOWER PROVINCES.</b>								
	<i>Twenty four Pergunnahs</i> Bunds - - - - -	- - - - -	-- The reconstruction of these bunds was sanctioned on the 1st November 1842. Their entire length is 300 miles; the cost of their annual repair is estimated at Rs. 18,751. 14. 6.	- - - - -	1,30,000 - -	95,160 14 9 1/2	-- Completed season 1843-44.	-- The estimate for effecting annual repairs of these embankments for season 1849-50 amounted to Rs 14,328. 0. 7.
	Ditto - - - - -	-- The construction of a bund has been authorised for the protection of an estate situated on the verge of the Soonderbund Forest, near the Channel Creek.	-- Length 11 miles, commenced in season 1839-40.	- - - - -	6,068 - -	6,068 - -	Season 1840-41	-- This estate ought, it is stated, to yield at least 20,000 rupees, if properly cultivated, whereas, in its present neglected state, it does not pay to Government one-fourth of that sum.

(continued)

No. 6.--STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive--continued.

NAME OF WORK,	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
EMBANKMENTS, LOWER PROVINCES--continued.				<i>Rs. a. p.</i>	<i>Rs. a. p.</i>		
<i>Twenty-four Pergunnahs--continued.</i>							
New Line of Bunds from Calcutta towards Moneergong, and back to Borebaugh Khal, to include the Village of Gillarchat.	- - - - -	- - Length 14 miles, 3 furlongs; sanctioned 1st June 1841.	- - - - -	8,333 14 4	8,333 14 4	Season 1841-42.	-
Construction of Hussea Bunds, and Dam across the Khas Mehal Nunnoraj.	-- With a view to the improvement of the mehal.	-- The Bhoorda Khall has been excavated to the length of 3,000 feet, and Hussea three feet in height, with a dam, has been constructed, under orders 19th October 1841.	- - - - -	1,248 6 3	- - - - -	-- Completed season 1843-44.	-- It is expected that the returns from this estate (8,000 rupees per annum) will be almost doubled, when a proper system of drainage has been established.
CANALS, SOUTH-WESTERN PROVINCES:							
Tully's Nullah; Strengthening Banks opposite to the Kidderpore Tollhouse.	- - - - -	- Sanctioned 10th May 1847.	Kidderpore - - -	317 10 -	501 5 -	-- Completed season 1847-48.	-- The banks have been protected by piling, and with stone ballast.
CANALS, NORTH-WESTERN PROVINCES:							
Tajjwalla New Cut; Enlargement of the.	-- The width, 40 feet at the base, was found to be insufficient to pass the water accumulated at its mouth.	-- Length about 900 feet, the width at the base to be increased from 40 to 50 feet; sanctioned 24th April 1844.	- - - - -	Not reported - - -	1,030 1 2	Season 1844-45 -	-- This cut was originally excavated by Colonel Colvin, immediately below the junction of the two canal heads.
ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES:							
Tamlook Road; Construction of Drain Bridges.	-- The road interfered with the natural drainage of the country.	-- Length 18 miles; sanctioned 27th March and 24th July 1843.	-- From Paunchcoorah to Narrainpore Khaul.	3,126 8 1	3,602 11 8	-- Completed season 1844-45.	-- Such of these drains as it may be desirable to adapt to purposes of irrigation, will have sluice-gates attached to them at the cost of the landholders.

987.	<i>Topechanches.</i>								
	Construction of a Bridge two miles east of.	- - - - -	- - Sanctioned 16th October 1843.	- - - - -	3,083 11 7	6,009 7 3	- - Completed season 1846-47.	} The bridge has two semicircular arches, 22 feet in span. The saving is owing to a great reduction in the quantity of masonry-work, and in the rates generally	
	Construction of two Masonry Bridges, one three miles and one four miles east of.	- - - - -	- - Sanctioned 16th October 1843.	- - - - -	- - - - -	7,013 1 2	- - - - -		
ROADS AND BRIDGES, LOWER PROVINCES:									
	<i>Tezpore Bridge, in Lower Assam</i>	- - To complete the communication between the station and the gaol.	- - Sanctioned 12th January 1841.	- - - - -	716 12 7	841 - -	- - Completed season 1843-44.	-	
	<i>Titaliya Ghaut: Across the Cossyah Hills to Paneegong, in Assam.</i>	- - - - -	- - Length 44 miles; sanctioned in season 1838-39.	Paneegong - - -	8,888 1 6	- - - - -	- - Completed in season 1841-42.	- - The whole line, as it exists now, may be traversed in every part by troops and laden cattle. The bridges are of wood, and being built of large trees, they will answer even for laden elephants.	
ROADS AND BRIDGES, NORTH-WESTERN PROVINCES:									
P 3	<i>Tongra to Goona: Straightening the Road from, and Construction of a Bridge across a Nullah at Lockwas.</i>	- - - - -	- - Sanctioned 1st August 1845.	Goona - - -	1,993 13 11	1,993 13 11	- - Completed season 1846-47.	-	
	<i>Umbella to Pinjore: Construction of a Military Road.</i>	- - With reference to Government general orders of 17th November 1842, relating to the opening of roads adapted for all military purposes in the North-western frontier.	- - Length 34 miles and 7 furlongs; sanctioned 29th November 1844.	Pinjore - - -	- - - - -	91,801 8 0	- - - - -	- - The estimate provides for the construction of two bridges across the Labrew Nullah and the Choar, near Moolhampore, and 75 drain bridges of shorts.	
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—JUDICIAL:									
	<i>Twenty-four Pergunnahs: Construction of a New Insane Hospital.</i>	- - - - -	- - Sanctioned 26th January 1844.	- - Situated between the Sudder Dewannee Court-house, and the Iron Bridge-yard.	47,847 15 5	47,322 5 10	- - Completed season 1848-49.	-	

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—JUDICIAL—continued.</b>							
<i>Tavoy.</i> Construction of New Buildings.	-- A new house for the gaoler and gaol cooking-sheds, the former required to replace the gaoler's house, which had decayed, the latter in lieu of the present sheds, which, from their objectionable position, affords means of escape to prisoners.	-- Sanctioned 26th March 1845.	Tavoy - - -	Rs. a p. 1,253 10 9	Rs. a p. 1,751 3 -	-- Completed season 1846-47.	-
Construction of Circuit-houses and Out-offices.	- - - - -	-- Sanctioned 17th September 1845.	Tavoy - - -	-- Rs. 3,893. 6. 8. was incurred in the construction of the Circuit-house.	7,527 13 6	-- The completion of the Circuit-house was reported in season 1847-48.	-
<b>CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL:</b>							
<i>Tezporc, in Lower Assam:</i>							
Construction of a Treasury and Record-rooms.	-- To secure the records of the magistrate's office.	-- Sanctioned 30th March 1841.	Tezporc - - -	4,589 14 4	2,563 2 4 Exclusive of convict labour.	-- Completed season 1846-47.	-
New Gaol - - - -	-- The existing gaol building being in a very dilapidated state.	-- Sanctioned February 1841.	Tezporc - - -	13,923 1 5	13,805 12 6 This amount, it is expected, will be considerably reduced by the employment of convict labour.	-- Completed season 1846-47.	-- This consists of four criminal, one nazuf, one civil, one female, and one hospital ward, with dead-house and out-offices. The whole of the buildings are of kutcha pucca masonry, with thatch roof, with the exception of the cook-rooms, which have tiled roofs.
Construction of a Thatched Roof Cutcherry.	-- At the requisition of the Commissioner of Assam, in lieu of the present cutcherry, which is in a dilapidated state.	-- Sanctioned 24th June 1846.	Tezporc - - -	4,299 15 4	4,402 - -	-	-
Additions of Cutch Pucca Walls to the Circuit Bungalow.	-- In lieu of the present temporary walls, which are liable to be destroyed by storms.	-- Sanctioned December 1845.	Tezporc - - -	-	2,008 - -	-	-
<b>CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL:</b>							
<i>Tavoy:</i> Construction of a New Wharf.	-- In lieu of the old wharf, which is in a decayed state, and of little use except at high water, owing to there being a space of 73 feet of soft mud between it and the stream.	-- Sanctioned 9th September 1844.	Tavoy - - -	1,778 11 2	1,778 11 2	Season 1844-45.	-



CIVIL BUILDINGS, LOWER PROVINCES—GENERAL:							
<i>Titalya</i> . Construction of a Staging Bungalow and Out-offices.	-- To provide accommodation for travellers to and from Darjeeling.	22d September 1847	Titalya - - -	3,317 4 0	-- An advance of 2,000 rupees was made. An estimate, amounting to Rs. 3,230. 14. 8. was subsequently (5th September 1848) sanctioned.	- - - -	-- Will supply the place of an hotel which existed at the spot, but was burnt down in 1847. In season 1849-50 a sum of Rs. 148. 7. 7. was expended in furnishing this bungalow.
CIVIL BUILDINGS, CENTRAL PROVINCES—REVENUE:							
<i>Toshaum, in the District of Hissar</i> : Construction of a Tuhseeldarry Cutcherry at.	- - - - -	Sanctioned 1839-40	Toshaum - - -	3,568 3 7	3,568 3 7	Season 1839-40.	-
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—REVENUE:							
<i>Tirwah</i> : Construction of Buildings.	-- For the accommodation of the Tuhseel and Thannah establishments.	- - Sanctioned 18th February 1846.	- - - - -	- - - - -	7,127 - -	- - - - -	-- The execution of this work was entrusted to the civil officer.
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—GENERAL:							
<i>Umballah</i> : Staging Bungalow at	-- For the convenience of travellers proceeding to or from Simla.	Sanctioned 1839-40	Umballah - - -	1,645 4 5	1,645 4 5	Season 1840-41.	-
<i>Umballah Church</i> : Purchase of the Private Church.	- - - - -	- - Sanctioned 8th December 1846.	Umballah - - -	3,000 - -	- - - - -	-- Purchased season 1846-47.	-- The sum of 3,000 rupees provides also for alterations and purchase of church furniture.
<i>Umballah</i> . Construction of a Dawk Bungalow.	-- To provide good accommodation for travellers at the station, through which many of the servants of Government are continually passing.	- - Sanctioned 3d October 1848.	Umballah - - -	8,291 4 9	8,806 10 7	-- Completed season 1849-50.	-- The contemplated outlay, although large, is not considered incommensurate with the object in view.
Construction of Bathing-houses and Pucka Well.	-- For the accommodation of travellers passing through Umballah.	- - Sanctioned 20th October 1849.	Umballah - - -	1,158 13 6	- - - - -	-- Completed season 1850-51.	-- The number of travellers passing through Umballah is very great, and the private accommodation is limited to four suites of apartments.
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—JUDICIAL:							
<i>Umballah</i> . Construction of Buildings	For the police battalion - -	- - Sanctioned 12th June 1844.	Umballah - - -	8,634 14 10	- - - - -	-- Completed season 1846-47.	-- These buildings consist of a bungalow, with out-offices for the adjutant, a magazine, eight bells of arms and a rear-guard, and are constructed of permanent materials.

## No. 7.

A STATEMENT exhibiting the EXPENDITURE incurred under the Presidency of *Bengal* on WORKS, SALARIES, ESTABLISHMENTS, &c. in the CIVIL DEPARTMENT of PUBLIC WORKS within the Ten (10) Years from Season 1839-40 to Season 1848-49 inclusive, from the Military Board Office Bill Books, will be found at Page 154 of the Printed Parliamentary Paper of the Honourable the House of Commons, No. 622 of 1851, the Total Amount being—

	<i>Rs.</i>	<i>a.</i>	<i>p.</i>
	2,23,65,343	15	1
The Expenditure for Season 1849-50 was - -	29,29,480	-	10
Ditto - - - ditto 1850-51 was - -	32,10,067	7	6
TOTAL for Season 1839-40 to Season } 1850-51 inclusive - - - - - }	<i>Rs.</i> 2,85,04,891	7	5

## PRESIDENCY OF FORT ST. GEORGE.

## No. 8.

IN the printed Parliamentary Paper of the Honourable the House of Commons, No. 622 of 1851, pages 154 to 158, particulars are given of the formation of the Department of the Superintendent of Roads, of the arrangements adopted for the management and classification of the trunk roads, and of their condition, to the 1st May 1848. The following additional information has since been furnished in a General Report on the Road Department, to the 1st May 1851, dated 17th October 1851, in which year a new line from Madras to Cuddapah by the Goolcherroo Pass from Garampilly, was classed as Trunk Road No. 12; the old direct road to Cuddapah from Kankaloor, by the Valley of Chitwail, was thenceforth to be classed as a minor branch road.

## TRUNK ROADS.

No. 1.—*Western Trunk Roads, Madras, towards Bangalore.*

THE traffic on this road is so great as to make it of primary importance in a commercial point of view; the portion of it which lies between Madras and Waniambaddy, 121 miles, was reported in January 1852 to be perfectly made and bridged throughout, with the exception of the Palaur River, 2,440 yards wide, between Arcot and Vellore, its two branches near Waniambaddy, respectively 180 yards and 130 yards, and the Agarum River, 850 yards wide, between Pulliconda and Amboor; a new road four miles in extent, and partly in the town of Waniambaddy, has been opened for use, while a road for carts, between the 18th and 60th miles, with improvements of the road between Waniumbaddy and Bangalore, are the further works proposed to be undertaken; 352 carts per day, on the average, pass on 125 miles on this road, and in consequence of this great traffic 57,496 rupees were expended on repairs in 1851; and a sum of Rs. 31,179. 14. was demanded for the following season. The amount laid out on the Western Road from May 1845 to May 1851 was Rs. 3,30,655. 9. There are altogether 566 bridges, with an aggregate of 668 arches, and 3,984 feet of water-way, besides 78 road dams, over which water runs occasionally.

No. 2.—*Frazerpett, on the Cauvery River, to Mangalore.*

The portion between Mangalore and Frazerpett, a distance of 101 miles, has been much improved throughout. A bridge of an oblique arch of 42 feet has been constructed in lieu of one of two arches of 18 feet span, carried away in 1847, estimated at Rs. 2,024. 9. 9., but only cost Rs. 1,245. 14. 9.; and another of one arch of 45 feet is being rebuilt at Feringypett, at an estimated cost of Rs. 5,620. 3. 9. A branch road, practicable for carts, has been opened from Pootoor to Oopinungady, the object of which is to enable "carts that travel between Buntwall and the Munzerabad Ghaut to avoid the difficulty between the former place and Oopinungady, by following the Road No. 2 as far as Pootoor."

No. 3.—*From the North Western part of Mysore, towards Canara, by a Pass descending from the Table Land near Munzerabad.*

This road extends from Mangalore to Bangalore, by the Munzerabad Pass, and is now nearly completed from Mysore to Oopinungady, a distance of 112 miles. An estimate of 30,000 rupees for carrying it 18 miles further on from Oopinungady to Buntwall is under revision.

No. 4.—*From Hoonsoor, in Mysore, to Cannanore by the Parumbaddy Pass.*

Advances to the amount of Rs. 1,83,135. 5. 2 were made up to 1st May 1851. In March 1851 this road was reported nearly completed from Cannanore to the Mysore frontier. The road by this Ghaut has been in continual use since May 1848. It is considered that an expenditure of 100 rupees per mile, per year, will be required to keep the road in order.

No. 5.—*From Waniambaddy, by Salem and Coimbatore, to the Western Coast at Ponany.*

Between Walliaur and Ponany, a distance of 70 miles, a bridge of five arches of 39 feet, over the Nurgumpully, and another of one arch of 36 feet, over the Yettaditooloo, have been built; a bridge of 10 arches of 45 feet, over the Parlakadow, will be completed in 1852. A new road from Coimbatore to Walliaur, a distance of 15 miles, has been completed, and a bridge of 26 arches of 47½ feet span, over the Cauvery, between Bowany and Comarpollium, has been opened for use. A new direct line of road between Avernashy and Bowany, and further improvement of the road between Waniambaddy and Comarpollium, are proposed.

No. 6.—*Great North Road from Madras to Calcutta.*

The portion of road between Goondipoondy, in the district of Chingleput, and Ulloor in that of Nellore, is far from being complete; the portion between Nellore and Ulloor will be superseded by a more favourable line through Mocherla to Tungatoor. The road from Madras to Goondipoondy will be bridged, also three streams between Goondipoondy and Nellore. From Nellore to Ongle the road has been re-surveyed throughout, and a new line marked out between Covoor and Tungatoor. An excellent road has been made from Vizianagarum to Bimlipatam, at the expense of the Zemindar of Vizianagarum, and a bridge over the Bimlipatam River is being constructed at the expense of Government.

No. 7.—*From the Great North Road near Ongle, to the Nizam Frontier.*

The traffic on this road is exceedingly trifling, and the road is only of importance as being on the route by which troops march from Madras to Hyderabad.

No. 8.—*Inland Southern Road, as far as Trichinopoly.*

The portion of road from Chingleput to Ooloondoorpett (95 miles) was reported in 1851 to be constructed, and would be metalled in the next year; the road from the north bank of the Cauvery to Samiaverem has been completed, and a beautiful and convenient approach made to Trichinopoly. A bridge of 32 arches of 45 feet span has been built over the Cauvery, and another of 32 arches of 60 feet span, over the Coleroon, is under construction. A road has been surveyed between Toramungalum and Sirooganoor, and estimates have been sanctioned for a bridge over the Chinaur, and a causeway over the Oopaur. When these works are completed, the Palar at Chingleput will form the only obstacle to rapid travelling between Madras and Trichinopoly.

No. 9.—*Proposed to branch from No. 8, and take a more easterly direction, so as to lead to the new Annicut, lately built over the Vellaur River, thence across the Coleroon River at its lower Annicut, into the Tanjore District, near Combacunum and Myaveram.*

The principal works executed are, a road south of the Coleroon Annicut, and a bridge of 19 arches of 31 feet, built above the Annicut, over the Vellaur; the road from the lower Coleroon Annicut to Vikravandy, 64 miles, has been cleared of jungle, and marked out, and a bridge over the surplus channel from the Toollajah Tank, and another over the Vuddavaur, with a new head sluice to the South Rajah Voikal, will be far advanced, if not finished, in 1852.

No. 10.—*Proposed Road from Madras through Chittoor, Palmanar, Balsamoodram, to Bellary.*

The principal works under construction are, roads from Raneepett to Punautoor, from Punautoor to Chittoor, and from Chittoor to Palmanair; these roads would be opened and the bridges finished in June 1852.

No. 11.—*New Line from Madras by Roychotty, the Goolcherroo Pass, and Cuddapah, to Bellary.*

The line from Madras to Codairy has been surveyed, and the portion of it from Madras to Cavetrajpett, near Poinay, has been marked out and estimated. Improvements are suggested to bring this road into general use, and to relieve the road from Madras to Poonamallee of a large number of carts carrying Bungalow, Cuddapah, and Bellary goods; thus reducing the wear and tear, and diminishing the expense of maintaining that portion of Trunk Road No. 1.

No. 12.—*From Madras to Cuddapah, by the Goolcherroo Pass from Garampilly.*

The principal work done on this line, has been the improvement of the Goolcherroo Ghaut, on the road from Roychoty to Cuddapah; improvements have also been made to the old direct road to Cuddapah from Kankaloor by the valley of Chitwail, which it is proposed should henceforth be classed as a minor branch road.

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No. 9.

MADRAS DISTRICT ROADS.

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PARTICULARS as to the state of these roads, compiled from reports of the collectors, submitted by the Government of Fort St. George to the Honourable the Court of Directors, under date 6th May 1850, will be found at pages 158 to 165 of the printed Parliamentary Paper of the Honourable the House of Commons, No. 622 of 1851. The following is a statement of the more important works executed under the Civil Engineers' Department in the years 1848 and 1849.

## No. 9.

## INDEX to STATEMENTS of WORKS Executed by the CIVIL ENGINEERS DEPARTMENT during the Years 1848 and 1849.

NAME OF WORK.	NAME OF WORK.
<p>No. 16. Absanagram Tank, repair of the Bank of.</p> <p>24. Arbyle Ghaut, and line of Road from Yellapoor to Meerjan.</p> <p>32. Agoomby Ghaut, Road from the foot of the, at Somaishwar to Bujjay.</p> <p>33. Agoomby Ghaut, Road from the foot of the, at Somaishwar, to Halandee.</p> <p>41. Araselaur River, Bridge over.</p> <p>82. Annamullay Teak Forest, examination of.</p> <p>94. Ambasamooduram Bridge, flooring to six of the Arches of.</p> <p>7. Cocanada, Lattice Bridge at.</p> <p>18. Construction of Sluices to different Tanks.</p> <p>23. Colour Ghaut.</p> <p>27. Cassergode and Solea Road.</p> <p>35. Cauvery Pauk Tank repairs.</p> <p>38. Calavaye Tank Calingulah.</p> <p>47. Corayaur River, Bridge over the.</p> <p>48. Cuddaveyaur River, Bridge over the.</p> <p>59. Covellay Surplus Channel, extending the.</p> <p>67. Cauvery River, Bridge over, at Trichinopoly.</p> <p>72. Coleroon River, repairs of the Banks of.</p> <p>78. Calicut Canal (Malabar).</p> <p>89. Coonoor Anicut, restoration of the.</p> <p>100. Cunnadien Channel, from an Anicut across the Tambrapoorny.</p> <p>5. Dhowlaisweram, permanent Railroad to.</p> <p>22. Davamunny Ghaut and Road.</p> <p>87. Dindigul and Pulney, repairs to Road No. 2, between.</p> <p>11. Ellore and Masulipatam, Road and Bridges on the Road between.</p> <p>1. Godavery Anicut.</p> <p>8. Godavery Guttoo Anicut.</p> <p>36. Goonamadee Calingulah.</p> <p>31. Honore Jetty.</p> <p>80. Hassanoor Ghaut.</p> <p>12. Kristnavarem Limekiln.</p> <p>14. Kundlairoo, Anicut across the.</p> <p>75. Khansairbs Channel, Bridge across the.</p> <p>74. Laulpett, improving the Road from, through Manargoody, to Womampillioor.</p> <p>21. Munjerabad Ghaut and Road.</p> <p>25. Mangalore and Agoomby Road.</p> <p>45. Mercalcurray River, improvement of.</p> <p>51. Moodecondaun River, Bridge over.</p> <p>73. Manargoody and Chellumbrum, improving the Road between.</p> <p>83. Madura, New Sepoy Lines in the Town of.</p> <p>84. Madura, improvement of Drainage in Town of.</p> <p>95. Madras to Quilon, repairing High Road, No. 4, from.</p> <p>104. Madras to Quilon, repairs on the High Road from, in several Talooks.</p> <p>105. Mailacul Channel, from the Murdoor Anicut.</p> <p>6. Narsipoor, Road from, to Cakarapurroo.</p> <p>19. Nellore Tank, completion of new Channel of supply to.</p> <p>37. Notary Otairy Calingulah.</p> <p>40. Narasinga Cauvery River, improving the.</p> <p>49. Nundalam River, Bridge over the.</p> <p>56. Negapatam, improving the Port of.</p> <p>60. Nadookurray Main Channel, improving the.</p> <p>76. Nundimungalum Oopenaur River, Bridge across the.</p> <p>93. Nully Oday, Bridge across the.</p> <p>99. Nenmany Anicut Channel and Tank.</p> <p>98. Oopenungady and Pootoor Junction Road.</p>	<p>No. 85. Oopaur River, improvement of Road to, and construction of Bridge over the.</p> <p>9. Poolapurty Anicut.</p> <p>10. Pedda Oopalem Channel, Anicut across the.</p> <p>15. Pennair, opening of a new Channel from the.</p> <p>52. Pootaur, Bridge over the.</p> <p>53. Paumany River, Bridge over the.</p> <p>54. Point Calimere, Beacon Column at.</p> <p>64. Peravully Channel, improving the.</p> <p>65. Pungoony Channel, improving the.</p> <p>77. Perambaddy Pass, Line from the frontiers of Coorg to the Coast at Cannanore.</p> <p>88. Panlaur River Wagganies.</p> <p>106. Paupancuul Channel, from the Carapanuddee.</p> <p>61. Rettenagoody Anicut, extending the, and widening the Nuttud Nullah Channel.</p> <p>3. Samulcottah Channel.</p> <p>13. Survapully Channel.</p> <p>17. Survapully Talook and Bodelingumpaud Cutcherries.</p> <p>26. Sjrey and Darwar Road Bridges.</p> <p>44. Shembu Cauvery River, head Sluice of the.</p> <p>92. Shevacausee, Cotton Gin House at.</p> <p>103. Streavigoontum, Talook Revenue and Police Cutcherry in.</p> <p>2. Thoolha Bagah Channel.</p> <p>42. Trimulrajén, Bridge over the.</p> <p>50. Trimulrajén, Bridge over, on the road from Combaconum to Negapatam.</p> <p>55. Tranquebar, Beach Defences at.</p> <p>62. Trichinopoly, improving the Road from, along the right bank of the Cauvery.</p> <p>63. Trichinopoly, Gaol at.</p> <p>68. Trichinopoly, new Road from, to Towagoody, the first stage to Tanjore.</p> <p>69. Trichinopoly, constructing part of Road from, to Arrialoor.</p> <p>70. Trichinopoly, improving the Road from, to Laulgoody.</p> <p>81. Teppacandoo Bridge.</p> <p>86. Thiroopooyanum Channel, Bridge across head of.</p> <p>96. Thimmarajasamoodrum Cooticau Anicut, reconstruction of.</p> <p>97. Thirtangul Pereacolum, restoration of the.</p> <p>98. Thentherapairee Head Sluice, repair of the.</p> <p>101. Tinnevelly Channel from the Sootamullay Anicut across the Tambrapoorny.</p> <p>102. Teutacorin, New Sea Custom-house and Maste. Attendant's Office at.</p> <p>39. Vuddavaur River, improving the.</p> <p>43. Veerasholen River, Bridge over the.</p> <p>46. Valavanaur River, improvement of the.</p> <p>66. Vitticutty Main Channel, improving the.</p> <p>71. Vuddavaur River, widening the, and forming a Dike on its left bank.</p> <p>90. Vigay River, rebuilding Causeway across.</p> <p>91. Vaddakurray Tank, supplying Channel of.</p> <p>20. Wullabapoor Anicut, reconstruction of.</p> <p>34. Wotairy Nullah, Embankment Channel and Bridge across the.</p> <p>57. Weyacondaun Channel, improvement of the.</p> <p>58. Weyacondaun Channel, rebuilding of Dark's Bridge across.</p> <p>4. Yanam Embankment.</p> <p>29. Yellapore and Moondagode Road.</p> <p>30. Yellapore and Halliaul Road.</p> <p>79. Yenudmuckle Apron.</p>

No. 9.—PARTICULARS of some of the more important of the Works executed under the MADRAS CIVIL ENGINEERS' DEPARTMENT, in the Years 1848 and 1849; extracted from the Divisional Reports.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>FIRST DIVISION.</b>							
<i>Rajahmundry District:</i>							
(1.) Godavery Anicut - -	For Irrigation - - - -	- - - - -	- - - - -	<i>Rs. a. p.</i> - Total expenditure to end of 1849, 6,50,344 - -	- - - - -	- - - - -	- - The opening of the quarries, laying rail-roads, building stone dams, construction of the Dhowlaisweram and Muddoor Branch anicuts, and lock and sluices at various places.
(2.) Thoolla Bagah Channel - -	- - Clearing the old channel, and embanking.	Commenced in 1846	Cocanada River -	16,920 - -	- - - - -	- - - - -	- - Average collections: 1840 to 1845 - 34,541 rupees. 1849 - - - 52,232 " Increase - 17,091 "
(3.) Samulcottah Channel - -	For irrigation - " - - -	27 miles in length -	- - - - -	4,644 - -	- - - - -	- - - - -	- - Chiefly for sluices. This is an entirely new line, carried through a tract of country almost without water, excepting some tanks dependent on the local rains: it is a striking proof of the value of water, the average collections having risen from 25,280 rupees to 30,486 rupees in 1846-47, and 36,093 rupees in 1847-48, and 47,910 rupees in 1849.
(4.) Yanam Embankment - -	- - - - -	- - - - -	- - - - -	8,120 - -	- - - - -	- - - - -	- - This embankment, carried along the eastern side of the Godavery, was utterly inefficient previous to 1848.
(5.) Permanent Railroad to Dhowlaisweram.	- - For the permanent use of the district.	- - - - -	- - - - -	5,410 - -	- - - - -	- - - - -	- - Leading from the Quarry Hill to the bank of the river.
(6.) Road from Narsipoor to Cakarapurroo.	- - To connect Narsipoor with Rajahmundry.	Length, 24 miles -	Cakarapurroo - -	9,407 - -	- - - - -	- - - - -	- - Expenditure incurred in the erection of bridges and tunnels, and repairs to the road-way.
(7.) Lattice Bridge at Cocanada	- - - - -	- - Length, 240 feet between the abutments, in three bays of 50 feet each, and two of 40 feet.	- - - - -	1,065 - - balance of a contract of 2,400 rupees.	- - - - -	Finished in 1848 -	- - This was a first experiment to ascertain the cost and efficiency of a mode of construction so extensively used in America, and which has also been adopted in England. It has been of the greatest use, many thousands of people passing over it daily.
<i>Vizagapatam District:</i>							
(8.) Godavery Guttoo Anicut	- - For damming up the water which flows down the river, to supply irrigation to a tract of country paying revenue to the amount of 15,000 rupees.	Length, 324 feet -	- - - - -	3,187 - -	- - - - -	- - Completed; date not given.	- - Constructed across the Shadah Nuddee, near Cassimcottah.
(9.) Poolaparty Anicut - -	- - To cause the water which comes down the river, instead of running waste into the sea, to be stored up in several tanks or reservoirs for irrigating lands in the Survasiddy Talook, assessed at 11,000 rupees.	- - - - -	- - - - -	1,712 - -	- - - - -	- - - - -	Constructed across the Pundaroo River.

(continued)

No. 9.—PARTICULARS of some of the more Important of the Works executed under the Madras Civil Engineers' Department, in the Years 1848 and 1849, &c.—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>FIRST DIVISION—continued.</b>							
<i>Vizagapatam District—continued.</i>							
(10.)	Anicut across the Pedda Oopalem Channel.	For turning the River Pundaroo into its right course.	- - - -	890 - -	- -	- - - -	
<i>Masulipatam District:</i>							
(11.)	Road and Bridges on the Road between Ellore and Masulipatam.	For making the passage of irrigating channels practicable for bandies at all seasons.	- - - -	4,029 - -	- - - -	- - - -	- - Nearly 40,000 bullocks pass over them yearly with salt alone, to the Hyderabad territories, which before were weeks in the monsoon, waiting till the water fell to ford the rapid streams.
(12.)	Kristnavarem Lime Kila	For supplying lime for all the contemplated bridges on No. 6 Trunk Road.	- - - -	143 - -	- -	- - - -	
<b>SECOND DIVISION:</b>							
<i>Nellore District:</i>							
(13.)	Survapully Channel	- - - -	- - - -	1,751 - -	- - - -	- - - -	-- Leads off from the Pennair River, and after running a course of nearly three miles, branches into three channels. Passes on the western side of the town of Nellore, and is spanned by three bridges and an aqueduct built of laterite stone. The revenue derived, in 1848-49, from the tanks depending upon the Survapully River channel for their supply of water, was 12,500 rupees.
(14.)	Anicut across the Kundalairoo.	To afford a better supply of water to the tanks of Buolvole, Collecodooroo and Cutwapully, of the Survapully talook.	Length, 90 feet; commenced, May 1849.	3,090 - -	- -	Completed, July 1849	-- The body of this work is 90 feet long by 4 1/2 wide on the average, and six feet high, of laterite stone. Standing on a foundation 8 feet deep and 8 1/2 feet broad on the average, supported by wing walls of brick in chunam 19 feet high, with buttresses, and further strengthened by an apron of rubble stone, 33 feet wide, which was secured by a retaining wall sunk 9 feet deep in the bed of the river.
(15.)	Opening of a new Channel from the Pennair.	For the better supply of the Nellore tank.	Rather more than five miles in length.	6,519 - -	- - - -	- - - -	-- This is a capacious reservoir, capable of irrigating 2,143 goortooos of land, the ayacut revenue of which is 32,167 rupees, but of late years the average revenue derived from it is only about 18,000 rupees.
(16.)	Repair of the bank of the Absanagram Tank in the Calagherry Talook.	- - - -	- - - -	2,905 - -	- - - -	- - - -	-- In 1847, this tank was breached in several places; this expenditure was therefore necessary to protect existing revenue.
(17.)	Survapully Talook and Bodalingumpaud Cutcherries.	- - - -	- - - -	4,194 - -	- - - -	- - - -	-- Constructed of brick in chunam, with beams of teak wood, and palmyrah rafters and reapers.



987.	(18) Construction of sluices and calingulahs to different tanks	- - - - -	- - - - -	6,234	- -	-	
	(19) Completion of the new channel of supply to the Nellore tank	- - - - -	- - - - -	2,315	- -	Completed 1849	-- The revenue, which in 1844-45 was 10,882 rupees, was, in the season of its completion, 1848-49, 18,234 rupees
	THIRD DIVISION						
	<i>Bellary</i>						
	(20) Reconstruction of the Wul-labapoor Anicut	- - - - -	Commenced 1846-47	Not stated	- -	-- Completed in May 1848	-- This work is a dam across the Toombudra River, 44 miles west of the town of Bellary. The chief executive difficulty was to keep the work free from sudden freshes, as also from the water above, which throughout the dry season stands from 8 to 12 feet above some of the rocks on which the foundations of the work are laid.
	<i>Canara</i>						
	(21) Munjerabad Ghaut and Road.	- - Constructed in lieu of the Bissly Ghaut Road	-- Length, 30 miles, commenced 1842-43	62,461	- -	-- Expected to be completed in June 1852	-- This line leads from Munjerabad, in the Mysore country, towards Mangalore via Oopenungady. A few carts only have yet been on the line, owing to a part of it being impracticable for cart traffic
	<i>North Canara</i>						
	(22) Davamunny Ghaut and Road	- - - - -	Length, 30 miles	42,619	- -	June 1851	-- This line leaves the old Sircee and Neelcoond road in the Baldghat of North Canara, about nine miles from Sircee, and passed over the ghauts at Davamunny, a few miles to the north of Neelcoond, early in 1849 it was first passable for carriages, but as a number of rivers and nullahs still required bridging, it was not until the end of 1849 that it was much used by carts conveying cotton from the interior. Numbers of these vehicles, as well as bullocks, were met with at every turn of the road. One large bridge and several of minor importance are still required
Q 4	(23) Coloor Ghaut	- - - - -	-- Length, 5 miles; commenced 1847.	8,000	- -	Completed 1848-49	-- Nearly midway between the Munjerabad and Davamunny Ghauts. When completed, the roads above the ghaut will lead to it from Anantapoor, Shikarpoor, and Shemoga, and below, junction lines are in progress from the foot of the ghaut to Coondapoor and to Byndoor, a small port nearly due west of the ghaut. The general course of the old line of road has been selected, and though not very easily practicable for carts, it is considered very easy for bullocks and horses
	(24) Arbyle Ghaut and line of road from Yellapoor to Meerjan.	- - - - -	Length, 45 miles	3,091	- -		-- The slope of this road is very gentle, and easily practicable for bandies, it is being carried on from between Soonksal and the River Gurgawully. A branch line to Ancola, about 15 miles in length, is being surveyed
	(25) Mangalore and Agoomby Road	- - - - -	Length, 60 miles	5,691	- -		-- Leads through Goorpoor, by the foot of the Agoomby Pass, to the southern parts of the Nugger district of Mysore. This road has been made practicable for carts as far as Yenna, Nalay, Mutt, and will probably be made so throughout, during the next working season.
	(26) Sircy and Darwar road bridges.	- - - - -	- - - - -	15,668	- -	15,724 rupees - -	-- Completed, season 1849-50
	bridges, the Jhendagherry bridge, rebuilt in 1848-49, is 42 feet, the road beyond the frontier is under the superintendence of the Bombay officers. It is expected by season 1850-51 that from the sea coast at Coompta to Darwar the road will be practicable throughout the year for wheeled carriages						

(continued)

No. 9.—PARTICULARS of some of the more Important of the Works executed under the Madras Civil Engineers' Department, in the Years 1848 and 1849, &c.—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>THIRD DIVISION—continued.</b>							
<i>North Canara—continued.</i>							
(27.) Cassergode and Soolea Road.	- - - - -	-- Length, 29 miles; commenced 1849-50.	Jaulsoor - - -	Rs. a. p. 1,645 - -	Rs. a. p. - - - -	Next working season	-- This is a branch line from the sea coast at Cassergode to Jaulsoor, near Soolea, about 12 miles from the foot of the Surmpajee Ghaut; nearly half the road work has been completed. Like most of the other lines leading from the coast towards the ghauts, a good deal of thick jungle has to be cleared away, and many precipitous hills surmounted.
(28.) Oopenungady and Pootoor Junction Road.	- - - - -	-- Length, 8 miles; commenced 1849-50.	- - - - -	1,175 - -	- - - -	- - - -	-- The estimate does not provide for any masonry works, with the exception of a few small tunnels; the larger nullahs have been temporarily bridged with trees, cut down in the neighbourhood. Owing to the depth of water at the ferry at Oopenungady, and the rocky bed at other parts, carts will not be able to cross without being unloaded.
(29.) Yellapoor and Moondagode Road.	-- To connect the Darwar and Sirey line with the top of the Arbyle Ghaut.	-- Length, 25 miles; commenced season 1849-50.	- - - - -	1,269 - -	- - - -	- - - -	-- The main obstacle on this line is the Baldti nullah, which will be bridged.
(30.) Yellapoor and Hallian Road.	-- To connect the northern parts of the Soopan Talook with the head of the Arbyle Ghaut.	Length, 30 miles -	- - - - -	- - - -	4,625 - -	-- Expected time of completion, end of April 1851.	-- The line twice crosses a large nullah, over which wooden bridges will be erected.
(31.) Honore Jetty - - -	-- As a breakwater to protect the custom-house and adjoining warehouses from encroachments of the sea.	- - - - -	- - - - -	1,766 - -	- - - -	Completed 1848-49 -	-- Appears to have fully answered the purpose. The wharf, walls, and other conveniences for shipping and landing goods have been much improved.
(32.) Road from the foot of the Agoomby Ghaut at So-maishwar to Bujjay.	-- Completed for the purpose of connecting the Agoomby Ghaut with the head of the navigation of the Nullah (Savourna Nuddy) which runs into the backwater two miles south of Bramahwar.	Length, 18 miles -	Bujjay - - -	4,479 - -	4,483 - -	-- Completed; date not given.	Estimates for bridges are being prepared.
(33.) Road from the foot of the Agoomby Ghaut, at So-maishwar, to Halandee.	-- For the purpose of connecting the foot of the Agoomby Ghaut with the head of the navigation of the large nullahs running into the broad backwater east of Coondapoor.	Length, 15 miles -	Halandee - - -	2,274 - -	2,239 - -	-- Completed; date not given.	-- This road has been made practicable for carts throughout.
<b>FOURTH DIVISION.</b>							
<i>Chingleput:</i>							
(34.) Embankment, channel, and bridge across the Wotairy Nullah.	-- To divert the waters of the nullah into the Coum River, to prevent them, as hitherto, overflowing the Perambore lines, near Madras.	Length, 492 yards -	- - - - -	1,441 11 -	- - - -	Completed 1849 -	-- The work is considered a great boon to persons in Perambore.

987.

## North Arcot:

(35.) Cauvery Pauk Tank repairs.	- - - - -	Length, 3½ miles	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - The bank of the tank is 3½ miles in length, reveted throughout, and is 22 feet high in the inside. The revenue collected from cultivation for the last 20 years amounts to 804,293 rupees; the repairs to 97,805 rupees.	
(36.) Goonamadee Calingulah	- - - - -	- - - - -	- - - - -	2,516	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - This is a satisfactory work. This work was very necessary; the Cauvery Pauk supply channel is now in good order.	
(37.) Notairy Otairy Calingulah.	- - - - -	- - - - -	- - - - -	2,089	- - - - -	2,480	- - - - -	- - - - -	- - Completed; date not stated.	- - The work has been almost entirely rebuilt; the wing walls are 23 feet high; the apron is entirely of dressed granite.	
(38.) Calavaye Tank Calingulah.	- - - - -	- - - - -	- - - - -	1,589	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - The surplus water from the calingulah of this tank has an overfall of 11 feet; the apron, which is 5 feet thick of solid stone and chunam, with a good rear retaining wall, and covered with dressed granite, has been rebuilt in a most substantial manner.	
SIXTH DIVISION.											
Tanjore:											
(39.) Improving the Vuddavaur River in the Paupanasum and Manargoody Talooks.	For irrigation	- - - - -	- - - - -	5,965	- - - - -	6,403	- - - - -	- - - - -	- - - - -	- - Completed; date not stated.	- - The Vuddavaur branches from the Ven-naur River about 10 miles west of Tanjore, and irrigates an extent of land equal to 7,014 acres, bearing a revenue of 25,989 rupees. The lower part of the river course has been enlarged, and several sharp bends cut, the result of which has been highly satisfactory.
(40.) Improving the Narasinga Cauvery River in the Put-tacottah Talook.	For irrigation purposes	- - - - -	- - - - -	2,196	- - - - -	2,196	- - - - -	Completed	- - - - -	- - This river branches from the Vellaur, and irrigates a great extent of land, principally on shrotrium tenure, but of which 1,183 acres yield a revenue to Government of 5,102 rupees. Owing to freshes throwing sand into the branch, the cultivation had suffered greatly for want of water, and the bed was deepened and widened to increase the supply.	
(41.) Bridge over the Araselaur River, on the road from Madras to Negapatam, via Mayaveram and Shealey.	- - - - -	- - - - -	- - - - -	5,632	- - - - -	6,595	- - - - -	Finished 1848-49	- - - - -	- - The bridge is of five oval arches of 30 feet span. The foundations are of wells filled in with cubes of brick masonry, and resting on sand; the rest of the work is formed of brick in chunam. The road is 24 feet wide, including the parapets.	
(42.) Bridge over the River Trimulrajen on the same road.	- - - - -	- - - - -	- - - - -	6,765	- - - - -	7,844	- - - - -	- - - - -	- - Completed; date not given.	- - This bridge is of five oval arches of 38 feet span, and resembles the Araselaur bridge in all respects, excepting the foundations, which consist in solid blocks of brickwork resting on a firm bed of clay.	
(43.) Bridge over the Veerasholen River, on the road from Combaconum to Tranquebar.	- - - - -	Commenced 1848	- - - - -	2,217	- - - - -	2,510	- - - - -	Completed 1848	- - - - -	- - This work was commenced and finished in 1848. The foundations are of solid brick masonry, and the superstructure of the same material. The width of roadway, including parapets, is 24 feet. The utility of this bridge has been very great in facilitating the export of grain from Tranquebar.	

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No. 9.—PARTICULARS of some of the more Important of the Works executed under the Madras Civil Engineers' Department in the Years 1848 and 1849, &c.—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS
<i>SIXTH DIVISION—continued.</i>							
<i>Tanjore—continued</i>							
(44.) Head sluice of the River Shembu Cauvery.	To regulate the supply of water -	Commenced 1849 -	- - - -	Rs. a. p. 3,106 - -	Rs. a. p. 3,143 - -	Completed 1849 -	- - The Shembu Cauvery branches from the left bank of the Vennaur, four miles from Tanjore, and irrigates 3,993 acres of land, yielding a revenue of 25,795 rupees. To regulate the supply of water, the sluice was built, consisting of five vents each six feet wide, divided by piers seven feet high, flanked by ample wing-walls, and secured by broad aprons in front and rear, the piers are faced with cut granite, and the aprons covered with granite, the foundations and superstructures are of brick in chunam
(45.) Improvement of the Mercalcurry River.	- - To prevent the overflow of its banks in the rainy weather.	Commenced 1846 -	- - - -	8,398 - -	9,500 - -	- - Completed, date not given.	- - The Mercalcurry is a stream in the south part of the Cauvery Delta, carrying off the drainage of 15,074 acres of irrigated land, bearing a revenue of 53,476 rupees; it had never been fully embanked, but overflowed the lands west of its channel. The bed of the river has been widened and deepened, and a dike formed. The best results have been obtained
(46.) Improvement of the Valavanaur River.	- - For deepening and embanking its channel.	- - - -	- - - -	3,672 - -	- - - -	- - - -	- - The Valavanaur is another great drainage channel of the Tritrapoondy Talook, and discharges the surplus water from 12,641 acres of irrigated land, bearing a revenue of 42,609 rupees, into the great southern swamp lying between Point Calmere and Adrampatam. This river had never been embanked, and the lands were exposed to constant inundation, and the crops to destruction. The estimate was sanctioned for deepening and embanking the channel, and cutting a new and direct course for its discharge into the swamp. The part completed in 1849 was very efficiently performed.
(47.) Bridge over the River Corayaur, on the road between Tritrapoondy and Mootobpettah.	- - To facilitate the export of grain from Tritrapoondy Talook by the seaport of Mootobpettah, on the southern coast.	- - - -	- - - -	6,341 - -	6,400 - -	- - Completed; date not given.	- - This bridge is of five segmental arches of 32 feet span. This bridge has proved a valuable addition to the means of communication.
(48.) Bridge over the River Cuddaveyaur, on the road from Negapatam to Point Calimere, in the Kevalore Talook.	- - To connect the villages south of Negapatam with the port of Negapatam, as well as to facilitate the communication with Ceylon by the coast road.	Commenced 1848 -	- - - -	7,530 - -	7,867 - -	Completed 1849 -	- - The bridge is of three segmental arches of 35 and 30 feet span across a tidal river. The bridge was finished in a satisfactory manner, and has proved a most important improvement.
(49.) Bridge over the Nundalam River, on the road between Tranquebar and Negapatam, in the Tranquebar Talook.	- - Was built in consequence of the great increase of traffic between Tranquebar and the ports to the southward of it.	Commenced 1849 -	- - - -	10,179 - -	10,631 - -	Completed 1849 -	- - The bridge is of five segmental arches of 38, 35, and 32 feet span; the roadway is 24 feet wide. The construction of this bridge was conducted with the utmost vigour and efficiency, and its completion has conducted greatly to the comfort of a large trading population.
(50.) Bridge over the River Trumulrajen, on the road from Combaconum to Negapatam.	- - Built to open the communication between the large town of Combaconum and the chief seaport of the province.	- - - -	- - - -	5,292 - -	6,458 - -	Completed - -	- - This bridge is of five segmental arches of 30 feet span; the foundations consist of solid brick masonry; the piers and the arches of the same material; the entire work was completed within five months in a perfectly satisfactory manner. The width of roadway is 24 feet, including parapets.

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(51.) Bridge over the River Moodecondann, on the same road.	- - - - -	- - - - -	- - - - -	3,841 - -	4,584 - -	Completed - -	- - Of similar construction with the former bridge, except that it is partly founded on wells.
(52.) Bridge over the River Pootaur, in the Cadavassel Talook, on the same road.	- - - - -	- - - - -	- - - - -	3,936 - -	3,944 - -	Completed - -	- - This bridge is similar in construction to the above. The advantages resulting from the construction of these three last-mentioned bridges are fully appreciated by the traders and landholders along this important line.
(53.) Bridge over the Paumany River, on the road from Combaconum to Manargoody.	- - Constructed to complete the communication between these two very large towns.	Commenced 1849 -	- - - - -	5,842 - -	6,286 - -	Completed 1849 -	- - This bridge is of five oval arches of 30 feet span; the foundations are of solid brick masonry, and the piers and arches, of similar material, were finished in a style of great efficiency. The work proves of the utmost convenience to the people, and being on one of the Salt roads, subserves materially to the convenience of Government.
(54.) Beacon Column at Point Calmère.	- - To distinguish this important position, where the shoals render navigation peculiarly unsafe.	Commenced in 1848 -	- - - - -	2,733 - -	2,753 - -	Completed 1849 -	- - At this point the shoals render navigation peculiarly unsafe. The structure consists of a plain Doric shaft 60 feet high, but hollow, in order to be converted, if necessary, into a lighthouse, the foundations are of wells, and the material is brick in chunam, carefully plastered with a fine white surface, the base is faced with stone to a height of three feet, to secure it from the action of salt.
(55.) Beach defences at Tranquebar.	- - To protect the town of Tranquebar from encroachments of the sea.	- - - - -	- - - - -	5,058 - -	5,155 - -	Completed - -	- - This work is effected by means of groins and planking and pile work.
(56.) Improving the Port of Negapatam.	- - - - -	Commenced in 1846 -	- - - - -	9,009 - -	9,500 - -	Completed 1849 -	- - The work consisted of the excavation of a new channel for the Cuddavagur River to bring its whole volume of water to the sea at Negapatam, and the construction of a small and rude jetty to restrain the mouth of the river and facilitate the shipment and landing of goods. The result has been great increase in the trade of the port.
<i>Trichinopoly:</i>							
(57.) Improvement of the Weyasecondann Channel.	- - Clearing 28 miles of the bed of the channel.	Length, 33 1/2 miles -	- - 17 1/2 miles eastward of Trichinopoly.	13,748 - -	14,090 - -	Completed - -	- - The channel is led off from the River Cauvery, 16 miles west of Trichinopoly, and flows, including sinuosities, 33 1/2 miles, it irrigates land to the extent of 9,281 acres. The channel has been deepened and widened, and the result is highly satisfactory.
(58.) Rebuilding of Dark's Bridge across the Weyasecondann Channel.	- - In lieu of old bridge, destroyed.	- - - - -	Trichinopoly - -	2,656 - -	3,110 - -	Completed - -	- - This channel was crossed near the town of Trichinopoly by an ancient native bridge, or causeway, which caused great obstruction to the free flow of the water, and was most injurious to the cultivation dependent on the channel to the eastward of the town; the old work was demolished, and a new bridge constructed of three segmental arches of 27 and 26 feet span; the width of the roadway is 40 feet. The effect on the channel has been highly beneficial.
(59.) Extending the Covellay Surplus Channel.	- - For increasing the facility of irrigation.	Commenced in 1848 -	- - - - -	2,718 - -	2,990 - -	Completed 1849 -	- - The drainage of 1,455 acres of irrigated land was much impeded by the high level at which it was discharged through the Covellay Channel into the Vennaur. The channel was prolonged a mile and a half, by which a fall of nearly four feet was gained, a dam was also constructed for the irrigation of the lands of Killioor.

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No. 9.—PARTICULARS of some of the more Important of the Works executed under the Madras Civil Engineers' Department in the Years 1848 and 1849, &c.—continued.

NAME OF WORK	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS
<b>SIXTH DIVISION—continued.</b>							
<i>Trichinopoly—continued.</i>							
(60.) Improving the Nadookurray Main Channel.	-- To prevent its being over-supplied from the Cauvery River.	- - - -	- - - -	Rs. a. p. 8,701 - -	Rs. a. p. 9,258 - -	Completed - -	-- This channel, branching from the Cauvery on its north side, irrigates the Island of Seringam. The head of the main channel has been extended 3 ½ miles higher up the course of the Cauvery, and a head sluice built there for regulating the supply of water. The sluice is a work of four vents of five feet each. The irrigation of 4,021 acres of the Seringam island will be materially benefited.
(61.) Extending the Rettengoodly Anicut, and widening the Nuttad Nullah Channel.	-- To facilitate the flow of water for irrigation.	- - - -	- - - -	10,948 - -	11,278 - -	Completed - -	-- This anicut is a work of native construction, which serves to carry the Peravully channel (issuing from the Cauvery) across the Oopaur, a large and violent torrent which rises in the neighbouring hills; beyond the Oopaur the channel is called the Nuttad Nullah, and this, after a course of 10 miles, in which it irrigates a large extent of land, finally terminates in the Shengundy Tank. The anicut was much too confined and the nullah too narrow for the vast flood of water that occasionally passed. The addition to the anicut is a solid brick in chunam wall 11 feet high, 12 feet thick at the base, 4 feet at the crown, and 108 feet long, secured by an apron of stone 40 feet wide, and a wing wall of ample dimensions.
(62.) Improving the road from Trichinopoly along the right bank of the Cauvery.	-- For making the road suitable for traffic at all seasons of the year.	Commenced in 1847	- - - -	8,683 - -	8,683 - -	Completed 1849 - -	-- The chief masonry works consisted of nine bridges, with an aggregate of 14 arches, varying from 9 to 18 feet, viz, of a bridge of one arch of 18 feet span across the Kistnarayapooram irrigating channel; another of one arch, 12 feet span, across the Chintelwady surplus channel, a bridge of three arches, 10 feet span, across the Pillapollam surplus; and one arch of 12 feet span across the irrigating channel of the same village; a bridge of one arch, 18 feet, across the Murdoor channel, near Wuddium; another, of 14 feet, over the same channel near Kootitullay; one of two arches, 11 feet, across the Nunga Voikal irrigating channel; one of two arches, 18 feet, across a surplus stream. The roadway of the head sluice was widened by 31 ½ feet by the construction of three arches of 12 feet average span. Other additional channels, and 24 road tunnels have been constructed. This road is available for cart traffic throughout the year.
(63.) Gaol at Trichinopoly	-- To provide space for more prisoners, the old gaol being inadequate in space, and defective in arrangement.	- - - -	Trichinopoly - -	14,441 - -	15,975 - -	Completed - -	-- The old gaol was inadequate in space, and defective in arrangement. The new building is calculated for 500 prisoners, including sick. The buildings are arranged in a double row, with a central passage 50 feet wide. The gaol is surrounded by a boundary wall 15 feet high. The drainage and water supply are complete. This gaol has been very favourably reported on by the judicial and medical officers of the station.
(64.) Improving the Peravully Channel.	-- For clearing the bed and strengthening the banks of this great channel for about 15 miles.	- - - -	- - - -	4,604 - -	5,113 - -	Completed - -	-- This channel branches from the north side of the Cauvery above the upper Coleroon Anicut, and its main stream irrigates 9,737 acres, yielding 64,552 rupees. The bed has been cleared, and the banks, for 15 miles, strengthened.

(65.) Improving the Pungoony Channel.	-- For widening and deepening its channel.	Commenced in 1849 -	- - - -	2,535 - -	2,581 - -	Completed 1849 -	-- The Pungoony Channel is a branch of the Peravully, and acts both as a draining and irrigating channel. The land dependent on it is about 6,201 acres, producing a revenue of 32,182 rupees. The result of the improvements has been a great improvement in the state of the cultivation affected by it.
(66.) Improving the Vitticutty Main Channel.	- - - - -	Commenced in 1847 -	- - - -	2,077 - -	2,424 - -	Completed in 1849 -	-- The land irrigated is a comparatively narrow strip, about a mile and a half in width, but its means of supply are abundant. A new branch channel from the Cauvery has been cut, and the main channel for 9,000 yards widened and embanked. An old sluice has been enlarged, and a new one constructed, the new sluice has two vents of five feet each.
(67.) Bridge over the Cauvery at Trichinopoly.	- - - - -	-- February 1846; length, 1,882 feet.	- - - -	97,414 - -	99,146 - -	Completed 1849 -	-- This bridge is of 32 elliptical arches of 49 feet span. The work was commenced in February 1846; in February and April 1847 the works were destroyed by floods. In 1849 the bridge was opened for use. The foundations are on wells sunk nine feet below the bed, which is sand. The piers are 7 1/2 feet average thickness, 8 1/2 feet high, and the rise of the arch 12 1/2 feet, the width of roadway, including parapets (one foot thick) 27 feet, the total length, from wing to wing, is 1,882 feet; the material throughout is brick in chunam. Average daily traffic in October 1850, foot passengers, 9,061; carts and carriages, 223; bullocks and cows, 484, horses, 20.
(68.) New road from Trichinopoly to Towagoody, the first stage to Tanjore.	- - - - -	-- April 1849; length, nine miles.	Towagoody - -	17,578 - -	- - - -	- - - -	-- The old line was very circuitous, and in bad order, a considerable extent of the land to be traversed is under irrigation, and the Wayacandaun channel crosses the line three times, besides other unfordable irrigating streams. Operations commenced in April 1849, and by the end of that year the following masonry works had been completed: Two bridges, each of three arches of 26 feet span, across the Wayacandaun, one bridge, of three arches, 20 feet span; one of three arches, of 16 feet, across the Covelly surplus channel, one bridge of three arches, of 12 feet, over the Killy Voikal (irrigating channel); a single arch of 24 feet span over the Retta Voikal, an arch of 12 feet over the Tadenvyal surplus channel, besides 27 tunnels, varying from one and a half to eight feet span. The length of road raised and gravelled through paddy fields is three miles, and through dry lands six miles. The road was opened and used in 1849 (though not quite finished), it facilitates the access to many villages surrounded by wet cultivation and watercourses, which previously cut them off from the great local market for their produce.
(69.) Constructing part of road from Trichinopoly to Arrialoor.	- - - - -	- - - - -	- - - - -	2,168 - -	- - - - -	- - - - -	-- The portion of road extends for 1 1/2 mile across a sheet of irrigated land; and the masonry works include a bridge of five arches across the Coolyaur, and one of three arches over the Pungoony. In 1849 the earthwork of the road was finished and covered with sand, seven tunnels and three small bridges of various dimensions were built.
(70.) Improving the road from Trichinopoly to Laulgoody.	-- For raising low inundated parts, and building eight tunnels and three bridges.	- - - - -	Laulgoody - -	1,347 - -	- - - - -	- - - - -	-- This road extends for 10 miles through one of the richest tracts of irrigated land in the district, and being quite neglected for a long period, and unprovided with any bridges or tunnels, it was impassable for carts.

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No. 9.—PARTICULARS of some of the more Important of the Works executed under the Madras Civil Engineers' Department in the Years 1848 and 1849, &c.—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
<b>SIXTH DIVISION—continued.</b>				<i>Rs. a. p.</i>	<i>Rs. a. p.</i>		
<i>Trichinopoly—continued.</i>							
(71.) Widening the Vuddavaur River, and forming a dike on its left bank in Manargoody Talook.	-- To improve the means of irrigation.	- - - - -	- - - - -	3,050 - -	3,056 - -	Completed - - -	- - The Vuddavaur River branching from the Coleroon, supplies the great Veeranum tank, and irrigates about 40,000 acres, yielding a revenue of 2,00,000 rupees. The channel has been widened for a distance of 3½ miles, and a dike constructed, the result has been the resumption of cultivation on 85 acres of land previously abandoned, and the far more abundant supply of water to the irrigated tract.
(72.) Repair of the banks of the Coleroon in the limits of Goodelapaudy, in Chellumbrum Talook.	-- To force back a due proportion of the current into the southern branch.	- - - - -	- - - - -	3,230 - -	3,234 - -	Completed - - -	- - The Coleroon divides into two branches a short distance below the ferry on the road from Madras to Tanjore, the southern branch of which had been greatly filled up with sand. It became necessary to check the great draught of the northern arm by forcing a due proportion of the current into the southern branch, for which purpose an embankment 400 yards in length and five yards in height was thrown across the northern stream, with a view of the additional stream thrown into the southern channel clearing out the sand by which it was obstructed. The embankment remained firm until the extreme freshes in July, when, as was expected, it was breached; after having had the most decided effect in restoring the proportions of the two streams, but the operations could not be considered final.
(73.) Improving the road between Manargoody and Chellumbrum.	-- For completing the road as far as Laulpett.	Length, 12½ miles -	Laulpett - - -	4,896 - -	5,981 - -	Completed in 1850 -	- - The road lying across an alluvial plain, subject in many places to inundation, was impracticable for all wheeled carriages, and very difficult even for bullocks. The distance formed under this expenditure is 12½ miles in both talooks. There are 16 masonry tunnels varying from one to three feet.
(74.) Improving the road from Laulpett, through Manargoody to Womampilloor.	-- Raising and forming the road for six miles, and constructing seven tunnels.	- - - - -	- - - - -	3,717 - -	3,799 - -	Completed - - -	- - This is a much frequented road between the district of Tanjore and South Arcot. The road has been raised for six miles, and seven tunnels of three feet span constructed.
(75.) Bridge across the Khan-saib's channel, on the road between Manargoody and Chellumbrum.	To enlarge the waterway - -	Commenced in 1849 -	- - - - -	3,233 - -	3,244 - -	Completed in 1849 -	- - The bridge was injured by a flood in 1847, while unfinished, and it was found necessary to enlarge the water-way. It has one segmental arch of 40 feet span, and was completed in 1849, in a very satisfactory manner. The foundations and superstructure are of solid brick masonry; breadth of roadway 19 feet.
(76.) Bridge across the Nundimungalum Openaur River, on the road between Chellumbrum and Sheally.	-- To obviate the difficulty caused to the traffic.	Commenced in 1848 -	- - - - -	16,077 - -	16,170 - -	Completed in 1849 -	- - This is a great draining stream which falls into the Coleroon; it always caused most serious difficulties to the traffic. The bridge, which is of three elliptic arches of 40 feet span, was finished in 1849. height of the piers 10 feet; rise of the arch 12 feet; breadth of roadway 24 feet, including parapet. The greatest possible advantage has resulted to the extensive traffic on the line.



987.

SEVENTH DIVISION.

(77.) Perambaddy Pass. Line from the frontiers of Coorg to the Coast at Cannanore.

-- To connect the great western trunk road from Madras with Cannanore, with a branch to Tellicherry, on the western coast.

2,00,376

-- It is stated that, in 1842, there was no tolerable road from the interior to the great trading town of Tellicherry, or to Cannanore; the only road practicable for wheels being by

the Periah Pass, which from its steepness could not be kept in such condition as to be used by bandies during the rainy months, a season in that part of India occupying a third of the year. The roads on this part are most dangerous, from the fevers which infest them, and in consequence of which no inducement will keep the people to their work, and the Ghaut is so situated in a narrow gorge, that it could not be remodelled. The Perambaddy Ghaut makes a descent from the level of Coorg to the plain of Malabar of 3,000 feet in 10 miles, the inclination varying from 1 in 18 to 1 in 24, with a very short grade, 1 in 16. There is no counterslope in any part of the line, and only a few yards of level. Besides the Ghaut, the estimate covers the cost of the road above and below from the frontiers of Coorg to the station of Cannanore, a distance of 80 miles. There is a year's work at least to be done. Besides the value of the line in a military point of view, as an approach to Cannanore, which is not only the principal cantonment and arsenal on the Western Coast, but the port at which a force could be best collected for embarkation on steamers, the trade will be very great, and the benefit accruing will be felt, both by the Astagan division of Mysore and the town of Tellicherry.

(78.) The Calicut Canal (Malabar).

-- 1st Work The Pyolea Canal, to enable boats passing down the Cottuaddy River to land their cargo at the port of Vuddagherry. 2d. To connect the Ellatoor and Beypoor backwater by a cutting, six miles. One great object of the navigation is to take the rice of Southern Malabar to the talooks in the north, where pepper is the produce. No. 4. To unite the Beypoor River with Ponany, and that town will have an inland water communication with Calicut and all the coast towns as far as Vuddagherry, within 12 miles of Tellicherry, a distance of 60 miles.

No. 3 Work - 18,429

No 2 Work - 15,333

No. 1 Work - Completed in 1848.

-- 3d. Calicut Canal. The executive difficulties were a rapid and destructive stream, that in the freshes left the Tambercherry River, and flowed into a small lake through which the navigation had to pass. The cutting was through two parambas, or high laterite ridges. The forcible stream from the Tambercherry threatened to turn the whole current, should it be allowed to flow into the lake, and make its exit by the northern entrance of the canal. This breach was therefore closed, since which much of the lake has been reclaimed for cultivation. No. 4. Tannoor Canal. The work is progressing, but has been delayed by a bed of sand of the finest description, 30 1/2 feet in depth, having been met with.

R 4

(79.) The Yenudmuckle Apron

-- To fit a great portion of the bed of the lake for cultivation, which would otherwise be under salt water for six months in the year.

about 40,500

-- The works consist of an earthen embankment 550 yards in length, and a calingulah 110 yards from wing wall to wing wall; their effect is to exclude the tide water while the drainage of the country has a free passage to the sea. The dam was destroyed in 1849, in consequence of the piles having been in many cases cut six feet shorter than was planned; the loss by this failure is estimated at 8,758 rupees. A new project has since been sent in for a dam near the sea, on a more secure section and advantageous site.

(80.) Hassanoor Ghaut

-- Originally traced as a substitute for the Guzzlehutty, an ancient pass between Mysore and Combatoor, too steep for wheels.

23,271

September 1849

-- This work was left for two years untouched, in consequence of the great loss of life fever had occasioned among the work-people. This road will be of value to the towns of Mysore, Combatoor, Trichinopoly, and perhaps Modura, by giving them an easy communication suitable for carts.

(continued)

Co. 9.—PARTICULARS of some of the more Important of the Works executed under the Madras Civil Engineers' Department in the Years 1848 and 1849, &c.—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
				Rs. a. p.	Rs. a. p.		
SEVENTH DIVISION—continued.							
81.) The Teppacandoo Bridge	- - - - -	- - - - -	- - - - -	3,000 - -	- - - - -	- - - - -	- - Over the River Moydur, a main branch of the Bowany, and tributary of the Cavary, having its source on the Neilgherries, its course follows the line of the mountains, its bed at Teppacandoo being nearly on a level with the country, while a few miles lower down it forms a deep and precipitous ravine 1,000 feet deep, the opposite sides of which are not more than from 2,000 to 3,000 feet apart. This curious feature in the plain is known by the name of the Mysore Ditch. In consequence of the loss of life from fever when the bridge was first erected, the new bridge was made of the simplest form, and prepared of teak timber at Hoonsoor, to be put together with the greatest rapidity. The centring was of the rudest kind; a few small straight trees were cut for uprights, and a scaffolding of bamboos lashed together did all that was required. Span of the bridge, 60 feet, height above the bed of the river, 38 feet.
(82.) Examination of the Anamullay Teak Forest.	- - - - -	Commenced 1849	- - - - -	- - - - -	- - - - -	- - - - -	- - This forest was begun to be worked on account of Government in 1849, it is stated that such wood could be stored at Ponany, on the western coast, for half a rupee per cubic foot, as has cost the Bombay Government hitherto 2½ rupees. The only difficulty anticipated in 1849, was the collection of men sufficient to cut the 100,000 cubic feet required to furnish the several departments in Bombay and Madras.
EIGHTH DIVISION.							
Madura.							
(83.) New Sepoy Lines in the town of Madura.	- - - - -	Commenced in 1847	- - - - -	6,000 - -	6,000 - -	Completed in 1848	- - It was deemed advisable to substitute for the thatched huts formerly occupied by the detachment of Native Infantry at Madura, a superior description of house with tiled roof and yard in rear, to be in keeping with other parts of the town, also for the prevention of fires, which were of common occurrence. The new lines have a very neat appearance, and are exceedingly airy and healthy.
(84.) Improvement of the drainage of the town of Madura.	- - - - -	Commenced in 1848	- - - - -	2,586 - -	- - - - -	- - - - -	- - The drains are constructed of old fort stones (granite), backed and covered with brick in chunam
(85.) Improvement of road to, and construction of a bridge over the Oopaur River on Road No. 5.	- - - - -	Commenced 1846-47.	- - - - -	- - - - -	2,003 - -	- - - - -	- - The bridge is of three arches; centre arch 15 feet, and side arches each 12 feet.
(86.) Bridge across the Head of Throopoovanum Channel.	- - - - -	Commenced 1846	- - - - -	- - - - -	2,315 - -	- - - - -	- - This bridge is of three arches, but was not quite completed
(87.) Repairs to Road No. 2, between Dindigul and Pulney.	- - - - -	- - - - -	- - - - -	6,492 - -	6,519 - -	Completed in 1849	- - The repairs provided for in the estimate, are confined principally to 4½ miles of black cotton soil, between the villages of Chuttrappetty and Cannacumputty. The road is put in very good order.
(88.) Panlaur River Wagganics.	- - With a view of straightening the course of the stream, and thereby preserving the topea and cultivation on the right bank of the Panlaur from injury during high freshes.	Commenced in 1847	- - - - -	1,930 - -	- - - - -	- - - - -	

987.

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(89.) Restoration of the Coonor Annicut.	-- For restoring the annicut to an efficient state.	Commenced in 1847 -	- . . . -	1,975 - -	2,050 8 -	Completed - -	-- The cultivation under this annicut had fallen off to a considerable extent for want of sufficient water, the body of the annicut being in a leaky state, and the head of the channel too confined. The materials and workmanship were of good quality.
(90.) Rebuilding Causeway across the Vigay River.	- . . . . -	Length, 1,095 feet -	- . . . . -	1,173 15 -	- . . . . -	- . . . . -	-- The method pursued has been to place three lines of stone endwise, to serve as retaining walls to the pavement, and prevent the sand being removed from under it; the spaces filled up with rubble in cement.
(91.) Supplying channel of Vad-dakuray Tank from the Peraanal on the Vigay River.	- . . . . -	Commenced in 1849 -	- . . . . -	1,726 - -	- . . . . -	- . . . . -	-- The estimate provided for raising and widening the right bank and for repairing six sluices of irrigation in the same, besides sundry other items for masonry work.
(92.) Cotton Gin-house at Shevacausee, in the Sautoor Talook.	-- To accommodate two (2) 60 saw-gins worked by cattle, and three (3) hand-gins.	- . . . . -	- . . . . -	2,685 - -	2,600 - -	Completed - -	-- The materials and workmanship were favourably reported on.
(93.) Bridge across Nully Oday, on the high road from Madras to Quilon.	- . . . . -	Commenced in 1846 -	- . . . . -	2,987 - -	4,601 - -	Completed in 1848 -	-- The bridge is of three arches of 30 feet span each, and its construction has been of great service to the traffic of the district, particularly to the cotton bandlees.
(94.) Floorings to six of the arches of the Ambasamooduram bridge across the Tambrapoorney river.	- . . . . -	- . . . . -	- . . . . -	1,222 - -	1,205 - -	Completed in 1848 -	-- The dip or versed sine of the flooring is three feet, and the span of the arches 45½ feet. The work was carried into effect in a satisfactory manner.
(95.) Repairing high road No. 4, from Madras to Quilon, in the Ootapadarum Talook.	- . . . . -	Commenced in 1848 -	- . . . . -	5,311 - -	5,311 - -	Completed in 1849 -	-- The natural soil of the road is "black cotton." The principle of construction is, first, to raise the road half a yard or more above the level of the country with soil from the side trenches, and to place thereon a foundation of broken stones nine inches in thickness, and over them a coating of gravel of the same thickness. This plan is found to answer well.
(96.) Reconstruction of the Thimmarajasamoodrum Cooteecaulannicut across the Monneemoolaur.	-- Its reconstruction appeared likely to be less expensive in the long run than partial repairs.	- . . . . -	- . . . . -	2,486 - -	2,538 - -	Completed - -	-- The body of this annicut was in a very leaky state, and the foundations undermined. The foundations were of brick in chunam laid on rock, at the depth of 2½ yards, and the body of the annicut above of the same material, faced with cut stone.
(97.) Restoration of the Thirtangul Peraanal, in Sautoor Talook.	- . . . . -	- . . . . -	- . . . . -	1,427 - -	1,525 - -	Completed 1847-48 -	-- The tank bund has been raised, and a breach closed at the south end by a wall of rough stones in chunam. Since the repairs, the tank has been yielding a revenue to Government.
(98.) Repair of the Thentherapalree Head Sluice, in Streevigoontum Talook.	- . . . . -	- . . . . -	- . . . . -	2,709 - -	2,709 - -	- - Completed; date not given.	-- This work serves to supply water from the Tamtrapoor River to 1,070 cotays of land, yielding a revenue of 23,031 rupees annually. The foundations are of brick in chunam, laid at the depth of nine feet on stiff clay.
(99.) Newmany annicut channel and tank in Sautoor Talook.	- . . . . -	- . . . . -	- . . . . -	1,070 - -	1,272 - -	- - Completed; date not given.	-- The annicut was breached by freshes in 1847, to close which effectually it was necessary to extend the annicut for a distance of 44 yards, and to connect it by a wing-wall with the head of the channel; a further portion of 16 yards required to be raised, also the channel and tank banks and revetments required raising. The body of the annicut is of rough stone in chunam, floored on top with brick in chunam.

(continued)

No. 9.—PARTICULARS of some of the more Important of the Works executed under the Madras Civil Engineers' Department in the Years 1848 and 1849, &c.—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion	REMARKS.
EIGHTH DIVISION— <i>continued.</i>							
<i>Madura—continued.</i>				<i>Rs. a. p.</i>	<i>Rs. a. p.</i>		
(100.) Cunnadien Channel, from an annicut across the Tambrapooray, in Shairmadevy Talook.	- - - - -	- - - - -	- - - - -	2,135 - -	2,231 - -	Completed - -	-- The banks were raised, and the bed of the channel cleared, several sluices repaired, &c. The channel is one of the most, if not the most valuable work in Tinnevely, yielding nearly two lacs of rupees annually to Government.
(101) Tinnevely Channel, from the Sootamullay Annicut, across the Tambrapooray.	-- With the view to the preservation of existing revenue, which, in Fusly 1258, amounted to 63,942 rupees.	- - - - -	- - - - -	1,118 - -	1,123 - -	Completed, 1848 -	The repairs were similar to the above.
<i>Tinnevely.</i>							
(102) New Sea Custom house and Master Attendant's Office, at Teutacorin.	-- The former Sea Custom-house having been found insufficient for the wants of the port of Teutacorin	- - - - -	- - - - -	2,338 - -	2,339 - -	Completed - -	- The former Sea Custom-house having been found insufficient for the wants of the port of Teutacorin, has been transferred to the post-office department. The master attendant's office and the customs and salt department are under one roof, with verandahs front and rear. The material is sandstone in chunam.
(103.) Talook Revenue and Police Cutcherry, in Streevigoontum.	-- The want of a good cutcherry at Streevigoontum was very much felt.	- - - - -	- - - - -	2,521 - -	2,782 - -	Completed - -	-- Constructed throughout of burnt brick in chunam, with tiled roof, in the form of a parallelogram; length, outside, 91 ½ feet, and breadth, 53 feet; contains one room for Tamil and another for Hundoovee records, with a room for prisoners under examination. The treasury room is a separate building, in the centre of the inner court, with flat terraced roof, and iron-barred door.
(104) Repairs on the high road from Madras to Quilon, in several Talooks.	- - - - -	- - - - -	- - - - -	- - - - -	1,704 - - 7,786 - - 5,868 - -	- - - - -	-- The estimates provided for constructing pavements, open drains, and tunnels. Their construction has been of great service to the traffic on lines, of which a part has been made available thereby for wheeled conveyances during the rains.
(105.) Mailacul Channel, from the Murdoor Annicut, on the Tambrapooray River.	- - - - -	- - - - -	- - - - -	1,946 - -	- - - - -	- - - - -	-- This is one of the most important irrigating channels in the Tinnevely district, the annual revenue derived from it being about 1 ½ lacs of rupees. The breadth of this channel was insufficient, the first 4 miles 4 furlongs and 170 yards of the channel's course had been widened to an average breadth of 14 yards, and the bed cleared of rock.
(106.) Paupancaul Channel, from the Carapanuddee.	- - - - -	- - - - -	- - - - -	1,017 - -	1,156 - -	Completed - -	-- The bed of this channel has been widened, and cleared of rocks and deposit. The numerous tanks dependent on it have been rendered more effective, especially the large tank of Veersakamane, in the Sunkermnarcovil Talook, the crops under which frequently suffered from drought, owing to the bad state of the channel.

## No. 10.

A STATEMENT of Expenditure on Works of Irrigation, Roads, Bridges, and Ghauts in the Collectorates under the Presidency of Fort St. George, for the years ending 1838 to 1847 inclusive, will be found at Page 166 of the Printed Parliamentary Paper of the Honourable the House of Commons, No. 622 of 1851, the total amount being 82,51,187 rupees.

The expenditure in the Civil Engineer's Department, and by that of the Superintendent of Roads, for the years 1848 and 1849, was as follows :

Y E A R.	BY CIVIL ENGINEER'S DEPARTMENT.	BY DEPARTMENT OF SUPER- INTENDENT OF ROADS.	TOTAL.
	<i>Rs.</i>	<i>Rs.</i>	<i>Rs.</i>
1848 - - - -	* 13,17,192	1,54,627	14,71,819
1849 - - - -	* 9,94,603	2,57,519	12,52,122

\* Exclusive of expenditure on the Godavery Anicut.

In a Report from the Board of Revenue, in the Department of Public Works, the total disbursement during the year 1850, on Public Works is shown to have been

Fort St George  
Public Works  
Letter, 18 May  
(No. 2) 1853.

Y E A R.	FOR WORKS OF IRRIGATION.	FOR BUILDINGS.	FOR ROADS.	FOR TRUNK ROADS.	TOTAL.
	<i>Rs.</i>	<i>Rs.</i>	<i>Rs.</i>	<i>Rs.</i>	<i>Rs.</i>
1850 - -	9,60,960	1,05,516	1,62,165	3,52,523	15,81,165

Total Expenditure for the year 1838 to 1847 inclusive - -	<i>Rs.</i>	82,51,187
"    "    1848    "    -    -		14,71,819
"    "    1849    "    -    -		12,52,122
"    "    1850    "    -    -		15,81,165
Total Expenditure for the year 1838 to 1850 inclusive - <i>Rs.</i>		1,25,56,293



## PRESIDENCY OF BOMBAY.

## No. 11.

## FORMATION OF THE ROAD AND TANK DEPARTMENT AT BOMBAY.

IN 1836, the Government of Bombay represented to the Court the bad state of the roads at that Presidency; that the tanks and bunds also were under no effective supervision, and reported that they had instituted the Department of Roads and Tanks, which measure was approved of by the Honourable the Court of Directors in 1837, as will be seen from the following extract from their despatch to the Government of Bombay, dated the 2d of June in that year.

Para. 8. "The bad state of the principal roads in your Presidency is attributed to the absence of systematic supervision, and to the employment of many persons on the same line, who are frequently without knowledge of road making, and have not time to look after the portion under their charge. The tanks and bunds are also stated to have been under no effectual supervision.

9. "The measures recently adopted to remedy these defects, consist of the appointment of one engineer officer as superintendent of roads and tanks in the Concan, Poonah and Ahmednuggur collectorates, to act in concurrence with the Collectors of Poonah, Ahmednuggur and the Concan, having under him two junior engineer officers, as assistants in each collectorate; and you propose eventually to place other districts under similar superintendence. There will, as you state, be some increase of expense occasioned by this plan, but no additional appointments will be required; the officers employed will not be diverted from their usual duties, their operations will merely become more systematic and combined."

2. Under date the 10th August 1836, the superintendent of roads submitted his first progress report under the new system, with a short description of the roads of the Presidency, from which it appeared, that there existed 449 miles of old roads, the repair of 211 miles only of which had been provided for, at a sanctioned charge of 36,449 rupees per annum. The only metalled road was that from Poona to Panwell (88 miles), being the only made road up the ghauts between the Tull Ghaut on the north and the Parr Ghaut on the south, both of which are nearly 100 miles distant, and both exceedingly difficult, indeed almost impassable for laden carts; so that all the wheel traffic from the Deccan might be said to be dependent on this line. In continuation of this line to the northern stations was the road to Ahmednuggur, but this had never been constructed on any regular system, cheaply patched in parts, and expensively though imperfectly built in others, partly under civilians, partly under contract, partly under engineers. The next in importance was the Great Northern Road, leading by Tannah and Blewndy to Nassick; this "was constructed several years ago, but the line chosen presents so many difficulties, in the want of forage and water, and the extraordinary steepness of its ascents and descents, sometimes exceeding one in four, that it has become absolutely necessary for the furtherance of trade to improve the old, or construct a new route for the introduction of carts."

Answer to Letters dated 28th February (No. 6) 1836, and 18th March (No. 10) 1836.

Reporting the adoption of a new system for the improvement of the roads, tanks, and bunds of the Presidency, and various measures commenced or proposed.

Although these measures were not altogether approved of by the Bengal Government, the Court's sanction is nevertheless requested, as they will prove of immense benefit to the inhabitants, and greatly increase the revenue. The construction of a causeway to connect Salsette with the Continent, at an estimated expense of 20,000 rupees, is also earnestly recommended for the Court's sanction.

**Tanks.**

Of the old tanks, it was stated in 1836, "few are now in use for the purposes of irrigation, \* \* \* they are choked with the yearly accumulation of mud; one, however (the Paste), has to be partially cleared out for the purpose of affording drinking water; and one (the Goreygaum) has been thoroughly cleared, and its sides built up to the height of several feet."

**Bundaras.**

On the subject of bundaras, it was stated, that "in the Ahmednuggur collectorate, particularly towards Nassick, every stream appears to have been most carefully husbanded in former days, not by damming it up in large sheets of water, but by merely throwing low walls across them, at distances of three or four miles asunder, and diverting the channel into watercourses for the purposes of irrigation after the close of the rainy season; of these bundaras many are in ruins, and very few complete."

On the receipt of the annual report for 1846-47, Sir G. Clerk recorded a minute concurred in by the Commander-in-Chief, proposing to abolish the Department of Roads and Tanks, and by incorporating its members with the Military Engineer Establishment, to provide a concentrated and general system of supervision and control over the entire Department of Public Works. The plan proposed to provide each district with a superior professional executive officer, in whom should be vested exclusively (subject to the general control of the superintending engineer of the division) the duty of originating and personally planning all public works of importance, he alone being responsible for their proper execution, his subordinates being merely required to work out the details under his instructions.

Sir George Clerk did not, however, remain long enough in India to carry out the scheme, and the Government of Lord Falkland deferred the proposed reforms until the Court's sentiments thereon had been declared. The Court's instructions were communicated to the Government of India in their despatch,\* dated the 30th January (No. 2) of 1850.

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\* See printed Parliamentary Return of the Honourable the House of Commons, No. 622 of 1851, pp. 149, 150, and 153.



No. 12.

TABULAR STATEMENT of the PRINCIPAL WORKS executed by the BOMBAY ROAD and TANK DEPARTMENT, from 1836 to 1850-51 inclusive, and by the BOMBAY ENGINEERS in the Civil Branch of Public Works, from 1846-47 to 1850-51 inclusive.

NAME OF WORK.	Object of Construction	Length, and Date of Commencement.	Place of Termination, or of Intended Termination	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS
Ahmednugger to Seeroor -	- - - - -	Length, 16 miles	Seeroor - - -	<i>Rs a. p</i> -- Executed by convict labour.	<i>Rs. a. p</i> - - - - -	-- Formed prior to the year 1840	-- This line was excellently completed in two seasons, under the superintendence of the Road and Tank Department.
Ahmednugger to Malligaum -	- - - - -	Length, about 10 miles	Malligaum - - -	-- Executed by convict labour.	- - - - -	-- Finished in 1839, with the exception of drains and bridges, but including a very difficult and extended ghaut	-- Constructed under the superintendence of the Road and Tank Department.
Akoordie New Road and Junction Lines	-- The Ounde and Panowlie and Bhojapoor lines will be abandoned on the completion of the Akoordie road, and the saving in repairs will amount to no less than 4,800 rupees per annum.	-- Length, 8 ½ miles; sanctioned 25th November 1847	- - - - -	-- Executed under contract	<i>Rs</i> For Roadway, 18,432 For Bridges } 28,426 and Nullahs } <hr/> <i>Rs. 46,858</i>  Or, 5,512 rupees per mile.	- - - - -	-- The rate of cost of this road may be accounted moderate for a metalled and perfect road in the Deccan, considering that the country is almost always either undulating and intersected by numerous water-courses, or else composed of black soil, where the foundations of a road are an unavoidably expensive item. This road, commencing at the Dapooree Bridge, was stated to be in very good repair in December 1849, but the traffic increasing, it became dreadfully broken up during the hot weather, and it has subsequently been put into good order. In 1851 an expenditure of 8,938 rupees was sanctioned for increasing the width of the road from 20 to 25 feet, in consequence of the increase of carriage and cotton cart traffic
Agra and Bombay Road -	-- See paras. 13 to 17 and 66 of Court's Despatch to the Government of India, dated 30 January (No. 2) 1850, at pages 147, 148 and 153 of the printed Paper of the Honourable House of Commons, No. 622 of 1851.						
The Wakee Nullah Bridge, No. 1	- - - - -	Commenced 1845-46	- - - - -	3,744 5 6	- - - - -	Completed 1846-47 -	-- This bridge consists of a semi-elliptical rubble masonry arch, 30 feet span and 8 feet rise, with two side semi-circular arches of 5 feet span each. The work throughout is constructed of rubble masonry, on a pitched foundation of the same; the breadth of roadway between the parapets is 18 feet, the roadway is embanked on the north side 250 feet in length, and on the south side 450 feet, at an average height of 5½ or 6 feet. The parapet is 3½ feet high, and the length of parapet from end to end, 71 feet. The top is coped with chunam plaster.

(continued)

No. 12.—TABULAR STATEMENT of the Principal Works executed by the Bombay Road and Tank Department, from 1836 to 1850-51 inclusive, and by the Bombay Engineers, &c.—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
Agra and Bombay Road— <i>continued.</i>				<i>Rs. a. p.</i>	<i>Rs. a. p.</i>		
The Wakee Nullah Bridge, No. 2.	- - - - -	- - - - -	- - - - -	4,120 - -	- - - - -	Completed 1846-47 -	-- This bridge is composed of two wooden trusses, each 54 feet in length, firmly fixed in rubble masonry abutments. The road being laid on the lower beams of the trusses, it has a water-way of 46 feet in the clear, the road crossing the nullah somewhat obliquely. The trusses are composed of pieces of teak, none exceeding 10 feet in length, taken out of the ruins of the fort of Malligaum. The embankment on the south approach is about 530 feet, filled in to an average height of 6½ feet; that on the north approach is 500 feet.
Walwarree Nullah Bridge	- - - - -	Commenced 1845-46	- - - - -	3,004 10 8	- - - - -	-- Completed season 1846-47.	-- This bridge is composed of two semi-elliptical arches of 13 feet span each, and 6 feet rise. The breadth of the roadway between the parapets is 18 feet, and length of parapet, from end to end, 60 feet. The roadway is 22 feet broad, and embanked on the north side of the bridge 420 feet in length, and on the south side 530 feet, and an average height of 5½ feet. The work throughout is constructed on a pitched foundation of an uncoursed rubble masonry to a depth of 4 feet.
Kussara to Kurdee, proposed New Line.	To supersede the old line of road -	-- Sanctioned 18th March 1849.	Kurdee - - - -	- - - - -	1,33,391 - -	- - - - -	-- The new line only deviates from the old one where the dips are at present too steep for traffic, and no slope is to exceed 1 in 19.
Bridge over the Pharserry River.	-- The post was occasionally delayed as much as eight hours.	- - - - -	At Pimpulgaom.	-	- - - - -	- - - - -	
Agra Road, between Scindwal Fort and the River Nerbudda, through the Nimar Territory.	-- Converting it into a fair-weather road.	-- Length, 43 miles; commenced 1849.	Nerbudda River -	3,705 13 3	- - - - -	Completed 1850 -	-- The nature of the work is the removal of obstructions, the cutting of side drains, and the sloping the approaches into rivers and nullahs. This has been an useful piece of work. The amount here expended is said to be required to be spent annually on this piece of road, to make it a clearly marked fair-weather road during the proper season.
Akheira: Repairing Bhundarraha and Watercourse.	- - - - -	- - - - -	- - - - -	1,183 8 7	- - - - -	Completed 1849 -	-- It was satisfactorily completed shortly after the commencement of the past official year.

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Bombay, <i>vid</i> Tannah and Bhowndy, to Nassick, <i>vid</i> Tully Ghaut, on the Great Northern Road.	- - For the furtherance of trade with Candeish	- Length, Bombay to Bhowndy, 33 miles; Bhowndy to Nassick, 78 miles. This road was constructed previously to 1836, and provision made for annual repairs.	Nassick - - -	Not known - - -	Not known - - -	Not known - - -	- - The line chosen presented so many difficulties, in the want of forage and water, and from the extraordinary steepness of its ascents and descents, sometimes exceeding one in four, that a new route was ordered to be surveyed in 1836.
Bombay: Continuation from Nassick to Chandore.	- - Ditto - - ditto - - -	- - Length, 40 miles, which completes the line as far as the Candeish Collectorate. Sanctioned season 1835-36.	Chandore - - -	- - - See Nassick and Chandore Road, Letter N.			-
Bassein: Construction of the Gerridge Bund.	- - For the recovery of land from the sea	- - - - -	- - In the neighbourhood of Bassein	- - - - -	- - Two estimates, Rs. 9,354. 12. 8.	- - - - -	- - In 1841 the Superintendent reported that the estimates would be considerably exceeded before the works could be completed, if, with reference to the violent ebbing and flowing of the tide, that end could ever be accomplished. Report of 1839, page 19. Letter 61, of 1840.
Bassein: Construction of the Kullum Bund	- - Ditto - - ditto - - -	- - Sanctioned 15th February 1838	- - ditto - - -	- - - - -	9,122 11 -	- - Completion not reported.	-
Bhore Ghaut Road - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - This road runs in a single line as far as Poona, where it receives, as in a centre, the diverging lines from Ahmednugger, Sholapore, and the Neera Bridge, the prolongation of which extends the communication to the centre of the Peninsula.
Bombay: The Bombay Pier; the Tannah Causeway and Bridge, the road from Trombay to Chimboor, the Chimboor Causeway, and the junction of this work with the causeway at Sion.	- - Connecting the former islands of Bombay, Salsette and Trombay into one, and these again with the main continent of India	- - - - -	- - These works are all within 23 miles of the capital.	- - These works were undertaken by convict labour, and are all of such a costly and extensive description that it was considered that they could not possibly have been undertaken by other means.	- - - - -	- - Completion of the Chimboor Causeway, and of the Trombay and Chimboor Road, reported in season 1840-41	- - These works open two more lines of ingress for the traffic of the port, which owing to its chief export (cotton), and the one particular season at which it all crowds into the harbour, are particularly wanted, giving a very greatly increased value to all property in the island of Trombay, and leading to the reclaiming of many thousands of acres of ground from the sea.
Bhadne, repairing the Bundarah and Watercourse of.	For irrigation - - - - -	Season 1847-48	Bhadne - - -	Rs. 2,993. 1. 11	- - - - -	- - Completed season 1849.	- - The work was completed satisfactorily shortly after the commencement of the official year.
Bazar, Peera, Sattara: constructing a tunnel at.	- - To connect the town of Sattara with the valley of the Oomooree River, a high ridge having previously interposed an effectual barrier to communication between them without a long detour.	Length, 192 feet	Oomooree Valley - - -	- - - - -	- - Rs. 31,500. 14. 9, of which Rs. 13,709. 14. 9. were to be subscribed by the natives	- - - - -	- - This tunnel was completely driven through the range joining Enteshwar and the port of Sattara into the Oomooree valley, in January last Length, 192 feet, breadth at base, 30 feet, at top, 24 feet, height from bottom to roof, 24 feet.

(continued)

No. 12.—TABULAR STATEMENT of the Principal Works executed by the Bombay Road and Tank Department, from 1836 to 1850-51 inclusive, and by the Bombay Engineers, &c.—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
Chandore Ghaut Road	- - - - -	-- Length, 5 miles; was laid out, and provision made for annual repairs, previously to the formation of the Road and Tank Department in 1836.	- - - - -	Rs. a. p. 8,069 - -	Rs. a. p. - - - - -	- - - - -	- - This ghaut into the plain of Candesh had a descent of 1 in 5 and a third, but the worst portion is only about 500 feet in length. In November 1841 the Government ordered the slope of this ghaut to be reduced to 1 in 18. This ghaut has been passable for carriages since May 1843.
Chowh on the Great Northern Road to Callian, to be continued to join the Thull Ghaut Road	- - This road will open up some of the most productive districts in the Northern Concan.	Season 1838-39	Callian - -	-- 93 miles finished to 1840-41, at an expense of 22,191 rupees.	- - - - -	- - - - -	- - This line, when finished, with the exception of a few miles between Perm and Nagota, for which sanction is anticipated, will open a line of road through the Northern Concan, from Mahabaleshwar to the Thull Ghaut.
Chiploon, in the Southern Concan, over the Koombarlee Ghaut.	- - With the view of facilitating intercourse and traffic.	-- Length, 17 miles; season 1838-39.	- - - - -	3,340 7 3	-- This line was originally constructed at a considerable cost, but for many years was left without any repairs; a supplementary estimate of 3,112 rupees was passed in 1844-45.	- - - - -	- - This line was, for the most part, obliterated, and required to be constructed "de novo."
Cooly Bridge, repairs of the	To facilitate communication	- - - Sanctioned 26th December 1845.	- - Situated on the west of the town of Bapen.	569 - -	569 - -	- - Completed season 1845-46.	-
Carringa: Construction of a Mamlutdar's Cutcherry.	- - - - -	- - - Sanctioned 30th April 1847.	At Oorun - -	- - - - -	- - 1,367 rupees by contract.	-	-
Chowndanah Bundarrah, improvements to the.	For irrigation - - -	Sanctioned 1845-46-	Chowndanah - -	1,503 9 9	- - - - -	- - Completed season, 1848-49.	- - A large body of water now occupies the place of a mass of sand and deposit, previously choking up the rear of the bundarrah wall, and the supply of water has enabled the villagers to bring under wet cultivation land previously yielding monsoon crops only.
Cunnasse Watercourse, improvements to the.	For purposes of irrigation -	Sanctioned 1848-49-	Cunnasse - -	4,061 - -	- - - - -	Completed 1849 -	- - On the 22d of July, and on the 4th October 1849, the parapets of the aqueducts were injured by floods, owing to the steep slopes to the sides of the cutting of the watercourse.
Churrygaum Khlad, constructing a road over the.	- - - - -	- Sanctioned in March 1850.	Churrygaum - -	3,168 3 2	4,000 - -	-	-

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Chineh Khind, constructing a Bullock Track over the.	- - - - -	Length about 2½ miles	- - - - -	- - - - -	7,146 - -	- - - - -	-- This khind is situated on the direct line of road between Neera and Waece; and a line was marked out with a slope of 1 in 21, the line being about 2½ miles in length: for the greater part, the cuttings being through solid rock.
Dapoorie and Holkar Bridge Junction Road.	-- To perfect the communication between Bombay and Nuggur, when the Bhogapoor line shall have been abandoned.	-- Sanctioned 25th November 1847.	- - - - -	- - - - -	-- Under contract for 6,350 rupees.	- - - - -	-- It is believed that during the fair season the greater portion of the traffic between these places will proceed by Poona and Kurradee.
Dabaree Patna Bundarrah, improvement of the.	-- For a supply of water to the villagers.	Sanctioned in 1847-48	- On the Girna River bank.	3,712 9 11	- - - - -	Completed 1848-49 -	-- The monsoon of 1848 did not injure this work, but the shifting of the deposit in rear of this bundarrah, consequent on the construction of four sluices on the left bank, and the prolongation of the wall on the right bank, had not given satisfaction to the villagers of Dhabaree and Patna, on the opposite banks of the river, who were constantly quarrelling about the supply of water. It is remarked by the Superintendent of Roads and Tanks, "in a river having low banks, like the Girna River, at the point where this bundarrah is constructed, it does not appear possible to modify an old existing bundarrah so as to supply water in the required proportions to land on both sides of the river; all that can be done is to render the bundarrah and watercourses so efficient that there may be as little loss as possible of the water supplied by the river, leaving it to the villagers, under the superintendence of the proper revenue authorities, to divide the water proportionally to their requirements on either side of the river."
Ghorabunder, New Pier at, and Causeway between Bendora and Muhim.	-- To enable the traffic from Surat to reach Bombay by the direct route of the Muhim Causeway, without incurring the delay often attendant upon the navigation around the southern extremity of the island.	- - - - -	- - - - -	- - - - -	84,239 9 3	- - - - -	-- All intention of building the new wharf was abandoned, for the time, in 1845-46, in consequence of the traffic being considered too slight to warrant the extensive outlay.
Ghoreygaum Tank, reconstruction of.	-- To afford supplies of water to travellers.	- Commenced in season 1835-36.	-- In the Northern Concan.	5,958 3 4 of which sum 3,000 rupees were subscribed by the inhabitants.	- - - - -	-- Completed, season 1836-37.	-- This work was undertaken on petition of the inhabitants.
Gokhirwa Bridge, repair of the	-- Connects the island of Bassein with the main land.	- Sanctioned 31st March 1846.	- - - - -	- - - - -	- - - - - 5,702 Supplementary } Estimate - } 976 <hr/> Rs. 6,678	- - - - -	-- This bridge was represented to be much required on account of its being on the high road from Bassein to Bhewndy, and in the neighbourhood of extensive salt pans, the produce of which is conveyed over it into the interior of the country; the supplementary estimate was rendered necessary from the timbers of the old bridge being in so bad a state as to preclude the possibility of their being used to the extent allowed for, the progress of the work was likewise much retarded by the tides by which, at the springs, the piers and abutments were covered for several days.

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No. 12.—TABULAR STATEMENT of the Principal Works executed by the Bombay Road and Tank Department, from 1836 to 1850-51 inclusive, and by the Bombay Engineers, &c.—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
				<i>Rs. a. p.</i>	<i>Rs. a. p.</i>		
Jhorgah and Nusserabad, completing the road between.	- - - - -	-- Length, 63 miles; sanctioned season 1847-48.	Nusserabad - -	15,151 - 4	- - - - -	Completed 1849-50 -	-- The sum of Rs. 172. 15. 6. out of the total cost was incurred for repairs to the embankments and roadways of the bridges, in consequence of the country people having cut them up with their carts before the earthwork had had time to consolidate. It runs somewhat parallel to the Boree and Geerna Rivers,
Kesseylee Bander - - -	- - - - -	-- Completed prior to 1840.	Kesseylee - -	-- Actual cost of materials, and all the labour executed by convicts in 1830, Rs. 10,904. -. 6.	-- By free labour, Rs. 45,653. 12.	-- Completed prior to 1840.	-
Kessoordee Tank, in the Poonah Collectorate.	For irrigation - - - -	-- Estimated in season 1835-36. Length about 1,409 feet, of which 139 feet are solid masonry, 1,170 feet earthen embankment, and 100 feet excavation, for an escape channel for floods.	-- Within 24 miles of Poona.	11,824 - -	- - Two estimates, Rs. 7,045. 3. 11., and Rs. 9,043. 11. 1.	Completed in 1837 -	-- Lying across the gorge of a long valley, and to form, when completed, a sheet of water, below which there are upwards of 1,000 acres of fine land lying waste, which by the agreements taken from the natives will be brought under cultivation. The greatest depth of water, when full, will be 38 feet, the greatest breadth nearly half a mile, and the greatest length nearly three-quarters of a mile; this work failed during season 1843-44, from the water rising above the top of the embankment, which was of earth, and carrying away a great portion of it; it is remarked, by the Superintendent of Roads and Tanks, "results such as these, from works designed by officers of acknowledged talent, must impress extreme caution in all future projects of the kind, and I think it will be found that the most profitable method of extending irrigation will be, in the first place, to restore the boundaries which formerly existed in the richer districts, and gradually to extend this system as far as appears practicable, instead of attempting to form immense reservoirs of water in less productive parts of the country."
Khandalla Tank, additions to	-- To render it efficient and complete for the supply of water to travellers.	Sanctioned in 1845 -	Khandalla - -	1,421 - -	- - - - -	Completed in 1845-40	-- The retaining wall has been raised to a uniform height, and a coping added of three feet broad; coping stones of angular formation have also been affixed to the tops of the well walls, so as to prevent people washing in the water they contain.
Kesseylee: Protection of the village of Kurrud from inundation.	- - The village had been endangered by encroachments of the Kurra River.	Sanctioned May 1845	Village of Kurrud -	- - - - -	715 - -	- - - - -	-- The villagers consented to be assessed for the sum of 200 rupees.
Kirkee: Construction of a piece of road.	-- For shortening the communication between the hospital and burial-ground.	-- Length about 3,000 feet.	At Kirkee - -	-- To be constructed under a contract of 1,920 rupees.	- - - - -	- - - - -	-- In the event of the junction between the new line by Akoordie and the Nuggur Road being effected across the Dapooris and Holkar bridges, the newly constructed piece now reported on will also form part of the connecting line.

Korgaon: Construction of a foot suspension bridge over the Wyturnee River.	-- A bridge has long been required, the river being of a remarkably peculiar section, very confined in breadth, and extremely deep.	-- Sanctioned season 1844-45.	Korgaon - - - - -	- - - - -	951 - -	- - - - -	-- The amount is probably higher than it may be deemed expedient to lay out on a work off any of the main lines, and for the use of foot passengers only; but no bridge could be built in the locality for less amount.
Khandalla: Erection of a small tiled building.	-- For the purposes of a post-office.	-- Sanctioned season 1845-46.	Khandalla - - - - -	286 - -	256 - -	-- Completed season 1845-46.	-- The outlay exceeded the estimate by 30 rupees, chiefly in consequence of teak having been used instead of junglewood in the construction of the doors and windows.
Karlee, on the Panwell and Poona Mail Road: construction of new works	-- For a travellers' bungalow, and a public well.	-- Sanctioned season 1845-46.	Karlee - - - - -	-- For bungalow, 2,289 rupees, for well, 770 rupees.	- - - - -	-- Completed season 1845-46.	-- The bungalow was entirely new, and includes out-houses; the well is a complete construction of cut stone masonry.
Kundanah Bundarra, improvements to the.	For irrigation - - - - -	Sanctioned 1847-48 -	Kundanah - - - - -	1,139 - 1	- - - - -	-- Completed season 1848-49.	-- This outlay has been lost to Government, as it appears that no water occupies the place of previously accumulated deposit, or at least in quantities too trifling to be of any service; it would have been difficult, if not impossible, to have anticipated such a failure.
Khutghur Watercourse, improvements to the.	- - - - -	- - - - -	In Candairsh - - - - -	1,226 7	- - - - -	-- Completed season 1848-49.	- - - - -
Mora: Bunder to Carangah	- - - - -	Length, five miles -	- - - - -	- - - - -	- - - - -	- - - - -	-- This line existed previously to the formation of the Road and Tank Department in 1836, but no regular provision had been made for annual repairs.
Mulligaum and Surat Road	- - - - -	-- Made by the Pioneer Corps, 1823 or 1824.	- - - - -	- - - - -	- - - - -	- - - - -	-- This line never appears to have received any regular repairs; the largest ghaut on the line is the Koondabharree Ghaut, between Dhywell and Beersurwarree, the slopes of which are in some parts 1 in 5
Mhar: Clearing out of the Chowdar Tank.	For supply of water - - - - -	-- Commenced season 1845-46.	Chowdar - - - - -	4,433 - -	6,407 - -	-- Completed season 1846-47	-- The mud in the bed of the tank was found, after the water was drawn off, to be but 4 ½ feet in depth, instead of 5 ½ feet, as had been estimated for; the balance was to be expended in repairing portions of the retaining wall.
Moodee Bundarra, improvement to the.	For supply of water - - - - -	-- Commenced season 1846-47.	In Candairsh - - - - -	2,903 5 9	2,628 5 9	-- Completed season 1848-49.	-- The excess of expenditure was occasioned by modifications of the original plan.
Memadapoor Tank, prolongation of the retaining wall to the.	To strengthen it - - - - -	Length, 639 feet -	In Sattara - - - - -	- - - - -	8,540 - -	- - - - -	-- This will complete the retaining wall to a length of 639 feet, averaging from 6 to 43 feet high, and with the other repairs tend to the preservation of this old Mohamedan work.
Nagitora to Malibleshwar Road	- - - - -	-- Length, 71 miles, this line of road existed previous to the formation of the Road and Tank Department in 1836, but no provision had been made for annual repairs.	- - - - -	5,325 - -	- - - - -	- - - - -	-- In season 1842-43 it was reported that a contract had been entered into for keeping this line in repair for 5,325 rupees annually, which plan had hitherto succeeded very well, as the road was reported to be in a much better state than in former years.

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No. 12.—TABULAR STATEMENT of the Principal Works executed by the Bombay Road and Tank Department, from 1830 to 1850-51 inclusive, and by the Bombay Engineers, &c.—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
Chowderna Tank, at Mhar	- - - - -	- - Sanctioned season 1844-45.	- - - - -	Rs. a. p. - - - - -	Rs. a. p. - - 7,334 rupees, of which 2,000 rupees are to be defrayed by the inhabitants; the remainder by Government.	-	
Nassick to Chandore, on the Great Northern Road.	- - Undertaken in continuation of the road which already existed from Bombay to Nassick, to open the flourishing district of Candesh.	- - Length, 43 miles, 2 furlongs, 01 yards; commenced in season 1837-38.	- - - - -	Rs. 37,884. - 10., via. Rs. a. p. Road - 27,512 13 9 Bridges, 10,371 3 8 Average, } 874 14 9 per mile - }	- - - - -	Com in 1830	- - This road, in connexion with the one constructing through Candelah, reaches from Bombay to the bindwar Pass in the Sant-poora range, and forms the whole Bombay portion of the road to Agra, while the traffic of Berar flows into it by the line of Oomera-wutty and Muikapoor; in 1847 it was reported that it would be difficult to find a half mile in any portion of this line which could be justly characterised as in indifferent order.
Nassick and Sinnur Road	- - To connect the towns of Nassick and Sinnur.	- - - - -	Sinnur - - - - -	- - Expended on the road, Rs. 15,832. 11. 11.	- - - - -	- - - - -	- - The portion between Sinnur and Siada is by no means well laid out; no survey was made of this line before commencing it, as the country appeared to present little or no difficulty to the formation of a cleared road; the result has proved that even in the most easy cases it is impossible to produce any satisfactory road without going through all the preliminary details. The road was reported in 1844-45 to be in fair order; paved dips were ordered to be constructed across the four principal nullahs, as the traffic was not of sufficient importance to warrant the outlay for bridges.
Narrungaon: Repairs to a Bridge across a nullah, between Seroor and Soopah.	- - - - -	Erected in 1843	Narrungaon - - - - -	- - - - -	- - - - -	- - - - -	- - This bridge was designed by Major Peart; some deflexion is observable in the joists which will render supports necessary; this is ascribed to no fault in workmanship, but solely to deficiency in the scantling of the timber.
Poona to Panwell Road, via Dhaporee, with old Branch, via Cund and Panowlee.	For traffic over the ghats	- - Length, 88 miles; constructed, and provision made for annual repairs, previous to the formation of the Road and Tank Department in 1830.	Panwell - - - - -	Not known - - - - -	Not known - - - - -	- - This road was constructed previously to the formation of the Road and Tank Department in 1830.	- - This is the only made road up the ghats between the Tall Ghaut on the north and the Farr Ghaut on the south, both of which are nearly one hundred miles (100 miles) distant, and both exceedingly difficult, and indeed almost impassable for laden carts, so that all the wheel traffic from the Deccan may be said to be dependent on this line (in 1830-40); the present ghaut in several places is still somewhat steep, being in some places about 1 in 10, which renders it necessary for carts to drag their wheels in descending. The toll returns of 1830-40 amounted to 18,620 rupees, and of 1840-41 to 27,741 rupees, being an increase of 9,122 rupees. On this line is the Depoorre bridge, 20 feet in breadth and 470 feet in length, with a raised approach on the right bank 540 feet in length; this bridge is of timber, with waterways of 35 feet, and the roadway supported by three trusses, each composed of a straining-beam and three struts; its completion was reported in season 1842-43, the cost having been Rs. 68,567. 15. 10.



557-	Poona to Ahmednuggur	<p>.. In continuation of the Poona and Panwell lines to the northern stations.</p>	<p>Miles. Poona to Serour, 44 Serour to Ah- mednuggur } 31 1/2 Miles = 75 1/2</p>	Ahmednuggur	<p>.. 80,161 rupees had been laid out on about 17 1/2 miles of the road prior to 1886, but the total expenditure on the line is not known.</p>	-	<p>.. By the employment of convict labour it was hoped that the completion of this line would be effected in season 1841-42, at a trifling cost to Government.</p>	<p>.. Partly to 1800 this line had been laid out and kept up, partly under civilians, partly under contract, and partly under engineers; the Nihrapura bridge was completed in season 1842-43, at an expenditure of Rs. 21,400. S. D.; the Maragun bridge, which had been washed away, was rebuilt in season 1843-44, at a cost of 1,700 rupees; it has four waterways, 18 feet each.</p>
	Poona to Kumbales Road, at the bottom of the Hore Ghaut.	<p>.. Is expected to advance in an extraordinary degree the salt trade carried on from Poona with the Interior of India, by introducing the use of carts instead of bullock carriages.</p>	<p>.. Length 17 1/2 miles; commenced in October 1836.</p>	<p>.. From Poona, in the Northern Concan, to Kumbales, at the foot of the Hore Ghaut.</p>	6,700 0 0	8,925 - -	<p>.. Completed in June 1837.</p>	-
	Poona to Sholapur	<p>.. To open out the valuable Marassa cotton trade, and to insure communication for troops and guns with that military station during the rainy season.</p>	<p>.. Length, 140 miles; surveyed in season 1835-36.</p>	-	-	1,97,805 0 0	-	<p>.. The portion of this road through the cantonment of Poona was specially, in 1845-46, repaired by contract, for 8,411 rupees; estimates were also prepared for extending this road for some distance towards Hunsaroor, crossing the Nulla which flows past the horse artillery lines by a bridge.</p>
14	Poona and Indapur Road	<p>.. Undertaken for the purpose of furnishing food and employment to the distressed population of the Ahmednuggur and Indapur districts, who were represented to be suffering severely, in consequence of a succession of unfavourable seasons.</p>	<p>.. Length, 41 miles, (1 furlong); sanctioned season 1840-41.</p>	-	<p>.. 1,49,984 rupees expended to 1847, of which 1,48,908 rupees solely on labour and its superintendence.</p>	-	-	<p>.. The superintendence of this work was entrusted to Major-General Armstrong, whose constant and severe attacks of ill-health at the Thull Ghaut had incapacitated him from further employment in that neighbourhood, except at the risk of life; the number of people daily employed on the line averaged, in June 1846, six thousand four hundred and seventy (6,470); the workmanship on this line was reported in 1847 to be inferior to none in the Bombay Presidency.</p>
	Poona to the Neera Bridge	-	<p>.. Length, 60 miles (1 furlong); this line was in existence previously to the formation of the Road and Tank Department in 1831, but no provision had been made for annual repairs.</p>	-	<p>.. The expenditure of Rs. 2,076. 18a. 10p. was reported to season 1843-44.</p>	-	-	<p>.. (1840). The Neera Ghaut, near Poona, is the great obstacle on this line, being almost impracticable for carts, and in some parts dangerous from want of parapet walls; the frame on this ghaut, however, is stated (in 1847) not to be so important as to render the construction of a new ghaut advisable.</p>
	Poona to Narrangum	-	<p>.. Length, 45 miles 7 furlongs; this road existed previously to the formation of the Road and Tank Department in 1831, but no provision had been made for annual repairs.</p>	Narrangum	-	-	-	<p>.. In 1840-41 this road was represented to be in good repair, but as it crossed so many unbridged rivers, it was of little use during the monsoon, and could only be considered as a good-weather road; it will form a portion of the central line between Belgaum and Nasik.</p>

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No. 12.—TABULAR STATEMENT of the Principal Works executed by the Bombay Road and Tank Department, from 1836 to 1850-51 inclusive, and by the Bombay Engineers, &c.—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
Panwell to Penn - - -	-- For the accommodation of the salt trade.	- - - - -	- - - - -	<i>Rs. a. p.</i> 148 9 -	<i>Rs. a. p.</i> - - - - -	- - - - -	- - Improvements were made to the Aptah Ghaut in season 1843-44, much to the convenience of the Bringarees, considerable numbers of whom proceed from Panwell to Penn, to take salt from the latter place.
Paste Tank, repairs to - -	For purposes of irrigation - -	-- Sanctioned, season 1835-36, length 1,680 feet, greatest breadth 125 feet, and greatest depth 9 feet.	-- At the village of Paste, in the Sannur Pergunnah	-- Cost to Government, 250 rupees, an equal amount having been given by the villagers in money, materials and labour.	- - - - -	-- Completed in season 1836-37.	-- This work, in addition to securing the former baghayet revenue of the village, is to return to Government an additional 30 per cent. on the capital expended.
Panwell Port to the Salt Panes of the Island of Carranjah.	-- This road was undertaken by Government, not only with a view to its general usefulness, but also to furnish employment to the Katywar emigrants.	-- Length, 40 miles 4 furlongs.	- - - - -	13,188 14 8	-	-	-
Poona New Bridge - - -	-- The old bridge has been removed, it having been in a very unsafe state.	-- Commenced on the 1st November 1845.	- - - - -	<i>Rs.</i> 29,564, of which <i>Rs.</i> 10,382 were subscribed by the inhabitants of the town.	-- Commenced by contract, under Lieutenant Cowper's superintendence, for 26,075 rupees.	-- Completed in December 1846.	-- This bridge was designed by Major Peat. The excess over the contract amount was expense allowed by Government for removing the centreings, &c. of the old bridge.
Pauwell Bunder - - -	-- Raising the platform on which the custom-house is situated, together with the reconstruction of masonry revetments.	-- Sanctioned 2 January 1846.	Panwell - - -	5,725 - -	-- Under contract for 5,725 rupees.	-- Completed season 1846-47.	-
Poona to Ahmednuggur Road -	-- Estimates for constructing stone and foot bridges over the Hung Nullah for 21,704 rupees, and over the Seena River for 6,358 rupees, were submitted in 1843-44; a second flying bridge was constructed at Karringaon, at a cost of 900 rupees. Bridges were sanctioned on the 30th January 1846, over the Kondapoor and Nusudwady Nullahs, the streams of which had hitherto, at flood, invariably impeded the dawk. Both bridges to be built by contract, on designs by Major Peat; that over the Kondapoor Nullah for 6,995 rupees, that over the Nusudwady Nullah for 4,305 rupees.						
Poona and Wangoahic, new line of road.	-- To avoid the present circuitous route by Holkan's Bridge and Lowgaum, as far as traffic and communication between Poona and Nuggur are concerned.						

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Ratnagherry Collectorate. Construction of road leading into Chiploon.	-- To perfect the communication between the town of Chiploon and the Koombarlee Ghaut.	-- Length, 3 miles; sanctioned season 1845-46.	Chiploon - - -	2,700 - - -	- - -	- - Completed season 1845-46.	This cross road was very defective.
Rawere and Dhurungaum Road	- - - - -	Length, 54 miles -	- - - - -	- - - - -	- - - - -	- - - - -	-- This is a fair-weather road, passing mostly over black soil; it crosses the Taptee and Geerna, both large rivers with very high banks.
Ratraz Tank, clearance and improvement of the.	-- The tank is for the supply of the inhabitants of Poona with water; the additional quantity of water which it was calculated would become available through the intended improvements, amounted to 30 days' supply.	Season 1846-47 -	Poona - - -	- - - - -	46,705 - - -	- - - - -	-- The work to be performed includes the removal of 2,900,000 cubic feet of earth, also the re-opening of a channel, and repair of a bund, which had been originally constructed with the intention of carrying off all earthy matter, and preventing any deposit in the tank, but which had fallen into complete neglect and disuse.
Salsette, roads in the island of	- - - - -	-- 40 miles of road existed previously to the formation of the Road and Tank Department in 1836, for the annual repairs of which provision had been made.	Salsette - - -	- - - - -	- - - - -	- - - - -	-- These roads consist of 17 1/2 miles of the Agra Road, between Sion Causeway and Colsette Bunder, of 21 1/2 miles between Bandora and Gherabunder and Sauksee, and an area of 5 1/2 miles between Trombay and Sion Chowkie; their aggregate annual cost for repairs is 12,000 rupees, or 270 rupees per mile.
Salsette. Road connecting Sion with Trombay.	-- Opens up a fertile district in the vicinity of Trombay, to the Bombay market, and also affords facilities for the transit of the mail from Panwell during the monsoon.	- Length of road, five miles.	Trombay - - -	- - - - -	- - - - -	-- Completion reported in 1840-41.	-- This work was performed entirely by convict labour.
Salsette: Girridge Bund - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	-- Completed 1840-41, with the exception of the sluices.	-- The slope of this bund is 1 1/2 to 1, with a surface of turf; whereas with such material, the inclination should have been as much as 5 to 1 to ensure stability.
Salsette: Construction of a bridge across a nullah near the 21st mile on the road to the Chimboor Causeway.	-- In lieu of an old wooden bridge reported to be in a dilapidated and ruinous state.	-- Sanctioned season 1844-45.	- - - - -	- - - - -	1,310 - - -	- - - - -	-- This bridge has masonry abutments and wooden superstructure.
Salsette. Proposed new bridge at Eria Parla.	-- In lieu of one which was represented by Sir Jamsetjee Jeejeebhoy to be inconveniently shaped and situated, so as to impede the increased traffic which the new causeway was calculated to attract; the old bridge had been built at right angles with the course of the stream, while the direction of the road is very oblique.	-- Sanctioned season 1845-46.	-- About five miles from Bandora.	- - - - -	5,224 - - - of which Sir Jamsetjee Jeejeebhoy expressed his readiness to furnish 4,000 rupees.	- - - - -	-- The new work will be a skew bridge, consisting of two brick arches, of 20 feet span, with a stone pier and abutments.

(continued)

No. 12.—TABULAR STATEMENT of the Principal Works executed by the Bombay Road and Tank Department, from 1836 to 1850-51 inclusive, and by the Bombay Engineers, &c.—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
Shada : Repairs to a Bundarrah and Watercourse.	For irrigation - - -	Season 1848-49 -	- - At the town of Shada, in Candeish.	Rs. a. p. 683 3 5	- - - -	- - Completed season 1848-49.	- - The repairs consisted of stopping a considerable leak in the rear of the bundarrah wall, by backing the wall with new masonry near the leaky point, and constructing four breast walls on the line of the watercourse.
Seerwarra : Repairs, &c. to the centre Bundarrah and Watercourses.	For irrigation purposes - -	Season 1848-49 -	In Candeish - -	- - - -	- - - -	Completed 1848-49	- - The works consisted of breaking two scouring sluices in the main bundarrah wall, building a screen wall with an arched opening at the mouth of the watercourse, and breaking a small open-headed scouring sluice below this screen wall. The parapets of an old aqueduct on the line of watercourse had to be renewed.
Secrusameenes Bundarrah, constructing the.	For purposes of irrigation - -	Season 1847-48 -	In Candeish - -	9,647 12 2	- - - -	Completed May 1849	- - It is the first bundarrah constructed entirely by the Engineer Department. The arrangement of the masonry work, &c. was much the same as in modifications of old existing bundarrabs, with the addition of a reservoir and sluice apparatus at the mouth of the watercourse. During the monsoon of 1849, the floods being unusually high, inflicted some slight injuries to the bed of the river and the pointing, but the work had borne the violence of the monsoon as well as could have been wished. The pointing was repaired and the excavation in the river begun to be filled in with dry stone work, protected by a "pukka" masonry apron above, and supported by a retaining wall.
Sattara and the Limb Khlud : Road with continuation for 3 1/4 miles.	- - This is a part of the Sattara and Waeo Road, a direct Sattara and Poona Road.	- - Season 1850-51 ; length from Sattara to the Limb Khind four miles, beyond the Limb Khind 3 1/4 miles.	Sattara - - -	8,000 - -	- For the bridge over the Kodally River, 8,748 rupees.	- - - -	- - Of the first portion of four miles, two were completed by the prisoners, the remaining two miles were made by Ballajee Punt Nathoo, Inamdar of Panchwar, at his own expense ; the second part has been bridged and drained, the Inamdars of the Wace Valley giving 4,000 rupees, and Government another 4,000. A bridge across the Kodally River has also been sanctioned. The following serious obstacles on these lines have to be overcome : The Yenna River, the Khriana River, the Kamalkee Ghaut, the Neera River, the Katriz Ghaut. Travellers' bungalows have been erected and finished at Punderpoor, Waugi, Poosusaolce, and Kurar ; other bungalows are much required, and will be constructed.
Sattara, improvements in the town of.	- - The road in the Prutab Gunj Petta in the town was reported, in season 1850-51, to have been completed by the prisoners, with the aid of a few free labourers, and the following improvements to have been effected, viz, improvements in the market, including a line of road carried through it, joining the Sunvar and Prutab Gunj Peth roads, a large arched drain constructed on the southern approach to the tunnel, an approach lined out, and executed in the rough by the prisoners, from the town to the tunnel entrance, south side, this approach partly extended into the town by the Imaumpoora tank by the prisoners. A new line of road, 2,740 feet long, made, running at the back of the palace joining the Shukurwar Petta and the Genda Mall lines. A vegetable market formed out of the old engineers' stores, yielding a yearly rent of 375 rupees, and every stall rented and occupied.						

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Tannah Causeway - - -	-- To unite the island of Salsette to the continent of India.	Suggested 1836-37 -	- - - - -	- - - - -	-- Original estimate, 20,000 rupees.	- - - - -	-- The work which is designated the Tannah Causeway, consists, strictly speaking, of but a couple of ramps, one on either bank of the estuary, which approach each other towards the centre of the stream, where there is a flooded interval of the natural bed of considerable length at ebb tide, and never less than five (5) feet deep. The greater portion of the ramps is consequently submersed at high water, and the guns, erected along the sides for the purpose of fastening vessels to, were complained of as causing, while thus invisible, much damage to the native craft; they were consequently removed in 1845-46, and mooring rings substituted.
Trombay Pier (see Bombay) -	- - - - -	Commenced in 1837 -	- - - - -	- - - - -	- - - - -	-- Completed season 1843-44.	-
Tull Ghaut Road: Survey and Improvement.	- - - - -	Length, 78 miles -	- - - - -	-- The sum of 1,16,783 rupees was expended on its construction; the balance, 21,723 rupees, was to be laid out in metalling the road; also an additional sum of 7,386 rupees, for further improvements, recommended by the committee appointed to examine the line.	1,38,506 - -	Completed in 1850 -	-- This road was carefully inspected by a committee of engineer officers, who reported that with reference to the amount expended on it, "the construction is very perfect"
Tull Ghaut: Experimental Line	- - - - -	-- Commenced December 1845. Length, 1½ miles.	- - - - -	70,256 - -	- - - - -	-- Completed 27th December 1847.	-- The construction of a masonry parapet, until the whole of the Ghaut should have been in other respects completed, was not originally contemplated; whereas, for unanswerable reasons, it has been judged advisable to proceed with the parapet simultaneously with the rest, and the consequence is, that a well-built wall, three feet in height, and 4,445 feet in length, had been completed up to 1845-46. It has been found that the entire distance requiring to be so defended is about 3 miles, 4 furlongs, and 24 yards. The unusually tardy progress of the works is stated to have been caused by several circumstances: first, the position of the work, far removed from any town, and in a remarkably thinly populated country; secondly, the unhealthy climate, which is deservedly shunned; thirdly, the scarcity of water, which at the close of the hot season occasionally fails <i>in toto</i> , and the neighbourhood is consequently partially deserted, building materials are also expensive, and have to be brought from a distance.
Tannah Church, repairs to the roof of.	-- Some of the timbers were discovered to be in a state of decay.	- Sanctioned 10 April 1845.	Tannah - - -	5,070 - -	5,070 - -	-- Completed in March 1846.	-
Toka: Construction of a new rafter, or decked double boat.	-- For crossing the Godavery River.	-- Sanctioned season 1845-46.	-- Toka on the Nag-poor dawk line.	2,434 - -	2,112 - -	-- Completed season 1845-46.	-

(continued)

No. 12.—TABULAR STATEMENT of the Principal Works executed by the Bombay Road and Tank Department, from 1836 to 1850-51 inclusive, and by the Bombay Engineers, &c.—continued.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
Tannah: Construction of a new hospital.	For a detachment hospital	- - Sanctioned 12th March 1847.	- - - - -	Rs. a. p. - - - - -	Rs. a. p. 4,340 - -	- - - - -	- - 50 $\frac{1}{2}$ feet in length, by 18 feet in breadth, with dispense rooms and out-offices.
Wurgaon Bundarrahs in the Ahmednuggur district.	For irrigation - - - -	- - These bundarrahs are three in number; sanctioned 1836-37.	- - In the Sunnur Pergunnah.	- - Two bundarrahs, 54 rupees.	236 - - The Gaom was to contribute 150 rupees, and a jagheerdar 100 rupees.	- - - - -	- - 377 beegahs and four pauds are watered from these bunds, assisted by a few wells.
Wurrunder Ghaut to Mhar, constructing a bullock track over the.	- - - - -	Commenced 1850-51	Mhar - - - -	- - - - -	17,500 - - has been raised for the purpose of this work.	- - - - -	- - As a great part of the proposed line would pass through the Suchew Punt's territory, at a visit from Mr. Frere, the Punt expressed his willingness to subscribe a sum of 8,750 rupees; the Government granted a like sum.
Zeykheira Bundarrah, completing the, &c.	For purposes of irrigation	- - - - -	- - - - -	35,451 15 11	- - - - -	- - Completed season 1848-49.	- - The magnificent old bundarrah, which for some portion of its length is from 20 to 30 feet in height, and 10 feet thickness at top, has been raised and strongly coped for securing a larger supply of water in its rear. The water-course is carried over five miles of most difficult ground, and in its course is carried through three tunnels of considerable length; over three nullahs, by means of arched aqueducts; four nullahs are carried clear over it, and is crossed by roads in three places. The work thus completed affords a fine specimen of the application of the resources of the Engineer department to the restoration and improvement of an old work of irrigation. It is only to be hoped that a work on which upwards of 35,000 rupees have been expended by Government may not suffer injury from the notorious inattention of the villagers (in whose charge it now is) to the care of all permanent works on the line of their water-courses.

IN the Printed Parliamentary Paper of the Honourable the House of Commons, No. 622 of 1851 (Pages 206 and 207), Statements have been given of the Expenditure incurred under the Presidency of Bombay, on Works of Irrigation, and in the Construction of Roads and Bridges, for the Ten Years from 1836-37 to 1845-46 inclusive. The following Statement exhibits the Amount of Expenditure reported by the Road and Tank Department, from its formation to the year 1850-51 inclusive; and in the Civil Branch by Superintending Engineers from 1845-46 to 1850-51 inclusive.

Y E A R.	Road and Tank Department.	Civil Architect's Department.	By Superintending Engineer, Southern Provinces.	By Superintending Engineer, Northern Provinces.	By Superintending Engineer, Scinde.	By Civil Engineer, Candeish.	By Civil Engineer, Sattara.	TOTAL.
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Total expenditure to 30 June 1839	4,58,702 11 1	- - -	- - -	- - -	- - -	- - -	- - -	4,58,702 11 1
From 30th June 1839 to end of Season 1840-41	2,70,815 14 -	- - -	- - -	- - -	- - -	- - -	- - -	2,70,815 14 -
Season 1841-42	1,76,118 - -	- - -	- - -	- - -	- - -	- - -	- - -	1,76,118 - -
Season 1842-43	1,24,914 14 2	- - -	- - -	- - -	- - -	- - -	- - -	1,24,914 14 2
Season 1843-44	1,27,814 6 -	- - -	- - -	- - -	- - -	- - -	- - -	1,27,814 6 -
Season 1844-45	1,27,044 7 -	- - -	- - -	- - -	- - -	- - -	- - -	1,27,044 7 -
Season 1845-46	No Report* - -	1,07,037 8 10	1,64,991 14 6	64,799 5 5	3,76,290 5 3	54,439 11 2	- - -	10,82,354 10 5
Season 1846-47	3,14,795 13 3	- - -	- - -	- - -	- - -	- - -	- - -	3,14,795 13 3
Season 1847-48	3,09,179 15 8	- - -	- - -	- - -	- - -	- - -	- - -	3,09,179 15 8
Season 1848-49	2,83,158 8 1	42,582 15 8	1,60,466 12 -	51,002 10 11	- - -	- - -	- - -	5,87,210 14 8
Season 1849-50	3,53,788 1 7	33,316 11 2	1,56,957 - 3	35,855 13 9	- - -	58,000 9 -	42,205 15 8	6,80,124 3 5
Season 1850-51	3,61,893 4 4	59,315 10 2	3,99,559 11 5	43,293 10 7	4,619 13 6	- - -	2,25,314 13 4	10,93,996 15 4
Total Expenditure reported from the formation of the Road and Tank Department to the year 1850-51 inclusive								49,88,276 15 0

\* Note —The practice of printing the Reports of the Superintending and Executive Engineers, in connexion with those of the Road and Tank Department, appears to have been first adopted in Season 1846-47, and to have originated from the plan proposed by the Chief Engineer and the Military Board in 1844, for the abolition of the Road and Tank Department.

### S U M M A R Y.

SUMMARY of EXPENDITURE Incurred under the several PRESIDENCIES of India, as follows: viz.,

PRESIDENCY.	DESCRIPTION.	AMOUNT.
		<i>Rs.</i>
Bengal - - - - -	-- Known expenditure on works under the general management of the Military Board, as per Preparatory Report, dated 8th September 1840 - - -	1,39,64,099
Ditto - - - - -	-- Amount expended from season 1839-40 to season 1850-51, inclusive - - - - -	2,85,04,891*
Fort St. George - - - - -	-- On repair and construction of works of irrigation, and on roads, bridges and ghauts, from 1838 to 1850, inclusive -	1,25,56,293
Bombay - - - - -	-- Amount of expenditure reported by the Road and Tank Department, from its formation in 1836-37 to 1850-51, inclusive - - - - -	49,88,277
	<i>Rs.</i>	6,00,13,560
	The amount thus far expended under special grants (which exceed two crores) for the Ganges Canal, and for Works in the Punjab, has been about - - -	1,00,00,000
	Making a Total, still exclusive of } other items noted below, of - } <i>Rs.</i>	7,00,13,560

While the total of ascertained expenditure, as above, amounts to the sum of 7,00,13,560 rupees in the aggregate, that sum cannot be considered as the total amount expended by Government on Works of public utility, the outlay incurred in public improvements under the control of Local Committees, from the proceeds of the One per Cent. Fund in the North-Western Provinces, from the Ferry Funds and from other sources, not being included, nor the value of convict labour employed on Public Works.

\* Exclusive of Expenditure on the Godavery Anicut.

Considerable progress has been made in the several works alluded to at page 208 of the Printed Parliamentary Paper, No. 622 of 1851, for which special grants had been sanctioned, as will be seen from the Court's more recent despatches, given in Appendix No. 1.

Copies of Despatches to the Governments of the respective Presidencies on certain subjects which have of late engaged the attention of the Court of Directors, and a Memorandum on the Roorkee College, form Appendix No. 2.



## A P P E N D I X.

## APPENDIX No. 1.

## GANGES CANAL.

India Revenue Despatch, 21 December (No. 17) 1847.

Our Governor-General of India in Council.

1. WE have received two letters from our Governor-general, dated 3d and 20th September last (Nos. 16 and 17), transmitting further proceedings relative to the Ganges Canal, consequent on the receipt of our despatch of the 7th July (No. 9) 1847. Ganges Canal.

2. His Lordship had communicated extracts of that despatch to Major Baker, director of the canal, and to Lieutenant-colonel Abbott, Superintending Engineer in the North-Western Provinces, and now forwards copies of the observations which they have submitted to him.

3. Major Baker is of opinion that the estimate of 93 lacs, as given by Major Cautley, is not likely to be exceeded beyond the sum of four lacs, which he considers will be required to give greater strength to the works of the Solani Aqueduct. The period within which the whole work can be completed will be regulated by that occupied in the construction of the aqueduct, and he is confident that this may be accomplished within six years. Lieutenant-colonel Abbott confirms Major Baker's opinion with regard to the Solani Aqueduct, adding a recommendation for increasing the strength of some of the abutments, which it appears Major Baker had already effected by an alteration in Major Cautley's original plans.

4. With respect to the expediency of making the canal subservient to purposes of navigation, Major Baker estimates the total additional expense which will have to be incurred for that object, at 2,23,770 rupees. He says, "It has been shown in reports already before Government, that the navigation of the Ganges below Cawnpore will not be impaired by the abstraction of the canal supply at Hardwar, but that during a few months of the year some hinderance may occur in the higher course of the river. The inconvenience thus arising would be practically small, and is easily remediable by the substitution of a safe and expeditious route for the tedious, and often dangerous, passage now afforded by the river." Major Baker adds, "The sum of money which might be saved by leaving navigation entirely out of account, is thus seen to bear a small proportion to the whole estimate, and the additional expenditure of 2½ lacs will be well bestowed on the provision of a navigable communication through the centre of the Doab, especially as the river steamers will be enabled to approach by the Jumna to the canal terminus, and there to deliver their freight at once into the canal boats."

5. Major Baker estimates the net revenue from the canal at 10 lacs, or 10 per cent. on the outlay, observing that "the rates of irrigation rent have been purposely fixed below the real value of the water, and therefore that the amount of direct revenue cannot be looked upon as a fair measure of the work of the canal."

6. The Governor-general informs us that he has applied to the President in Council for the services of Mr. Simms, the civil engineer, being of opinion that "it will be satisfactory to all parties that this gentleman should in person make an inspection of the Solani Aqueduct, assuming that his experience in this description of work justifies the reference."

7. We shall be glad to be furnished with Mr. Simms's opinion with regard to the Solani Aqueduct, and he may also be able to afford information respecting the suggestion of Lieutenant-colonel Abbott, for the construction of galvanic telegraphs on the line of the canal, "so that in case of accident at any part of the works the immense flow of water might be instantly stopped, and let off at the places prepared for its escape."

8. We trust that the Earl of Dalhousie will apply himself to the consideration of the question in all its bearings, with the same zeal and judgment which have been evinced by his predecessor in the Government of India.

London, 21 December 1847.

We are, &c.

(signed) *H. S. G. Tucker.*  
*J. L. Lushington,*  
&c. &c.

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India Revenue Despatch, 2 June (No. 11) 1852.

Our Governor-General of India in Council.

1. WITH his letter dated 28th July last (No. 1), our Governor-general has forwarded to us a revised estimate, prepared by Lieutenant-colonel Cautley, of the probable expense to be incurred in constructing the Ganges Canal works. His Lordship observes, that although the increase of cost which is contemplated in this estimate is undoubtedly large, he conceives that Lieutenant-colonel Cautley has satisfactorily accounted for it in the paper submitted by him to Government, and he accordingly trusts that we shall see cause to bestow our approval on what has already been done, and to give our sanction to the revised estimate now submitted.

2. The former estimate, as sanctioned in our despatch of the 7th July (No. 9) 1847, amounted to 93,39,746 rupees. In the estimate now before us the probable cost (including establishment and current repairs, which were omitted in the former one,) is given at 1,55,55,481 rupees. Of this sum the total amount actually expended up to the 30th April 1851 is stated to be 72,45,560 rupees.

3. This estimate has been prepared under instructions dated the 12th June 1850, addressed to Lieutenant-colonel Cautley by the Lieutenant-governor, who observed that it had occurred to him that sufficient progress had then been made in the construction of the Ganges Canal to enable a proximate estimate of its entire cost to be formed. "It is obvious," he remarked, "that in all great undertakings of this nature, the first estimate of the cost can only be a rough approximation towards the truth. It is impossible to foresee all the difficulties that arise from a new and large demand for labour and materials, which have hitherto been required only in small quantities or at places favourable for their production. It is also well known that during the progress of this, as of all other similarly large undertakings, important modifications of the original plan suggest themselves, which, though at first more expensive, add greatly to the stability and efficiency of the work, and will save future expense.

"But it is of importance that the earliest possible period should be seized for correcting the unavoidable errors of the first estimate, and for accurately appreciating the real expenditure involved in the undertaking. It is believed that

that this period has now arrived in the progress of your works on the Ganges Canal, and that you will find little difficulty in forming a revised estimate of the whole, which will be a near approximation to the truth."

4. The causes which have led to the increase in the estimated cost of the canal are given in detail in Lieutenant-colonel Cautley's report, and are briefly summed up as follows :

"There are three points which have greatly influenced the designs of the works now estimated for ; viz. :

1st. "The results of the proceedings of a medical committee, which determined that the high-water mark of the canal should be kept as much as possible below the surface of the country.

2d. "The results of excavation in the upper division, showing that the supersoil only was clay, with an uninterrupted substratum of sand.

3d. "The change of design in the distribution of the supply below the 110th mile, which, in connexion with the results above referred to, have in fact led, with few exceptions, to the total reprojecting, not only of the masonry works, but of the capacity of the canal channel.

"In referring, therefore, to the papers already printed, the present may rather be considered a fourth in succession to the three projects formerly submitted, than a revised estimate of what has gone before."

5. The excess of the revised over the original estimate is doubtless large, but considering that the latter was framed on data which were necessarily, to a great extent, imperfect or conjectural, we agree in the opinion expressed by the Governor-general, that Lieutenant-colonel Cautley has satisfactorily accounted for it. With full confidence, accordingly, in the zeal, ability, and high professional attainments of that distinguished officer, we give our sanction to the revised estimate now submitted to us, and we trust that every means will be taken for carrying on the construction of the canal with all practicable speed.

6. We take this opportunity of acknowledging the receipt of the letters and paragraphs referred to in the margin,\* by which we have been kept informed of

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- \* India Revenue Letter, 26th June (No. 6) 1847, paras. 24, 25.  
 India Revenue Letter (Governor-general's), 6th December (No. 25) 1847, whole.  
 India Revenue Letter, 24th December (No. 21), whole.  
 Bengal Military Letter, 17th March (No. 36) 1848, p. 111 to 114.  
 Bengal Military Letter, 14th July (No. 110) 1848, p. 43 and 90.  
 India Public Letter, 14th August (No. 41) 1848, paras. 16 and 19.  
 India Revenue Letter (Governor-general's), 17th November (No. 4) 1849, whole.  
 Bengal Military Letter, 19th November (No. 185) 1850, p. 45, 46.  
 India Foreign Letter (Governor-general's), 26th February (No. 14) 1851, whole.  
 Bengal Military Letter, 26th September (No. 152) 1851, para. 38.  
 India Public Letter, 28th November (No. 37) 1851, para. 32.  
 Agra Revenue Narrative, 15th March (No. 1) 1847, paras. 12 to 46.  
 Agra Revenue Narrative, 12th May (No. 2) 1847, paras. 11 to 42.

Agra Revenue Narrative, dated—

29th June	(No. 3) 1847	- p. 13 to 38	10th October	(No. 3) 1849	- p. 17 to 38
15th October	(No. 4) "	- p. 8 to 47	26th December	(No. 4) "	- p. 23 to 42
20th December	(No. 5) "	- p. 22 to 52	27th April	(No. 1) 1850	- p. 18 to 45
16th February	(No. 1) 1848	- p. 14 to 38	15th June	(No. 2) "	- p. 21 to 59
30th May	(No. 2) "	- p. 15 to 46	16th September	(No. 3) "	- p. 23 to 61
24th October	(No. 3) "	- p. 22 to 70	13th November	(No. 4) "	- p. 21 to 51
30th December	(No. 4) "	- p. 41 to 85	11th April	(No. 1) 1851	- p. 20 to 62
10th May	(No. 1) 1849	- p. 22 to 53	29th July	(No. 2) "	- p. 28 to 66
9th July	(No. 2) "	- p. 18 to 43			

of the details of progress in the works of the Ganges Canal, and of other less important works of irrigation and drainage in the North-Western Provinces. It does not appear to us that they contain any particular points on which our observations are required, but we cannot pass them over without expressing our gratification at the evidence they offer of the zealous services rendered by the late and present Governors-general, no less than by the Lieutenant-governor, in the efficient prosecution of these important works, in which the best interests of the country are involved, and which has been ably and actively responded to by the officers of all grades attached to the Canal Department.

London, 2 June 1852

We are, &c.  
(signed) *J. W. Hogg.*  
*R. Ellice,*  
&c. &c.

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### ROADS in the PUNJAUB.

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India Public Despatch, 4 August (No. 30) 1852.

Our Governor-General of India in Council.

Foreign letters from the Government of India, dated 7th December (No. 29) 1850, paras 232 A, and 247; 7th March (No. 10) 1851, para. 190, 7th November (No. 34), para 83.

Foreign letters from the Governor-general, dated 18th January (No. 4) 1851, 5th April (No 26) 1851.

1. WE now reply to the letters and paragraphs noted in the margin, relating to the construction of various lines of road in the Punjaub, the expense of which will be chargeable to the five lacs of rupees annually set apart under our sanction for public improvements in that territory.

2. The following are the works which, as here reported, have received your sanction: 1st. A fair-weather road from Lahore to Mooltan, the cost of which, at 200 rupees per mile for 224 miles, is estimated at 44,800 rupees. 2d. A road from Dera Ismael Khan to Shahpoor, a distance of 104 miles, the formation of which for ordinary traffic, with the necessary wells, is estimated to cost 3,000 rupees.

3d. A good but unmetalled road from Sheikapoor (between which place and Lahore a road was previously in course of construction) to meet the above road at Shahpoor, and thus complete the communication between Lahore and Dera Ismael Khan. The distance is 100 miles, and the estimated cost, including all expenses, is Rs. 21,651. 4.

4th. Two roads, from Mozuffurgurh, in the Khangurh district, one to Mooltan, a distance of 13 miles, and the other to Dera Ghazee Khan, a distance of 20 miles, at a cost of 1,000 rupees.

5th The completion, as a second class road, of a line on which 20,000 rupees have already been expended, from Rawul Pindie to Kalabagh on the Indus; the distance is 107 miles, and the additional expenditure was estimated at 13,775 rupees.

3. All these lines of road are severally recommended by their greater or less importance in a military, a political, or a commercial point of view, and we approve the sanction given to their formation.

4 The most important work referred to in the letters under reply is, the proposed new road from Lahore to Peshawur, the formation of which was recognised in our despatch in the Revenue Department, dated the 5th December 1849, as a highly desirable object. The Governor-general has now forwarded to us plans and estimates for the construction of this road, to which he requests our sanction;

tion; and, pending the receipt of our orders, his Lordship has authorised the commencement of operations and an advance of 3,00,000 rupees for the needful preliminary expenses.

5. The proposed line has been carefully surveyed by Lieutenant Tayler, the executive officer, with the personal assistance, in some parts, of Lieutenant-colonel Napier, and while it adheres generally to the direction of the existing road, deviates from it in those places where a more favourable course could be selected. It is proposed that the road shall be of the width of 40 feet, that it shall be metalled throughout, that the numerous small rivers and nullahs shall be crossed by timber bridges, and that across the four great rivers, the Ravee, the Chenab, the Jelum, and the Indus, bridges of boats shall be thrown, which, in the case of the last, will be maintained throughout the year, while those over the other rivers will, during the rainy season, be disconnected, and the boats used for the purposes of a ferry.

6. The length of the road will be 275 miles, and the estimated cost, including the floating bridges and establishment and superintendence for two and a half years, is Rs. 15,48,841 2

7. We concur with the Governor-general in regarding the formation of an efficient road to Peshawur as a work not simply of importance, but of absolute necessity. It is most desirable for military purposes that the road should be passable at all seasons, and that there should be no danger of a stoppage at any point. On these grounds it is necessary that the road should be metalled, and that adequate means of crossing the great rivers on the line should be constantly kept up. We accordingly give our sanction to the entire scheme for the formation of the proposed road, which will join the grand trunk road at Lahore, and by means of which a direct line of communication will thus be opened between Calcutta and the extreme boundary of our territory on the north-west frontier.

8. The estimates submitted to us for this road are not of so detailed a character as is usually required, but they are stated to be "as near the truth as the most detailed estimate could be in the present knowledge of the resources of the country." The work will, of course, not be finally proceeded with till the fuller estimates called for by the Governor-general shall have been submitted for sanction.

9. We take this opportunity of repeating our orders that when sketch and survey maps accompany the estimates for roads submitted for sanction, a copy be invariably forwarded to us with the papers relating to the case.

London, 4 August 1852.

We are, &c.  
(signed) J. W. Hogg.  
Russell Ellice,  
&c. &c.

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### KURRACHEE MOLE AND ROAD.

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Bombay Public Despatch, 11th August (No. 28) 1852.

Our Governor in Council at Bombay.

Para. 1. YOUR letter, dated the 16th February (No. 9) 1852, informs us with reference to our despatch No. 4 of 1851, that the Military Board has reported that the mole and road at Kurrachee can certainly be completed within the estimates; that, in their opinion, the exclusive attendance of an engineer officer

Further proceedings respecting the Mole and Road at Kurrachee.

is not necessary for the superintendence of the work, and that you have therefore authorised its completion, and have placed it under the superintendence of Captain Hill, providing that officer with an assistant to aid him in the performance of general duties as executive engineer in Lower Scinde.

2. These proceedings do not require any other notice than the expression of our approbation.

3. We are glad to observe that the Military Board has been directed to furnish quarterly reports of the progress of the works, by which your Government will be enabled to judge whether they are proceeding within the estimates.

4. With regard to the opinions of Lieutenant-colonel Scott and the Military Board respecting the probable effect of the mole on the Chinny Creek, we do not think it necessary at present to offer any remark.

We are, &c.  
 (signed) *J. W. Hogg.*  
*R. Ellice,*  
 &c. &c.

London, 11 August 1852.

## APPENDIX, No. 2.

Copy of Despatch to the Government of India,—Works on the Eastern Jumna Canal. The improvement and extension of Cochrane's Canal. The improvement of the Begaree Canal in Upper Scinde. Progress of the Hindoostan and Thibet Road.

Copy of Despatch to the Government of Fort St. George,—The construction of the Pennair Bridge and Annicut; the proposed construction of a Dam at Chetwye.

Copy of Despatch to the Government of Bombay,—Improvement of the roads in the Broach Collectorate.

Copy of Despatch to the Government of India,—Preparation of annual schemes for the construction of roads and bridges by the Governments of Fort St. George and Bombay.

Memorandum on the Roorkee College.

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 EASTERN JUMNA CANAL.
 

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India Revenue Despatch, 15th June (No. 11) 1853.

Our Governor-General of India in Council.

Para. 1. IN your letter in the Home Department, dated the 11th March last (No. 16), you have submitted for our sanction a plan for remodelling the central division of the Eastern Jumna Canal, the estimated expense of which is Rs. 1,52,760. 5. 1.

2. The necessity which would ultimately arise for straightening the tortuous course of this portion of the canal has long been recognised by the officers employed on it, and the time seems now to have arrived when it is most desirable that the work should be commenced. The mode in which it is proposed to carry it out is clearly shown in the printed memorandum prepared by Lieutenant Morton, the superintendent of the Eastern Jumna Canal, and has received the entire approval of Lieutenant-colonel Cautley, of the Military Board, and of the Lieutenant-governor of the North-Western Provinces.

3. The main advantages which are anticipated from the work consist in greatly economising the water and facilitating its distribution for purposes of cultivation. In addition to this, the high embankments which now exist on this part of the canal, and which occasionally give way, and thereby cause much loss and injury, will be dispensed with, and the sanitary condition of the country near its banks, which now suffers materially from the swamps which are formed by the leakage of the water, will be largely improved.

4. We observe that Colonel Cautley states the clear profit to the Government from this canal, after allowing 5 per cent. interest on the receipts and disbursements, to have amounted on the 1st May 1852 to 97,595 rupees.

5. Under these circumstances we have no hesitation in acceding to your recommendation, and willingly accord our sanction to the expenditure proposed.

We are, &c.  
(signed) *R. Ellice.*  
*J. Oliphant.*

London, 13 June 1853.

COCHRANE'S CANAL.

India Public Despatch, 31 March (No. 14) 1852.

Our Governor-General of India in Council.

Public Letter, dated 20 September (No. 36) 1850.

**Cochrane's Canal.** Para. 1. IN this letter you request our orders on the measures proposed by the Madras Government for the improvement of Cochrane's Canal and for the extension of the line of canal communication through the Pulicat Lake to Doogoorauzepatam. The subject is placed more fully before us in the letters from the Government of Fort St. George, noted in the margin.

Public letter (Public Works Department), dated 24th January (No. 2) 1849.  
Revenue letter, 6th June (No. 30) 1850, para. 10; Revenue letter, 4th July (No. 33) 1851.

2. In our despatch to the Madras Government, dated 31 May (No. 12) 1848, we expressed our approval of the proposed expenditure of Rs. 22,047. 7. 9. for the improvement of the water communication between Madras and Sooloorpet, by means of Cochrane's Canal. This portion of the work, it would appear, has not been carried into execution, in consequence of the wish of the Madras Government to give their previous consideration to the recommendation conveyed in our despatch of the 22d July 1846, in favour of Colonel de Havilland's proposition for the extension of the canal. As the work appears to be desirable, it is unnecessary here to do more than renew our sanction to its adoption.

3. The extension of the line of water communication to Doogoorauzepatam, at the northern extremity of the Pulicat Lake, was recommended by us to the consideration of the Madras Government in our despatch above referred to of the 22d July 1846. All the officers consulted appear to concur in opinion as to the practicability of this measure. It is proposed to carry it out by means of a channel, to be formed by a dredging machine in the bed of the Pulicat Lake, between Sooloorpett and Doogoorauzepatam, and the expense is estimated, after a careful survey by Captain de Butts, the executive engineer, at Rs. 47,274. 15.

4. We are willing to give our sanction to this expenditure, provided that you adhere to the opinion that the proposed measure will not only be of great advantage to the trade of the district, but will also lead to a considerable increase in the traffic and revenue of the existing canal.

5. As the work in question is intended to occupy two years in completion, a considerable time must elapse before it will be possible to judge of its results, but we desire to be kept duly informed of the proceedings of the Madras Government on the subject.

We are, &c.

(signed) *J. Sheppard.*  
*J. W. Hogg,*  
&c. &c.

London, 31 March 1852.

BEGAREE CANAL.

India Revenue Despatch, 25 February (No. 3) 1852.

Our Governor-General of India in Council.

**Begaree Canal.** Para. 1. IN a letter dated the 26th of September last (No. 2), the Governor-general has solicited our favourable consideration of a project which had been submitted to him by the Government of Bombay, for widening and deepening the Begaree Canal in Upper Sinde. The cost of the work is estimated at 1,30,094 rupees, and the probable return at 1,19,000 rupees per annum. The canal flows partly through territory which belonged to Meer Ali Moorad, and it was proposed that that chief should be called on to defray a portion of the cost, but in the peculiar state of our relations with him, it was deemed unadvisable



advisable to enter into any negotiation on the subject. Under the decision communicated to you in our Political Despatch, dated the 24th September (No. 33) 1851, no difficulty will probably be found in making the needful arrangements, or perhaps in dispensing altogether with his co-operation.

2. The account given by Mr. Frere, in his letter of the 10th June 1851, of the greatly improved condition of that portion of Upper Sindh which is under the charge of Major Jacob (with whom the project under consideration originated), is highly satisfactory. Besides the anticipated increase of revenue, advantages of various kinds, tending to the prosperity of the people, to be expected from the execution of this work, are pointed out by the Commissioner, and we readily accord the sanction solicited.

3. We observe with satisfaction the praise bestowed by the Commissioner in Sindh, Mr. Frere, on Major Jacob, for the part he has taken in bringing this project to the notice of Government, and that that recommendation is fully concurred in by the Governor of Bombay.

4. We shall forward a copy of this despatch to the Government of Bombay.

We are, &c.

(signed) J. Sheppard.  
J. W. Hogg,  
&c. &c.

London, 25 February 1852.

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#### PROGRESS OF THE HINDOOSTAN AND THIBET ROAD.

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Public Department, 18th May (No. 26) 1853.

Our Governor-General of India in Council.

Para. 1. THE plan for the construction of this road was regarded by us with great interest when it first came under our notice. Not only did we warmly approve the Governor-general's object of putting an end to the "Begaree system," by the formation of that portion of the line lying between Kalka and Simla, and look with interest to the political and commercial advantages likely to result from the opening of a line of communication with Thibet by way of Chini, but we regarded as highly important the solution of the question raised by Major Kennedy, when he laid out the line, viz., the possibility of constructing, through such a region as the Himalayas, a road which, while formed on correct and scientific principles, might yet be executed at a moderate cost.

Foreign Letter from, dated 7 December  
(No. 74) 1852.

With reference to paras. 16 to 19 of Public Despatch, dated 15 September (No. 35) 1852, transmit copy of a report, by Lieutenant Briggs, on the Hindoostan and Thibet Road, with the accompanying minute and correspondence, and solicit sanction to the further works required for the completion of the road, as well as to the construction of a branch road from Kussowlee to Buddee.

2. The results, as exhibited in the highly interesting report of Lieutenant Briggs, must be considered to be eminently satisfactory, so far as the work has yet proceeded. "Within little more than two years," observes the Governor-general, "a road of more than 50 miles long, 12 feet broad, and with a ruling gradient of three in 100 feet (temporarily departed from in two places where it will hereafter be rectified), will have been constructed from the Plains to Simla. One half of the road from Simla to Chini, that is 70 miles in length and six feet in breadth, with the same ruling gradient of three feet in 100, has been constructed, and a tunnel of 200 yards in length has been excavated through solid rock. By the aid of the tribute labour due by the hill chiefs, the road of 12 feet in width has cost only 1,237 rupees a mile, and the road of six feet 690 rupees." The leading principle of Major Kennedy's plan, adherence to the ruling level, has thus, as more fully shown by Lieutenant Briggs, been departed from in two or three unimportant instances only; and though the former officer's sanguine expectations as to cost and rapidity of execution, have not perhaps been altogether realised, the experiment has been fully as successful in these respects as could have been expected, had the formidable nature of the country and the difficulty of procuring labour been more accurately known.

It appears desirable that this example of the successful working out of an important principle in road-making should be made generally known, and the printing of Lieutenant Briggs' report and its communication, not only to the officers of your Government, but also to the Governments of the other Presidencies, would seem to be the best means of accomplishing this object.

3. Additional works are still required on the Kalka and Simla road, at a cost of 10,000 rupees, in order to make it thoroughly complete, and 71 miles of the road between the latter place and Chini still remain to be finished, the cost of which will probably not exceed that of the completed portion. In addition to these works, Lieutenant Briggs proposed the formation of a branch road from Kussowlee to Buddee, at an estimated cost of 15,000 rupees, which would open a way from the Hill Stations to the Punjab, and the Governor-general is desirous that a branch road should be constructed from Dugshai to Subathoo, for the purpose of connecting all the stations in the hills with each other and with the plains. We give our cordial sanction to the expenditure required for the execution of these works.

4. We have, in conclusion, to express our concurrence in the commendation bestowed by the Governor-general on Lieutenant Briggs, the perusal of whose report has impressed us with a very high opinion of his general intelligence, as well as of his professional qualifications.

We are, &c.  
(signed) *R. Ellice.*  
*J. Oliphant,*  
&c. &c.

London, 18 May 1853.

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#### PENNAIR BRIDGE AND ANNICUT.

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Madras Revenue Despatch, 18th February (No. 2) 1852.

Our Governor in Council at Fort St. George.

Pennair Bridge and  
Annicut.

Para. 1. In a letter dated the 12th August last (No. 10), the Government of India have submitted for our favourable consideration a project laid before them by your Government for the construction of an annicut (to serve likewise as a bridge) across the Pennair River, in the Nellore district, at a cost of Rs. 85,547. 4. 6.

2. This work is intended to secure and extend the cultivation of a large tract of country. It is stated that on the average of the last five years, land bearing an assessment of 13,094 rupees has been annually abandoned, solely from the want of water to irrigate it. This amount would be at once secured by the execution of the proposed work; but it is further confidently anticipated that by increased cultivation, the ultimate gain to the revenue would not fall short of 20,000 rupees.

3. Relying on the correctness of your estimates, both of expenditure and return, we accord the sanction solicited by you and by the Government of India. Although in authorising expenditure on works of this description, we of course look to the direct return which they are calculated to produce in the shape of an increase to the land revenue, we are also mainly influenced by a consideration of the great advantages which they afford to the cultivators by extending the field of their labour, securing to them its fruits, and adding to its productiveness.

London, 18 February 1853.

We are, &c.  
(signed) *J. Sheppard.*  
*J. W. Hogg,*  
&c. &c.

## CHETWYE DAM.

Madras Revenue Despatch, 15th December (No. 19) 1852.

Our Governor in Council at Fort St. George.

Para. 1. WE now reply to your letters of the dates noted in the margin, forwarding for our sanction a proposal of Major Cotton to construct a dam at Chetwye, in lieu of that which failed at Yennamaikal, in the district of Malabar.

Chetwye Dam.  
Letters dated  
10th September  
(No. 53) 1851;  
25th June (No. 30)  
1852.

2. Chetwye is some miles further down the stream than Yennamaikal, and before finally determining on the new site, the question seems to have received a very careful investigation, and no effort seems to have been spared to arrive at an accurate view of the comparative advantages of the former and proposed position of the dam. The discussion which preceded the decision of the question being of an exclusively professional character, it is not our intention to enter into a review of it. It is sufficient to observe in this place, that Major Cotton appears not only to have effectually disposed of the objections which were urged against the work so far as to carry the opinion of his official superiors with him, but to have obtained the acquiescence of his opponents in the correctness of his views.

3. We observe also that the opposition originally offered by the Cochin Sirkar to the removal of the bund from Yennamaikal to Chetwye was based on an erroneous view of the subject, and was subsequently withdrawn.

4. In a financial point of view, the proposal of Major Cotton appears to possess many great advantages. The expense of restoring the dam at Yennamaikul is estimated at Rs. 34,814. 13., and that of constructing a new dam at that place at Rs. 74,214. 4.; while the total expense of a dam at Chetwye is estimated at Rs. 36,215. 14. The revenue derived from the bund at Yennamaikul is 2,500 rupees per annum, and the annual revenue to be expected from the erection of the bund at Chetwye is, at the lowest estimate, 7,500 rupees. If, therefore, the cost of erecting a bund, and the return to be expected from it at these two positions, be compared, it appears on a rough computation that the work might be executed at Chetwye at half the cost, while the return would be trebled, showing a return of  $3\frac{1}{4}$  per cent.\* on the outlay in one case, and of 21 per cent. in the other.

* Cost.	Return.	Return.		
Rs.	Rs.	Dec.	Rs. a.	p.
74,000	2,500	3 24	or 3	3 11
36,000	7,500	20 83	or 20	13 4

5. Relying, therefore, on the accuracy of the information and estimates submitted to us, we have no hesitation in according our sanction to Major Cotton's proposal.

6. You solicit our orders on another question in connexion with this work, viz., the portion of expense that the Cochin Government should bear in its construction and subsequent maintenance in repair. As the Cochin State will participate in the benefits accruing from the work, it seems but reasonable that that State should contribute towards the expense of constructing it. But the Dewan of Cochin, and the Resident, Major-general Cullen, object to such contribution, the former on general grounds, and the latter on the ground that the Cochin Government was in no way responsible for the failure of the bund, and is in consequence of its poverty entitled to liberal consideration. The force of these objections is recognised by your President, while Mr. Thomas does not wholly concur in them.

7. Under all the circumstances of the case, we are disposed to concur in the opinion expressed by your President in his minute, dated 12th June 1852, that the Cochin Durbar having intimated its readiness "to contribute to the preservation of the dam so soon as it shall be built, this is as much as ought to be required."

London, 15 December 1852.

We are, &c.  
(signed) J. W. Hogg.  
R. Ellice,  
&c. &c.

## REPAIR OF ROADS in the BROACH COLLECTORATE.

Extract Public Letter to Bombay, dated 29th June (No. 22) 1853.

Letter from, dated 15th February (No. 13) 1851.

(Paras. 24, 25; also letter dated 27th January (No. 5) 1852, p. 28.)

Expenditure of 2,000 rupees, out of certain fines imposed on account of the adulteration of cotton, on the repair of roads in the Broach Collectorate, sanctioned, in addition to 1,000 rupees from the annual repair fund, which it was intended to appropriate to the object. An estimate was subsequently sanctioned for the construction, at a cost of 879 rupees, of a causeway over the Dhadur Creek, which had long been a serious obstacle to the traffic between the different parts of the Broach Collectorate. The causeway was to be made by driving in two rows of piles across the river, at the distance of 12 feet apart, the inner sides being boarded with coarse planks, and the centre being filled in with stones and rubbish, which would form the roadway.

Para. 30. IT appears to be the decided opinion of Mr. Davies, the Collector, that no expensive measures for the improvement of the roads in the Broach Collectorate are required, and that the removal of the obstacles, arising principally from their narrowness, which at present impede traffic on "the rough though practicable roads," by which the district is intersected in "all directions," may be accomplished without much difficulty. It is highly satisfactory that Mr. Davies finds the inhabitants ready to assist him in these works, and that he expects to be able to carry out his objects as regards the improvement of the roads, without the aid of the engineers' department.

31. The want of the means of crossing the numerous streams within the collectorate, appears far more pressing than even that of the repair of the roads, and should receive your early attention. The simple method employed at the Dadur Creek, where it is crossed by the road leading to the port of Tunkaria, may, if successful there, be applicable probably to other places of the same character; but we are desirous of learning whether the suggestion of Mr. Davies to Captain Goodfellow for the construction of "a strong, simple, wooden bridge" over the Kharree, between Khutpoor Sumlee and Hansote, and which he thought might serve as a model for others, if it should be found to answer, has yet been acted on.

32. We observe that, in this instance, the Collector of Broach, finding the amount assigned for the repair of the roads in his district insufficient, applied for an additional amount (2,000 rupees) out of the sums realised from fines levied under a recent law upon persons guilty of the offence of adulterating cotton. You are aware of our objection to any special appropriation of assets of this description to local purposes, but we should have entirely approved of your having sanctioned the additional grant out of the general revenues for an object of public benefit, such as that in question.

Public Department, 24th May (No. 32) 1853.

Our Governor-General of India in Council.

Preparation of annual schemes for the construction of roads and bridges by the Governments of Fort St. George and Bombay.

1. WE have been anxiously awaiting the result of the inquiries which, in accordance with our orders of the 30th January 1850, have been instituted by the Governments of Fort St. George and Bombay, with regard to the superintendence and execution of public works at those Presidencies.

2. In our consideration of the proceedings of the above-named Governments with regard to various proposed works of public improvement, and especially in the case of roads, we have often, and in that despatch especially, noticed the irregular and unsystematic manner in which the plans laid before them have been disposed of. The sanction given to the several schemes by the local governments, or the recommendations made to your Government in favour of them, appear to have been grounded too frequently on considerations limited to each particular project, and having no reference to the general wants of the country. The natural consequence of such a mode of proceeding, as regards roads, has been that large expenditure has not unfrequently been incurred on lines of inferior importance, while the trunk lines have remained in an imperfect state, on the ground that the necessary funds could not be spared to complete them.

3. In

3. In the despatch above referred to, we showed ourselves strongly impressed with the evils arising from so imperfect and inadequate a mode of considering the subject, and referred to your consideration not only the best mode of departmental management to be adopted with regard to public works, but also the importance of taking into view all such works, and especially trunk and branch roads, as portions of one connected system. While we shall await the information referred to in the first paragraph of this despatch, before entering on a consideration of the general subject, we are desirous that no time should be lost in applying a remedy for the particular evil we have pointed out.

4. It is our opinion that the object in view may best be attained by the adoption of a plan of the following description. Each of the local governments should require, annually, from the officers who, in the respective Presidencies, may be vested with the general charge of the roads, a statement of the new works most urgently required for the purposes of inter-communication, and the execution of which, within the ensuing year, he may be prepared to undertake. On receiving this statement, it would be the duty of the Government to decide, after a careful consideration of the circumstances of the Presidency at the time, whether the works proposed had been properly selected, in preference to others, for immediate execution; and having come to a conclusion on this point, the whole scheme involving the proposed expenditure on new roads and bridges for the coming year, should be submitted for your final sanction and approval.

5. The plan above indicated, though peculiarly required with reference to the means of internal communication, ought also to be applied to public works of every description; and believing that much benefit would arise from the means it would afford of bringing annually under review the wants of each Presidency, as regards buildings, works of irrigation, and other works of a miscellaneous character, we direct that its operations be extended accordingly. It is desirable that, with respect to these works, as in the case of roads, the statements should exhibit the entire expenditure proposed to be incurred on new works, whatever may be the amount of the estimate for each; and we forward to you a number in the packet, a copy of the Ordnance Estimate, as annually laid before Parliament. You will find in that portion of them which relates to the public works, the form giving the estimated expense of new works, and the past as well as probable expense of those in progress, and we should recommend that this form should be adopted so far as it is applicable to the circumstances in India.

6. We wish it to be distinctly understood, that in issuing these orders, it is far from our desire either to place any further restriction on the amount heretofore expended on works of public improvement, or to deprive the Governments of Fort St. George and Bombay of any of the power they have hitherto possessed of authorising expenditure on such works. Our object is primarily to secure the application of the money to be expended in such a way as to produce the greatest possible benefit to the country and to the community; but the proposed plan, while preserving to your government that general control over the finances of India, which it is intended that you should possess, will have the advantage of relieving your government from that unnecessary distraction of attention and waste of time, which arise from a number of separate projects, relating to objects of a kindred nature, being brought under your consideration at different periods.

We are, &c.  
(signed) *R. Ellice.*  
*J. Oliphant,*  
&c. &c.

London, 24 May 1853.

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#### MEMORANDUM on the ROORKEE COLLEGE.

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FOR years there had existed a large demand for skill in every branch of civil engineering, to supply which efforts were for some time made by providing the means of special training in institutions which were then existing. In January 1845, Lieutenant Baird Smith, of the Engineers, superintendent of the Eastern Jumna Canal, undertook to conduct, at Saharunpoor, the education and training

ing of native youths in civil engineering; and two of the most advanced scholars in the Agra and Delhi Colleges were placed under Lieutenant Smith's care. Towards the close of the same year masters were appointed to the Delhi and Agra Colleges for the special purpose of teaching architectural drawing and surveying; a class of "sub-assistant engineers" was also formed, with fixed allowances and a recognised standing in the public service.

The number of sub-assistant executive engineers was at first limited to four, but was subsequently (22d December 1846) increased to 20. One of Lieutenant Baird Smith's pupils, named Mannoo Lall, was immediately examined, and found qualified for an appointment of this nature; he has since rendered valuable services as a teacher in the Roorkee College. Three other native youths passed the required examination and obtained appointments as sub-assistant executive engineers. The chief benefit of the measure had been, to hold out definite expectations to the educated youth in the Government colleges. The standard of mathematical attainments had been designedly fixed high, and there were many who were making great exertions to reach the mark.

In 1847 Lord Hardinge determined on the vigorous prosecution of the Ganges Canal. The science that was necessary to construct a work of this magnitude would also be constantly kept in exercise for its maintenance, improvement and extension; immediate measures were necessary to meet the emergency, and to provide a constant supply of well-trained, experienced civil engineers. Out of this emergency Roorkee College had its rise.

The proposal for its institution obtained the immediate and cordial support of the Governor-general of India. On October 19th, 1847, Lieutenant R. MacLagan, of the Bengal Engineers, was appointed principal of the college, and on November 25th of the same year the Prospectus was issued:—

No. 949.

General Department, North-Western Provinces. Head Quarters,  
the 25th November 1847.

#### NOTIFICATION.

"The Lieutenant-governor directs the publication, for general information, of the following\* Prospectus of a college for instruction in civil engineering, which is now established at Roorkee, and of which Lieutenant R. MacLagan, Engineers, has been appointed principal."

\* See Report printed by order of the Honourable the Lieut.-Governor of the North-Western Provinces, 1851.

It was reported in 1851 that, though little more than three years have passed since the first opening of the college, and during part of that time the exigencies of the public service in the Punjab war caused a temporary suspension of operations, yet a considerable number of well-trained men had been furnished to the service of the state, and the institution had obtained a standing and organization which afforded promise of much future usefulness.

The following measures were proposed, in 1851, for the further development of the scheme which was contemplated in the first design of the institution; viz., —

1st. The admission of officers, both of the Royal and East India Company's armies, to study at Roorkee College.

2d. The improvement and superintendence of the village schools in a circle of 40 or 50 miles round Roorkee.

3d. The establishment, in connexion with the college, of a depôt of mathematical and scientific instruments, and of a workshop for their manufacture and repair.

4th. The formation of a museum of economic geology.

5th. The erection of an observatory for instruction.

6th. The maintenance of metal and stone printing presses, with a book-binder's establishment, and all that is necessary for the publication of scientific works, with appropriate drawings and illustrations.

7th. The

7th. The enlargement of the college building and establishment to meet all the purposes.

---

The applications for admission into the several departments of the college had been very great.

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The following are Extracts from the Court's Despatches on the subject of the College.

EXTRACT Public Letter to India, dated 28 March (No. 6) 1849.

Para. 2. WE concur in the view taken by the Lieutenant-governor of the North-Western Provinces, of the advantages which may reasonably be expected from an institution of this nature, and we therefore approve of its establishment.

---

EXTRACT Public Letter to India, dated 2 June (No. 23) 1852.

Para. 7. WE accordingly give our sanction to the expenditure which will be necessary to carry out the plan of the Lieutenant-governor.

8. While we have been mainly influenced in authorising this large outlay by the considerations placed before us by the Lieutenant-governor, arising from the advantages to the public service, and the general benefits to the people which may be expected from placing the college on a thoroughly efficient footing, we hail with much satisfaction the means which the institution, on its extended plan, will afford to the native youth of qualifying themselves for the service of Government in a way which is, to a great extent, new to them, but for which, so far as they have been tried, they have manifested a perfect aptitude.

---

EXTRACT Public Letter to India, dated 14 July (No. 27) 1852.

68. WE notice with much satisfaction the additional evidence afforded in these papers of the successful working of this important institution, and we approve the measures which you have sanctioned for the further extension of its usefulness.

Letter from, dated 21 December (No. 47) 1850.

(7 to 9.) The establishment of a class in the Roorkee College for imparting the rudiments of civil engineering in the vernacular language having proved very successful, the number of the class increased from 16 to 24. At the same time, the allowance of one-third of the whole number was fixed at 10 rupees instead of 5 rupees per mensem, and as it was thought desirable to encourage the resort to the college of youths from the Punjab, sanction was given for the payment of travelling allowance to a limited number of young men from Lahore.

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(True copies.)

East India House,  
17 August 1853.

(signed) *T. L. Peacock*,  
Examiner of India Correspondence.

**PUBLIC WORKS (INDIA).**

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4  
A RETURN of all SUMS spent on PUBLIC WORKS (not of a Military kind) in *India*, since April 1834, keeping distinct the Amounts spent on the REPAIRS of OLD, and on the CONSTRUCTION of NEW WORKS, together with the Objects of the Works newly Constructed; and stating, when remunerative, the Amounts received from such Works.

(*Mr. Bright.*)

---

*Ordered, by The House of Commons, to be Printed,  
20 August 1853.*

---

[*Price 1s. 10d.*]

987.

*Under 16 oz.*



PUBLIC WORKS (BENGAL, &c.)

RETURN to an Order of the Honourable The House of Commons,  
dated 24 February 1853;—for,

COPIES “ of the REPORTS of the several COMMISSIONERS ON PUBLIC WORKS  
at *Bengal, Madras, and Bombay*, in the Year 1851-2; of the MINUTES  
of the Members of the Government. thereon ; and of any Orders or  
Despatches of the COURT of DIRECTORS relating thereto.”

East India House, }  
17 January 1854. }

JAMES C. MELVILL.

B O M B A Y.

[*Note.*— The Return from the Presidency of BENGAL was presented to the Honourable the  
House of Commons on the 26th April 1853 ; and that for the Presidency of FORT SAINT GEORGE  
on the 27th May 1853.]

(*Mr. Hume.*)

Ordered, by The House of Commons, to be Printed,  
6 February 1854.

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B O M B A Y

EXTRACT MILITARY LETTER from *Bengal*, dated 9 September 1853.

(No. 231.)

IN transmitting to you the accompanying Report of the Commission on Public Works in the Bombay Presidency, called for by your Honourable Court's letter to the Government of India, in the Public Department, No. 47, of the 20th July 1853, we beg to observe, that we were not aware that the Government of Bombay had omitted to forward a copy for your information.

2. We take this opportunity to state, that we are not prepared to pronounce any opinion on the Report in question; but we trust before long to be able to communicate to your Honourable Court the result of our deliberations on the whole question.

Considered—  
3 June 1853, Nos 19/32.  
19 Dec 1851, No. 46.  
8 Oct. 1852, Nos 25/27.  
28 May, No. 21.  
Received in the Military  
Department, with Ex-  
tract, Home Department,  
No 867, dated 2 Sept.  
1853

(No. 2961.)

From Lieutenant-colonel *P. M. Melvill*, Secretary to Government, to Lieutenant-colonel *R. J. H. Birch*, C. B., Officiating Secretary to the Government of India in the Military Department, dated 10 November 1851.

Sir,

I AM directed by the Right honourable the Governor in Council to forward, for submission to the Government of India, the Report of the Commission appointed to inquire into the existing system of Public Works, in conformity with the instructions conveyed in your despatch of the 21st of December, No. 584.

As the Appendices to the Report are voluminous, the Governor in Council has directed such as appeared to be required for the correct understanding of the text to be extracted, and forwarded herewith; but should the Government of India desire to have the whole laid before them, the volumes, I am to state, will be immediately despatched, either in original or in copy, as may be deemed most convenient and useful.

I have, &c.

(signed) *P. M. Melvill*,  
Lieut.-colonel, Secretary to Government.

Bombay Castle,  
10 November 1851.

(True copy)

(signed) *R. J. H. Birch*,  
Lieut.-colonel, Officiating Secretary to the Government  
of India in the Military Department.

REPORT FROM THE COMMISSION ON PUBLIC WORKS,  
1 September 1851.

EXTRACT from GENERAL ORDERS by the Right honourable the Governor in Council, Military Department, Bombay Castle, the 20th of March 1851.

(Nos. 180 of 1851.)

THE Right honourable the Governor in Council has been pleased to appoint Colonel G. Moore, Mr. J. D. Inverarity, C. S., Captain H. B. Turner, Engineers, and Captain J. Gaisford, Artillery, a Commission to inquire into the existing system of Public Works, both as regards superintendence and execution; Captain Gaisford will act also as Secretary.

All departments in any way connected with Public Works are hereby required to correspond with the Commission, and to comply with any requisition for papers, or any information which the Commissioners may make.

By order of the Right honourable the Governor in Council,  
(signed) *J. G. Lumsden,*  
Secretary to Government.

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## SECTION I.

*The present System of conducting Public Works described.*

It is indispensable to the method and clearness of this Report, that we be permitted to introduce our subject with a description of the system on which Public Works in this Presidency are now conducted; this we shall endeavour to do in the briefest terms.

1. The proposal for a Public Work may originate with any Government functionary who is in a position to judge of the wants of the country, or of his own particular department; at military stations new works may not be applied for without permission of his Excellency the Commander-in-Chief.

2. The plan and estimate are prepared by the Executive Engineer, and proceed from him to the Superintending Engineer of the Province, who examines the design, the calculations, the rates, and all such details, and, if he thinks proper, suggests to the executive officer alterations.

3. From the Superintending Engineer the papers pass on to the Military Board, for approval, and also for their decision, in case of any difference of opinion between the Engineers. If in the Military Department, the Board finally submit the plan and estimate to Government, by whom the work is sanctioned or not, as the case may be.

4. But

4. But in Civil Works, whose utility hinges upon considerations of which the Military Board is not officially cognizant, such, for instance, as works of irrigation, which depend upon the increased revenue derivable, or cases which have reference to the increased efficiency of departments not controlled by the Board, as, for example, if a judge or collector should require additional accommodation in his adawlut or cutcherry, the plan and estimate is considered by the Superintending Engineer and Military Board with sole reference to its fitness for the objects desired by the Civil Department: accordingly, on receiving a plan and estimate for a bundara dam, the Board would not consider whether the work were likely to be profitable; they would only consider the construction with regard to the immediate object, and the cost with reference to that construction; neither would the Board inquire whether the additions to the adawlut or cutcherry were necessary; they would only consider the construction and cost, with a view to providing economically and efficiently whatever the Judge or Collector demanded.

5. Such plans and estimates are not forwarded by the Military Board to Government, but are returned, with their approval, to the Judge or Collector, who submits them to Government through the Revenue Commissioner or Sudder Adawlut, with full information of the advantage expected from the work. The sanction, if accorded, is communicated to them, and to the Military Board, and by the latter through the Superintending to the Executive Engineer.

6. The same course is followed in the Road and Tank Department, where the assistants stand in nearly the same position as other executive officers, and the Superintendent in nearly the same position as a Superintending Engineer.

7. No Superintending Engineer intervenes between the Military Board and the Garrison and Dockyard Engineers at the Presidency. The professional member of the Board having an opportunity of seeing, with his own eyes, everything connected with their executive duties, it is assumed that the office of Superintending Engineer would be superfluous.

8. The Civil Engineer at Satara also was exempt from superintendence; but occasions having arisen for deputing a superior officer to inspect works in that Province, he has lately been placed under the Superintending Engineer of the Southern Division.

9. The course of further proceeding is the same for all works. The Engineer executes them as soon as he can, either by contract or departmentally, furnishing quarterly reports of progress. When ready to commence work, he draws from the disbursing officer of the Department chargeable an advance of money; and in prosecuting an extensive work, he obtains from time to time further advances within the limits sanctioned. His cash indents are first countersigned by the Superintending Engineer, who is supposed to see, by the progress reports, that no unnecessary delay occurs, and that inordinate advances of cash are not drawn. The fixed salaries of the establishment are obtained on a monthly bill.

10. When the work is finished, its audit takes place on a bill comprising the entire outlay, supported by a certificate from the Superintending Engineer, if present, otherwise from the head of the Department concerned, that the work has been completed satisfactorily in accordance with the sanctioned plan and estimate, or with exceptions, as the case may be. This bill exhibits the total expenditure of labour and materials; attached to it is a schedule of rates derived from that expenditure as per the "figured Abstract," described farther on, which thus tests the accuracy of the estimate, and affords practical data for future use. If the work is unfinished at the close of an official year, and a portion of the estimated cost still remains unspent, a bill for the outlay up to the 30th April is preferred, containing only two items, namely, the amount spent for labour and materials respectively, and this supported by a certificate, on honour, that it has been spent, is passed. But any item that may be deemed objectionable, though passed in the annual bill, may still be checked on the final audit; for the object of the annual bill is not so much to relieve the executive officer of his responsibility, as to prevent large outstanding balances against him, and to simplify the accounts of Government by debiting the expenditure of every year appropriately to the period in which that expenditure was incurred.

11. Besides the work thus executed by the regular establishments, undertakings

Report.

are occasionally committed to extraneous management. The procedure in these works is various, according to whether they are conducted under orders of the Military Board or not.

12. When Civil, or other than Departmental Officers execute works under the general control of the Board, bills for the actual amount of labour and materials expended are usually rendered, with a certificate, on honour, that such charges have been incurred, and these bills are passed by the Military Board.

13. The Revenue Officers are vested with authority to lay out annually certain sums in effecting improvements, without making previous reference for sanction, reporting, however, half-yearly to the Revenue Commissioner how those sums have been expended.

In the Collectorates of Tanna, Rutnagherry, Poona and Ahmednuggur, the sums thus disposable were reduced in 1835, on the creation of a separate agency, for roads and tanks, to Rs. 1,600 (sixteen hundred) for a Collector, Rs. 600 (six hundred) for his first, and Rs. 400 (four hundred) for his second assistant. In the other parts of this Presidency Collectors may disburse the amounts stated in Appendix (A.): works specially sanctioned by Government, and executed under the Revenue Officers, are accounted for separately in detail, with bills and receipts for vouchers.

## SECTION II.

### *The System of Accounts.*

14. THE system of accounts in the Public Works Department was modified in 1846-47 to embrace certain forms which appeared preferable on a comparison with the methods followed in Bengal. Previously to this, the practice was for Engineers to render monthly bills of their actual expenditure, vouched by the receipted dealers' bills for materials, and by muster-rolls of the workmen entertained.

15. The fault of this practice was a deficient check upon the disposal of labour and materials when purchased; while in works executed without an estimate, there was the utmost facility for misapplication.

16. The present system admits no bills\* until the completion of a work, or of an integral and easily measured portion of it, which may be treated as a separate work; and the engineer is required to register the daily expenditure of labour and materials on each part of the work, rendering, at its completion, a bill in detail for every item of the estimate. If any considerable difference has arisen between the cost as per estimate and the cost per bill, it is explained at the foot of the latter.

17. When a work has for any reason been performed without an estimate, the bill is nevertheless drawn out in the same detail; so that if the cost appears extravagant, the register of daily expenditure shall afford the means of thorough investigation.

18. It might be objected against this system, that, supposing the amount of an estimate to be Rs. 1,000 (one thousand), and the actual cost Rs. 900 (nine hundred), there would be no check if the officer should charge the larger sum. The answer is, that then his book of daily expenditure of labour and materials must be forged, or there would always be good chance of the discrepancy attracting notice, besides a likelihood of exposure by the persons who kept the accounts. Further, the Military Board consider the criterion of a system to be, that it shall direct its checks rather against an executive officer's negligence than against fraud; for there is every reason to believe that fraud on part of the officers practically does not exist.

19. The above is believed to differ from the Bengal mode of accounting in the following particulars only, viz. :—

1st. In passing bills for the expenditure of each year on works unfinished at the close of the official year.

2d. In the substitution of a daily cash account and ledger kept by double entry, for the journal or day-book, stock-book, and book of accounts current, with suppliers of materials.

3d. In

\* Except the annual bills.—*Vide* para. 10.



3d. In monthly, instead of daily payments to labourers.

4th. In permitting the figured Abstract to be kept in the language of the overseer who prepares it.

20. In order that we might judge of the completeness of the accounts kept by Executive Engineers, and whether it would be possible to alleviate, by any simplifications, the clerical labour of their officer, we have examined three sets of accounts, obtained for us by the Superintending Engineer, Southern Provinces, as being respectively fair examples of the mode of estimating, accounting and charging for what might be termed a small work, a work of moderate extent, and a large work, viz. :—

No. 1. The estimate.

No. 2. The figured Abstract of daily expenditure of labour and materials.

No. 3. Abstract of daily cash totals.

No. 4. The bill.

No. 5. The certificate of completion.

The forms are the same for all.

The estimate, bill and completion certificate, which are in English, are as succinct, and, at the same time, as explicit as can be desired. The two other papers are usually kept in some native language, and, by daily repetitions, they swell in the course of protracted works to considerable bulk [see Appendix (B.)]. The estimate includes contingencies, and that portion of superintendence which is paid for extra to the fixed establishment. The cost of superintendence by the officer and his permanent subordinate is not charged, because they are usually engaged on various works, proceeding simultaneously, and subject to constant variation.

21 We have collected from the records of the Military Board Office, and from numerous other sources, opinions upon the merits of the present system of accounts. The majority regard it as a decided improvement upon the old, while some object to the figured abstract as not being universally applicable; not, for instance, to cutting roads through rock along the irregular surface of a hill-side, and as involving an extent of paper-work disproportionate to its utility. They represent, that although this abstract, if faithfully kept, is valuable, there is difficulty in getting qualified and trustworthy persons to fill it in, and that there is a temptation to make up for neglect by fabricated entries: moreover, they question whether it is worth while perpetually to record such elaborate details of the expenditure on every work, when the rates ought, after a few trials, to be accurately known

22. Considering the circumstances under which Government Works are carried on in India, we think it is quite credible that a paper professing to record every minute item of expenditure on a large and heterogeneous work, would not, in all cases, bear the test of a searching examination; still, the executive officer is accountable for the degree of inaccuracy that may exist, and with due existence\* on his part, the theory may be carried out to an extent most useful, and for practical ends sufficient.

\* See orig

23. The "figured Abstract," however formidable, from its expansiveness, is in its nature clear, and level to the ability of ordinary karkoons. The labour of native writers being cheap, its cost cannot often countervail its usefulness, and if the officer is conversant with the native written characters, it will present continually before his eyes, in a shape readable almost at a glance, the information he chiefly requires; it will enable him to tell daily the rate at which his work is progressing, and effectually to check negligence and fraud on the part of his subordinates.

24. Indeed, this document is admitted, even by opponents, to be the only means whereby the expenditure on the various divisions of a work can be developed, and wasteful outlay be detected; and since Government will always demand an explanation of excesses, such accounts must be kept as will admit, in most cases, of explanations exactly true, and in exceptional cases, true approximately.

25. When works are transferred in an unfinished state from one executive officer to the charge of another, this document is all-important, because, combined with the abstract of daily totals, it at once shows the quantity of work

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completed, its rate, and its entire cost up to the date of transfer: as there are, however, cases where the figured Abstract entails more trouble than is equivalent to its worth, we shall again notice it in our suggestions for reducing office-labour.—[See Section 166.]

26. We have received from Lieutenant Chapman, an officer of considerable experience in the Road Department, a complete set of office documents of the form in which he has been in the habit of keeping his accounts of labour and materials. These appear to us so clear and perfect, that we think it worth consideration by the authority that is to review the general system how far Lieutenant Chapman's method is an improvement upon the ordinary figured Abstract. For works such as Lieutenant Chapman has been engaged on, we have no hesitation in recording our favourable opinion of it; and although in other than Road Works the advantage may not be so apparent, the forms are perfectly adapted to work of any description. We have appended these papers accordingly—[Appendix (C.)].

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### SECTION III.

#### *The Rules for Minor Works and Repairs described.*

THUS far we have spoken of new works and important alterations. We now come to the minor works, styled "emergent," and to the customary repairs of public buildings.

27. Emergent works are commenced at once, on requisition of any competent authority, or by the executive officer on his own responsibility, if he judges the occasion to be urgent. Special report is made to the Military Board of the circumstances, and, if possible, of the expenditure required. This discretion on part of the Engineer refers to works in the general department only. The Engineer would repair a bridge, for instance, or a traveller's bungalow, but he would not repair a bund, without a requisition from the Collector.

28. Annual repair estimates are limited to preserving the structure of buildings. They are prepared at the close of every rainy season, and used to be sanctioned conditionally by the Military Board.

29. Other repairs, such as colouring, plastering, repairing floors, ceilings and fixtures, are styled "petty repairs," and can be made at any time, on requisition of commanding officers, or of the civil authorities, being charged for in the executive officer's monthly bill.

30. The expenditure for emergent repairs is also charged if under Rs. 400 (four hundred) in the Engineer's monthly bill, to which the authority and completion certificate must be attached. If beyond this limit of the Military Board's power to sanction, or if the emergent work come under the head of "additions, alterations, or new works," a separate Bill must be passed by Government. The money for prosecuting an emergent work can be obtained by the executive officer direct on a cash indent, supported by copy of his instructions from an authority competent to order the work.

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### SECTION IV.

#### *Effects of the present System.*

31. RESPECTING the practical operation of the rules above described, we have consulted the experience of numerous officers, civil and military, upon whose aggregate opinions and our own judgment the following view is founded.

32. Foremost, by the consent of all, stands the censure, that unreasonable delays are a pervading and most pregnant evil of the present system.

33. First are delays of projections. The needful portion of these arises in drafting plans and estimates with that minuteness of specification which the rules demand, and reason, we think, requires. The casual part occurs when subjects are referred

The Court of Directors ordered this rule to cease in 1850.

referred back for clearer reports, and from the necessity of correcting faults found by Superintending Engineers and the Military Board. The needless portion consists in much time of highly paid officers consumed in doing inferior work, on which lower abilities might be employed. The remedy for this belongs to the separate division of our Report, headed "Subordinates."

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34. Next come the delays of sanction. In order to know the amount of correspondence and inquiry ordinarily incurred between the proposal and sanction of works, great and small, we obtained from the Military Board a statement of actual proceedings, tracing step by step the progress in 96 examples of works taken as they came from the records of one quarter in 1850. This enabled us to see where the longest and most frequent stoppages intervene. The statement will be found in Appendix (D.)

35. The statement itself needs to be examined, case by case, before one can fully comprehend how wearisome is the process of carrying projected works through the offices of control. But since few can pause to examine a record so bulky, we shall give for illustration the results only of a scrutiny, to which we subjected its contents. It is obvious that the analysis of such a return can only be exact enough to separate its more tractable elements, and that it would have been curious rather than useful to have investigated particulars not apparent on the face of the statement itself. Rejecting, therefore, the abnormal and incomplete cases, but without eliminating those which had the advantage of ready-prepared plans, or of having been partially discussed at some former time of proposal, we have dealt with the remainder only.

36. And we find that on an average of 64 examples, taken casually as aforesaid, 106 days elapse between the call for "Plan and Estimate" of a work, and the date of its being sanctioned. In the quickest case, that of sanctioning a Rs. 12 (twelve) drain for the General Hospital in Bombay, the whole course was run in 24 days. In the slowest case, that of repairs to a channel for irrigation at Wurneir, it took 436 days.

These 64 cases occupied in all 6,823 days; we estimate the consumption of this time to have been as follows, viz. :—

	Days.	Per Cent
1. Delays in transit per post, estimated at - - -	472, or	6.92
2. Days consumed between the call for, and transmission of, plan and estimate by the Engineer Department,	2,938, or	43.06
3. Stoppages while under consideration by the Military Board - - - - -	1,400, or	20.52
4. Further interval until sanctioned by Government -	2,013, or	29.5
TOTAL - - -	6,823, or	100.

The courses which make up the last-named interval are separable into two species, the one when the project goes on direct from the Military Board to Government; the other when it proceeds through the channel of the civil authorities. In the 64 cases examined, 49 belong to the first kind, and received sanction of Government in 27 days' average, after leaving the Board; 15 belong to the second kind, in which the delay was increased to 45 days.

37. In the stoppage with Government is included the time occupied by inquiries. That these, although perhaps indispensable by rule, were often supererogatory in themselves, may be presumed from the constancy with which projects seem to have received approval as originally designed. It remains for Government to pronounce how much the delay in the more important cases may have been aggravated by their procrastination in favour of works equally claimant, although so trivial that, but for the law compelling them, they really needed not to have come before the Government at all.

38. The Military Board is likewise made to bear its own references. The longest delay thus charged is 170 days, consumed in discussions between the Board, the Commodore and Government about a railway in the Bombay Dockyard. In another case the Board's correspondence with the Engineer and Quartermaster-general, regarding shelves for some staging\* pendals, prolonged the stoppage to 142 days. These cases are both exceptional, and materially affect the average.

\* Sheds for Troops.

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39. Under the head of delays with the Engineers, is included the time occupied in preparing plans and estimates for works probably far distant from the spot where the officer received the call, perhaps asked for at a season where travelling was impracticable, or when officers were in course of relief, and also the time occupied in references rendered necessary by the duties alluded to in para. 2. The longest stoppages thus debited against the Engineers are 245, 216, 215, and 180 days.

40. The bare outline of proceedings serving as an index to the above collection of cases, fills 28 close foolscap sheets: 59 letters are indicated as having been written about two boats (value Rs 975—nine hundred and seventy-five) for the Colsette Ferry, and 88 about repairing a tank at Pendoor. When it is remembered that there is yet a catalogue of works rejected or postponed [see Appendix (E.)], and an unknown amount of collateral correspondence between Superintending and Executive Engineers, Collectors, Revenue Commissioners and others, additional to that above stated, and all belonging to the same period of gestation, we may reach to some conception of the bulk to which mere papers swell.

41. This is no place for dwelling on the thought how circuitous, troublesome and obstructive is a system of centralized control over petty matters; how unproductively it wastes the energies of its men of action, who have not only to do, but to write down what they do, have done, and intend to do, with the why and the how, and the when, in all their multitudinous particulars,

42. A large amount of writing being inseparable from our Indian methods of business, it is especially requisite to free the action of executive men from the trammels of superfluous office work, and the needless reduplication of checks, while the necessity is evidently not less for abating the congestion in the Secretary's office that is now caused by the flood of reference to Government, which produce this complaint, delay.

43. Both would be relieved by restoring authority in minor cases to those local centres which report to the Revenue Commissioners, and by enlarging the provisional authority of the Military Board, the same unity of procedure as now, and the same subservience to the general policy of Government being securable through reviewing the administration of those authorities in the gross, as by sanctioning beforehand petty cases in detail. Thus the central interference of Government would regulate, not supersede, the functions of those officers who ought to be responsible for managing the minor circles of the system; all functionaries would save time and labour, while the State would get more work for its money:

44. We have met with some remarks by Captain Wingate, Superintendent of the Revenue Survey in the Southern Mahratta country, upon the impediment of official forms, which are so forcible, that we here transcribe them from a letter addressed to the Collector of Dharwar on the 21st December 1848.

“It is without doubt very desirable that no needless expenditure should be incurred; but in guarding against this, by requiring every proposition to receive, in the first instance, the sanction of Government, it may be well to consider whether we do not run into the very error we strive to avoid. Under the existing plan, a portion of the valuable time of the Collector of the Revenue Commissioner and of Government is unavoidably consumed in the consideration of every reference, however insignificant, and very often in addition that of the Executive and Superintending Engineers, and of the Military Board. The value of the time of these officers and authorities may be readily deduced from the amount of pay received by them respectively; and in making due allowance for this, I think it will appear incontestable that the briefest proposition and estimate submitted for sanction could not, under the most favourable circumstances, pass the round of them all under a cost of Rs. 300 (three hundred), and I believe it very rarely does so without costing very much more; in the case of all works under this amount, then, it is clear to me that their actual cost is more than doubled by the process required for obtaining sanction, and that, even on the almost impossible supposition of a work being wholly useless, it would be better to empower the Collector to order its construction without reference, rather than consume the valuable time of so many high functionaries of the State as the present method requires.

But it may be argued, that as these functionaries must be paid upon either plan, no saving would be effected by transferring the power of sanctioning such expenditure

ture from the head of the Government to the Collector; and the reasoning would be sound if they all have leisure for the consideration of such trifling matters without detriment to more important business: such a position will, I believe, be at once admitted to be quite untenable, as in all departments of the State the pressure of an overwhelming mass of business is keenly felt. The most active feel themselves in danger of being swamped amidst the never-ending streams of routine business pouring in upon them, and their best energies are expended merely in keeping the cumbrous machinery of their departments moving. The state of things here described is clearly traceable to the gradual appropriation by the central authority of much of the supervisory and executive functions previously exercised by the local officers; and though the change may have led to greater system and uniformity of practice in public affairs, it has, in my humble opinion, been pushed greatly too far into details, and has had the effect of so increasing the mass of business in all departments, that it becomes a task of yearly increasing difficulty to prevent it falling into arrears.

45. In three cases out of the first 36 on the statement (§ 34), the Military Board expedited the work 55, 15, 82, in all 152 days, by authorizing the Engineer to proceed at once, the Board reporting to Government that they had done so: looking to the character of the 96 cases before us, there appear to be not less than 37 which might have been treated similarly, if the regulations reposed more responsibility in the Board, or in other authority short of Government.

46. We observe that Government hardly ever find occasion to dissent from the Military Board's recommendations, where the question is not whether a work shall or shall not be done, but one merely of the amount it ought to cost.

47. In all cases, therefore, of repairs, reconstruction, and inevitable additions in which all authorities short of Government and the Board have agreed, we think the Military Board, if also concurring, might, as a rule, let the works proceed, making a periodical return to Government of their nature and expected cost. The State must pay in the end, and this course would save one-third of the delay.

48. And if Government would every year acquaint the Board of the sum prospectively available for improvement of the country, that body, possessing the general views of Government, might proceed to apply the funds, and to employ the executive corps to much better advantage than is possible under the present arrangements.

49. The Superintending Engineer, S. P., has represented to us the injuriousness of delay in the particular case of tanks for irrigation. In the Dharwar Collectorate there are about 2,000 such tanks: they are formed by earthen embankments, faced with dry stone-work, to prevent injury from the ripple, a species of construction which obviously needs frequent slight repair, and where a trifling dilapidation, if not attended to, often ends in a serious breach.

50. Yet so great has been the delay in that Collectorate, that, on an average of 18 cases, in a statement before us, 11 months elapsed from the date of the Collector's requisition to the date when the estimates were sent in.

51. It seems to have been considered indispensable, before furnishing a plan and estimate, that the Engineer should personally visit every tank. This officer having various calls upon his time at Dharwar, could not attend simultaneously to several tanks dispersed over the Collectorate; but the Superintending Engineer considers that, although two or even three months may often elapse, and in the rains more, the above delay was exorbitant.

52. In 13 of the above estimates which were sanctioned, eight months were consumed in passing the ordeal described in paras. 2 to 3.

53. The sanction having at length arrived, it might be supposed that the work would begin; but no; other difficulties have still to be overcome. First, the ryots' contribution towards the work has to be collected—no easy matter; then wuddars\* have to be got together, and then, if the Executive Engineer has a builder available, the work commences.

54. Thus, from the first call for an estimate, long perhaps after the repair was needed, up to the time when the work begins, according to the average of nine of the above works, omitting those commenced without sanction, 26 months passed away.

\* A wuddar is a camp of a gipsy tribe, which, on this side of India, performs the kind of work undertaken by " navigators" in England.

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55. We again extract from Captain Wingate's letter already quoted—

“ An estimate for repairing the Chickeroor Tank was sanctioned so long ago as 1835, and a portion of the sum placed at the Engineer's disposal expended. From some cause, the repairs were not immediately proceeded with, and in 1841 the Engineer would appear to have informed the Collector that the sum sanctioned was insufficient, when the latter officer directed the Mamlutdar to ascertain how much the villagers would contribute in addition. They agreed to contribute Rs. 390 (three hundred and ninety), and of this sum about Rs. 380 (three hundred and eighty) were immediately collected, and placed in deposit in the district treasury. The sum available was probably still found insufficient, for time passed on without any repairs being made, until at length the contributions of the villagers were finally passed to the credit of Government, under the operation of some general instructions regarding the disposal of sums placed in deposit.”

56. In parts of this Collectorate the villagers have refused to pay towards their tank repairs, if to be done by the Engineer Department, although ready to do so if executed under the Mamlutdar. This is easily accounted for without attaching blame to the Engineer, because the delay that takes place in obtaining sanction through his department frequently adds heavily to the expense, and deprives the villagers for a long period of their means of irrigation, as is forcibly exemplified in the paragraphs foregoing

57. The petty repairs of irrigating tanks should be executed on the instant ; and, to create in them a local interest, which alone can be effectual, we think that means, by legislative enactment, if necessary, ought to be taken for compelling villagers to repair slight damages as they arise, and that a responsible person should annually report that every tank has been properly maintained.

58. Petty repairs at the expense of villagers should be managed entirely by the district civil authority. All emergent repairs of damage, proceeding from accidental causes, and not from neglect of the villagers, should be executed at once by the Collector, with the Engineer's advice, at the expense of Government ; and for all other works of irrigation, whether new projects, additions, improvements or general repairs, plans and estimates should be made and submitted, as at present, Government contributing towards the cost, but superintendence of the work, and payment of the wuddars, resting with the Mamlutdar.

59. Since the foregoing conclusion was entered on our proceedings, we have seen a draft Act, sketched by Captain Wingate, on the 30th. January last, to provide funds for the construction and maintenance of works for irrigation.

It sets forth the justice and expediency of the several parties who may benefit by such works contributing thereto, and it defines rules for regulating and enforcing contributions in aid of these objects by the parties concerned.

It also provides that petty repairs to such works shall be effected by the owners and occupiers of the land capable of being watered by them.

In the opinion of the Collectors, whose minutes on this draft we have perused, Captain Wingate's proposals are well adapted to the purpose in view : we understand that the same officer has also drafted rules for executing the works for which funds are thus to be procured.

The attention of Captain Wingate and of the Revenue officers of Dharwar having been specially devoted to these measures, we think it our most judicious course to relinquish, in favour of their plans, the further pursuance of this particular subject, assuming that the rules they have propounded will, if passed into an Act, be made applicable to the entire Presidency.

60. We have next to recommend that local authorities should be required and encouraged to make due use of those clauses in the code which refer to emergent works. We say encouraged, because since every officer who accepts responsibility incurs some risk of blame, we think that even when his zeal may have misled his judgment, and he has authorized a work of which the real emergency may be questioned, the admonition he deserves should rarely pass into reproof, lest the officer should thereafter shrink from using a power with which, on the whole, the public good requires him to be vested. That this power is not sufficiently exercised at present is evident, from last year's emergent expenditure in the Territorial Department, having been only Rs. 1,532 (one thousand five hundred and thirty-two) [Appendix (F.)]. Indeed the present inquiry has constrained us to notice in too many officers what at first sight seems to be either inertness to use the little power

power that has been left to them, or else a timid evasion of responsibility, which each endeavours to shift upwards. But it must be confessed that the system is, more than they, to blame. Some Collectors, besides the great extent of business transacted by them in the native language, have occasion to write about 4,000 English letters per annum, two-thirds of which require to be drafted by themselves. The apprehension of drawing upon themselves troublesome inquiries must naturally deter many from doing what they otherwise would be ready to do. The microscopic investigation of their acts, not the trouble of the acts themselves, is the real hindrance.

61. We have been desired to frame some rules to avert in future the hesitation which Collectors feel in making emergent requisitions.

The code defines a work to be emergent only when there would be "certain loss or inconvenience to the public service," by referring to higher authority. Whether a work falls or not into this category, must be left to an officer's judgment. It seems to us inexpedient to clog with definitions the present simple rule; its benefits must depend on the judgment and exactitude of those who are to use it, and its misinterpretation can only be corrected by admonitions *pro re nata* on the part of the authorities.

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65. But we advise that an Engineer, when he can promptly inspect a work, and doubts its real emergency, be directed to state his opinion to the requiring officer, and, in event of the requisition being still adhered to, to report to the Superintending Engineer, without, however, delaying the work.

66. There is said to be some uncertainty on the part of revenue officers as to whether the emergent rules properly apply to works of irrigation. We recommend that they be declared applicable to all Public Works, of what nature soever.

And we are led in this place to suggest that a compendium of rules for the guidance of all persons concerned in Public Works should, as soon as the Reports now called for from the three Presidencies have been received, be compiled in such a shape as to allow civil officers to see at once what their powers are, without wading through irrelevant matter. To the contents of Section XXIII. of Jameson's Code, otherwise arranged, might be added rules for the guidance of young Engineer Officers in the management of working parties; and it would greatly assist all concerned with Public Works if this digest were to be prefaced with a descriptive statement of the entire system. Officers in general, who might be expected to know the rules, we find know them very imperfectly indeed, and their unacquaintance is ascribable partly to the repulsive shape in which a code presents them. A descriptive outline, on the contrary, might be made attractive, and would be easily comprehended.

67. Lastly, in cases of such importance as Government may reserve for their own decision, we propose the following mode of acceleration, viz.:

Before a plan, prepared at the requisition of a civil authority, is committed to the channels described in paras. 3, 4, 5, it is shown by the Engineer to the requiring officer, who signs it, in token of his approval. (This does not exactly accord with Act 119, s. 23, Military Code.) Now, as the Revenue Commissioner or Sudder Adawlut offer no professional opinion upon the plan, but merely notice its fitness with reference to their wants, it appears to us that the civil officer, having once seen the plan, possesses, and might communicate to the controlling authority, all the particulars requisite to a decision on the subject.

68. We therefore propose that the project, with its plan and estimate, if to go before Government, be submitted direct by the Military Board, instead of going back to the civil officer, and that the latter hand up his statement of the matter through his ordinary channel of communication to the Government, which would thus receive the requisite documents from both parties concurrently.

69. The sole objection to which this course seems liable is, that if the Superintending Engineer, or Military Board, make in the plan alterations materially increasing its cost, the Revenue Commissioner might see reason to change his opinion; but such cases are rare, and even in them no delay greater than at present would arise; for the Collector would receive the altered plan as soon as he would do under the practice existing.

70. It has been suggested to us, that the members of Government very seldom require to see the "detailed estimate and plan" of a work, being ordinarily satisfied as to these with the professional opinions that accompany the project before them.

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them. If so, it would relieve the mail, and otherwise be more convenient, that the project should go up to Government without these accompaniments; if wanted, they could be called for.

71. Delays of execution arise mainly from the want of subordinates, of which more hereafter; also from the areas assigned to executive officers exceeding their power of superintendence.

72. Delays of audit only so far hinder work that large unsettled balances are a source of anxiety to executive officers. This subject has had much attention from the Military Board, and the rules appear to be as perfect as circumstances admit. It is desirable that executive officers should make bills for each successively completed portion of large works; but it would increase labour, and might be found troublesome, if such a rule were made imperative.—[See para. 16.]

73. The balances outstanding against the Executive Engineers serving under this Presidency have for the last six years been as follows.—It will be observed, that the discontinuance of monthly bills under the new system of accounts has largely swelled these balances.

The Accounts for 1850-51 have not yet been made up.

Against Executive Engineers in	Under the Old System		Under the New System.			
	1814-45.	1845-46.	1846-47.	1847-48.	1848-49.	1849-50.
	<i>Rs.</i>	<i>Rs.</i>	<i>Rs.</i>	<i>Rs.</i>	<i>Rs.</i>	<i>Rs.</i>
India - - -	9,479	2,269	21,312	1,85,860	2,43,498	2,36,482
Sinde - - -	53,729	53,729	8,71,101	7,09,056	7,72,710	7,57,106
Aden - - -	-	-	96,586	3,00,189	5,84,069	3,04,283
<b>TOTAL - Rupees</b>	<b>63,208</b>	<b>55,998</b>	<b>9,88,999</b>	<b>11,95,105</b>	<b>16,00,277</b>	<b>12,97,941</b>

74. The next change we have to recommend aims at the threefold object of saving time, saving labour, and simplifying accounts, while it will afford to Superintending Engineers better means than they now possess of checking cash advances. Under the existing practice, every indent for cash is sent for the Superintending Engineer's counter-signature, with the view of enabling him to check unnecessary drafts. Practically, this course is useless; for the Superintending Engineer can only judge whether the money asked for is necessary by examining the quarterly Progress Reports; but, these Reports rarely reaching him until some weeks after, and generally three or four months after, the cash indent has passed through his office, he is compelled, as a matter of course, to countersign every indent that comes, provided the sanctioned amount is not overdrawn.

75. Again, when Superintending Engineers are on their tours of inspection, frequently off post-roads for weeks together, the delay is inconvenient, and obliges executive officers to keep in hand a larger stock of cash than would otherwise be necessary. Now, as cash indents are forwarded and returned with letters or memoranda, which all have to be registered and copied, separate often for each work, always so for each department, the number of such documents that pass through his office creating work, and loading the mail, is very great, and we are not aware of a single useful object that is thereby attained.

76. We therefore suggest, that cash indents be sent direct by Executive Engineers to the disbursing officers, to whom the sanction and audits are always communicated, and who already are bound not to advance money beyond the amount sanctioned.

77. Cash indents for monthly current expenses might always be passed on the executive officers' responsibility, for these amounts are not large, and their audit is generally received within two months.

78. Instead, then, of submitting his cash indents, as now, we propose that on the 1st of each month every executive officer shall render to the Superintending Engineer



Engineer a single memorandum of cash balances, showing the following particulars, viz :

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1. Names of the works he has in hand.
2. Amount of the estimate for each.
3. Amount drawn in advance.
4. Amount expended as per ledger.
5. Balance in hand.

All this information is, or ought to be, available in every Engineer's Office, on the 1st of each month, from his book alone: it would at once show the Superintending Engineer whether money is unnecessarily asked for by the executive officer, and would oblige the latter to keep up his office accounts to the latest date.

## SECTION V.

*Subordinate Branch of the Public Works Department.*

79. Our inquiries under this head have been answered by one general and loud complaint, so that we cannot doubt that the want of subordinates of all classes neutralizes, to a great extent, the advantages that might otherwise be derivable from the present inadequate number of Engineer Officers, while it wastes public money, both directly in bad work, and indirectly in restraining those officers from working up to their full powers of superintendence.

80. The difficulties which in this country arise from the relative distances of the several works under one officer's control, can only be met by maintaining a body of men who may be trusted to carry out the Engineer's instructions between his periodical visits.

81. It seems agreed that this body should consist, besides European overseers, of two classes of natives, the one trained as surveyors and builders, the other as practical mistries, capable of keeping clear accounts in their native language, and of working from a plan.

*The European Branch.*

82. By direction of the Honourable Court, the source of supply for European subordinates is limited to the military class. Their number at this Presidency was originally 30; but in July 1847, on account of the annexation of Sinde, it was increased by 10; and in April last, to meet demands at Satara and elsewhere, Government permitted the appointment of six supernumerary Sub-Assistant Overseers.

83. We subjoin Table of the establishment as it now stands, as it stood before the above changes, and as the Board, in their letter to Government, No. 2,169, of 1847, desire that it should prospectively be fixed. The Military Board inform us, in reply to our inquiries, that 60 Europeans are required to meet the present wants of the establishment.

	Prior to Annexation of Sinde.	After Annexation of Sinde.	After Annexation of Satara.	Further Increase now required.	
				Plan of the Bengal Military Board.	Plan of the Bombay Military Board.
Executive officer	-	-	-	-- Numbers to vary according to de- mands.	The proportional number of the se- veral grades to be fixed; but the ac- tual numbers of the whole to vary ac- cording to eventual demands.
Assistant ditto	-	-	-		
Supervisor	1	1	1	To be fixed numbers.	
Assistant ditto	3	4	4		
Overseers	6	8	8		
Assistant ditto	9	12	12	Unlimited.	
Sub-Assistant ditto	11	15	21	Not proposed.	
TOTAL	30	40	46		Sixty.

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84. The addition of two superior grades forms a principal feature of the scheme for improving the European branch; and we consider it to be of the highest importance.

85. We have inquired what is the general report from the Engineer Officers upon the character and usefulness of the European subordinates, and are informed by the Military Board, that it must be considered, on the whole, to be highly favourable. There is a constant demand for their services; and were their prospects somewhat better and their numbers greater, so as to allow of more selection for important works, they would be a most efficient body.

86. Having read the documents containing the concurrent views of the Bengal and Bombay Military Boards on this subject, and entirely agreeing in the same, we are left nothing to suggest.

#### *Surveyors and Builders.*

87. Excepting a remnant, now 60, of the Surveyors and Builders educated a quarter of a century ago in the Government Institution, and who have proved on the whole an useful body, no qualified class of native subordinate now exists, nor are any measures yet working to create one.

88. The theoretical class in the Elphinstone College, projected some years ago by Colonel Dickinson, has contributed only nine members to the Public Service.

89. In the opinion of Colonel Jervis, late Chief Engineer, this class was deserted, because every student's reception depended on his possessing such a knowledge of English as would allow of his being instructed by a Professor ignorant of the native languages.

90. The Board of Education inform us, that the object was not to produce a class of Surveyors and Builders trained according to the rule of thumb, but scientific Civil Engineers, fully grounded in the theory of their profession, and that, therefore, it was determined by Government that instruction should be given through the medium of English, as in the kindred institution of the Grant Medical College. The same Board are of opinion that sufficient encouragement has not been given to those students, and that the same proportionate reward should be extended to the native Civil Engineer, as to the native Judge and the native Medical Practitioner.

91. The Honourable Court of Directors, in para. 44 of their despatch, express the difficulty they found in reconciling this urgent demand for subordinates, with the alleged absence of inducement for native youths to enter the engineering class, and accept a gratuitous education for the numerous vacancies supposed to be awaiting them.

92. We, being convinced that the outcry is fully justified, shall proceed to show what we believe to be the real cause of the inconsistency noticed by the Court.

93. The 11 young men selected to fill this class were the pick of the whole College, not only for general ability, but also for their proficiency in the English language. The expectations of such students naturally ran high; they passed examinations for the service in November 1847. About three months thereafter these pupils, not having been enrolled in the Public Service, as they expected, memorialized the Military Board on the 6th April 1848; that Board recommended the employment of the whole number, but on terms inferior to those enjoyed by the old Surveyors and Builders, and it was not until the 23d June following that Government permitted the engagement of six only to fill vacancies, which we now find to have been really 15, still omitting to settle the terms of their entertainment.

94. On the 6th September 1848 these lads were required to sign an agreement to serve wherever ordered, and were sent to Sindh and elsewhere, all knowledge of the terms on which they were to serve being still withheld. They proceeded to their destinations, but drew no pay from the time of passing until the end of September 1848, when the Military Board, still in ignorance of Government's intentions, took upon themselves to authorize temporary rates.

95. Thus

95. Thus we find that these young men were for months kept in suspense whether they would be employed at all; that when their employment was permitted, several of them were sent at once to Sinde, a quarter extremely distasteful, and that up to this time those who remain in the service have no fixed position, and are receiving, contrary to hopes they had been led at college to entertain, a lower rate of pay than their comrades of the same denomination, since then, this class has found no favour at the college.

96. On the 13th June 1846 the Military Board of this Presidency laid before Government a scheme, proposed by the Chief Engineer, for admitting into the Public Service a class of native assistants. This scheme, which will be found in Appendix (G.), was accompanied with a scale of qualifications for each grade, and with rules for examination of candidates for their promotion, furlough, &c The Military Board strongly recommended that these should be the rules under which from time to time individuals might be entertained according to the demands of the service. The Board have since frequently inquired whether there are any hopes of Colonel Jervis's scheme being adopted, and Government's last answer refers the Board to the Honourable Court's despatch, now before this Commission — [Appendix (H)]

97. We observe that the Military Board's views accord closely with those of the Board at Calcutta, as expressed in the reports from the latter body to the President of the Council of India, dated 28th October 1845 and September 1846; also, that the Honourable Court of Directors, so long ago as 1846, were prepared to approve one arrangement for the same object at the three Presidencies. Our plan in supplement to Colonel Jervis's, will be found in Section VI. of this Report.

98. A great drawback to efficiency in the Public Works Department seems to be the too exclusive use of temporary clerks and overseers, who have no claim to pension after any length of service, however meritorious: whether, in the end, the State gains by this, is doubtful; for, apart from other considerations, the prospective pension, and its possible loss, operates in checking misconduct more powerfully than penal enactments, however stringent. Security of service seems essential to the morale of all such bodies, and service in the Public Works Department should, therefore, in regard to permanence and eventual provision for old age, be rendered as attractive as service elsewhere.

99. We do not say that the entire subordinate establishment should be permanent, but that the permanent proportion should be large enough to excite and reasonably to fulfil the hopes of a large probationary class of assistants, the worthiest of whom should be transferable to the fixed establishment.

100. At present temporary employ has no allurements for qualified persons, and for mistries the Engineer must choose among a set who have never been properly apprenticed to their trades. Hence work goes on, year after year, in the old way, without a thought or a care for the numerous improvements and devices constantly adopted at home.

101. As an instance, the Superintending Engineer, S. P., informs us, that in the Satara district an extensive work is going on,\* the Passurnee Ghaut, which will cost a lac of rupees. The superintending officer, Captain Hart, cannot hope to visit this work above twice in the year — the native who conducts it, the only man Captain Hart could get, receives 15 rupees a month, and his sole qualification previously to this undertaking was, having been employed under the late Rajah in repairing the town roads of Satara. We have not inquired why this man, if fit to be so far trusted, is not better paid; if unfit, why the work should proceed.

\* The work has been suspended.

102. Pensioned sappers are found very useful as Macadams. For a small addition to their pensions, they are willing to render services which their previous training makes very valuable. Information as to the characters and ability of pensioned Sappers should, we think, be furnished to the Military Board for circulation among Engineers, who might induce good men to accept such service as they might still be able to perform.

#### *Extent of the Deficiency in the subordinate Branches.*

103. Captain Crawford, the Superintending Railway Engineer, contrasts the number and efficiency of the persons now employed by the contractor in superintending

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tending the Bombay Railway with the assistance which would probably be allowed to a Government Engineer conducting the same work. In the one case for executing simple cuttings, embankments and bridges of small size, there are two European contractors present on the spot, and taking an active part in the operations. They have engaged the services of a Civil Engineer, and have several English workmen and overseers, in all 16 persons, over and above any Native Superintendents they may have engaged.

104. In the other case Captain Crawford judges, from past experience, that if a Government Engineer similarly employed could obtain, in addition to native assistants, the aid of one European warrant officer or serjeant, whose highest qualification might be that of a fair writer or accountant, it is as much as would be granted; as for his getting the help of another officer, it would rather be judged that he himself had too little to do, and calls would soon be made upon him to attend to any other work that might occur in the neighbourhood. The work would no doubt go on, and in time be completed; but it would lag along in the old way, and the introduction of new and economical methods of labour would not be dreamt of.

105. At present there is no fixed establishment of native subordinates. The original number of Surveyors and Builders seems to have been about 78, and to have at first exceeded the wants of the service. It now falls short of the demand; but the original number was assumed as the standard in admitting the six pupils alluded to in our 93d para. It appears, however, that at that very time, and for a long while previously, the Military Board was pressing Government for an increase. A present state of the Establishment of Surveyors and Builders is annexed to this Report, Appendix (K.)

106. The Military Board have proposed to allow the exigencies of the service to regulate a gradual increase in the establishment of all subordinates. It is certain that the number exactly sufficient now will not suffice a few years hence; every year the wants of the country press harder, and the advantages of Public Works, in extending commercial intercourse, and improving the condition of the people and the revenue, become more apparent. Every year something more is done by the department than before. To take the present demand, therefore, as the prospective limit, would be in unreasonable opposition to past experience, while it would be wasteful to make some uncertain guess at eventual demands, and propose an immediate establishment to meet them.

107. But as it is requisite that we should value the present deficiency, we have ascertained from the Military Board that, instead of 66, the number of Surveyors now remaining, not less than 120 will fulfil the actual demands of the present time.

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## SECTION VI.

### *Engineers' Schools.*

108. AFTER the Government Institution had been some years abolished, the Quartermaster-general's Department felt the want of qualified persons as Draftsmen and Surveyors. To remedy this, Government, in 1840, sanctioned a plan by Lieutenant Wemyss, who then commanded at head quarters of the Engineers Corps (now called the Sappers and Miners), for remodelling the Regimental School, so as to qualify recruit boys for filling those situations.

109. The number was fixed at 40 boys, of whom the best were to be appointed to the corps of guides, and the remainder, if eligible, were to be permitted to enlist into the ranks on attaining the age of 18 years.

110. At present 27 boys attend this school, 10 of whom belong to the Sappers, and 17 to other native corps. They are instructed by an English teacher, a sapper, and two Mahratta Pundits, on stipends of Rs. 30, Rs. 15 and Rs. 3 respectively.

111. The

111. The subjects of instruction, and the students' allowances, are as follows :

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CLASS.	NUMBER of BOYS.		Monthly Allowance.	SUBJECTS TAUGHT
	Established	Actual		
First -	10	- -	Rs. 6	Plane Trigonometry and Surveying
Second -	10	5	5	Geometry, Mensuration, Plan drawing.
Third -	20	22	3½	- - Geometry, Mahratta and English Reading, Writing, &c.

112. The Quartermaster-general informs us, that the lads entertained in his department from this school have all been found capable, on joining, of carrying on an ordinary road survey with perambulator and compass, keeping a field-book, and plotting neatly.

Thirteen of these young men are now employed, whereof five have been promoted to draftsmen, on salaries varying from Rs. 30 to Rs. 50, all of them drawing with neatness and correctness, able to read and write English with tolerable facility, and to use the plane table and theodolite. Lieut.-colonel Holland considers that this Engineer School adequately fulfils the purpose for which his predecessor supported, in 1840, the late Captain Wemys's plan.

113. The East Indian youths, permitted by Article 64, p. 311, Jameson's Code, to be entertained as apprentices to the European artificers, seem to be tacitly declined. The Regimental School, when enlarged, may supply lads more suitable for apprenticeship to Mistries; but we are diffident of Engineer Mistries being thus produced from any class: they should rather spring from among the operatives of the country; we prefer, therefore, to advise that young workmen approving themselves by skill in handicraft already attained, and by superior intelligence, should be recommended by Executive Engineers for instruction in the Sapper School, and there allowed ordinary wages for a certain period, with a view to their acquiring practice in accounts, and ability to work from a plan, or where, from distance, this would be inconvenient, we recommend their being attached to the Engineer's own office for instruction by the officer himself, or by his establishment, as circumstances might admit, on the same terms.

114. We have visited the Sapper Schools; the Europeans have a creditable knowledge of plan drawing, writing and accounts, they are all instructed in surveying, levelling and estimating.

115. We found the older native boys tolerably instructed in English reading, writing and accounts. Reflecting on what we had thus far seen, we were all disposed to question whether it was not a mistake to give up so much time to English instructions, particularly as a correct knowledge of the vernacular is commonly found wanting in lads who from an early age have been taught through the medium of a foreign tongue.

116. Considering the Public Work Department only, and not that of the Quartermaster-general, we were at first inclined to think that, instead of teaching the many natives a difficult language, like English, the few Europeans should rather have instruction in Mahratta, whereby, and only, might all the subordinates communicate one with another; but the Europeans, as overseers, would become a far more efficient body.

117. However, having since consulted Major Candy, Superintendent of the Poona College, and having witnessed what the scholars at that institution can do, we are satisfied that a competent knowledge of English may be required from candidates for the Public Works Department without the slightest apprehension of deficient numbers offering, or that this additional qualification will at all impair their fitness for that portion of engineering business which is conducted in Mahratta.

118. We would, therefore, expunge the 6th clause from Colonel Jervis's scheme,

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scheme, and require from every grade of Surveyors and Builders a thorough acquaintance with English. There are various institutions, all deserving a share of such encouragement, from which competitors for employment will come forward.

119. We find that the Poona College alone is capable of supplying, in any numbers likely to be wanted, young men, mostly Brahmins, thoroughly grounded in mathematics and English, and needing only the superstructure of engineering knowledge to become qualified as Surveyors and Builders.

120. From these sources the present deficiencies of the branch may be replenished, without long delay, and its future wants may certainly be supplied at Poona from a class of willing lads, preferable to those bred in Bombay, from their moderate expectations, hardier training, and better fitness, as Deccanics, to fare abroad in the districts.

121. Major Candy is of opinion that 7 rupees per mensem would be a sufficient rate of subsistence for students while under instruction in the Sapper School.

122. Colonel Jervis's rules, in the Appendix, containing all the main provisions that will not be better left to the officer who will direct the Engineering Institution than attempted by us, the only arrangements remaining for us to name, as requisite for improving the present means of instructing Engineer subordinates, are as follows:—

123. To accommodate classes of European Overseers, Native Surveyors and Mistries, an appropriate building must be erected: the present school-rooms are not more than sufficient for the recruit boys. A competent English teacher, not liable to be moved, for the upper classes, with a native assistant, drawn, perhaps, from among the present Surveyors, must be appointed: general supervision of the whole will appropriately rest with the commanding officer of the Sappers. Before determining his scheme, that officer should communicate with the Principal of the Civil Engineering College at Roorkee, whence may probably be obtained a course of instruction made ready to his hand.

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## SECTION VII.

### *Qualification of Young Officers.*

124. THE Honourable Court's Despatch, para. 48, notices the importance to Engineer Officers of conversancy with the native languages, and we quite concur in its necessity. Beyond their use as a medium of communication with the people, the native languages are the cheapest vehicle for ordinary correspondence and accounts, and are extensively used as such whenever the officers know them competently.

125. So important do we consider this acquirement, that we think it should be made obligatory. Some years ago the salary of Engineer Officers was subject to a certain deduction until they passed an examination in Hindoostanee. The demand for their services is now so urgent, that this qualification cannot be waited for; and, as an officer once employed has scarcely time for study, present circumstances hardly warrant the revival of such a rule. But hereafter, if the strength of the corps shall admit of selection, study of the languages may be enforced by withholding employ from every young officer who fails to pass.

126. Useful as is the education given for a ground-work to the Company's Engineers at Addiscombe and Chatham, the Honourable Court of Directors must be aware that their officers bring to India no practical knowledge of Civil Engineering, beyond what little some acquire by employing in its pursuit their leisure after quitting Addiscombe.

127. The consequent deficiency is, we know, acutely felt by many officers during their early career. One of the ablest in this service, writing to our Commission, has thus expressed himself:—

“ It seems hard to blame us for the want of that skill, for the acquisition of which there

there is no provision made in our professional education under the present system ; an Engineer Officer, shortly after his arrival in India, is placed in charge of Public Works. His previous education has not provided for the slightest practical knowledge of Civil Engineering in any one of its branches ; so far from being qualified to teach the departmental subordinates over whom he is placed, he has to acquire from them the little they know."

With all of us, from the top to the bottom of the Department of Public Works the case is, I believe, the same ; we all acquire our practical knowledge by failures, more or less frequent, at the expense of Government . the same remarks apply, of course, to officers selected from the line to superintend the construction of Public Works, while their failures are frequently and indiscriminately attributed to the Engineer Department.

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### SECTION VIII.

#### *Style of Work.*

128. In a country where every thing is done by the Government, it may be worth considering whether expenditure on Public Works might not advantageously be regulated with regard to some fixed standard of quality and style, so as to leave as little as possible to individual tastes and fancies.

129. One man deems not even a branch road complete unless it be expensively kerbed, while another thinks it needless to kerb even trunk lines ; one man rejects cut stone for drains and minor bridges as needlessly expensive, another uses nothing else.

130. A high officer of the corps remarks to us, that Engineers generally are not willing to do any thing, except in the most approved way, consequently at greater expense than the object is worth, or than is absolutely necessary ; thus, projects of first importance to the country are set aside, and civil officers are found unwilling to call in an Engineer if they can make a shift without him.

131. It rests with the Military Board and with Superintending Engineers to restrain tendencies to ambitious estimating for objects of humble pretension ; but probably some general rules might in the case of roads and ordinary buildings be laid down with advantage.

132. In para. 68 of the Report made by a Committee in February 1851 on the Phonda Ghaut, we see incidental mention of a resolution by Government not to sanction, in the present state of the finances, expensive roads under any circumstances, and that roads which have cost between *Rs.* 5,000 (five thousand) and *Rs.* 6,000 (six thousand) a mile, are out of the question. Possibly these instructions had only local application ; but we find the Superintendent of Roads even now proposing roads as costly as are above interdicted ; and we have frequently had occasion to reflect, that as it would materially profit the Military Board to know beforehand what expenditure on Public Works Government is annually prepared to meet, so would it reduce the labour of Engineers to possess definite instructions regarding the style of work to which their designs should consequently be accommodated.

133. The Collector of Rutnagiree informs us, that when new works or repairs are wanted at his Sudder or District Stations, there being no local Engineer, his native officers draw out as well as they can the requisite papers, which are translated and submitted through the Superintending Engineer for approval of the Military Board.

134. On arrival of the sanction, the work is given out on contract, and its execution is superintended by the native revenue officer, and subsequently inspected by the Collector or his assistants in their annual tour.

135. Since 1830, several alterations and additions have thus been made to existing buildings, and many new structures, as kutcheries, have been erected ; so far as the Collector is able to judge, the work has been well done, and at less outlay, though perhaps with less finish, than would be given to it by an Engineer.

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136. We think it may be conceded, that the State often gains by leaving the care of his own district buildings to the Civil Officer ; and we have all heard of instances where a Collector, interesting himself in local improvements, and making such his recreation, has effected works of public utility with like economical results.

137. To ascertain whether Collectors and their Assistants fully use the authority they possess under the rules quoted in our 13th para., we have obtained the following statement of their expenditure for 1850-51.

The return from Ahmedabad Dharwar and Surat has only been received for the first half of the year.

RETURN of Sums expended by COLLECTORS and ASSISTANT COLLECTORS IN 1850-51 :

Sums at disposal of the under-mentioned Revenue Officers for 1850-51.

								Amount disbursed by them collectively for Public Works.		
								Rs.	a.	p.
	Rs.	Surat	-	-	-	-	-	2,776	9	4
Collector	- 3,000	Ahmedabad	-	-	-	-	-	918	12	-
First Assistant	- 1,800	Khandish	-	-	-	-	-	3,108	3	3
Other Assistants	1,200	Broach	-	-	-	-	-	7,929	11	2
		Kaira	-	-	-	-	-	2,450	5	3
		Tanna	-	-	-	-	-	2,811	12	-
		Rutnagiree	-	-	-	-	-	907	8	11
Collector	- 1,000	Poona	-	-	-	-	-	1,716	-	-
First Assistant	- 600	Ahmednuggur	-	-	-	-	-	2,537	1	3
Other Assistant	400	Belgaum	-	-	-	-	-	1,883	7	8
		Dharwar	-	-	-	-	-	2,117	7	10
		Shalapoor	-	-	-	-	-	1,386	5	-
	600	Nassick, Sub-Collector	-	-	-	-	-	-	-	-
	1,000	Colaba Agent	-	-	-	-	-	973	1	-
	1,300	Collector of Customs	-	-	-	-	-	-	-	-
	700	Deputy ditto	-	-	-	-	-	-	-	-

138. Collectors exercised their discretion in disposing of these allowances in the construction and repair of wells, tanks, chowries, &c., the villagers, who benefit generally, we believe, contributing equally or partly to the same. But this money is not intended to be spent on works for which separate sanction is solicited.

139. It depends apparently on the degree of interest taken in such beneficial works by individual Collectors whether the entire allowance is disbursed or not ; but as we are certain that the trouble of obtaining funds deters the most willing from applying to Government in numerous cases locally important, which a trifling aid from public funds would dispose of, we strongly advise that the zillahs of the Southern Province be restored to equal privileges with those of the Northern Division. When our 13th para. was penned, we were under the impression that only four Collectorates had been reduced in this respect, on account of the Road and Tank Establishment being created for them especially, and we are still at a loss to conjecture how Sholapoor, Belgaum and Dharwar have been deprived of the benefits of Government Letter, dated 11 October 1832.

140. In the Belgaum Collectorate there appears to have been a happy co-operation between the Collector and the Engineer, the Department of each being ready to take any work that it could perform more conveniently than the other.

141. When



141. When a revenue or other officer undertakes a Public Work for his recreation, the charm depends, of course, on his immunity from control, and any comparative cheapness in his work may be ascribed to its being a labour, not of duty, but of choice, and to the simple arrangements that can be made for single undertakings, conducted independently of the rules laid down for works in general, and which constitute the system to which professional Engineers in this service are bound.

142. But between works of the simple kind just instanced and those high branches of engineering to which few amateurs pretend, lies a class of works largely demanded throughout India; namely, roads of three kinds, the cleared country cart-way, the branch road made of mooroom, and the perfect trunk line, metalled, kerbed and bridged. For the first of these, engineering skill is needless; for the second it is desirable, and for the third indispensable.

143. It is extensively believed that Government will refuse a heavy estimate while it may be induced to do the same work cheaply: many whose position permits them to be improvers argue from this general persuasion, that the present financial circumstances must be met by devices to do much cheaply, in a manner sufficient for the day, rather than to do a little in the perfect style which Engineers approve.

144. But it is not with a State as with a private individual, to whom an object may be attainable solely because it is cheap, and to whom durability is secondarily important. In road works, on the contrary, their permanence must be contemplated. In America, indeed, there are special reasons for constructing cheap thoroughfares for the present alone; but in an old settled country, like India, the directions of intercourse are ascertained and permanent. A road positively cheap can here be made serviceable in an inferior degree for the present, and yet capable, at a further moderate outlay, of becoming thoroughly serviceable for all future time; and since experience shows how seldom a bad line once taken is relinquished, a judicious direction, easy gradients, and sound principles of construction, held steadily in view from the first, are cheapest for the public in the end. Notwithstanding this, it is certain that, unless the highways of India are seen to extend according to true principles, by a settled purpose of the Government, their servants will continually strive to meet the necessity in any way they can; so prevalent and so strong is the conviction that roads are the prime wants of this country.

145. Unless the controlling authority has the assurance of an amateur's ability, we think that no outlay should be permitted on road works beyond the mere clearance of a country cart-way until a competent engineer, cost what it may, has reported on the line proposed.

146. A very instructive caution against the opposite course appears in the above-cited Report on the Phonda Ghaut, and the roads leading from it to Kolapoor and Belgaum.

147. In promulgating the oft-neglected principles affirmed on that occasion by the committee, and admitted by Government, it might be useful that a general standard should be appointed for the style of execution to which in similar countries road works of the first and second class should respectively conform; and the precision of these only rules to which volunteer agency needs be bound should be such as to insure that the earliest small improvement shall be preparatory to future steps in keeping with the first; so that all progress, however tardy, shall tend directly to the ultimate standard which, on wide and comprehensive views, may for all Government works be adopted.

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## SECTION IX.

### *Estimates for Public Works.*

148. To our inquiries regarding rates and estimates, some observations were made by Lieut.-colonel Scott, which, coming from an Engineer of his experience, merit consideration. Lieut.-colonel Scott believes, that—

“The mischief of extravagant rates arises in some degree from the strictness of the rule about excesses: when an estimate is high, the rates will be high also: an

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officer dares not write down a price which he could only keep to by the strictest supervision and perfect faithfulness on part of his subordinates: if the estimate is not exceeded above 10 per cent., I can scarcely see what inconvenience would be caused, and I am certain the work could be done for less money if the estimate was 10 per cent. below the cost than if it was 10 per cent. above it."

149. The Superintendent of Roads likewise comments on the detriment produced by the displeasure with which an excess is viewed by Government, and the unwillingness evinced to accord a second sanction for the same work. He views this as tending to induce, on the part of officers, a practice of over-estimating as the only means to save themselves from blame.

150. We think that an estimate ought to represent the cost truly expected, and that, for the reasons above, it would be advantageous to leave with the Department of Audit a discretion of admitting 10 per cent. above the estimate without obligation to refer to Government.

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## SECTION X.

### *Contracts.*

151. PERFORMANCE of Public Works by contract, although it saves an officer much trouble in accounts, releases him from money payments in detail, and when contractors do not fail, protects Government against excesses over the calculated outlay, is not looked upon by Engineer officers here as advantageous or economical.

152. Vigilant superintendence of the persons usually contracting is even more necessary than in the departmental work, or it will be badly done; defects undiscoverable at first appear in after years, and the work remains a constant source of trouble and expense.

153. At the Presidency, and at Poona, almost all works are executed by contract. At both places natives of capital occasionally come forward; yet the advantage derived is said to consist solely in the power it gives the Engineer, by simplifying his accounts to superintend a much greater number of works than he otherwise could do.

154. The Executive Engineer at Poona tells us, "I could not do my work except on the contract system: I am bound to accept the lowest tender, unless I can assign good reason. So systematic is the use of bad materials, so incessant the endeavour to slur through work, so great the ordinary chances of success at large stations where many works are at the same time going on under very few responsible subordinates, that contract work is almost invariably tendered far below the estimates for best work.

"At Kirkee I have contracted at liberal prices: the work there, two barracks, is excellent: I have not had to impose a single fine.

"I view the contract system favourably only when men of some capital are engaged. The poor contractor's only saving is in employing his own and his family's labour; for most materials he must pay more than the Engineer himself. A rich man who makes a trade of contracting can do fair work under an Engineer's average, because he can lay in his stock with foresight; while the Engineer must defer all arrangements for supplies until the sanction comes.

"At Poona the average saving on all works done by contract is about 32 per cent."

155. In the opinion of the Garrison Engineer at Bombay, where works are done almost exclusively by contract, the saving is only what might fairly be expected from the inferiority of the work.

156. The Executive Engineer, Surat Division, tells us, that "the moment a work is given out on contract, a scene of actual warfare commences between the contractor and the executive officer, in which the latter, from having many other things to do, while his adversary can concentrate all his attention and cunning upon me,\* generally gets the worst of it."

\* *Sic orig.*

157. The case will be altered when English contractors with capital, and provided with European appliances, become competitors for employment in India. We think that then there will be no question upon the advantage of using their agency as largely as is the practice in England.

158. Even now, if in the case of the experienced and judicious the relaxation of rules ordinarily necessary were to leave the Engineer such freedom that he could inspire confidence by his proceedings, the advantages of contracting might be expected to bear proportion to his tact. To produce all the evils now complained of, faults must be mutual between the contractor and the system. Often on the employer's side is the sufferance of a competition, in which no honest man can live; he is thrust aside by the low bidder, who pretermits legitimate profits, in order to secure a contract, trusting to knavery for his gain: thus redounds discredit on a method which itself is good. In promise it is the very aid which a weak superintendency should employ, and to the well working of which there seems nothing wanted but liberal terms to leave contractors their due profit, and circumstances to favour the independence which would secure that profit from interception. Such is the character of native officials, as we commonly see them, that without great vigilance, even liberality would be futile. An old hand alone could work the contract system beneficially.

159. Vol. IX., No. 427, of "The Builder" contains a paper on the effects of this system in England. The writer says, "It is not building by contract that is so objectionable, but building by competition. The very nature of competition is to deprave the character and harden the conscience, and those who thus suffer by the world's cupidity, are by that same world called dishonest and fraudulent. When a contract is required, why not obtain a tender from one man? There are many ways of preventing him from making his estimate unfairly high. He can be brought to take work as low as he ought to do, in justice to himself. It is, moreover, satisfactory to be able to choose one's own man, and give him first chance. The probability is that he will not, for any fault of his own, let you go to another. The system of public tenders admits all sorts of men to an equal chance with the fair and honest, and, moreover, gives the worst man the best chance."

160. Native contractors are named to us who have worked fairly for private persons during a long course of years, and we think, notwithstanding the shortsightedness attributed to contractors for Government, that it would be economical to empower Engineers to make liberal contracts whenever they can find a worthy man to reciprocate fair dealing; but this requires full confidence to be reposed in the Engineer, who is now bound by Art. 149, sect. 23, of the Military Code.

And in this difficulty we can discern no better expedient than for the controlling authority to regard rules less, and specialities more: "personal individualities may from time to time be of such moment as to make it well worth while to set aside the general rule on account of them."

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## SECTION XI.

### *Security.*

161. It appears that in Bengal every non-military overseer of Public Works is required to lodge security to the extent of Rs. 500 (five hundred) before he can enter the department even in the lowest grade; and from enlisted men, security is required before they are entrusted with separate executive charge.

162. Considering that security is by legislative enactment exacted from native subordinates in the Civil Departments of the service, whenever entrusted with the charge and disposal of public money, we think that similar provisions should be extended to non-military subordinates in the Department of Public Works.

## SECTION XII.

*How Office Work and the Non-professional Employment of Engineers may be diminished.*

163. WE adverted in para. 39 to the excessive clerical labour with which Engineer officers are encumbered : viewing this kind of labour as a serious hindrance to the efficiency of Engineers, having a wide range of country to superintend, and many simultaneous works to look after, we have sought in the course of our investigations to discover in what particulars it might be alleviated.

164. The proper office of an Engineer is, 1st, to design; 2d, to estimate; 3d, to superintend. Under the present system, pecuniary responsibilities press so heavily upon him, that they have become, practically, those he most attains to.

165. The time of an Engineer officer appears to us entirely misapplied when taken up by the repair, charge and supply of barrack furniture, which belonged formerly to the Commissary of Stores; by the tinning of cooking pots and supplying lights, which are more appropriate to the Commissariat, and to drawing the pay of Punkah pullers, and the like, which might be left to commanding officers, or the station staff.

166. There are some works and petty repairs of which it is scarcely possible to measure with any degree of accuracy the quantities daily executed. In such, it is clear that the "figured abstract" is useless. We therefore suggest that the Audit Department use their discretion in dispensing with its being kept in all such cases.

167. The committees now assembled to survey the annual repairs of public buildings appear to us to be of no real use; practically, they do not form even a check, and only render an executive officer less responsible. Such committees, according to the evidence of Engineer officers, and to our own experience generally, write on their proceedings whatever is dictated to them, and very often without looking at the work they are assembled to report on. If this arose from removable causes, it might be remedied; but since it proceeds from the inability of unprofessional men to do what these committees are supposed to do, we would relieve the Engineer from all the trouble connected with the present regulations on this head, and substitute a simple certificate by the Executive Engineer, that the annual repairs estimated for are absolutely necessary. This might be countersigned by commanding officers, or heads of departments.

168. The erection and repair of district kutcheries, the opening of country cart tracks, clearance of tanks, repairs of wells and embankments, and the performance generally of work requiring no professional skill, should be executed by the civil authorities.

169. To profit fully by the services of the Executive Engineer and his surveyors, plans and estimates for such works might be prepared by them. The description and measurement by a surveyor of simple work would generally enable the former to make his estimate without personally visiting every distant tank. On sanction arriving, and the Mamledar being ready to commence the execution, a surveyor should attend and remain on the work until portions of the revetment, say of a tank, have been erected, the levels determined, and the Mamledar's karkoon made acquainted with what is to be done. The surveyor might then go away to other work, returning at intervals of about 10 days, and on the completion the Engineer should certify that the work has been executed according to the plan and estimate.

170. We have observed that at present much unsatisfactory correspondence takes place in maturing schemes of which the main difficulties might all be cleared away by two hours' personal conference. In the course of their tours, and while at head-quarter stations, the Superintending Engineer and Revenue Commissioner must often meet, and as, by the plan proposed further on, the Executive Engineer's range will become co-extensive with the range of the Collector, the latter officers might meet on the scene of any important project, and report on it conjointly.

We

We would not create fresh excuses for delay by making it imperative to put off the discussion of important schemes until a meeting could take place; but we advise that a free resort to personal communication be enjoined upon the parties whose concurrent opinion usually guides Government to a decision.

171. As an example of the want of such conference and co-operation to expedite a very simple and important work, for the last 20 years, to the knowledge of this Commission, there has been an acknowledged necessity for a branch road to connect Poona with the Ahmednuggur line at Wagholee, a place only eight miles distant. The Superintendent of Roads informs us, that on the 12th of September last he submitted a plan for approval; hearing nothing about it, he addressed the Revenue Commissioner, S. D., on the 11th June last, to learn what had been done, and was informed that the matter was still under consideration.

Pursuing the inquiry, we found that the project was—

Received by the Revenue Commissioner	- -	7 January 1851.
Referred by him to Collector	. - - -	3 February „
Collector's reply came on the	- - - -	11 March „
Revenue Commissioner asked the Superintendent of Roads for the plan	- - - -	10 April „
And was by him referred to Government	- -	21 April „
To whom Revenue Commissioner applied on	- -	30 April „
And obtained it on	- - - -	24 May „

Since when, the case has remained with the Revenue Commissioner to be disposed of simultaneously with another reference from the Military Board relative to proposed lines leading out of Poona to the Katrug and Devee Ghauts. What has been done thus far might surely have been more easily, pleasantly, and effectually disposed of in the course of a morning's ride over the ground, without recalling the plan, and without letter-writing, except to put the project into an official form. We believe that more money has been spent in repeatedly surveying and writing about this insignificant bit of road than would have sufficed to complete it altogether in a substantial manner.

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### SECTION XIII.

#### *Strength and Distribution of the Corps of Engineers.*

172. THE improvement thus far proposed, comprehends all the expedients we are able to devise for economising and reclaiming to their legitimate sphere the services of engineer officers, so as to render the present establishment more capable of extending its superintendence over a large breadth of work. The system had already been so well matured, that we can discern no other remedy of importance likely to arise from improved modes of working. Any increased efficiency beyond what these measures can yield must, we think, be sought in a revised organization.

173. In considering what our further recommendations should be, we have found ourselves mainly in accord with the Government plan of 1849, for re-uniting all the officers available for Public Works in one general department, and instituting a new arrangement, under which the services of an Executive Engineer in every Collectorate, controlled by a Superintending Engineer in each of three Provinces, will be applied to improve the country; while the juniors, after short service and preliminary instruction in the corps of Sappers, will be variously employed under the executive officers, gaining day by day, from this training in the best of schools, experience to fit them for an independent charge.

174. Any division of Public Works into Civil and Military, seems unsuited to the circumstances of this service: the executive officers, unless similarly divided—which they cannot be, because the expanse over which a few men are to be

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scattered, divides them too far already—would have two masters giving them different orders; and if it be said that the Chief Engineer would be the principal person in each department, there would, in fact, be no real division at all.

175. The department, which in this Presidency exists specially for roads and tanks, was organized, A.D. 1835, in four Collectorates, for the purpose of improving the communications of the country, and to extend the benefits of irrigation, by constructing new tanks, and preserving those of former Governments from decay.

176. Prior to its organization there had been no special provision for civil works, except at the Presidency, in the Southern Mahratta Country and Khandeish, all engineering operations elsewhere being conducted by the executive officers at military stations, and by the corps of Pioneers.

177. The new scheme was based upon the principle of severing the civil from the military branches of engineering. It was believed that a distinct department for the former would hasten improvement of the country, and that its constitution, as a separate body, under a superintendent, controlled entirely by the Revenue Commissioner, would remedy a want of good management, which was then felt to prevail in all departments of the Public Works.

178. A fund, affording at first about a lac of rupees annually, was placed at the disposal of the Revenue Commissioner, whence he was to sanction such sums as might appear to him expedient for the objects contemplated, reporting the same to Government.

179. If the department had answered expectations, another superintendent was to have been appointed for Guzerat and Khandeish: however, its earlier operations were unfortunate. The superintendency extended over four large Collectorates, a range through which the first incumbent failed to make practicable his duty of inspecting the sites of projected works prior to submitting for sanction his assistants' plans; and these assistants being generally young officers, appointed regardlessly of professional qualifications, were trusted to originate plans, and execute important works.

180. The sequel proved that, while the cost of superintendence had been excessive for a quantity of work altogether inconsiderable, the money sunk in projecting works never likely to be sanctioned, and in undertakings which turned out abortive, far exceeded the proportion spent on works of real utility. One principal object of the department, namely, improvements of irrigation, was almost entirely missed. The most signal failures were in tanks.

181. In reviewing the annual Report of this department for 1841, Government resolved that the whole attention of the establishment should thenceforward be directed to making roads.

182. Its duties now comprise the charge of tanks and bunds in the Poona and Tanna Collectorates, and of all works on the Deccan and Concan lines of communication. It takes care also of such other public buildings and works as the department can look after at those Civil and Military stations within the circuit which are without an Executive Engineer. Ahmednuggur and Rutnagherry are also nominally within its range, but in effect have been almost excluded from its operations by distance, and the want of assistants.

183. In 1844, the performance of the department still continuing unsatisfactory, Government began to consider what other measures should be taken to carry out the objects for which it had been created. Its control was in the same year transferred to the Military Board, who shortly afterwards gave their opinion that the management of roads and tanks should be made over to Provincial Engineers, with assistants specially allotted for such duties.

184. Notwithstanding the strong reasons then adduced, Government resolved to suspend its abolition. The department was thought capable of becoming more efficient under improved arrangements and better experience, and there was apprehension lest its sudden cessation should throw works then in progress upon the corps

corps of Engineers, which the latter, from its numerical deficiency, and the pressure of actual duties, could not undertake.

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185. These expectations have, to a certain extent, been realized: so far as our inquiry enables us to judge, there have been no failures or errors of late; indeed, we believe the management almost from the first to have been zealous and able; but upon the main question on which the continuance or abolition of the department has been suspended, namely, the policy of separating Military Works from Civil, and maintaining a superintendent, with eight assistants, for the roads of two Collectorates, and a few minor works, we have no doubt at all; and since Government now views those improvements for which the Road Department has been a tentative and partial agency, or the settled object to which, in peaceful times, the main energies of the corps should be addressed, we think that the double machinery of superintendence should henceforth cease.

186. The extension of territory which has taken place since 1848, and other changes, together with the necessity, in our opinion, of allotting the entire services of one officer to the camp and city of Poona, require some departures from the original scheme. The distribution to suit present circumstances might, we think, be arranged as follows:—

## 187. PROPOSED RE-DISTRIBUTION OF ENGINEERS.

No.	OFFICERS.	SALARY.
	<i>Northern Division :</i>	<i>Rs.</i>
1	Superintending Engineer - - - - -	700
2	Civil Engineer, Surat Branch, Gogo - - - - -	450
3	Ditto - - Almedabad, Kara, and Territory North of Cambay	450
4	Assistant to ditto - - - - -	—
	<i>Central Division :</i>	
5	Superintending Engineer - - - - -	700
6	Civil Engineer, Khandeish Collectorate - - - - -	450
7	First Assistant to ditto - - - - -	200
8	Second ditto - - - - -	200
9	Civil Engineer, Nuggur Collectorate - - - - -	450
10	Ditto - - Nassick, Sub-Collectorate - - - - -	450
11	Executive Engineer, Poona Camp as now - - - - -	—
12	Civil Engineer, Poona Collectorate - - - - -	450
13	Assistant to ditto - - - - -	200
14	Civil Engineer, Tanna Collectorate - - - - -	450
15	Ditto - - Rutnagherry Collectorate - - - - -	450
	<i>Southern Division :</i>	
16	Superintending Engineer - - - - -	700
17	Civil Engineer, Satara - - - - -	450
18	Ditto - - Kolápoor - - - - -	450
19	Ditto - - Sholapoor - - - - -	450
20	Ditto - - Belgaum - - - - -	450
21	Ditto - - Dharwar - - - - -	450

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188. To ensure cheerful exertion, to make work in the country preferable to loitering in camp, and to leave no pretext for inactivity to the Executive Engineers, who ought to be constantly moving about their districts, and to be required by the Superintending Engineers to travel in the most expeditious way, we think that their travelling allowance, while actually afield, should be commensurate with their necessary expenses.

189. Accordingly in this respect we would depart from the scale originally proposed, in substituting for the fixed office tent allowance such a scale of remuneration for travelling as will cover the officers' actual expenses, including office carriage, without trenching upon their staff-pay. In making this suggestion, we would particularly bring to notice that the expense of travelling in this Presidency is considerably greater than in Bengal and Madras.

190. We agree with the Chief Engineer's Minute (29 August 1848), that to give efficiency to these changes, the several Superintending Engineers should pass at least six months of the year actually and *bona fide* in traversing their districts, and communicating personally with their subordinates, with the Collector and the Revenue Commissioner, so as to become thoroughly conversant with the wants and resources of the country; to visit works finished or progressing, and the sites of works contemplated; also to advance, in concert with the revenue authorities and the executive officer, new measures of improvement.

191. As regards executive officers, upon whom the devising of new projects will ordinarily devolve, the ability of the corps will, under the above arrangement, be distributed throughout the Presidency, in position of emolument more or less according to the efficiency displayed by each; and although there is not now, nor can be, without augmenting the corps, even one officer of adequate experience for every Collectorate, time, with additional numbers, will rectify this, and there will no longer be the present constitutional liability of important works falling to the youngest officers and to warrant officers, while men of greater experience are left comparatively idle.

192. The State has suffered so much from unprofessional officers being employed on Public Works, that, although extraneous assistance is for the moment indispensable, we see the strongest reason for deprecating a continued recourse to other branches of the service. In a country where so much is to be done, we would not, however, exclude from employment any officer of peculiar turn and talent for civil engineering, merely on the score of his not belonging to the professional corps.

193. The arrangements proposed in 1849 were made rather to fall within the compass of former expenditure in the Public Work Department, than to fulfil the necessities of the country; but the recent extensions of this Presidency, its growing wants, and the Home Government's intention, declared in Parliament to enlarge their engineering operations, required provision for a much larger establishment than we, taking the scheme of 1849 for our basis, venture to propose as perfect.

194. Although, by redistributing the corps, more and better work may be expected, we believe that the divisions of country under each executive officer will still be too large for perfect efficiency, and that when any great work, such as a line of road, or extensive bundhara, is required, it would be true economy to employ an officer specially upon it.

195. The scheme now proposed, excluding Sind, Aden, Rajpootana and the Presidency, requires three superintending and 18 executive officers; although unusually few are away on furlough, we find that, after deducting a commanding officer, an adjutant, and two second lieutenants, for the corps of Sappers, only 14 officers are now available to fill 21 situations; but if the average number of absentees, which we understand exceeds 10, be deducted, there would be available but 10, even including the junior second Lieutenant.

	Absent.	Available.
Colonels - -	2	—
Lient.-col. - -	1	Maj' 1
Captains - -	1	3
Lieutenants - -	1	9
2d Lieutenants - -	1	1
<b>TOTAL - -</b>	<b>6</b>	<b>14</b>

196. It



196. It is represented to us that many demands for professional reports cannot be met, and that many important projects are in abeyance for want of Engineer Officers to carry them out.

197. Beyond the fact that officers must be employed, whether qualified or not as linguists, and whether instructed or not in practical engineering for this country, there is in the present exigency no power of rejecting from employ an officer who has degenerated into indolent habits, or who cares not to keep pace with the times; all are alike absorbed in the general demand, and engaged, fit or unfit, upon an extent of work that demands the maximum of exertion which the ablest and best can put forth.

198. We have reason to believe that the Government of India have made repeated appeals to the Honourable Court of Directors to increase their Engineer corps at all the Presidencies; but although the Bengal corps has been doubled since 1827, no addition beyond four subalterns has been made to that of Bombay, notwithstanding the great increase of territory, and the far greater attention that is now paid to its improvement.

199. Although irrigation has been extended in Dharwar and Khandeish, we are told that the number of tanks in the former district might be doubled with advantage; while in the rest of the Presidency, including Guzerat, our most fertile Province, nothing has been done, and although the facilities for road-making exceed those of any country we have heard of, insomuch that a cart-road without ghauts and bridges can be made all over the Deccan and Southern Mahratta country at a minimum of Rs. 500 to Rs. 1,000 per mile, vast areas of territory, whose intersection by highways would be vital to all interests, lie to this day as impervious as we found them at the conquest.

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#### SECTION XIV.

##### *Control and Audit.*

200. By the regulations of this Presidency, the Superintending Engineerhips are held by the senior officers next below the Chief Engineer. These officers are the channel of communication between the executive officers and the Military Board; their duties are those of check and control, for the due exercise of which they are responsible to the Military Board; they are answerable that every document transmitted by them is correct and complete, and they are to record their opinion on every design. They are specially responsible for the correctness of rates; they make an annual tour through their Province to inspect the Public Works of all kinds, to scrutinize the operations of the executive officers, and to make an inspection report to the Military Board.

With respect to the chief superintending authorities alluded to in para. 62 of the Honourable Court's despatch, we have perceived no reason at all for recommending change.

201. The Public Works of this Presidency are controlled in a department of the Military Board entirely distinct from all others, with its own secretary; and the stipendiary member, who would otherwise have insufficient occupation, aids the professional member of the Board.

202. Even were it necessary, for purposes of assimilation at the three Presidencies, to have a separate controlling authority over Public Works, we still think that no alteration would be requisite beyond a change of name.

Report

203 We have been led to this opinion from having observed the promptness with which the Board disposes of the current business of the department, together with the audit of its accounts. The Board's efficiency for controlling Public Works must depend greatly on the qualifications of the Secretary in this department, who ought always to be an Engineer

(signed) *G Moore*, Colonel.  
*J. D. Inverarity*, C. S.  
*H. B. Turner*, Captain Engineers.  
*T Gausford*, Captain Artillery,  
 Member and Secretary.

(True copy.)

(signed) *P M. Melvill*, Lieut.-colonel,  
 Secretary to Government

(True copy.)

(signed) *R. H. Birch*, Lieut.-colonel,  
 Officiating Secretary to the Government of India  
 in the Military Department.

Poona, 1 September 1851.

# A P P E N D I X.

## Appendix (B.)

Appendix (B)

TERRITORIAL DEPARTMENT.—*Khandeish* Division of PUBLIC WORKS.

ESTIMATE, No. 1, of 1849-50

ESTIMATE, framed by Lieutenant *H W B Bell*, Civil Engineer in *Khandeish*, of the probable Expense of constructing a new Bundarah across the Mushar Nuddee, for the Village of Wuzzur, in the Baglan Talooka, agreeably to the Collector's Memorandum, No 1,351, dated 5th September 1848, and Accompaniment

Civil Engineer's Office, Mallegaum, 2 May 1849

### GENERAL DESCRIPTION

*Excavators' Work.*—The bed and banks of the Nullah being rock, will have to be properly levelled, to form a secure footing for the Bundarah walls

*Masons' Work.*—All the walls to be built of coursed rubble masonry and chunam, hammer-dressed one side, and to be of the respective widths and heights figured on Plan and Sections

*Stonecutters' Work.*—That portion of the Bundarah wall from G to C and Waste Wen Ghaut to be coped with 3d sort cut stone; the grooves for the sluice-gates and soles of scouring-sluices are also to be of 3d sort cut stone

*Carpenters' Work.*—The sluice-gates are to be made of teak timber, three inches thick, and one of such a height and width as to properly fit the two scouring sluices in the Bundarah wall and the arched openings into the water-courses

[Sanctioned by Government in Mr Secretary Goldsmid's letter to Mr. Revenue Commissioner (S. D) Shaw, No 6,814, dated 13 November 1849, per Military Board's memorandum, No. 7,925, of 17th, and Superintending Engineer's (S P) endorsement, No 2,734, of 19th idem, for Rs 1,047 ]

### MEASUREMENTS

DESCRIPTION	Length		Height or Depth	Number	QUANTITIES	
	C	t m.			C. ft.	m
<i>Excavators' Work.</i>						
Bundarah, 1st Portion -	129	0	4	0	0	6
Ditto - 2d ditto -	140	0	3	0	0	6
Ditto - 3d ditto -	177	0	2	6	0	6
Curtain Wall on right Bank	40	0	3	0	0	9
Curtain Wall on left Bank.	30	0	3	0	1	9
					936	9
					-- Cubic feet levelling found in rock	
<i>Masonry</i>						
Bundarah, 1st Portion.						
No. 1 Piece -	3	0	4	0	1	6
No. 2 ditto -	10	0	4	0	1	0
No. 3 ditto -	6	0	4	0	2	0
No. 4 ditto -	4	0	4	0	2	9
No. 5 ditto -	10	0	4	0	4	0
No. 6 ditto -	20	0	4	0	3	6
No. 7 ditto -	30	0	4	0	3	3
No. 8 ditto -	20	0	4	0	4	0
No. 9 ditto -	5	0	4	0	3	0
No 10 ditto -	5	0	4	0	2	3
No. 11 ditto -	5	0	4	0	1	9
No. 12 ditto -	11	0	4	0	1	3
					18	0
					40	0
					48	0
					44	0
					160	0
					280	0
					390	0
					320	0
					60	0
					45	0
					35	0
					55	0
					NB — Exclusive of 6 coping.	

(continued)

Appendix (B.)

MEASUREMENTS—continued.

DESCRIPTION.	Length.	Breadth.	Height or Depth.	Number.	QUANTITIES.	
	C. ft. in.	C. ft. in.	C. ft. in.		C. ft. in.	
<i>Masonry—continued.</i>						
<b>Bundarah, 2d Portion:</b>						
No. 1 Piece - -	10 0	3 0	1 9	-	52 6	
No. 2 ditto - -	40 0	3 0	1 3	-	150 0	
No. 3 ditto - -	10 0	3 0	2 0	-	60 0	
No. 4 ditto - -	30 0	3 0	2 9	-	247 0	
No. 5 ditto - -	35 0	3 0	4 0	-	420 0	
No. 6 ditto - -	10 0	3 0	3 6	-	105 0	
No. 7 ditto - -	5 0	3 0	2 6	-	37 6	
<b>Bundarah, 3d Portion:</b>						
No. 1 Piece - -	7 0	2 6	4 0	-	70 0	<i>N.B.—This part has No. 3 sort cut stone coping.</i>
No. 2 ditto - -	10 0	2 0	4 9	-	118 9	
No. 3 ditto - -	10 0	2 6	5 6	-	137 0	
No. 4 ditto - -	40 0	2 6	6 0	-	600 0	
No. 5 ditto - -	70 0	2 6	5 0	-	875 0	
No. 6 ditto - -	40 0	2 6	5 9	-	575 0	
<b>Curtain Wall, right Bank:</b>						
No. 1 Piece - -	10 0	3 0	6 6	-	195 0	
No. 2 ditto - -	5 0	3 0	5 6	-	82 0	
No. 3 ditto - -	5 0	3 0	4 0	-	60 0	
No. 4 ditto - -	5 0	3 0	3 0	-	45 0	
No. 5 ditto - -	10 0	3 0	2 0	-	60 0	
No. 6 ditto - -	5 0	3 0	1 6	-	22 6	
<b>Curtain Wall, left Bank</b>						
No. 1 Piece - -	5 0	3 0	3 3	-	48 9	
No. 2 ditto - -	14 0	3 0	5 9	-	141 6	
No. 3 ditto - -	2 0	3 0	4 3	-	25 6	
No. 4 ditto - -	2 0	3 0	3 9	-	22 6	
No. 5 ditto - -	7 0	3 0	3 0	-	63 0	
					5,810 0	
<b>Deduct,—</b>						
Sluices in Bundarah -	3 0	4 0	3 6	2	84 0	<i>N.B.—Including 6 of sole cut stone.</i>
Arch openings in Curtain Walls.	3 0	3 0	2 6	2	45 0	
Waste Weir - - -	30 0	2 6	1 6	-	112 6	<i>N.B.—Including 6 of cut stone sole. Ditto - ditto.</i>
Scouring Sluice - -	3 0	2 6	2 6	-	18 9	
					260 3	
					5,549 9	- Cubic feet coursed rubble masonry, hammer-dressed one side.

MEASUREMENTS—continued.

Appendix (B.)

DESCRIPTION	Length	Breadth.	Height or Depth.	Number.	QUANTITIES.	
	S.ft. in.	S.ft. in.	S.ft. in.		S.ft. in.	
<i>Stone-cutters' Work :</i>						
Coping to Bandara, 1st Portion, and Sole of Sluces.	129 0	4 6	- -	-	580 6	
Grooves - - - -	3 0	0 9	- -	4	9 0	
Coping to 2d Portion of Bandara.	140 0	3 6	- -	-	490 0	
Waste Weir and Sole of Sluces	30 0	3 0	- -	-	90 0	
Grooves - - - -	4 0	0 9	- -	-	3 0	
Grooves to openings to Curtain.	2 6	0 9	- -	4	7 6	
Ditto - - - -	4 0	2 3	- -	4	36 0	
					1,216 0	Sup. at rough cut stone.
<i>Carpenters' Work :</i>						
	C.ft. in.	C.ft. in.	C.ft. in.		C.ft. in.	
Sluice-gate - - - -	3 6	3 9	0 3	2	6 6	
Gate to openings in Curtain.	3 6	5 9	0 3	2	10 0	
					16 6	C. ft. teaktimber.

A B S T R A C T.

		Rs. a. p.	Rs. a. p.
937	Cubic feet levelling Rock for foundation, at Rs. 3 per 100 cubic feet.	28 1 9	
5,550	Cubic feet coursed rubble Masonry, hammer-dressed one side, at Rs.12. 4a. per 100 cubic feet.	679 14 -	
1,216	Square feet 3d sort cut-stone coping, at Rs.18 per 100.	218 14 1	
16½	Cubic feet teak timber Sluice-gates, at R.1. 8a. per cubic foot.	24 12 -	951 9 10
	Contingencies, at 5 per cent. - - -	47 9 3½	
	Extra Establishment, at 5 per cent. - -	47 9 3½	
	<b>TOTAL Company's Rupees, One thousand and forty-seven</b>		<b>1,047 - -</b>

(signed) *H. Barthorn*, Captain,  
Acting Superintending Engineer, S. D.  
*H. W. B. Bell*, Lieutenant,  
Civil Engineer, Candeish.  
*A. Elphinstone*, Collector.





Figured Abstract of Daily Expenditure of Labour and Materials for the Plunge Bath at Ahmednuggur—continued.

TEAKWOOD POSTS.

Number of Feet.	October 1850.														TOTAL.	Sawyers' Work, Gus 4½ Rs. 100.	TOTAL EXPENSE of LABOUR.	Choonam, 2d Sort Maunds.		TOTAL of MATE- RIALS.	TOTAL
	Date	Carpenters.					Bricklayers.		Biggares.	Women.	Boys.			Bullocks, Pair.							
		8 a.	7 a. 1 p.	7 a.	6 a. 6 p.	6 a.	5 a.	5 a.			4 a.	2 a.	1 a. 6 p.					1 a. 9 p.	1 a. 6 p.		
8	7	-	-	1	-	-	-	-	-	-	1	-	-	-	-	2	-	Rs. a. p.	-	Rs. a. p.	Rs. a. p.
	8	-	-	1	-	-	-	-	-	-	1	-	-	-	-	2	-	- 8 9	-	-	- 8 9
	9	-	-	1	-	-	-	-	-	-	1	-	-	-	-	2	-	- 8 9	-	-	- 8 0
	11	-	1	-	-	-	-	-	-	-	1	-	-	-	-	2	-	- 8 10	-	-	- 8 10
	24	½	1	-	-	-	1	2	-	5	1	-	1	1	-	12½	-	2 12 7	-	-	2 12 7
	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	1	-
	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	4 4 -	-	-	4 4 -
	½	2	3	-	-	1	2	-	5	-	5	-	1	1	-	20½	100	9 3 8	5	1	10 3 8

Running Feet TEAKWOOD POST PLATE.

48	12	-	1	1	-	-	-	-	-	-	1	1	-	-	4	-	1 1 4	-	-	1 1 4
	14	-	1	1	-	-	-	-	-	-	1	1	-	-	4	-	1 1 4	-	-	1 1 4
	15	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	7 1	-	-	7 1
	18	-	1	1	-	-	-	-	-	-	1	1	-	-	4	-	1 1 4	-	-	1 1 4
	25	¾	1	-	-	-	1	2	-	7	2	1	-	-	14½	-	2 12 1	-	-	2 12 1
	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	4 4 -	-	-	4 4 -
	½	5	3	-	-	1	2	-	7	-	5	4	-	-	27½	100	10 11 2	-	-	10 11 2

Cubic Feet TEAKWOOD DOORS, to be shut up with Stone and Lime Masonry.

Number of Feet.	November 1850.														TOTAL.	TOTAL EXPENSE of LABOUR.	Choonam 2d Sort Maunds.		TOTAL EXPENSE of MATE- RIALS.	TOTAL		
	Date	Carpenters.			Bricklayers.		Biggares.	Women.	Boys.			Bullocks, Pair.										
		7 a.	6 a.	5 a.	5 a.	4 a.			2 a.	1 a. 6 p.	1 a. 9 p.		1 a. 6 p.	1 a.			6 a.					
72	8	-	-	-	2	-	1	2	-	-	-	-	-	-	5	Rs. a. p.	-	-	-	Rs. a. p.	Rs. a. p.	
	9	-	-	-	2	-	1	2	-	-	-	-	-	-	5	- 15 -	-	-	-	-	- 15 -	
	20	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	8	-	1 8 -	-	1 8 -	
	21	-	-	-	2	-	2½	2	-	2	-	-	1	-	9½	1 11 -	-	-	-	-	1 11 -	
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	4 -	-	4 -
	-	-	-	-	6	-	4½	6	-	2	-	-	1	-	19½	3 9 -	8	10	1 12 -	-	5 5 -	



Figured Abstract of Daily Expenditure of Labour and Materials, &c.—*continued.*

Appendix (B.)

TERRITORIAL DEPARTMENT.—*Khandeish* Division of PUBLIC WORKS.

BILL, No. 29, of 1850-51.

The Honourable Company - - - - - *Dr.*

To expense incurred by Lieutenant *H. W. B. Bell*, Civil Engineer in *Candeish*, in constructing a new Bundarrah across the Mushar River, at the village of Wuzzar, in the Baghan Talooka of the *Khandeish* Collectorate, agreeably to Estimate No. 1 of 1849-50, dated 2 May 1849, sanctioned by Government in Mr. Secretary Goldsmid's letter, No. 6,814, dated 13th, per Military Board Memorandum, No. 7,925, of 17th, and Superintending Engineer's endorsement, No. 2,734, of 19th November 1849.—*Vide* also accompanying Completion Certificate.

Civil Engineer's Office, Mallegaum, 29 June 1850.

	<i>Rs. a. p.</i>
Amount of Labour expended on the above Works, per Office Books - -	593 5 4
Ditto of Materials - - ditto - - - - -	435 3 4
GRAND TOTAL <i>Company's Rupees</i> Expenditure - - -	1,028 8 8

ABSTRACT OF RATES.

	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>
937 cubic feet Rock levelled for } foundation - - - - }	- 3 13 8 $\frac{220}{337}$ per 100 -	36 2 -	
6,612 cubic feet Walls, built of } coursed rubble masonry, } hammer-dressed one side }	- 9 1 7 $\frac{2254}{12}$ ditto -	655 7 7	
1,216 square feet third sort cut- } stone work - - - - }	- 18 - 3 $\frac{656}{1216}$ ditto -	219 1 8	
11½ cubic feet teak timber in } Sluice Gates - - - - }	- - 13 - $\frac{12}{3}$ per foot -	9 6 -	920 1 3
Contingencies - - - -	- 4 3 5 $\frac{10105}{176655}$ per cent. -	-	38 12 5
Extra Establishment - - - -	- 7 9 2 $\frac{19630}{176655}$ per cent. -	-	69 11 -
GRAND TOTAL Cost for constructing a new Bar at Wuzzur - <i>Rs.</i>			1,028 8 8
Estimated Cost - - - - - <i>Rs.</i>			1,047 - -
Amount received - - - - - <i>Rs.</i>			1,047 - -

I do hereby declare, upon my honour, that the sums contained in this bill have actually been expended by me for the purposes set forth.

(signed) *H. W. B. Bell,*

To the Secretary Military Board, Bombay.

Lieutenant, Civil Engineer.

## Appendix (B.)

## Figured Abstract of Daily Expenditure of Labour and Materials, &amp;c.—continued.

TERRITORIAL DEPARTMENT—*Khandeish* Division of PUBLIC WORKS.

CERTIFICATE of Completion by *Alexander Elphinstone*, Esq., Collector of Candeish, upon the construction of a new Bhundarrah across the Musher River, at the village of Wuzzur, in the Buglan Talooka of the Candeish Collectorate, agreeably to Estimate, No. 1 of 1849-50, dated 2 May 1849, sanctioned by Government in Mr. Secretary Goldsmid's letter, No. 6,814, dated 13th, per Military Board Memorandum, No. 7,925, of 17th, and Superintending Engineer's endorsement, No. 2,734, of 19th November 1849.

Civil Engineer's Office, Candeish, Mallegaum, 1 June 1850.

Number.	NAME OF WORK.	REMARKS BY THE CIVIL ENGINEERS	REMARKS BY THE COLLECTOR.
1	Bundharah -	<p>-- The bed and banks of the nullah, being rock, have been properly levelled, to form a secure footing for the bundhara walls, which have been built of coursed rubble masonry, and chunam, hammer-dressed one side, and the bundharah proper and waste weir have been coped with third-sort cut-stone. The scouring sluices have third-sort cut-stone soles and grooves, fitted with three teak planks. The two arched openings at the mouth of the watercourse on each bank of the river have also cut-stone grooves and teak planks fitted in similar to the scouring sluices. The whole of the above works have been completed satisfactorily, in accordance with the sanctioned plan and estimate; but it was found necessary to increase the depth of the foundation of that portion of the bundhara which rests on the right bank of the river.</p> <p style="text-align: right;"><i>Rs. a. p.</i></p> <p>Estimated cost - - - 1,047 - -</p> <p>Executed - - - 1,028 8 8</p> <p style="text-align: right;">Saving - - <u><i>Rs. 18 7 4</i></u></p>	<p>(signed) <i>A. Elphinstone,</i> Collector.</p>

(signed) *H. W. B. Bell,*  
Lieutenant, Civil Engineer.

(True copies.)

(signed) *P. M. Melvill,* Lieut.-col.,  
Secy. to Govt.

(True copies.)

(signed) *R. J. H. Birch,* Lieut. Colonel,  
Offg. Secy. to the Govt. of India, Military Department.

## Appendix (C.)

No. 338, of 1851

From *W. Chapman, Esq.*, Superintending Engineer, to *Captain Graham*, Superintendent of Road, *Poonah*, dated the 12th of July 1851

Sir,

ACCORDING to instructions received from you, I have the honour to forward herewith the Accounts, for the month of February last, for the Undwell Bridge. I have selected this month as the one embracing the most numerous heads of work, and as being well adapted to exemplify the extended use of the Stock sheet, to which I would beg particularly to direct your attention. The documents received in Maratha I have had translated, in order that they may be clearly understood.

2. In again revising and considering the modified system of accounts which has been introduced in this office, it appears to me to be so simple, at the same time ensuring all the accuracy and minuteness that can possibly be required, that I beg to submit an outline of the documents and returns connected with it, which, in case of their meeting your approval, I would beg to suggest should be laid before the Public Work Commission for their consideration.

3. I would, however, in the first instance, premise, that the "daily payments" and "daily measurements" are not, in my opinion, applicable to works of an extensive nature, such as those with which this department has been of late occupied: it may doubtless be carried out where works are in the immediate neighbourhood of the Head-quarter Office, and when the measurements are of so simple a nature that it may be ascertained at the end of each day that a proper quantity of work has been done, and that no risk is run in at once making payments accordingly, but in works of a complicated nature, and situated in remote parts of the district, I am persuaded, from an experience of seven years' active executive duty, that the system, whatever might in appearance be done, could not fairly and really be carried out without having recourse to shroffs as paymasters, and entailing so considerable an expense in superintendence as would counterbalance any advantage supposed to be derived from it.

4. The great and only advantage of daily payments, which alone render daily measurements necessary, appears to be the doing away with the supposed hardship endured by labourers in being kept a month and upwards in arrears of pay. This advantage, when considered in all its bearings, is rather imaginary than real. Were all the labourers employed upon any work inhabitants of its immediate neighbourhood, the daily payment would enable such as were so inclined, to work one day and idle two, a waywardness in which the generality of labourers are most prone to indulge, to the great hindrance of the work on which they may be employed, but as this is by no means the case, and the greater number by far of the workpeople engaged in extensive works are collected by muccadums, in whom they have confidence, and with whom they make agreements, from distances varying from 100 to 200 miles, and they assemble with their whole families, not with the view of eating from hand to mouth, but of making money during the months of the working season to support themselves and their families during the remainder of the year, I much doubt whether the daily payment system would be even acceptable to them, and, consequently, to the bulk of native labourers.

5. The arrangements now made to obviate the difficulty of procuring food or credit, on their first arriving empty handed at the commencement of the working season, consists of making an advance of a sum of money to the muccadam (if a known man), for which he is held responsible, sufficient to give, say *Rs* 100 to each family. This provides for their immediate wants, which are further provided for, after they have worked some days, and have, consequently, money due, by an order to the Government banian to supply the party with grain in proportion to the pay to be received. The banian himself is protected from imposition by being allowed, in any doubtful case, to inquire of the person in charge of the work as to the amount of pay due to any labourer employed on it; and in consideration of the permission to open a shop in the lines, the large and regular custom secured him, the banian is always willing to allow his prices being revised, and kept at or below the nearest bazaar rates; so that, if a proper supervision is exercised, the best interests of the workpeople are by this means also secured.

6. Having these advantages afforded them under the monthly system, and being thus placed above want, the question only remains whether the bulk of the labourers, with

Appendix (C.)

reference to saving for their future subsistence, would prefer receiving their payments in daily dribblets of copper coins, or at the end of the month in silver. Some doubtless would be found, especially those of the class above alluded to (whose loss could, however, be borne), who would prefer what they would consider present advantage; but any one knowing his inherent dislike to "breaking a rupee," would not scruple to claim for the provident man the advantage of monthly payment.

7. A very serious objection to general daily payments, and one which affects Government more particularly, is, that it in many cases virtually deprives the executive officer of all due control in money payments, and transfers it into the hands of his subordinates. This statement, however improbable it may appear at first sight, is not difficult of proof.

Suppose, for instance, a work in progress at a distance from head quarters, with an expenditure at the rate (a common occurrence) of Rs. 2,000 monthly: at its commencement the executive officer lays out the work, explains all that has to be done, makes arrangements for a supply of money, which must of necessity be entirely entrusted to the subordinate, and leaves to attend to other calls, and to do similar work elsewhere. At the end of, say 15 days, he returns to inspect the work, and, after having learnt the expenditure, has every reason to be greatly dissatisfied with its progress. He eventually measures portions of the work himself, finds that idleness has been the order of the day, and that the rates, consequently, exceed the estimate. In answer to his questions as to why a proper quantity of work has not been enforced, the subordinate's reply is, "Sir, I trusted to the maistrees' and charkoons' measurements being correct; it is impossible that I can myself measure daily every part of so extensive a work; I can fine but to a small amount, and have still orders to pay daily, and this, in fact, takes up all my time, which I might otherwise employ in assuring myself, without recording nice dimensions, that a fair average of work had been performed."

A statement of this kind, the proof afforded by his own knowledge, the officer cannot gainsay; nevertheless, to make a fresh trial, the subordinate is admonished, the maistrees and carcoons fined, the muccadums are reduced, but the money is paid, and not to be recovered. The estimate is exceeded, and the executive officer is involved in an excess, and its many troubles, which no foresight or arrangement on his part could have prevented.

The only means of avoiding such a difficulty would be to leave to the subordinate entire discretion in fining and discharging, and with that, in effect, the entire control of money payments, a most dangerous alternative.

8. In the monthly system, on the other hand, all money allowed for the use of the work, is for materials mostly, and is paid under the name of an advance, which remains, in every case, to be accounted for by the subordinate, when the monthly report of the works is forwarded. The Distribution Report and Rate-table (to be afterwards described) then enable the executive officer to detect any overcharges or excessive rates, and at once to make such arrangements for reducing the payments as circumstances may call for.

9. The monthly payment system has another advantage over daily payments, the value of which the executive officer can fully appreciate, and that is, that by its means an inducement can be held out to the workpeople calculated to secure constant attendance, which is, the payments on Sundays being made only to those who have worked the six days of the week.

10. I have entered thus fully into the respective advantages of daily and monthly payments, the former of which I understand as embracing daily measurements, with a view to strongly recommending that a minutely detailed monthly system "should be again adopted, in the place of a nominal daily one, which I am convinced, if minutely scrutinized in its working, would not bear out its supposed character."

11. Daily payments have their peculiar difficulties, and have not, as I have endeavoured to show above, the great advantages generally assigned to them.

12. Daily measurements, as a check to daily payments, even I have in practice no confidence in; and, with reference to their fallacy, I may here mention a practical case which occurred during the last season, when I was in immediate charge of the Undwell Bridge. I had the masons' work measured every evening before them, and generally in my own presence; the number of cubic feet per man was 18 to 20; I was dissatisfied, and in many cases fined. From my own calculation at the end of the month, taking the work *en masse*, I found that on an average 30 feet had been done per man. A large number of masons was employed, it is true, and the marks were difficult to preserve when the work was proceeding rapidly. But if such a result as this is obtained, certainly under more than ordinary care, and in tolerably plain work, what may not be expected from indifference, complication and hurry?

13. I will now proceed to explain what returns and documents I think it necessary should be kept for every district work, from its commencement to its last stage, which is that of making out

out the bill for sanction, explaining the use of each in order, and not of course touching upon the general money accounts of the office, which must but with few exceptions be kept as at present. It will be observed that the figured Abstract, in so far as its only troublesome portion is concerned, has been entirely done away with, by the extended use of the Stock sheet.

The report of the Undwell Budge for February being drawn up from actual work done, will serve practically to illustrate the whole. An European subordinate is supposed to be employed.

The monthly documents to be furnished to the Executive Office in English, are for any work three, being all that is required to enable the officer to check the rates, and make the payment of work. They are—

1. The monthly Distribution Report of labour and materials, with rates of work performed.
2. Monthly Stock Balance-sheet.
3. Bills of payment of labour and materials, with vouchers for materials and stores' bills. Returns in Marratha, or the language of the district.
4. (Not sent). A general muster-roll, with a separate muster-roll, for store bills.
5. Receipts and issues of materials and stores to the general works, showing the balance both in money and kind.  
Books to be kept in the Head-quarter Office.
6. (Not sent). Abstract of monthly totals of labour and materials, and rates of work performed, arranged under the estimate heads.
7. Office books, a check day-book of form, at present used for labour.
8. Daily or figured abstract of each description of labour.

#### *Uses of the above Returns.*

##### 1. Monthly Distribution Report.

In this document is shown the daily expenditure and distribution of labour, and the distribution of materials, and stores from stock, during the month on each portion of the work, arranged under the general and minor heads of the estimate. The number of labourers with the rates of each description of labour, are given in detail; but to save writing (to the European subordinate), the materials used are shown in one sum only, at the foot of the material column; and with regard to these, the Stock Balance-sheet affords every necessary detail.

A second total column is added at the bottom of the report, giving the amount expended "up to the end of the last month" on each item, so that the total expenditure on each different head may be at once compared with the estimate.

A Rate-table is also appended, and forms a very important part of this document, the "total" of which, by adding contingencies and establishment, is made to agree with the "total" of monthly expenditure shown in the report, and thus forms a check upon its accuracy. A certificate below, signed by the subordinate in charge, to the effect that he has himself made the measurements from which the above rates have been deduced, renders him personally responsible for their correctness.

*N. B.*—This return alone, if kept correctly, contains in itself all the information necessary for making the bill in its present form. I would beg to remark, that the form of the above document, which is almost identical with that received under the Military Board Circular, No. 5,932 of 1850, of the 6th of August, was originated in this office, and was in use in the Thul Ghaut accounts four years ago.

##### 2. The Stock Balance Sheet.

In the first portion of this return, which has reference more particularly to the money balance of stock on hand (for which the subordinate is responsible), and which is very useful for expeditious transfer, is first shown: the money balance of materials and stores according to the last month's Stock Balance-sheet; to this the materials and stores received during the month are added in detail.

In the second portion of the return, the materials and stores used during the month, with the prices affixed, as taken out of the stock of the previous month, are given, having all the different portions of the work upon which they have been used arranged under the heads of the materials themselves. The amount of the total issues deducted from the total of the receipt side gives at once the balance of stock in hand at the end of any month in money. And the addition of all the sums under any head of materials for the same portion of the work, gives the materials and stores used on it, both in kind and money, the amount of the latter agreeing with that entered in the material column under the same portion of work in the Distribution Report.

## Appendix (C.)

I would beg particularly to draw your attention to the extensive use to which the Stock sheet has been applied by the introduction of what have above been denominated "Store Bills." This application is most satisfactory as a means of systematising, and consequently, to a very great degree, simplifying the examination of the accounts, and bringing out clearly the subordinate rates of minor heads for work, such as, for example, in masonry, "grinding chunam," "collecting stone," preparing "cut-stone coigns," &c., which, with all other stores combined of labour and materials (though once issued), are again in a composite form ready for use, put into the stock, to be once more issued for use in the body of the work: "separate bills similar to vouchers," as being stores supplied, are furnished for these.—*Vide* "Store Bills," Nos. 40, 41, 42, 43, 45 and 46, at the foot of each of which the rate of the usually estimated quantity is taken out; and, according to these bills, the expenditure, measurement and rate are entered into the Stock sheet, under the proper head.—[*Vide* Entries.]

The rates of "chunam ground," "stone collected," &c., must, of necessity, vary in a slight degree each month; but no confusion can possibly arise, if the quantity first prepared or collected is always first used from the stock.

In addition to the advantage these bills offer in showing clearly the rates of the subordinate heads of the work, another improvement effected by their use is, that when made stores, "and issued as such," the exact quantity only of "chunam" or "stone" which has actually entered into the composition of the number of cubic feet of masonry reported to have been completed during the month, is charged to it, and consequently the rate of masonry must always be true for the month. Whereas, according to the old system, from a considerable quantity of materials being collected and charged to the head of masonry at once, a nearly constant rate was difficult of attainment.

The use of Store Bills is again very advantageously applied in the case of Government carts, when, instead of distributing it here and there at random, or guess-work, the whole of the expenditure relating to them, whether for cartmen, food, repairs or oil, are entered into one bill, entitled the "Cart Stone Bill;" the rate of each cart or pair of bullocks is correctly taken out at its foot, and by this rate they are eventually charged under the head of work, on which they may have been mustered. Donkeys, puchals, and all similarly combined labour, were at the Thul Ghaut treated in the same manner.

Nothing can, in my own opinion, tend more to the systematising of the accounts of the work than the full development of the Store Bills and Stock sheet, as above described, as by their means only the great principle, attention to which can alone make every thing clear, *i. e.* "that neither materials or labour of any description should be shown in the pukka monthly expenditure, which does not enter into and form part and parcel of some completed portion of the work," can be effectually carried out.

To keep up this principle more clearly, the separate Muster-roll is required for the labour employed in the Store Bills, and the expenditure on these, as well as that on all the materials, &c. borne on the Stock Balance-sheet, though paid for at the end of each month, under the name of an advance, is denominated "kutcha," in contradistinction to the "pukka" expenditure, which has actually entered into the body of the work.—[*Vide* Abstract at the end of Bill of Payment for Materials, &c.]

### 3. Bills of Payment for Labour and Materials.

These are of the same form as those of the old system, and answer the same purpose. In the Bill of Payment of Materials the whole expenditure is shown in the first total. In the abstract below, the "hulcha" expenditure, *i. e.* that on the "Store Bills," is then deducted, and the "pukka" expenditure, the items being shown in detail, and agreeing with the material column of the Distribution Report, then remains.

### *Maratha Returns.*

4. One general nominal Muster-roll, with the addition to the ordinary columns of one showing the village of each labourer, which will always be found very useful, and even at times invaluable for identification, and the settlement of disputes regarding pay.

### *One separate Muster-roll for Store Bills.*

### 5. Receipts and issue of Materials and Store to general Works.

This document is kept by the storekeeper, and forwarded with the accounts: it contains an entry, in a tabular form, of all materials and stores received during the month. The numbers in the left-hand column contain agree with those of the suppliers' bills or vouchers to which they refer. The last two horizontal columns below give the balance of materials and stock and their prices, and from this the Stock Balance-sheet is prepared.

Books to be kept in the Head-quarter Office.

### 6. Abstract

6. Abstract of monthly totals of labour, &c. &c.

Appendix (C.)

As the monthly Distribution Reports contain all the information required to draw up a yearly or compilation bill, so nothing more need be kept in the Head-quarter Office than an abstract of these office books as checks.

7. Day-book of labour in the present form taken from the Muster-rolls.

8. Daily Abstract, or figured Abstract of each description of labour taken from the above. The daily total of this should agree with the additions of the daily totals of labour in the Distribution Report, and the check is complete.

A continual check on material is found in the Stock Balance-sheet itself.

Nassick, 12 July 1851. I have, &c.  
(signed) *W. Chapman*, Superintending Engineer.

(True copy.)  
(signed) *P. M. Melville*, Lieut.-col., Secy. to Government.

(True copy.)  
(signed) *R. J. H. Birch*,  
Offg. Secy. to the Govt. of India in the Military Depart.

No. I.

## DISTRIBUTION REPORT OF LABOUR and MATERIALS,

DATE.	Excavating Foundation.				Filling in Foundation.			
	Cubic Feet.	EXPENDITURE.			Cubic Feet.	EXPENDITURE.		
		Labour.	Materials.	TOTAL.		Labour.	Materials.	TOTAL.
1851: .		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>
February - 1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
TOTAL - -								
Expenditure to end of last month - -	59,140	612 12 7	72 2 10	684 15 5	29,035	890 2 3	2,443 3 10	3,333 6 1
GRAND TOTAL	59,140	612 12 7	72 2 10	684 15 5	29,035	890 2 3	2,443 3 10	3,333 6 1



No. 1.

with Rates of Work performed, *Undwell* Bridge, for February 1851.

Abutments.				Abutment Stones.				
Cubic Feet.	EXPENDITURE.			Nos.	Cubic Feet.	EXPENDITURE.		
	Labour.	Materials.	TOTAL.			Labour.	Materials.	TOTAL.
	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>			<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>
8,894	354 8 5	814 10 7	1,169 3 -	75	75	- - -	85 14 -	85 14 -
8,894	354 8 5	814 10 7	1,169 3 -	75	75	- - -	85 14 -	85 14 -

No. 1.—<sup>1</sup>DISTRIBUTION REPORT of Labour and Materials, . . . . .

DATE.	Building Facing Walls above Abutment.																	EXPENDITURE.			
	Cubic Feet.	No. of Coigna.	Beggars.	Women.	Boys.	Masons.					Stone Cutters.					Labour.	Materials.	TOTAL.			
			2 a.	1 a. 3 p.	1 a.	7 a.	6 a. 6 p.	6 a. 4 p.	6 a.	5 a.	4 a.	7 a.	6 a. 11 p.	6 a. 6 p.	6 a. 3 p.				6 a.	5 a.	4 a.
1851:																		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
February - 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3	-	-	4	3	2	2	1	-	-	-	-	1	1	-	-	-	-	2 15 8	-	2 15 8	
4	-	-	2	1	1	1	-	-	1	-	1	2	1	-	-	-	-	2 13 7	-	2 13 7	
5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
6	-	-	5	3	-	1	2	-	-	-	1	2	1	-	1	1	-	4 8 1	-	4 8 1	
7	-	-	5	6	4	2	-	2	-	3	1	1	-	-	-	-	-	4 11 5	-	4 11 5	
8	-	-	8	6	4	2	2	-	-	2	1	-	-	-	-	-	-	4 4 6	-	4 4 6	
9	-	-	-	-	-	2	-	4	1	1	1	2	1	-	-	1	-	4 15 4	-	4 15 4	
10	-	-	12	5	2	-	-	1	2	-	1	-	-	-	-	1	-	3 13 7	-	3 13 7	
11	-	-	5	2	-	-	-	2	-	-	2	-	-	-	-	-	-	2 7 2	-	2 7 2	
12	-	-	14	5	2	-	-	2	-	2	-	-	-	-	4	-	-	5 2 11	-	5 2 11	
13	-	-	14	7	2	2	-	2	4	-	4	1	-	4	-	-	-	9 1 11	-	9 1 11	
14	-	-	21	8	4	-	-	4	2	-	-	4	1	-	2	-	-	9 1 9	-	9 1 9	
15	-	-	16	10	4	-	-	-	4	2	-	-	-	1	3	2	-	7 4 9	-	7 4 9	
16	-	-	-	-	-	-	-	-	4	2	-	-	2	1	1	-	-	3 12 7	-	3 12 7	
17	-	-	15	9	1	-	-	1	1	2	1	3	-	-	3	1	-	7 - 7	-	7 - 7	
18	-	-	20	9	4	3	-	4	2	-	3	-	-	-	3	1	-	9 10 3	-	9 10 3	
19	-	-	7	4	2	-	2	-	-	-	3	-	-	1	-	-	-	3 13 3	-	3 13 3	
20	-	-	11	6	2	-	-	2	2	-	1	2	1	-	-	-	-	5 3 6	-	5 3 6	
21	-	-	18	5	2	1	-	4	-	1	-	4	-	-	-	-	-	6 13 7	-	6 13 7	
22	-	-	12	3	1	3	-	1	-	-	1	1	1	-	-	-	-	4 12 6	-	4 12 6	
23																					
24	-	-	6	4	1	-	-	2	-	-	-	-	-	-	-	5	-	2 8 8	-	2 8 8	
25	-	-	5	2	2	-	-	-	2	-	1	3	-	-	1	-	-	3 9 6	-	3 9 6	
26	-	-	11	7	2	2	1	1	-	-	-	-	1	1	-	-	-	4 8 4	-	4 8 4	
27	-	-	20	6	2	2	-	2	1	1	2	1	-	-	1	-	-	6 15 5	-	6 15 5	
28	-	-	16	9	2	1	-	-	3	2	-	1	-	-	2	-	-	6 3 3	252 3 9	258 7 -	
<b>TOTAL</b>	<b>2,775</b>	<b>64</b>	<b>247</b>	<b>120</b>	<b>49</b>	<b>24</b>	<b>8</b>	<b>20</b>	<b>34</b>	<b>20</b>	<b>4</b>	<b>32</b>	<b>22</b>	<b>10</b>	<b>5</b>	<b>24</b>	<b>8</b>	<b>1</b>	<b>126 4 1</b>	<b>252 3 9</b>	<b>378 7 10</b>
Expenditure to end of last Month	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>GRAND TOTAL</b>	<b>2,775</b>	<b>64</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>126 4 1</b>	<b>252 3 9</b>	<b>378 7 10</b>

with Rates of Work performed, *Undwell Bridge*, for February 1851—*continued*.

Foundation for Centering.				Centering.																				
Cubic Feet.	EXPENDITURE.			Cubic Feet.	Masons.										EXPENDITURE.									
	Labour.	Materials.	TOTAL.		Bigganes.	Women.	Boys.	Carpenters.							Labour.	Materials.	TOTAL.							
					2 a.	1 a. 3 p.	1 a.	6 a.	7 a.	6 a. 6 p.	6 a. 4 p.	6 a.	5 a.	4 a.										
	Rs. a. p.	Rs. a. p.	Rs. a. p.																					
-	-	-	-	-	60	23	8	1	1	2	7	7	4	1	18	5	1	-	-	18	5	1		
-	-	-	-	-	33	11	4	1	2	2	5	7	-	1	12	2	5	-	-	12	2	5		
-	-	-	-	-	55	26	9	-	-	-	-	7	4	1	16	5	10	-	-	16	5	10		
-	-	-	-	-	50	26	6	-	-	2	7	7	4	1	16	5	10	-	-	16	5	10		
-	-	-	-	-	53	34	8	1	1	7	-	7	5	1	17	13	4	-	-	17	13	4		
-	-	-	-	-	15	12	4	-	-	-	-	-	5	4	4	14	-	-	4	14	-	-		
-	-	-	-	-	16	12	2	-	-	-	-	-	5	1	4	14	-	-	4	14	-	-		
-	-	-	-	-	10	10	2	-	-	6	6	-	-	-	6	2	6	-	-	6	2	6		
-	-	-	-	-	8	4	2	-	-	-	1	1	-	1	2	7	4	-	-	2	7	4		
-	-	-	-	-	4	3	2	-	-	-	-	-	3	-	1	12	9	322	7	2	324	3	11	
-	-	-	-	-	3,321	304	161	47	2	4	7	40	42	30	8	101	13	1	322	7	2	424	4	3
2,798	14	9	4½	-	33,387	-	-	-	-	-	-	-	-	-	586	7	4	1,070	12	9	1,657	4	1	
2,798	14	9	4½	-	46,708	-	-	-	-	-	-	-	-	-	688	4	5	1,393	3	11	2,081	8	4	

## No. 1.—DISTRIBUTION REPORT of Labour and Materials, . . . . .

DATE.	Foundation for Wing Wall.				Filling in Foundation.				Cubic Feet.	Number of Cogs.
	Cubic Feet.	EXPENDITURE.			Cubic Feet.	EXPENDITURE.				
		Labour.	Materials.	TOTAL.		Labour.	Materials.	TOTAL.		
		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>		
1851:										
February - 1	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-
TOTAL - -	-	-	-	-	-	-	-	-	6,651	20
Expenditure to end. of last Month	33,639	186 10 1½	22 15 9	209 9 10½	11,167	244 3 9	1,008 12 1	1,252 15 10	942	10
GRAND TOTAL	33,639	186 10 1½	22 15 9	209 9 10½	11,167	244 3 9	1,008 12 1	1,252 15 10	7,593	30

with Rates of Work performed, *Undwell Bridge*, for February 1851—*continued*.

Building Wing Walls.

Bigganea.	Women.	Boys.	Masons.						Stonecutters.						EXPENDITURE.						
			2 a.	1 a. 3 p.	1 a.	7 a.	6 a. 6 p.	6 a. 4 p.	6 a. 8 p.	5 a.	4 a.	7 a.	6 a. 11 p.	6 a. 6 p.	6 a. 3 p.	6 a.	5 a.	4 a.	5 a. 3 p.	Labour.	Materials.
																			Rs. a. p.	Rs. a. p.	Rs. a. p.
9	6	4	3	-	-	-	-	-	1	-	1	-	1	-	-	-	-	4 6 -	-	4 6 -	
18	10	2	2	-	1	-	3	-	1	-	1	-	-	-	-	-	-	6 3 4	-	6 3 4	
6	5	4	2	1	-	-	-	-	2	1	-	-	-	-	-	-	-	3 15 8	-	3 15 8	
10	6	4	3	-	-	-	-	-	2	-	-	-	-	-	-	-	-	4 2 6	-	4 2 6	
8	4	2	2	1	-	-	-	-	3	2	1	-	1	-	-	-	-	5 10 10	-	5 10 10	
47	20	6	4	-	7	7	-	-	3	-	-	-	-	-	1	-	-	16 8 4	-	16 8 4	
46	13	4	3	-	7	4	-	-	1	1	1	1	3	-	-	-	-	15 6 3	-	15 6 3	
35	15	3	-	-	-	-	5	1	1	2	1	1	-	-	-	-	-	8 6 4	-	8 6 4	
-	-	-	-	-	4	3	2	-	2	-	-	1	2	-	-	-	-	5 5 7	-	5 5 7	
11	3	1	-	2	-	-	2	-	-	2	1	-	-	-	-	-	-	4 6 1	-	4 6 1	
10	5	2	2	-	-	2	2	-	-	2	-	1	2	-	-	-	-	6 - 4	-	6 - 4	
15	7	5	3	2	-	-	-	-	3	4	-	-	-	-	-	-	-	7 14 5	-	7 14 5	
6	2	1	-	-	2	-	-	-	3	-	-	-	-	-	-	-	-	3 1 2	-	3 1 2	
6	2	1	-	2	-	-	-	-	3	-	-	-	-	1	-	-	-	3 6 6	-	3 6 6	
25	11	4	4	2	6	-	-	1	2	4	-	-	-	-	-	-	-	12 - 5	-	12 - 5	
-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-	-	-	1 1 -	-	1 1 -	
22	10	4	1	-	5	3	2	-	-	4	1	-	-	-	-	-	-	10 1 4	-	10 1 4	
20	8	-	-	2	6	-	-	-	-	4	-	-	-	-	-	-	-	8 - 8	-	8 - 8	
32	10	5	-	-	7	5	-	-	-	4	1	-	2	-	-	-	-	12 10 -	-	12 10 -	
22	8	3	4	2	2	-	-	-	2	2	-	-	-	-	-	-	-	8 10 6	-	8 10 6	
15	9	2	3	2	-	-	-	-	-	4	1	-	-	-	-	-	-	6 15 5	-	6 15 5	
21	8	4	2	2	1	4½	-	-	3	3	-	-	2	-	-	-	-	10 10 1	-	10 10 1	
17	6	4	3	2	4	-	-	-	2	4	1	2	-	-	-	-	-	10 5 6	-	10 5 6	
26	9	-	4	-	5	-	-	-	-	4	-	2	-	-	-	-	-	10 3 1	-	10 3 1	
15	5	2	3	-	3	-	-	-	4	3	-	-	-	-	-	-	-	7 15 -	-	7 15 -	
35	10	2	1	2	4	2	3	-	-	3	1	2	1	-	-	1	-	12 15 10	-	12 15 10	
26	8	2	3	1½	5	4	-	-	2	4	1	1	-	-	-	1	-	13 2 1	480 6 2	493 8 3	
493	200	71	52	23½	69	34½	19	2	40	57	12	11	16	2	1	2	-	219 8 3	480 6 2	699 14 5	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19 1 6	83 4 4	102 5 10	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	238 9 9	563 10 6	802 4 3	



with Rates of Work performed, *Undwell* Bridge, for February 1851—*continued*.

Walls.			Laying Arch Facing Stones.										
EXPENDITURE.			Number of Stones.	Biggates.	Women.	Boys.	Masons.	Stoncutters			EXPENDITURE.		
Labour.	Materials.	TOTAL.		2 a.	1 a. 3 p.	1 a.	7 a.	7 a.	6 a. 6 p.	Labour.	Materials.	TOTAL.	
<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>								<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
- - -	- - -	- - -	-	21	4	-	1	2	-	4 4 -	- - -	4 4 -	
- - -	- - -	- - -	-	10	2	1	1	1	-	2 5 6	- - -	2 5 6	
- - -	- - -	- - -	-	16	1	-	1	1	-	2 15 3	- - -	2 15 3	
- - -	- - -	- - -	-	20	2	1	1	1	-	3 9 6	- - -	3 9 6	
- - -	- - -	- - -	-	21	2	2	2	1	-	4 3 6	- - -	4 3 6	
- - -	- - -	- - -	-	25	2	1	1	1	-	4 3 6	- - -	4 3 6	
- - -	- - -	- - -	-	-	-	-	1	1	-	- 14 -	- - -	- 14 -	
1 2 10	- - -	1 9 10	-	18	3	1	1	1	-	3 6 9	- - -	3 6 9	
1 8 -	- - -	1 8 -	-	21	2	-	1	1	-	3 10 6	- - -	3 10 6	
1 9 6	- - -	1 9 6	-	13	2	1	1	1	1	3 2 -	- - -	3 2 -	
1 13 10	- - -	1 13 10	-	18	1	1	1	1	-	3 4 3	- - -	3 4 3	
1 10 2	- - -	1 10 2	-	18	1	1	1	1	-	3 4 3	- - -	3 4 3	
1 10 6	- - -	1 10 6	-	18	-	-	-	-	-	2 4 -	- - -	2 4 -	
2 5 -	- - -	2 5 -	-	-	-	-	1	1	-	- 14 -	- - -	- 14 -	
1 10 9	- - -	1 10 9	-	21	1	1	-	-	-	2 12 3	- - -	2 12 3	
2 8 1	- - -	2 8 1	-	19	2	1	2	1	1	4 5 -	- - -	4 5 -	
1 8 9	- - -	1 8 9	-	12	-	-	-	-	-	1 8 -	- - -	1 8 -	
1 14 2	- - -	1 14 2	-	7	-	-	-	-	-	- 14 -	- - -	- 14 -	
1 3 6	- - -	1 3 6	-	-	-	-	-	-	-	-	- - -	-	
- 12 6	- - -	- 12 6	-	10	-	-	-	-	-	1 4 -	- - -	1 4 -	
- 2 -	- - -	- 2 -	-	-	-	-	-	-	-	-	- - -	-	
- 14 9	- - -	- 14 9	-	14	-	-	-	-	-	1 12 -	- - -	1 12 -	
- 12 6	- - -	- 12 6	-	8	-	-	-	-	-	1 - -	46 11 1	47 11 1	
- 14 6	- - -	- 14 6	-	-	-	-	-	-	-	-	- - -	-	
1 - 6	- - -	1 - 6	-	-	-	-	-	-	-	-	- - -	-	
1 1 6	1 13 9	2 15 3	-	-	-	-	-	-	-	-	- - -	-	
26 10 4	1 13 9	28 8 1	42	310	25	11	16	15	2	55 12 3	46 11 1	102 7 4	
26 10 4	1 13 9	28 8 1	42	310	25	11	16	15	2	55 12 3	46 11 1	102 7 4	

No. 1.—Distribution Report of Labour and Materials,

DATE.		Building of Chip-work of Arch.																		EXPENDITURE.			
		Number of Chips.	Cubic Feet.	Biggares.			Masons.					Stone Cutters.					Labour.	Materials.	TOTAL.				
				2 a.	1 a. 3 p.	Women	Boys.	1 a.	7 a.	6 a. 6 p.	6 a. 4 p.	6 a.	5 a.	4 a.	7 a.	6 a. 6 p.				6 a. 3 p.	6 a.	5 a.	4 a.
1851:																			<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>		
February -	1																						
	2																						
	3																						
	4																						
	5																						
	6																						
	7	-	-	10	5	2	-	2	-	1	-	-	-	-	-	2	1	3	13	3	3 13 3		
	8	-	-	15	3	2	2	-	-	1	-	-	-	-	3	2	1	5	7	9	5 7 9		
	9	-	-	-	-	-	2	2	1	-	-	-	-	-	-	-	-	2	1	4	2 1 4		
	10	-	-	18	6	3	4	-	-	-	2	-	2	1	2	2	-	7	4	9	7 4 9		
	11	-	-	21	9	3	2	-	2	4	-	-	1	1	-	2	1	8	6	5	8 6 5		
	12	-	-	15	3	2	-	-	3	-	-	-	-	1	-	2	1	4	11	-	4 11 -		
	13	-	-	19	7	1	-	2	4	-	-	-	-	1	-	2	1	6	10	4	6 10 4		
	14	-	-	20	10	2	-	-	1	5	4	-	-	-	-	-	-	6	14	10	6 14 10		
	15	-	-	12	4	1	1	-	-	4	2	-	2	1	-	-	-	5	11	6	5 11 6		
	16	-	-	-	-	-	3	-	-	3	-	-	3	-	-	-	-	3	12	-	3 12 -		
	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	18	-	-	3	1	1	-	-	-	1	-	-	-	-	-	1	-	1	2	3	1 2 3		
	19	-	-	17	6	2	5	-	-	-	-	1	1	-	-	2	-	6	3	6	6 3 6		
	20	-	-	19	7	2	-	-	2	4	-	-	-	1	1	2	-	6	11	8	6 11 8		
	21	-	-	26	6	2	-	-	-	7	1	-	-	1	1	2	-	8	2	9	8 2 9		
	22	-	-	14	6	2	-	-	4	1	-	-	-	1	-	2	-	5	5	1	5 5 1		
	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	24	-	-	14	5	2	-	-	-	3	2	1	-	-	4	-	-	5	12	3	5 12 3		
	25	-	-	9	2	2	-	1	2	-	-	-	1	1	-	2	-	4	1	2	4 1 2		
	26	-	-	16	8	1	-	-	-	3	-	-	-	-	1	-	-	4	3	-	164 13 5		
	27	-	-																				
	28	-	-																				
TOTAL -	-	265	1,592	243	88	30	19	7	19	36	12	2	10	3	6	12	23	5	96	6	10	164 13 5	261 4 3
Expended up to last month -	-																						
GRAND TOTAL -	-	265	1,592	243	88	30	19	7	19	36	12	2	10	3	6	12	23	5	96	6	10	164 13 5	261 4 3



with Rates of Work performed, *Undwell* Bridge, for February 1851—*continued*.

Loading Arch.												
Cubic Feet.	Biggarica.	Women.	Boys.	Masons.						EXPENDITURE.		
	2 a.	1 a. 3 p.	1 a.	7 a.	6 a. 6 p.	6 a. 4 p.	6 a.	5 a.	4 a.	Labour	Material.	TOTAL.
										Rs. a. p.	Rs. a. p.	Rs. a. p.
-	6	-	-	-	-	-	2	-	-	1 8 -	- - -	1 8 -
-	12	4	3	-	2	2	-	-	-	3 9 8	- - -	3 9 8
-	20	10	-	1	-	7	7	-	-	7 2 2	- - -	7 2 2
-	18	6	2	2	-	-	3½	-	-	5 - 6	- - -	5 - 6
-	6	3	1	4	-	-	-	-	1	3 - 9	- - -	3 - 9
-	-	-	-	1	-	2	-	-	1	1 7 8	- - -	1 7 8
-	15	5	1	2	2	1	-	-	-	4 6 7	- - -	4 6 7
-	9	3	1	-	-	-	-	1	1	1 15 9	- - -	1 15 9
-	4	1	1	-	-	-	1	-	-	1 - 3	- - -	1 - 3
-	9	3	1	-	-	-	-	3	-	2 5 9	- - -	2 5 9
-	12	4	2	-	-	4	-	1	-	3 13 4	- - -	3 13 4
-	11	5	2	-	-	2	4	2	-	4 12 11	- - -	4 12 11
-	16	8	1	-	-	2	4	2	-	5 9 8	- - -	5 9 8
-	22	10	1	1	1	-	5	2	-	6 15 -	- - -	6 15 -
-	11	-	1	-	-	-	3	1	-	2 14 -	143 13 5	146 11 5
2,038	171.	62	17	11	5	15	29½	12	3	55 10 -	143 13	199 7 5
2,038	-	-	-	-	-	-	-	-	-	55 10 -	143 13 5	199 7 5

## No. 1.—Distribution Report of Labour and Materials, . . . . .

DATE.	Spandril facing Wall.												Laying or							
	Cubic Feet.	Biggarica.		Boys.	Masons.				Stonecutters.			EXPENDITURE.			Number of Bond Stones.	Diggers.	Women.	Boys.		
		2 a.	1 a. 3 p.		7 a.	6 a.	5 a.	4 a.	7 a.	6 a.	5 a.	Labour.	Materials.	TOTAL.						
1851:																				
February - 1																				
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				
15																				
16																				
17		5	3		2				1		1	2	7	9			2	7	9	
18																				
19		2	1	1		1				1		1	2	3			1	2	3	
20		5	2	2	1	1		1	1	2		3	2	6			3	2	6	
21		2			1					2		1	7				1	7		
22		5	2							2		2	2	6			2	2	6	
23																				
24		4	2	1	2					2		2	7	6			2	7	6	
25		5	2	1						3		2	9	6			2	9	6	
26		8		1						2	1	3	7				3	7		
27		3	3	3	2					2	2	3	4	9			3	4	9	
28		9	3	2	1					1½	1	3	6	3	43	13	2	47	13	5
TOTAL - -	630	48	18	11	9	2	7½	3	6	18	1	25	9	-	43	13	2	69	6	2
Expended up to last month - }																				
GRAND TOTAL -	630											25	9	-	43	13	2	69	6	2

with Rates of Work performed, *Undwell Bridge*, for February 1851—*continued*.

fixing Bond Stones.				Artificers' Work at Centering.											
Masons		Stone-cutters.		EXPENDITURE			Bigganes.	Carpenters.		Smith.	EXPENDITURE				
6 a.	5 a.	6 a.	5 a.	Labour.	Material	TOTAL	2 a.	6 a 3 p.	2 a.	6 a.	Labour.	Material.	TOTAL.		
				Rs. a. p.	Rs. a. p.	Rs. a. p.					Rs. a. p.	Rs. a. p.	Rs. a. p.		
-	-	-	-	-	-	-	-	1	-	-	-	-	-		
-	-	-	-	-	-	-	1	2	-	1	1	4	-		
-	-	-	-	-	-	-	2	3	1	1	1	14	-		
-	-	-	-	-	-	-	3	3	1	1	2	-	-		
-	-	-	-	-	-	-	5	3	2	1	2	6	-		
-	-	-	-	-	-	-	4	3	2	1	2	4	-		
-	-	-	1	-	-	-	2	1	-	1	1	-	-		
-	-	-	-	-	-	-	4	3	2	1	2	4	-		
-	-	-	-	-	-	-	3	3	1	1	2	-	-		
-	-	-	1	-	-	-	3	2	1	1	1	10	-		
-	-	-	1	-	-	-	1	1	1	1	1	-	-		
-	-	-	1	-	-	-	-	2	1	-	-	14	-		
-	-	-	1	-	-	-	2	1	-	-	-	10	-		
-	-	-	1	-	-	-	2	1	-	-	-	10	-		
-	-	-	1	-	-	-	-	1	-	-	-	6	-		
-	-	-	1	-	-	-	1	1	-	-	-	8	-		
-	-	-	1	-	-	-	1	2	-	-	-	14	-		
-	-	-	1	-	-	-	1	2	-	-	-	14	-		
-	-	-	1	-	-	-	1	2	-	-	-	14	-		
-	-	-	1	-	-	-	-	2	-	-	-	12	-		
-	-	-	1	-	-	-	2	1	-	-	-	10	-		
-	-	-	1	-	-	-	1	1	-	-	-	8	-		
1	1	-	2	4	11	9	-	-	-	-	4	11	9		
3	-	2	2	6	-	-	-	-	-	-	6	-	-		
-	-	2	2	4	12	5	67	9	5	72	5	10			
4	1	4	6	15	8	2	67	9	5	83	1	7	25	8	-
-	-	-	-	15	8	2	67	9	5	83	1	7	25	8	-

## No. 1.—DISTRIBUTION REPORT of Labour and Materials, - - - - -

DATE.	Contingencies.					EXPENDITURE.					Establishment.					GRAND TOTAL.									
	Biggies.	Smiths.	Hammer Men.	Bellows Boys.	Carpenters.	Labour.	Material.	TOTAL.	Cartoon.	Chowkedars.	Mistry.	Mistry.	Muchadum.	TOTAL.											
	Rs. a.	6 a. 6 p.	2 a. 6 p.	2 a. 6 p.	6 a.				5 a. 9 p.	2 a. 3 p.	11 a. 6 p.	8 a. 3 p.	2 a. 10 p.												
1851:						<i>Rs. a.</i>	<i>p.</i>							<i>Rs. a.</i>	<i>p.</i>	<i>Rs. a. p.</i>									
February - 1	-	1	1	1	-	- 11	6	-	-	-	- 11	6	1	1	1		1	2	2	1	6				
2	-	1	1	1	-	- 11	6	-	-	-	- 11	6	1	1	1	1	2	2	1	6					
3	-	1	1	1	-	- 11	6	-	-	-	- 11	6	1	1	1	1	2	2	1	6					
4	-	1	1	1	-	- 11	6	-	-	-	- 11	6	1	1	1	1	2	2	1	6					
5	-	1	1	1	-	- 11	6	-	-	-	- 11	6	1	1	1	1	2	2	1	6					
6	-	1	1	1	-	- 11	6	-	-	-	- 11	6	1	1	1	2	2	2	9	11					
7	-	1	1	1	-	- 11	6	-	-	-	- 11	6	1	1	1	2	2	2	9	11					
8	-	1	1	1	-	- 11	6	-	-	-	- 11	6	1	1	1	2	2	2	9	11					
9	-	1	1	1	-	- 11	6	-	-	-	- 11	6	1	1	1	2	2	2	9	11					
10	-	1	1	1	-	- 11	6	-	-	-	- 11	6	1	1	1	2	2	2	9	11					
11	-	1	1	1	-	- 11	6	-	-	-	- 11	6	1	1	1	2	2	2	9	11					
12	-	1	1	1	-	- 11	6	-	-	-	- 11	6	1	1	1	2	2	2	9	11					
13	-	1	1	1	-	- 11	6	-	-	-	- 11	6	1	1	1	2	2	2	9	11					
14	-	1	1	1	-	- 11	6	-	-	-	- 11	6	1	1	1	2	2	2	9	11					
15	-	1	1	1	-	- 11	6	-	-	-	- 11	6	1	1	1	2	2	2	9	11					
16	-	1	1	1	-	- 11	6	-	-	-	- 11	6	1	1	1	2	2	2	9	11					
17	-	1	1	1	-	- 11	6	-	-	-	- 11	6	1	1	1	1	2	2	1	6					
18	-	1	1	1	-	- 11	6	-	-	-	- 11	6	1	1	1	1	2	2	1	6					
19	-	1	1	1	-	- 11	6	-	-	-	- 11	6	1	1	1	1	2	2	1	6					
20	-	1	1	1	-	- 11	6	-	-	-	- 11	6	1	1	1	2	2	2	9	11					
21	-	1	1	1	-	- 11	6	-	-	-	- 11	6	1	1	1	2	2	2	9	11					
22	-	1	1	1	-	- 11	6	-	-	-	- 11	6	1	1	1	2	2	2	9	11					
23	-	1	1	1	-	- 11	6	-	-	-	- 11	6	1	1	1	2	2	2	9	11					
24	-	1	1	1	-	- 11	6	-	-	-	- 11	6	1	1	1	2	2	2	9	11					
25	-	1	1	1	1	1	1	6	-	-	1	1	6	1	1	1	2	2	2	9	11				
26	2	1	1	1	1	1	5	6	-	-	1	5	6	1	1	1	1	2	2	1	6				
27	1	1	1	1	1	1	1	6	-	-	1	1	6	1	1	1	2	2	2	9	11				
28	1	1	1	1	1	1	1	6	-	-	19	6	6	1	1	1	2	2	2	9	11				
TOTAL - -	4	28	28	28	4	21	14	-	18	5	-	40	3	-	28	28	28	47	56	68	9	11	2,427	4	9
Expenditure up to last Month	-	-	-	-	-	87	7	4	72	2	9	159	10	1	-	-	-	-	-	279	13	4	8,949	10	11
GRAND TOTAL	-	-	-	-	-	109	5	4	90	7	9	199	13	1	-	-	-	-	-	348	7	3	11,376	15	8

- - - - with Rates of Work performed, *Undwell* Bridge, for February 1851—*continued.*

Rates for the foregoing Work.

ITEMS.	Quantity.	Rate.	Per	Amount	TOTAL.	GRAND TOTAL.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>
Centering (mud-rubble Masonry) } <i>cub. ft.</i>	13,321	3 2 11 $\frac{676}{13321}$	100 cubic feet	424 4 3		
Facing Wall above Abutment } "	2,775	13 10 2 $\frac{2450}{2775}$	ditto - -	378 7 10		
Wing Walls - - "	6,651	10 8 4 $\frac{480}{6651}$	ditto - -	699 14 5		
Arch Facing Stones laid } <i>No.</i>	42	2 7 $\frac{16}{42}$	one - -	102 7 4		
Arch Chips Buildings, <i>cub. ft.</i>	1,592	16 6 6 $\frac{1500}{1592}$	100 cubic feet	261 4 3		
Lodging Arch - - "	2,038	9 12 7 $\frac{298}{2038}$	ditto - -	199 7 5		
Spandril Facing Walls "	630	11 - 2 $\frac{150}{630}$	ditto - -	69 6 2		
Arch Bond Stones - <i>No.</i>	15	5 8 7 $\frac{10}{15}$	one - -	83 1 7		
Carpenters' Work at Centering - - -	-	- - - -	- - - -	25 8 -		
Pointing - - - <i>sq. ft.</i>	1,450	1 15 5 $\frac{650}{1450}$	100 square feet	28 8 1		
Filling in with Earth - <i>cub. ft.</i>	12,308	- 6 -	100 cubic feet	46 2 6		
Contingencies - - -	-	- - - -	- - - -	40 3 -		
Establishment - - -	-	- - - -	- - - -	68 9 11		
					2,427 4 9	
						TOTAL Rupees - - - 2,427 4 9

I do hereby certify that I have measured the above Work.

(signed) *M. M'Nally*, Overseer.  
*W. Chapman*, Superintending Engineer.

(True copy.)

(signed) *J. M. Melvill*, Lieut.-col., Secretary to Govt.

(True copy.)

(signed) *R. J. H. Birch*, Lieut.-col.,  
Offic<sup>r</sup> Sec<sup>y</sup>. to the Govt. of India, in the Military Department.

No. 2.

## UNDWELL BRIDGE.

Cr.

BALANCE SHEET of Stock for February 1851.

Cr.

ITEMS.	Quantity.	Rate.		Per	Amount.		TOTAL.	GRAND TOTAL.
		Rs.	a. p.		Rs.	a. p.		
Balance on Bond, 1st February 1851 - - -								
								1,533 15 11
Heirday	20	1	-	10 pielies	2	-		
Carriage of Materials, Cart	9	1	-	cart	9	-		
Grass	2,000	2	8	1,000	5	-		
Goor	120	7	8	120 seers	7	8		
Hemp	120	7	12	ditto	7	12		
Kanth	60	23	-	ditto	11	8		
Gond	60	25	-	ditto	12	8		
Gunny Bags	2	-	3 6	one	-	7		
Iron	87½	12	8	120 seers	9	1 10		
Powder	240	20	-	ditto	40	-		
Charcoal	80	9	8	20 maunds	38	-		
Rope Coir	122½	1	-	8 seers	16	5		
Ditto	25½	1	-	8½ ditto	3	- 11		
Oil	12	1	-	6 seers	2	-		
Mahratta Paper	-½	5	-	ream	2	8		
Ditto	-½	1	10	ditto	-	13		
Twine	10	1	-	4½ seers	2	1 8		
Iron	81	12	12	120 ditto	8	9 8		
Biggaries	1	-	1	one	-	1		
Carriage of Materials, Carts	15	-	12	ditto	11	4		
Bill of Truck Carts	-	165	10 10	lot	165	10 10		
Sealing Wax	-¼	-	8	seer	-	4		
Pencil, Black Lead	1	1	-	dozen	1	-		
Steel Pens	½	-	4	ditto	-	2		
Babool Wood Sheives	6	-	15 9	6	-	15 9		
Iron, Swedish	11½	1	-	4½ seers	2	6 4		
Ditto, English flat Bar	11½	1	-	6 seers	1	15		
Screws	6	-	2	dozen	-	12		
Babool Sheives	6	1	-	6 ditto	1	-		
Brass Sockets for Sheives	1½	3	-	seer	4	11		
Hemp	120	8	8	120 ditto	8	8		
Rubber	1	-	8	piece	-	8		
Wafer	1	-	2 6	box	-	2 6		
Foolscap Paper	-½	-	0 6	quire	-	4 9		
French Paper	-½	-	3	ditto	-	1 6		
Chalk, White	1	1	-	5 seers	-	3 2		
Black Ink	1	-	3	bottle	-	3		
Red Ink	1	-	3	ditto	-	3		
Hemp	60	8	10	120 seers	4	5		
Baskets, Rattan	175	34	5 4	240 ditto	25	- 7		
Stationery Bill for Storekeeper	1	-	4 9	lot	-	4 9		
Gram Pielies	133	1	-	6 pielies	22	2 8		
Oil	11½	1	-	5½ seers	2	-		
Gond	80	1	-	7 ditto	11	6 10		
Heerdlay	25	1	-	10 pielies	2	8		
Kanth	89	1	-	6 seers	14	13 4		
Goor	183	1	-	18 ditto	10	2 4		
Hemp	36	1	-	12 ditto	3	-		
Ditto	42	1	-	14 ditto	3	-		
Carriage of Wood from Thulghat	52	-	8	each cart	26	-		
Steel Bhster	41½	48	-	56 seers	35	12 6		
Serjeant Brocks, four Bills for cutting large Wood	-	-	-	-	6	5 6		
Babool Wood	2	-	12	each	1	8		
Repairing Puckal	-	-	-	-	-	3		
Making Ropes	3	-	6	ditto	1	2		
Earthen Pots	23	-	7	each	-	13 5		
Ditto Vessel	3	-	8	ditto	-	2		
Dry Chunam	49½	4	-	candies	198	-		
Ditto	5	3	-	ditto	15	-		
Government Iron	17	1	-	8 seers	2	2		
Old Pickaxes	2	1	-	ditto	-	4		
							763 7 2	
Carried forward - - - Rs.							763 7 2	1,533 15 11

Cr. No. 2.—UNDWELL BRIDGE.—Balance Sheet of Stock for February 1851—continued. Cr.

ITEMS.	Quantity.	Rate.	Per	Amount.	TOTAL.	GRAND TOTAL.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>
		Brought forward	- - - Rs.	- - -	763 7 2	1,533 15 11
Coigns - - - - -	63	58 9 -	63	58 9 -		
Chips - - - - -	441	132 13 9	441	132 13 9		
Stones collected - - - -	20,952	588 - 10	20,952	588 - 10		
Chunam, ground - - - -	94	350 - 9	94 candies -	350 - 9		
Government Bullocks, Pairs - -	140	58 7 2	140	58 7 2		
Arch Bond Stones, rough - -	21	60 9 2	21	60 9 2		
Ditto - - - dressed - -	36	125 2 10	36	125 2 10		
					1,373 11 6	
						2,137 2 8
						3,671 2 7
				TOTAL Expense - - - Rs.		2,327 14 11
				Balance in hand - - - - Rs.		1,343 3 8

Dr. BALANCE SHEET of Stock for February 1851. Dr.

ITEMS	Quantity.	Rate	Per	Amount	TOTAL.	GRAND TOTAL.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
Dry Chunam - - - - -	49½	4 - -	candy	198 - -		
Ditto - - - - -	5	3 - -	ditto	15 - -		
					213 - -	
<i>Hemp :</i>						
Preparing Chunam - - - -	180	8 - -	120 seers -	12 - -		
Ditto - - - - -	92	7 12 -	ditto -	5 15 1		
Blasting Stones - - - -	17	7 12 -	ditto -	1 1 7		
Abutment Facing Walls - - - -	7	7 12 -	ditto -	- 7 3		
Wing Walls - - - - -	4	7 12 -	ditto -	- 4 1		
Arch Facing Stones - - - -	5	8 10 -	ditto -	- 5 9		
Arch Chips - - - - -	12	8 10 -	ditto -	- 13 9		
Arch Facing Stones - - - -	36	1 - -	12 seers -	3 - -		
Ditto - - - - -	42	1 - -	14 seers -	3 - -		
					26 15 6	
<i>Gum :</i>						
Preparing Chunam - - - -	80	1 - -	7 seers -	11 6 10		
Ditto - - - - -	26	26 - -	120 ditto -	5 10 1		
					17 - 11	
<i>Kanth :</i>						
Preparing Chunam - - - -	89	1 - -	6 seers -	14 13 4		
Ditto - - - - -	12	24 - -	120 ditto -	2 6 5		
					17 3 9	
<i>Goor :</i>						
Preparing Chunam - - - -	170	1 - -	18 seers -	9 7 1		
					9 7 1	
<i>Heerdah :</i>						
Preparing Chunam - - - -	59	1 - -	10 pieles -	5 14 5		
					5 14 5	
<i>Carriage of Materials :</i>						
Preparing Chunam - - - -	5	1 - -	cart -	5 - -		
Stones - - - - -	4	1 - -	ditto -	4 - -		
Arch Bond Stones - - - -	52	- 8 -	ditto -	26 - -		
Contingencies - - - - -	15	- 12 -	ditto -	11 4 -		
					47 4 -	
<i>Gunney Bags :</i>						
Preparing Chunam - - - -	2	- 3 6	one -	- 7 -		
					- 7 -	
<i>Government Bullocks :</i>						
Preparing Chunam - - - -	14	58 7 2	140	5 13 6		
Bringing Stones - - - -	112	58 7 2	ditto -	46 12 2		
Arch Chips - - - - -	14	58 7 2	ditto -	5 13 6		
					58 7 2	
				Carried forward - - - Rs.		395 11 10

Dr. No. 2.—UNDWELL BRIDGE.—Balance Sheet of Stock for February 1851—continued.

Dr.

ITEMS.	Quantity.	Rate.	Per	Amount.	TOTAL.	GRAND TOTAL.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
<i>Gharras:</i>			Brought forward	- - -	395 11 10	
Preparing Chunam - - -	6	- - 7	one - -	- 3 0		
Wing Walls - - -	7	- - 7	ditto - -	- 4 1		
Stones - - -	10	- - 7	ditto - -	- 5 10		13 5 -
<i>Repairing Pachals:</i>						
Preparing Chunam - - -	1	3 - -	one - -	- 3 -		- 3 -
<i>Oil:</i>						
Preparing Chunam - - -	5½	1 - -	5½ seers -	1 - -		
Contingencies - - -	5½	1 - -	ditto - -	1 - -		
Use of Bullocks - - -	12	1 - -	6 ditto -	2 - -		4 - -
<i>Powder:</i>						
Blasting Stones - - -	120	15 - -	120 seers -	15 - -		
Ditto - - -	97	20 - -	ditto - -	16 2 8		31 2 8
<i>Iron:</i>						
Stones - - -	9	13 8 -	120 seers -	1 - 2		
Arch Bond Stones, rough - - -	5	13 8 -	ditto - -	- 0 -		
Ditto - - - dressed - - -	5	13 8 -	ditto - -	- 0 -		
Arch Chips, rough - - -	15	13 8 -	ditto - -	1 11 -		
Coigns - - -	10	12 8 -	ditto - -	1 - 8		
Wing Walls - - -	12	12 8 -	ditto - -	1 4 -		
Arch Bond Stones, rough - - -	2½	1 - -	8 seers -	- 5 -		
Facing Walls above Abutment - - -	9	12 8 -	120 seers -	- 15 -		
Bond Stones - - -	18	12 8 -	ditto - -	1 14 -		
Spandril - - -	3	12 8 -	ditto - -	- 5 -		
Facing Walls - - -	6½	12 12 -	ditto - -	- 11 -		
Arch Facing Stones - - -	2½	1 - -	4 seers -	- 9 -		
Arch Bond Stones, rough - - -	1½	1 - -	4½ ditto -	- 6 4		
Stones - - -	17	1 - -	8 ditto -	2 2 -		
Arch Facing Stones - - -	6	12 8 -	120 ditto -	- 10 -		
Arch Chips (built in) - - -	29½	12 8 -	ditto - -	3 1 2		17 - 4
<i>Steel:</i>						
Stones (rough building) - - -	12½	48 - -	56 seers -	10 14 10		
Arch Bond Stones (preparing at Quarry) - - -	3½	1 - -	3½ ditto -	1 - -		11 14 10
<i>Bill from Lieut. Chapman's Office for Truck Carts:</i>						
Stones - - -	-	- - -	- - -	165 10 10		165 10 10
Arch Bond Stones, rough - - -	25	206 5 3	73	70 10 7		
Ditto - - -	11	60 9 2	21	31 11 8		102 6 3
<i>Charcoal:</i>						
Stones - - - Maunds	20	9 8 -	candy - -	9 8 -		
Arch Bond Stones, rough - - -	5	9 8 -	20 maunds -	2 6 -		
Ditto - - - prepared - - -	2½	9 8 -	ditto - -	1 3 -		
Coigns, prepared - - -	2½	9 8 -	ditto - -	1 3 -		
Arch Chips, prepared - - -	10	9 8 -	ditto - -	4 12 -		
Facing Walls Abutment - - -	2½	9 8 -	ditto - -	1 3 -		
Arch Facing Stones - - -	15	9 8 -	ditto - -	7 2 -		
Arch Bond Stones - - -	2½	9 8 -	ditto - -	1 3 -		28 8 -
<i>Corr Rope:</i>						
Abutment Facing Walls - - -	2	1 - -	8 seers -	- 4 -		
Stones, rough - - -	6	1 - -	ditto - -	- 12 -		
Arch Bond Stones - - -	8	1 - -	ditto - -	1 - -		
Arch Facing Stones - - -	67½	1 - -	ditto - -	8 7 -		
Arch Chips - - -	9	1 - -	ditto - -	1 2 -		11 9 -
<i>Chips:</i>						
Chips - - -	265	261 2 5	778	88 15 3		88 15 3
			Carried forward	- - - <i>Rs.</i>	857 15 5	



Dr.

No. 2.—UNDWELL BRIDGE.—Balance Sheet of Stock for February 1851—continued.

Dr.

ITEMS.	Quantity.	Rate.			Per	Amount.			TOTAL.			GRAND TOTAL.
		Rs.	a.	p.		Rs.	a.	p.	Rs.	a.	p.	
<i>Stones :</i>												
					Brought forward	-	-	-	857	15	5	
Arch Chips (preparing at Quarry) -	997	588	-	10	20,952				27	15	9	
Coigns -	100	588	-	10	ditto	-			2	12	10	
Wing Walls -	6,651	588	-	10	ditto	-			186	10	9	
Facing Walls above Abutment	2,775	588	-	10	ditto	-			77	14	2	
Arch Chips (built in) -	711	588	-	10	ditto	-			19	15	4	
Arch loading -	2,038	588	-	10	ditto	-			57	3	2	
Spandril Facing Walls -	630	588	-	10	ditto	-			17	10	11	
Centering -	5,661	588	-	10	ditto	-			158	14	2	
Ditto -	5,488	588	-	10	ditto	-			162	7	7	
									711	8	8	
<i>Baskets Rattan</i>												
Abutment Facing Walls -	25	34	5	4	240				3	9	2	
Filling in with Earth -	25	34	5	4	ditto	-			3	9	3	
									7	2	5	
<i>Prepared Chunam :</i>												
Wing Walls -	83	446	8	5	134 candies				276	9	3	
Arch Facing Stones -	15	446	8	5	ditto	-			2	7	11	
Arch Chips Work -	16	446	8	5	ditto	-			53	5	1	
Arch loading -	26	446	8	5	ditto	-			86	10	3	
Spandril Facing Walls -	7½	446	8	5	ditto	-			25	13	3	
Bond Stones (built in) -	½	446	8	5	ditto	-			1	10	8	
Abutment Facing Walls -	27	3	6	11 <sup>34</sup> / <sub>16</sub>	candy	-			92	11	3	
Ditto -	7	350	-	9	94 ditto	-			26	1	1	
Pointing -	½	350	-	9	ditto	-			1	13	9	
									567	2	6	
<i>Coigns :</i>												
Facing Walls above Abutment	61	76	9	7	101				46	4	3	
Wing Walls -	20	76	9	7	ditto	-			15	2	8	
Facing Walls above Abutment	3	58	9	-	63				2	12	7	
									64	3	6	
<i>Grass :</i>												
Government Bullocks -	4,400	2	8	-	1,000				11	-	-	
<i>Gram :</i>												
Government Bullocks -	133	1	-	-	6 pielies				22	2	8	
									22	2	8	
<i>Twine :</i>												
Wing Walls -	1	1	-	-	4½ seers				-	3	4	
									-	3	4	
<i>Earthen Vessels :</i>												
Facing Walls above Abutment	3	-	-	8	each				-	2	-	
									-	2	-	
<i>Nails :</i>												
Centering -	6	1	-	-	5½ seers				1	1	5	
									1	1	5	
<i>Lead :</i>												
Arch Bond Stones -	6½	1	-	-	3⅞ ditto				1	10	10	
									1	10	10	
<i>Babool Shieves :</i>												
Facing Stones -	6	-	15	9	6				-	15	9	
Ditto -	6	1	-	-	ditto				1	-	-	
									1	15	9	
<i>Screws :</i>												
Arch Facing Stones -	6	-	2	-	dozen				-	12	-	
									-	12	-	
<i>Brass Sockets for Shieves :</i>												
Arch Facing Stones -	1 <sup>9</sup> / <sub>16</sub>	3	-	-	seer				4	11	-	
									4	11	-	
					Carried forward	-	-	-	Rs.	2,251	11	6

Dr. No. 2.—UNDWELL BRIDGE.—Balance Sheet of Stock for February 1851—continued. Dr.

ITEMS.	Quantity.	Rate.	Per	Amount.	TOTAL.	GRAND TOTAL.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>
<i>Babool Wood:</i>						
Arch Facing Stones - - -	2	- 12 -	Brought forward	- - -	2,251 11 6	
			piece	1 8 -		1 8 -
<i>Making Ropes:</i>						
Arch Facing Stones - - -	3	- 6 -	one	1 2 -		1 2 -
<i>Wood brought from Thul Ghat for Triangles:</i>						
Arch Facing Stones - - Bills	4	6 5 6	lot	6 5 6		6 5 6
<i>Mahratta Paper:</i>						
Contingencies - - - -	$\frac{1}{2}$	5 - -	ream	2 8 -		
Ditto - - - -	$\frac{1}{2}$	1 10 -	ditto	- 13 -		3 5 -
<i>Carriage of Materials:</i>						
Contingencies - - - -	1	- 1 -	biggery	- 1 -		- 1 -
<i>Black Lead Pencils:</i>						
Contingencies - - - -	1	1 - -	dozen	1 - -		1 - -
<i>Steel Pens:</i>						
Contingencies - - - -	$\frac{1}{2}$	- 4 -	ditto	- 2 -		- 2 -
<i>Indian Rubber:</i>						
Contingencies - - - -	1	- 8 -	piece	- 8 -		- 8 -
<i>Foolscap Paper:</i>						
Contingencies - - - -	$\frac{1}{2}$	- 9 6	quire	- 4 9		- 4 9
<i>French Paper:</i>						
Contingencies - - - -	$\frac{1}{2}$	- 3 -	ditto	- 1 6		- 1 6
<i>Black Ink:</i>						
Contingencies - - - -	1	- 3 -	bottle	- 3 -		- 3 -
<i>Red Ink:</i>						
Contingencies - - - -	1	- 3 -	ditto	- 3 -		- 3 -
<i>Storekeeper's Stationery Bill:</i>						
Contingencies - - - -	1	- 4 9	lot	- 4 9		- 4 9
<i>Arch Bond Stones, dressed:</i>						
Arch - - - -	15	305 14 8	75	61 2 11		61 2 11
TOTAL Expense - - -					<i>Rs.</i>	2,327 14 1.

(signed) *M. McNally*, Engineer.*W. Chapman*, Superintending Overseer.

Nassick, 1st March 1851.

(True copy.)

(signed) *P. M. Melville*, Lieut.-col., Secy. to Govt.

(True copy.)

(signed) *R. J. H. Birch*, Lieut.-col.

Offg. Secy. to the Govt. of India in the Military Department.

No. 3.

UNDWELL BRIDGE.

BILL of PAYMENT of WORKPEOPLE employed, and MATERIALS used during the Month of February 1851.

ITEMS.	Numbers.	Rate.	Per	Amount.	TOTAL.
<i>Labour :</i>					
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>
Carkoon - - - -	28	- 5 9	each - -	10 1 -	
Muckadums - - -	56	- 2 10	" - -	9 14 8	
Chowkedar - - -	28	- 2 3	" - -	3 15 -	
Mistry - - - -	28	- 11 5	" - -	19 15 8	
Ditto - - - -	47	- 8 5	" - -	24 11 7	
Smith - - - -	28	- 6 6	" - -	11 6 -	
Ditto - - - -	10	- 6 -	" - -	3 12 -	
Carpenter - - -	47	- 6 -	" - -	17 10 -	
Ditto - - - -	12	- 2 -	" - -	1 8 -	
Hammerman - - -	28	- 2 6	" - -	4 6 -	
Bellows Boy - - -	28	- 2 6	" - -	4 6 -	
Biggaries - - - -	2,102	- 2 -	" - -	262 12 -	
Women - - - -	985	- 1 3	" - -	76 15 3	
Boys - - - -	279	- 1 -	" - -	17 7 -	
Masons - - - -	135	- 7 -	" - -	59 1 -	
Ditto - - - -	52½	- 6 6	" - -	21 5 3	
Ditto - - - -	184	- 6 4	" - -	72 13 4	
Ditto - - - -	202	- 6 -	" - -	75 12 -	
Ditto - - - -	108½	- 5 -	" - -	33 14 6	
Ditto - - - -	27	- 4 -	" - -	6 12 -	
Ditto - - - -	10	- 3 -	" - -	1 14 -	
Stonecutters - - -	103	- 7 -	" - -	45 1 -	
Ditto - - - -	79	- 6 11	" - -	34 2 5	
Ditto - - - -	27	- 6 6	" - -	10 15 6	
Ditto - - - -	22	- 6 3	" - -	8 9 6	
Ditto - - - -	74	- 6 -	" - -	27 12 -	
Ditto - - - -	40	- 5 -	" - -	12 8 -	
Ditto - - - -	7	- 4 -	" - -	1 12 -	
Ditto - - - -	2	- 5 3	" - -	- 10 6	
					881 11 2
<i>Materials :</i>					
Material Bill - - - -					1,545 9 7
TOTAL Company's Rupees, two thousand four hundred and twenty-seven, annas four, and pies nine					2,427 4 9

(signed) M. M'Nally, Overseer.  
W. Chapman, Supg. Engineer.

Camp, Undwell, 14 March 1851.

## MATERIAL BILL.

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of UNDWELL BRIDGE during the month of February 1851:

ITEMS.	Quantity or Number.	Rate.	Per	Amount.	TOTAL.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>
Chunam - - - -	49½	4 - -	Candee -	198 - -	
Ditto - - - -	5	3 - -	" -	15 - -	
Hemp - - - -	180	8 - -	120	12 - -	
Ditto - - - -	120	7 12 -	120	7 12 -	
Ditto - - - -	17	8 10 -	120	1 3 6	
Ditto - - - -	36	1 - -	12	3 - -	
Ditto - - - -	42	1 - -	14	3 - -	
Goand - - - -	26	26 - -	120	5 10 1	
Ditto - - - -	80	1 - -	7	11 6 10	
Kath - - - -	12	24 - -	120	2 6 5	
Ditto - - - -	89	1 - -	6 seers -	14 13 4	
Goor - - - -	170	1 - -	18	9 7 1	
Heerday - - - -	59	1 - -	10	5 14 5	
Carts hired - - - -	10	1 - -	each - -	10 - -	
Ditto - - - -	52	- 8 -	" - -	26 - -	
Ditto - - - -	15	- 12 -	" - -	11 4 -	
Bags - - - -	2	- 3 6	" - -	- 7 -	
Bullocks, Pairs, Government	140	58 7 2	" 140	58 7 2	
Earthen Pots - - - -	23	- - 7	each - -	- 13 5	
Puckal repaired - - - -	1	- 3 -	" - -	- 3 -	
Oil - - - -	11½	1 - -	5½	2 - -	
Ditto - - - -	12	1 - -	6	2 - -	
Gunpowder - - - -	120	15 - -	120	15 - -	
Ditto - - - -	97	20 - -	120	16 2 8	
Iron - - - -	34	13 8 -	120	3 18 2	
Ditto - - - -	19½	1 - -	8 seers	2 7 -	
Steel - - - -	12½	48 - -	56	10 14 10	
Iron - - - -	87½	12 8 -	120	9 1 10	
Ditto - - - -	6½	12 12 -	120	- 11 -	
Ditto - - - -	2½	1 - -	4	- 9 -	
Ditto - - - -	1½ 8	1 - -	4½	- 6 4	
Steel - - - -	3½	1 - -	3½	1 - -	
Hoozoor Bill for Truck-carts	1	165 10 10	each - -	165 10 10	
Bond Stone - - - -	25	206 5 3	73	70 10 7	
Ditto - - - -	11	60 9 2	21	31 11 8	
Charcoal - - - <i>maunds</i>	60	9 8 -	20 maunds	28 8 -	
Coir Rope - - - -	92½	1 - -	8 seers -	11 9 -	
Stones - - - <i>cub. ft.</i>	19,563	588 - 10	20,952	549 1 1	
Ditto - - - <i>cub. ft.</i>	5,488	977 4 9	33,011	162 7 7	
Cane Baskets - - - -	50	34 5 4	240	7 2 5	
Chunam, grinding - - - -	27	3 6 11 ¼	candie -	92 11 3	
Ditto - - - -	134	446 8 5	134	446 8 5	
Ditto - - - -	7½	350 - 9	94	27 14 10	
Preparing Corgus - - - -	81	76 9 7	101	61 6 11	
Ditto - - - -	3	58 9 -	63	2 12 7	
Chips, prepared - - - -	265	261 2 5	778	88 15 3	
Grass (bundles) - - - -	4,400	2 8 -	1,000	11 - -	
Gram (pielies) - - - -	133	1 - -	6	22 2 8	
Twine (seers) - - - -	1	1 - -	4½	- 3 4	
Earthen Pots - - - -	3	- - 8	each - -	- 2 -	
Nails (seers) - - - -	6	1 - -	5½	1 1 5	
Lead (seers) - - - -	6½	1 - -	33½ ½	1 10 10	
Bablee Shilves - - - -	6	- 15 9	6	- 15 9	
Ditto - - - -	6	1 - -	6	1 - -	
Carried forward - - - <i>Rs.</i>				2,246 4 6	

No. 3.—UNDWELL BRIDGE.—MATERIAL BILL—continued.

Appendix (C.)

ITEMS.	Quantity or Number.	Rate.	Per	Amount.	TOTAL.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>
Brought forward - - -				2,246 4 6	
Screws (dozens) - - -	6	- 2 -	dozen	- 12 -	
Socket Brass - - -	1½ 1/16	3 - -	each	4 11 -	
Bablee Wood - - -	2	- 12 -	"	1 8 -	
Hempen Ropes - - -	3	- 6 -	"	1 2 -	
Common Paper - ream	½	5 - -	ream	2 8 -	
Ditto - gudee	½	1 10 -	gudee	- 13 -	
Biggaries - - -	1	- 1 -	each	- 1 -	
Pencils (dozen) - - -	1	1 - -	dozen	1 - -	
Steel Pens (dozen) - - -	½	- 4 -	"	- 2 -	
Rubber Piece - - -	1	- 8 -	each	- 8 -	
Foolscap Paper (quire)	½	- 9 6	quire	- 4 9	
French Paper (quire) - - -	½	- 3 6	"	- 1 6	
Pint of Red Ink - - -	1	- 3 -	each	- 3 -	
Pint of Black Ink - - -	1	- 3 -	"	- 3 -	
Stationery of Stores Bills - - -	1	- 4 9	"	- 4 9	
Bond Stone, preparing	15	305 14 8	75	61 2 11	
Wood conveyed from Thul Ghat, as per Bill - - -	4	6 5 6	4	6 5 6	
					2,327 14 11
Deduct for the below ( <i>vide</i> Bills No. 40 to 46)—					
Grinding Chunam - - -				293 4 3	
Stones - - -				297 10 5	
Bond Cut Stones - - -				6 13 -	
Repairing Bond Stones - - -				104 2 3	
Ditto Coigns - - -				5 - 6	
Repairing Chips - - -				40 4 3	
Government Bullock Pairs - - -				35 2 8	
					782 5 4
ABSTRACT of MATERIALS in different Works in Monthly Report.					
Wing Wall Facing - - -				480 6 2	
Abutment ditto - - -				252 3 9	
Wing Wall, filling in Earth - - -				3 9 3	
Pointing - - -				1 13 9	
Arch Stone laid - - -				46 11 1	
Loading - - -				143 13 5	
Chips laid - - -				164 13 5	
Arch Facing - - -				43 13 2	
Bond Stones laid - - -				67 9 5	
Centering - - -				322 7 2	
Contingencies - - -				18 5 -	
					1,545 9 7
TOTAL - - - Rupees					1,545 9 7

(signed) *M. M'Nally*, Overseer.  
*W. Chapman*, Superintending Engineer.

(True copies)

(signed) *P. M. Melvill*, Lieut.-col., Secty. to Govt.

(True copies)

(signed) *R. J. H. Birch*, Lieut.-col.,  
 Offg.-Secty. to the Govt. of India in the Military Department.

Camp, Undwell, 14 March 1851.

## No. 5.

RECEIPT of MATERIALS supplied.—Nos. 1 to 39, and No. 47.

UNDWELL BRIDGE, February 1851.

(No 1.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. Dr.

The under-mentioned Articles supplied for the use of First Assistant Superintendent Roads, &amp;c., during the month of February 1851.

Quantity or Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPT.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
120 seers	Goor	7 8	120 seers	7 8	- - -	(signed) Ramchunder Marwarree.
120 "	Hemp	7 12	"	7 12	- - -	
20 piclies	Hurdy	1 - -	10 piclies	2 - -	- - -	
60 seers	Coir Rope	23 - -	120 seers	11 8	- - -	
60 "	Goand	25 - -	"	12 8	- - -	
2 - -	Bags	- 3 6	each	- 7	- - -	
1 - -	Cart hired	1 - -	"	1 - -	- - -	The mark of Pandoo Talce.
TOTAL - - -				<i>Rs.</i>	42 11 -	

Nassick, 1 March 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper,

(signed) *Ronjee Wd. Cachoojee*, Seersa. (signed) *Malapar Wd. Bappoo*, Kondee.  
 (signed) *Nursoo Venkoo*, Overseer. (signed) *Dajee Sucharam*, Carkoon.  
 (signed) *M. M'Nally*, Serjeant, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 2.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. Dr.The under-mentioned Articles shipped for the use of *Undwell Bridge*, under First Assistant Superintendent Roads, &c., during the month of February 1851.

Quantity or Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPT.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
87½ seers	Iron	12 8	120 seers	9 1 10	- - -	(signed) <i>Gazrathee</i> .
TOTAL - - -				<i>Rs.</i>	9 1 10	

Nassick, 1 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.

The mark of *Khundoo Wd. Sumbajee Majraj*. Witness: The mark of *Rama Wd. Mawajee Sootar*.  
 (signed) *Dajee Sucharam*, Carkoon.  
 (signed) *Nursoo Venkoo*, Overseer.

(signed) *M. M'Nally*, Serjeant, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 3.)

No. 5.—Receipt of Materials supplied—continued.

(No. 3.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

Dr.

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the Month of February 1851.

Quantity or Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
1 pulla	Gunpowder	<i>Rs. a. p.</i> 20 - -	120 seers	<i>Rs. a. p.</i> 20 - -	<i>Rs. a. p.</i> - - - 20 - -	The mark of Futtay Mahomed.
				TOTAL - - - <i>Rs.</i>	20 - -	

Nassick, 1 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.

Witness:

The mark of *Hurry Wd. Vaghojee*.

(signed)

*Ronjee Wd. Cuchoojee*, Peon.

(signed) *Nursoo Venkoo*, Overseer.

(signed)

*Dajee Sucharam*, Carkoon.

(signed)

*M. M'Nally*, Serjeant, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 4.)

Lieutenant Engineers, *W. Chapman*, First Assistant Superintendent Roads, &c.

Dr.

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Quantity or Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
1 candee	Charcoal	<i>Rs. a. p.</i> 9 8 -	candee	<i>Rs. a. p.</i> 9 8 -	<i>Rs. a. p.</i> - - -	The mark of Subbee Wd. Khu- teeb. The mark of Appoe Tarbe.
1	Cart, hired	1 - -	each	1 - -	- - -	
1	- ditto -	1 - -	"	1 - -	- - -	
				TOTAL - - - <i>Rs.</i>	11 8 -	

Nassick, 1 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.

Witness:

The mark of *Hurry Wd. Vaghojee*.

(signed)

*Ronjee Wd. Cuchoo*, Peon.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed)

*Dajee Sucharam*, Carkoon.

(signed)

*Nursoo Venkoo*, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 5.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

Dr.

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Quantity or Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPT.
1 pullah	Gunpowder	<i>Rs. a. p.</i> 20 - -	120 seers	<i>Rs. a. p.</i> 20 - -	<i>Rs. a. p.</i> - - - 20 - -	The mark of Tutty Mahomed.
				TOTAL - - - <i>Rs.</i>	20 - -	

Nassick, 1st February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.

Witness:

The mark of *Kadeerkha Wd. Mahamedkha*.

The mark of *Narrayen Wd. Hurry Lonary*.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed)

*Dajee Sucharam*, Carkoon.

(signed)

*Nursoo Venkoo*, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

## No. 5.—Receipt of Materials supplied—continued.

(No. 6.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

Dr.

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Quantity or Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
30½ seers	- Coir Rope	- 1 - -	8 seers	- 3 12 0	- - -	} (signed) Goozathes.
16 "	- ditto	- 1 - -	8½ "	- 1 15 -	- - -	
9½ "	- ditto	- 1 - -	8½ "	- 1 1 11	- - -	
			TOTAL	- - - - Rs.	6 13 5	

Nassick, 1 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.The mark of *Guttoo Wd. Bhenjee*, Peon.  
(signed) *M. M'Nally*, Serjeant, Overseer.

Witness:

(signed) *Ronjee Wd. Cuchoo*, Peon.  
(signed) *Dajee Suckaram*, Carkoon.  
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 7.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

Dr.

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Quantity or Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
12 seers	- Oil	- 1 - -	6 seers	- 2 - -	- - -	
			TOTAL	- - - - Rs.	2 - -	

Nassick, 2 January 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.The mark of *Vittoo Wd. Mahadoo*, Washerman.  
(signed) *M. M'Nally*, Serjeant, Overseer.

Witness:

(signed) *Ronjee Wd. Cuchoo*, Peon.  
(signed) *Dajee Suckaram*, Carkoon.  
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 8.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

Dr.

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Quantity or Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
½ ream	- Paper	- 5 - -	ream	- 2 8 -	- - -	} The mark of <i>Salamon Bhoree</i> .
½ "	- ditto	- 1 10 -	- ditto	- - 13 -	- - -	
			TOTAL	- - - - Rs.	3 5 -	

Nassick, 2 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.The mark of *Burjajee Majraj*.  
(signed) *M. M'Nally*, Serjeant, Overseer.

Witness:

(signed) *Ronjee Wd. Cuchoo*.  
(signed) *Dajee Suckaram*, Carkoon.  
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 9.)



No. 5.—Receipt of Materials supplied—*continued.*

(No. 9.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*  
 The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Quantity or Number	Items.	Rate.	Per	Amount.	TOTAL	RECEIPTS
16½ seers	Coir Rope	<i>Rs. a. p.</i> 1 - -	8 seers	<i>Rs. a. p.</i> 2 1 6	<i>Rs. a. p.</i> - - -	(signed) Guzerathee.
10 "	Twine	1 - -	43 seers	2 1 8	- - -	
				<b>TOTAL</b>	4 3 2	
				<b>TOTAL</b>	4 3 2	

Nassick, 6 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.

Witness:

The mark of *Narryen Wd. Hurry*. The mark of *Burjoojee Wd. Subajee*.  
 (signed) *M. M'Nally*, Serjeant, Overseer. (signed) *Dajee Sucharam*, Carcoon.  
(signed) *Nursoo Venkoo*, Overseer.  
 (True Translation.)  
 (signed) *W. Chapman*, Lieutenant Engineers.

(No. 10.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*  
 The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Quantity or Number	Items.	Rate.	Per	Amount	TOTAL.	RECEIPTS
81 - - -	Iron - - -	<i>Rs. a. p.</i> 12 12 -	120 seers -	<i>Rs. a. p.</i> 8 9 8	<i>Rs. a. p.</i> - - -	(signed) Guzerathee.
1 - - -	-- Conveyance Iron from Ba- zar to in Store.	- - -	- - -	- 1 -	- - -	
				<b>TOTAL</b>	8 10 8	
				<b>TOTAL</b>	8 10 8	

Nassick, 6 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.

Witness:

The mark of *Kadeerkha Wd. Mahomedkha*. The mark of *Nuthoo Wd. Hurry Bhayee*.  
 (signed) *M. M'Nally*, Serjeant, Overseer. (signed) *Dajee Sucharam*, Carcoon.  
(signed) *Nursoo Venkoo*, Overseer.  
 (True Translation.)  
 (signed) *W. Chapman*, Lieutenant Engineers.

(No. 11.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*  
 The under-mentioned Carts supplied for the use of *Undwell* Bridge, during the month of February 1851

Quantity or Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
1 - - -	-- Government Cart.	<i>Rs. a. p.</i> - 12 -	each - - -	<i>Rs. a. p.</i> - 12 -	<i>Rs. a. p.</i> - - -	(signed) <i>Abbajee Ruggoonath</i> .
				<b>TOTAL</b>	- 12 -	
				<b>TOTAL</b>	- 12 -	

Nassick, 6 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.

(signed) *M. M'Nally*, Serjeant, Overseer. (signed) *Dajee Sucharam*, Carcoon.  
(signed) *Nursoo Venkoo*, Overseer.  
 (True Translation.)  
 (signed) *W. Chapman*, Lieutenant Engineers.

## No. 5.—Receipt of Materials supplied—continued.

(No. 12.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

Dr.

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Quantity or Number	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPT.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	(signed)
1	Charcoal -	9 8 -	candee -	9 8 -	- - -	Apa Wd. Crustria Taily.
1	Cart hired -	1 - -	each -	2 - -	- - -	Eesup Wd. Khurallee (marked).
				TOTAL - - -	<i>Rs.</i> 11 8 -	

Nassick, 7 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.The mark of *Vittoo Wd. Ball Moollee*.

Witness:

The mark of *Guttoo Wd. Bherjee*.(signed) *Dajee Sucharam*, Carcoon.(signed) *Nursoo Venkoo*, Overseer.(signed) *M. M'Nally*, Serjeant, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

## RECEIPT, No. 1.

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

Dr.

The under mentioned Materials for preparing new Wheel Carts for the use of *Undwell* Bridge, during the month of November 1850.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPT.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
<i>Mds.</i>						
115	Charcoal - -	10 - -	candee -	57 8 -	- - -	supplied articles.
1	Bablee Wood -	3 8 -	lot - -	3 8 -	- - -	
1	Ditto - - -	1 - -	lot - -	1 - -	- - -	by stock.
17	Iron - - -	1 - -	4 seers -	4 4 -	- - -	
½	Gairoo - - -	1 - -	8 seers -	- - 6	- - -	
49	Iron - - -	1 - -	9 seers -	5 7 1	- - -	(signed) <i>Abbajee Ruggoonath</i> .
25	Ditto - - -	1 - -	4 seers -	6 4 -	- - -	
3	Oil - - -	1 - -	6 seers -	- 8 -	- - -	suppliers.
500	Cakes Dung, Cow	1 - -	100 - -	- 8 -	- - -	
	Sawajee - - -	- - -	lot - -	- 8 -	- - -	
3	Cart Poles - -	- 12 -	each - -	2 4 -	- - -	
1	Common Paper -	- 7 -	dusta - -	- 7 -	- - -	
	Ink - - -	- - -	- - -	- - 6	- - -	
60	Iron, for Iron Rings	1 - -	13 seers -	4 9 10	- - -	Government articles.
80	Iron - - -	1 - -	12 seers -	6 10 8	- - -	
160	Ditto - - -	1 - -	12 seers -	13 5 4	- - -	(signed) <i>Abbajee</i> .
				TOTAL - - -	<i>Rs.</i> 106 12 11	

Nassick, 1 September 1850.

(signed) *Abbajee Ruggoonath*, Storekeeper.(signed) *Dajee Sucharam*, Carcoon.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

RECEIPT

No. 5.—Receipt of Materials supplied—continued.

RECEIPT, No. 2.

Lieutenant W. Chapman, Engineers, First Assistant Superintendent Roads, &c.

Dr.

The under-mentioned Labour for preparing new Trucks for the use of *Undwell* Bridge, during the month of December 1850.

Number.	Items.	Rate.	Per	Amount.	TOTAL	RECEIPTS.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	The marks of—
4	Smiths	7	each	1 12		Teokaram.
4	Hammermen	2	"	8		Gunnor Wd. Laxamon.
4	Ditto	2	"	8		Toolia Wd. Bhad Seerka.
2	Bellows Boys	2	"	4		Suckaram Wd. Khundoo.
2	Carpenters	5	"	10		Rowjee Wd. Suckara.
2	Ditto	5	"	10		Suckaram Wd. Laxamon.
4	Ditto	5	"	1 4		
					5 8	
<b>TOTAL</b>					<b>5 8</b>	

Nassick, 6 December 1850.

(signed) *Abbajee Ruggoonath*, Storekeeper.

(signed) *Dajee Suckaram*, Carkeon.

(signed) *Narsoo Venkoos*, Overseer.

(signed) *M. M'Nally*, Serjeant. Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 13.)

BILL of PAYMENT of WORKPEOPLE employed and STORES used for the *Undwell* Bridge, under First Assistant Superintendent of Roads and Tanks, during the month of November 1850.

PREPARING WHEEL CARTS.

Quantity or Number.		Rate.	Per	Amount.	TOTAL	GRAND TOTAL.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>
<i>Labour:</i>						
27	Smith	7	each	11 13		
30	Ditto	6	"	11 4		
44	Hammermen	2 6	"	6 14		
36	Ditto	2	"	4 8		
43	Bellows Boys	2	"	5 6		
13	Ditto	1 10	"	1 7 10		
25	Ditto	1 6	"	2 5 6		
11	Carpenter	6 3	"	4 4 9		
4	Ditto	5 4	"	1 5 4		
9	Ditto	5	"	2 13		
2 1/2	Ditto	5 3	"	13 2		
4	Biggaries	1 10	"	7 4		
					53 5 11	
<i>Materials:</i>						
Materials and Labour Receipts, Nos. 1 & 2, herewith attached - }				112 4 11	112 4 11	
						165 10 10
<b>TOTAL</b>					<b>Rs.</b>	<b>165 10 10</b>

Nassick, 1 December 1850.

(signed) *Abbajee Ruggoonath*, Storekeeper.

(signed) *Narsoo Venkoos*, Overseer.

(signed) *Dajee Suckaram*, Carkeon.

(signed) *M. M'Nally*, Serjeant, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

No. 5.—Receipt of Materials supplied—*continued.*

(No. 14.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Quantity or Number	Items	Rate.	Per	Amount	TOTAL.	RECEIPTS.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
½ seer	Iron	8	Seer	4	} - - -	(signed) Goozerathee.
1 dozen	Pencils	1	1 dozen	1		
½ "	Steel Pens	4	1 dozen	2		
TOTAL					1 6 -	

Nassick, 8 February 1851.

The mark of *Kadeerbhoyee Wd. Ahmealkha.*(signed) *M. M'Nally*, Serjeant, Overseer.(True Translation.)  
(signed) *W. Chapman*, Lieutenant Engineers.

Witness :

(signed) *Abbajee Ruggoonath*, Storekeeper.The mark of *Guttoo Wd. Bherjee.*(signed) *Dajee Sucharam* Carcoon.  
(signed) *Nursoo Venkoo*, Overseer.

(No. 15.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*The under-mentioned Articles supplied, and for Labour for preparing Six Bablee Blocks for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
1	Bablee Wood	4	each	4	} - - -	(signed) Abbajee. The mark of Rowjee. The mark of Babjee, Katary. The mark of Kadeerkha.
2	Carpenter	2 6	"	5		
6	Catarys' Work Oil	1	"	6		
TOTAL					15 9	

Nassick, 10 February 1851.

(True Translation.)  
(signed) *W. Chapman*, Lieutenant Engineers.(signed) *Abbajee Ruggoonath*, Storekeeper.  
(signed) *Dajee Sucharam*, Carcoon.  
(signed) *Nursoo Venkoo*, Overseer.  
(signed) *M. M'Nally*, Serjeant Overseer.

(No. 16.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*The under-mentioned Articles supplied, and Conveyance for the use of *Undwell* Bridge, during the month of February 1851.

Quantity or Number	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
1 candee	Charcoal	9 8	candee	9 8	} - - -	-- The mark of Essub Wd. Khuteeb. -- The mark of Pandoo Tarlee.
2	Carts, conveyance Charcoal.	1	each	2		
TOTAL					11 8	

Nassick, 14 February 1851.

The mark of *Narryen Wd. Hurry.*(signed) *M. M'Nally*, Serjeant, Overseer.(True Translation.)  
(signed) *W. Chapman*, Lieutenant Engineers.(signed) *Abbajee Ruggoonath*, Storekeeper.The mark of *Bugajee Sunbajee Mujray.*(signed) *Dajee Sucharam*, Carcoon.  
(signed) *Nursoo Venkoo*, Overseer.

(No. 17.)

No. 5.—Receipt of Materials supplied—*continued.*

(No. 17.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

*Dr.*

The under-mentioned Carts for the use of *Undwell* Bridge, during the month of February 1851.

Quantity or Number	Items.	Rate	Per	Amount	TOTAL.	RECEIPTS.
1	Cart, Government articles, Conveyance.	<i>Rs. a. p.</i> - 12 -	each - -	<i>Rs. a. p.</i> - 12 -	<i>Rs. a. p.</i> - - -	(signed) Abbajee.
				TOTAL - - - <i>Rs.</i>	- 12 -	

Nassick, 16 February 1851.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Abbajee Ruggoonath*, Storekeeper.

(signed) *Dajee Sucharam*, Carkoon.

(signed) *Nursoo Venkoo*, Overseer

(True Translation.)  
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 18.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

*Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Quantity or Number	Items.	Rate	Per	Amount.	TOTAL	RECEIPTS.
1 1/8 seers -	Iron - - -	<i>Rs. a. p.</i> 1 - -	4 1/8 seers -	<i>Rs. a. p.</i> 2 6 4	<i>Rs. a. p.</i> - - -	(signed) Goozeiathee.
1 1/8 seers -	ditto - - -	1 - -	6 seers -	1 15 -	- - -	(signed) ditto.
dozen -	Screws - - -	- 2 -	dozen -	- 12 -	5 1 4	
				TOTAL - - - <i>Rs.</i>	5 1 4	

Nassick, 16 February 1851.

The mark of *Buyajee Wd. Sumbajee Majray*.  
(signed) *M. M'Nally*, Serjeant, Overseer.

Witness:

The mark of *Nuthoo Wd. Hurry Bhayee*.  
(signed) *Dajee Sucharam*, Carkoon.  
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)  
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 19.)

Lieutenant *W. Chapman*, Engineers, Assistant Superintendent Roads, &c.

*Dr.*

The under-mentioned Articles supplied for the use of the *Undwell* Bridge, during the month of February 1851.

Number	Items.	Rate	Per	Amount	TOTAL.	RECEIPTS.
1	Carpenter, making Wheels.	<i>Rs. a. p.</i> - 5 -	each - -	<i>Rs. a. p.</i> - 5 -	<i>Rs. a. p.</i> - - -	The mark of Bhowanee.
1	Bablee Wood for Wheels.	- 5 -	each - -	- 5 -	- - -	- ditto - Amboo.
6	Wheels repaired by Kataree.	- 1 -	each - -	- 6 -	- - -	(signed) Babjee Katary.
				TOTAL - - - <i>Rs.</i>	1 - -	

Nassick, 16 February 1851.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Abbajee Ruggoonath*, Storekeeper.

(signed) *Dajee Sucharam*, Carkoon.

(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)  
(signed) *W. Chapman*, Lieutenant Engineers.

## No. 5.—Receipt of Materials supplied—continued.

(No. 20.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

Dr.

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Quantity or Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
$1\frac{1}{2}$ $\frac{1}{8}$ seers.	Socket Brass -	<i>Rs. a. p.</i> 3 - -	seer - -	<i>Rs. a. p.</i> 4 11 -	<i>Rs. a. p.</i> - - - 4 11 -	(signed) Crustnaje.
				TOTAL - - - <i>Rs.</i>	4 11 -	

Nassick, 16 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.

Witness:

The mark of *Guttoo Bhenjee*.The mark of *Kadurkha Wd. Ahmedkha*.(signed) *M. M'Nally*, Serjeant, Overseer.(signed) *Dajee Suckaram*, Carkoon.(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 21.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

Dr.

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
$\frac{1}{2}$ pulla -	Hemp - -	<i>Rs. a. p.</i> 8 8 -	pulla - -	<i>Rs. a. p.</i> 4 4 -	<i>Rs. a. p.</i> - - - 4 4 -	(signed) Balaram.
				TOTAL - - - <i>Rs.</i>	4 4 -	

Nassick, 16 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.

Witness:

The mark of *Khundia Ragho Mahar*.The mark of *Narrayen Wd. Hurry*.(signed) *Dajee Suckaram*, Carkoon.(signed) *M. M'Nally*, Serjeant, Overseer.(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

Dr.

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
1 candee - 1	Charcoal - Cart hired -	<i>Rs. a. p.</i> 9 8 - 1 - -	each - - each - -	<i>Rs. a. p.</i> 9 8 - 2 - -	<i>Rs. a. p.</i> - - - - - - 11 8 -	(signed) <i>Essub Wd. Khunatee</i> . <i>Pandoo Taily</i> (marked.)
				TOTAL - - - <i>Rs.</i>	11 8 -	

Nassick, 19 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.

Witness:

Marked *Pandoo Wd. Kondoo Talee*.The marked *Hurry Wd. Vaghojee*.(signed) *M. M'Nally*, Serjeant, Overseer.(signed) *Dajee Suckaram*, Carkoon.(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 23.)

No. 5.—Receipt of Materials supplied—continued.

(No. 23.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

Dr.

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
1	Rubber, piece	- 8 -	each - -	- 8 -	- - -	} (signed) Goozrathee.
1	Box Wafers -	- 2 6	- - -	- 2 6	- - -	
$\frac{1}{2}$	Foolscap Paper	- 9 6	each - -	- 4 9	- - -	
$\frac{1}{2}$	French Paper	- 3 -	- - -	- 1 6	- - -	
29 seers -	Coir Rope -	1 - -	8 seers -	3 10 -	- - -	
TOTAL - - -				<i>Rs.</i>	4 10 9	

Nassick, 19 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.

Witness :

Mark of *Guttoo Wd. Bhenjee*.

*Dhondee Wd. Rayajee*, marked.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dajee Sucharam*, Carkoon

(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)  
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 24.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

Dr.

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number	Items.	Rate	Per	Amount	TOTAL.	RECEIPTS
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
1	Chalk - -	1 - -	5 seers -	- 3 2	- - -	} (signed) Guzarathee.
TOTAL - - -				<i>Rs.</i>	- 3 2	

Nassick, 19 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dajee Sucharam*, Carkoon.

(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)  
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 25.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

Dr.

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
1	Pint of Red Ink	- 3 -	each - -	- 3 -	- - -	} (signed) Guzarathee.
1	ditto Black Ink	- 3 -	each - -	- - -	- 6 -	
TOTAL - - -				<i>Rs.</i>	- 6 -	

Nassick, 23 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dajee Sucharam*, Carkoon.

(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)  
(signed) *W. Chapman*, Lieutenant Engineers.

No. 5.—Receipt of Materials supplied—*continued.*

(No. 26.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

Dr.

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
½ pullah 1	Hemp -	<i>Rs. a. p.</i> 8 8 -	pullah - each -	<i>Rs. a. p.</i> 4 4 -	<i>Rs. a. p.</i> - - -	(signed) Ramchond. The mark of Abba Tailce.
	Cart, hired -	- 12 -		- 12 -	- - -	
TOTAL - - -				<i>Rs.</i>	5 - -	

Forwarded 23 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.(signed) *M. M'Nally*, Serjeant, Overseer.(signed) *Dajee Sucharam*, Carkoon.(signed) *Nursoo Venkoo*, Carkoon, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 27.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

Dr.

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
45½ seers	Coir Rope -	<i>Rs. a. p.</i> 1 - -	8 seers -	<i>Rs. a. p.</i> 5 11 -	<i>Rs. a. p.</i> - - -	(signed) Balaram.
60 seers	Hemp -	8 10 -	pulla -	4 5 -	- - -	
TOTAL - - -				<i>Rs.</i>	10 - -	

Forwarded 23 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.The mark of *Buyajee Wd. Sumbajee Majray*.

Witness:

The mark of *Kadeerkha Wd. Mahmedkha*.(signed) *M. M'Nally*, Serjeant, Overseer.(signed) *Dajee Sucharam*.(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 28.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

Dr.

The under-mentioned Cane Baskets supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
175 1 seer	Cane Baskets	<i>Rs. a. p.</i> 34 5 4	240	<i>Rs. a. p.</i> 25 - 7	<i>Rs. a. p.</i> - - -	(signed) Abbajee Ruggoonath.
	Coir Rope -	1 - -	8 seers -	- 2 -	- - -	
TOTAL - - -				<i>Rs.</i>	25 2 7	

Forwarded 3 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.(signed) *M. M'Nally*, Serjeant, Overseer.(signed) *Dajee Sucharam*, Carkoon.(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 29.)



No. 5.—Receipt of Materials supplied—*continued.*

(No. 29.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

Dr.

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851, for Stationery.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
½ dusta	- Common Paper	- 8 -	each -	- 4 -	- - -	} (signed) Guzrathee.
Ink	- Ink	- - -	- - -	- - 9	- - -	
TOTAL - - -				<i>Rs.</i>	- 4 9	

Forwarded 23 February 1851.

(signed) *M. M'Nally*, Serjeant, Overseer.(signed) *Abbajee Ruggoonath*, Storekeeper.(signed) *Dajee Suckaram*, Carkoon.(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 30.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

Dr.

The under-mentioned Carts employed for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
2	Carts hired	- 8 -	each -	1 - -	- - -	The mark of Rama Wd. Kondajee.
TOTAL - + -				<i>Rs.</i>	1 - -	

5 February 1851.

(signed) *M. M'Nally*, Serjeant, Overseer.(signed) *Dajee Suckaram*, Carkoon.(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 31, of 1851.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

Dr.

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
16	candies - Chunam	- 4 - -	candie -	64 - -	- - -	The mark of Rittoo Lonary. " Tookaram. " Sutwa " Huavunta. " Maya.
4	" - ditto	- 4 - -	ditto -	16 - -	- - -	
15½	" - ditto	- 4 - -	ditto -	62 - -	- - -	
14	" - ditto	- 4 - -	ditto -	56 - -	- - -	
5	" - ditto	- 3 - -	ditto -	15 - -	- - -	
TOTAL - - -				<i>Rs.</i>	213 - -	

28 February 1851.

(signed) *M. M'Nally*, Serjeant, Overseer.(signed) *Dajee Suckaram*, Carkoon.(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

## No. 8.—Receipt of Materials supplied—continued.

(No. 32.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

Dr.

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
133	pielies - Grain - -	1 - -	6 pielies -	22 2 8	- - -	} (signed) Bhowanee Sing. Bhageruth Sing.
11½	seers - Oil - -	1 - -	5½ seers -	2 - -	- - -	
80	seers - Goand - -	1 - -	7 " -	11 6 10	- - -	
25	pielies - Heerday - -	1 - -	10 pielies -	2 8 -	- - -	
89	seers - Coir Rope - -	1 - -	6 seers -	14 13 4	- - -	
183	" - Goor - -	1 - -	18 " -	10 2 8	- - -	
TOTAL - - -				<i>Rs.</i>	63 1 6	

10 February 1851.

(signed) *M. M'Nally*, Serjeant, Overseer.(signed) *Dajee Sucharam*, Carkoon.  
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 33.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

Dr.

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
36	seers - Hemp - -	1 - -	12 seers -	3 - -	- - -	} (signed) Nuthoo Wd. Ramjee Patcel.
42	" - Hemp - -	1 - -	14 " -	3 - -	- - -	
TOTAL - - -				<i>Rs.</i>	6 - -	

28 February 1851.

(signed) *M. M'Nally*, Serjeant, Overseer.(signed) *Dajee Sucharam*, Carkoon.  
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 34.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

Dr.

The under-mentioned Carts supplied for the use of *Undwell* Bridge, during the month of February 1851 (for conveying Wood from the *Thul* Ghaut to *Undwell*.)

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
6	Carts hired -	- 12 -	each - -	4 8 -	- - -	The mark of Anunda Wd. Dhunjee. Bhawoo Sing.
6	Ditto -	- 12 -	" - -	4 8 -	- - -	
TOTAL - - -				<i>Rs.</i>	9 - -	

28 February 1851.

(signed) *M. M'Nally*, Serjeant, Overseer.(signed) *Dajee Sucharam*, Carkoon.  
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 35.)

No. 5.—Receipt of Materials supplied—continued.

(No. 35.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

Dr.

The under-mentioned Carts supplied for the use of *Undwell* Bridge, during the month of February 1851 (conveying Wood from *Thul* Ghaut to *Undwell*).

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	(signed)
3	Ramjee Nuthoo - -	8 - -	each -	1 8 - -	- - -	Nuthoo Wd. Ramjee.
3	Esrām Wd. Ramjee -	8 - -	" -	1 8 - -	- - -	Esrām Ramjee.
7	Buherroo Wd. Lad Pateel	8 - -	" -	3 8 - -	- - -	Buherroo Lad Pateel.
8	Bappoo Wd. Bhickajee	8 - -	" -	4 - - -	- - -	Bappoo Bhickajee.
7	Bhawoo Sing - - -	8 - -	" -	3 8 - -	- - -	Bhawoo Sing.
4	Govinda Ragh Nack -	8 - -	" -	2 - - -	- - -	Govinda Wd. Ram Nack.
7	Mhadoo Sonar - - -	8 - -	" -	3 8 - -	- - -	Mhadoo Sonar.
4	Suddoo Nimba - - -	8 - -	" -	1 2 - -	- - -	Suddoo Nimba.
3	Govind Wd. Ramaram	8 - -	" -	1 8 - -	- - -	Govinda Ramaram.
4	Laxamon Ramjee - -	8 - -	" -	2 - - -	- - -	Laxamon Ramjee.
TOTAL - - - <i>Rs.</i>					25 - - -	

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dajee Suckaram*, Carkoon.  
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 36.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

Dr.

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number	Items.	Rate.	Per	Amount.	TOTAL	RECEIPTS
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	(signed)
19½ seers	Steel - - -	48 - - -	56 seers -	16 14 10	- - -	Guzarathee.
TOTAL - - - <i>Rs.</i>					16 14 10	

2 February 1851.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dajee Suckaram*, Carkoon.  
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 37.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

Dr.

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	(signed)
22 seers	Steel - - -	48 - - -	56 seers -	18 13 8	- - -	Pharsee.
TOTAL - - - <i>Rs.</i>					18 13 8	

18 February 1851.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dajee Suckaram*, Carkoon.  
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

No. 5.—Receipt of Materials supplied—*continued.*

(No. 38.)—BILL No. 1.

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.*Dr.*The under-mentioned Workpeople employed on cutting Wood for the use of *Undwell Bridge*, during the month of February 1851.

Number.	Items	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
5	Biggaries -	- 2 3	each - -	- 11 3		
1	Carpenter -	- 3 -	" - -	- 3 -	- 14 3	
TOTAL - - -				<i>Rs.</i>	- 14 3	

(signed) *M. M'Nally*, Serjeant, Overseer.(signed) *Vinayekoorf Crustnaje Sucharam*, Storekeeper.

Bill No. 1	- - -	<i>Rs. a. p.</i>	- 14 3
" No. 2	- - -	- 2 6 3	
" No. 3	- - -	- 9 -	
" No. 4	- - -	- 2 8 -	

(signed) *B. Brock*, Serjeant Overseer.(signed) *Dajee Sucharam*, Carkoon.(signed) *Nursoo Venkoo*, Overseer.TOTAL No. 38 - - - 6 5 6(True Translation.)  
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 38.)—BILL No. 2.

Lieutenant *W. Chapman*, Engineers, Assistant Superintendent Roads, &c.*Dr.*The under-mentioned Workpeople employed on cutting Wood at *Thul Ghaut* for the use of *Undwell Bridge*, during the month of January 1851.

Number.	Items	Rate.	Per	Amount.	TOTAL.	RECEIPT:
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
13	Biggaries -	- 2 3	each - -	1 13 3		
3	Carpenters -	- 3 -	" - -	- 9 -	2 6 3	
TOTAL - - -				<i>Rs.</i>	2 6 3	

60 Woods cut.

(signed) *M. M'Nally*, Serjeant, Overseer.(signed) *Vinayekoorf Crustnaje Sucharam*, Storekeeper.(signed) *B. Brock*, Serjeant, Overseer.(signed) *Dajee Sucharam*, Carkoon.(signed) *Nursoo Venkoo*, Overseer.(True Translation.)  
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 38.)—BILL No. 3.

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.*Dr.*The under-mentioned Biggaries employed on putting a piece of Wood into Cart forwarded for the use of *Undwell Bridge*, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount	TOTAL.	RECEIPT.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
4	Biggaries -	- 2 3	each - -	- 9 -	- 9 -	
TOTAL - - -				<i>Rs.</i>	- 9 -	

(signed) *M. M'Nally*, Serjeant, Overseer.(signed) *Vinayekoorf Crustnaje*, Storekeeper.(signed) *B. Brock*, Serjeant, Overseer.(signed) *Dajee Sucharam*, Carkoon.(signed) *Nursoo Venkoo*, Overseer.(True Translation.)  
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 38.)

No. 5.—Receipt of Materials supplied—*continued.*

(No. 38.)—BILL No. 4.

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

*Dr.*

The under-mentioned Workpeople employed on cutting Wood for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
12	Biggaries -	- 2 3	each -	1 11 -		
4	Carpenters -	- 3 3	" -	- 13 -	2 8 -	
TOTAL - - -				<i>Rs.</i>	2 8 -	

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Venayekoorf Crustnaje* Sucharam, Storekeeper.

(signed) *B. Brock*, Serjeant, Overseer.

(signed) *Dajee* Sucharam, Carkoon.

(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 39.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

*Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL	RECEIPTS.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
2	Bablee-Wood -	- 12 -	each -	1 8 -		The mark of Bappoo Wd. Kondajee. Dewoo Chamber. Mullary Mony. Hurry Wd. Luxamon. Vitto Wd. Crustna Coombar.
1	Puckhal repaired -	- 3 -	each -	- 3 -		
3	Hempen Ropes repaired -	- 6 -	each -	1 2 -		
2,000 bundles	Grass -	- 2 8 -	1,000 -	5 - -		
23	Earthen Pots -	- - 7	each -	- 13 5		
3	Ditto -	- - 8	each -	- 2 -		
TOTAL - - -					<i>Rs.</i>	8 12 5

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dajee* Sucharam, Carkoon.

(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 47.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c.

*Dr.*

The under-mentioned Articles supplied for preparing Coigns for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
17	Iron -	1 - -	8 seers -	2 2 -		Government.
2	Ditto -	1 - -	8 seers -	- 4 -		
TOTAL - - -					<i>Rs.</i>	2 6 -

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dajee* Sucharam, Carkoon.

(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(True copies.)

(signed) *P. M. Melvill*, Lieut.-col., Secy. to Govt.

(True copies.)

(signed) *R. J. H. Birch*, Lieut.-col.

Offg. Secy. to the Govt. of India in the Military Department.

Appendix (C.)

## STORE BILL, No. 1 (or Vouchers), from 40 to 46.

Stores entered in Stock, *Undwell* Bridge, February 1851.

(No. 40.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. Dr.  
The under-mentioned Labour and Materials used at the *Undwell* Bridge, during the month of  
February 1851, for preparing 53 Coigns, mean size, 1' 7" × 15" × 15".

ITEMS.	Number.	Rate.	Per	Amount.	TOTAL.
<i>Labours:</i>					
Stonecutters - - -	2	Rs. a. p. - 4 11	each - - -	Rs. a. p. - 9 10	Rs. a. p. 53 8 6
Ditto - - - - -	24	- 4 6	" - - -	6 12 -	
Ditto - - - - -	50	- 4 3	" - - -	13 4 6	
Ditto - - - - -	28	- 4 -	" - - -	7 - -	
Ditto - - - - -	44	- 3 -	" - - -	8 4 -	
Ditto - - - - -	10	- 3 3	" - - -	2 - -	
Ditto - - - - -	24	- 2 8	" - - -	4 - -	
Ditto - - - - -	42	- 2 8	" - - -	7 - -	
Biggaries - - - -	13	- 2 -	" - - -	1 10 -	
Boys - - - - -	11	- 1 -	" - - -	- 11 -	
Smiths - - - - -	4	- 4 8	" - - -	1 2 8	
Hammermen - - -	4	- 2 3	" - - -	- 9 -	
Bellows Boys - -	4	- 2 3	" - - -	- 9 -	
<i>Materials:</i>					
Iron - - - - -	10	12 8 -	120 seers	1 - 8	5 - 6 1/2
Stones - - - - -	100 cub. ft.	588 - 10	20,952 cub. ft.	2 12 10	
Charcoal - - - -	2 1/2 maunds.	9 8 -	20 maunds	1 3 -	
TOTAL - - -				Rs.	58 9 -

Rate - - - Rs. - 14 10 1/2 to each Stone cut, and conveyed on the spot.

(signed) *M. M'Nally*, Serjeant, Overseer.(signed) *Dajee Sucharam*, Carcoon.  
(signed) *Nursoo Venkoo*, Overseer.

(No. 41.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. Dr.  
The under-mentioned Labour and Materials used at the *Undwell* Bridge, during the month of  
February 1851, for repairing Chips, No. 441.

ITEMS.	Number.	Rate.	Per	Amount.	TOTAL.	
<i>Labours:</i>						
Stonecutters - - -	64	Rs. a. p. - 6 3	each - - -	Rs. a. p. 25 - -	Rs. a. p. 92 9 6	
Ditto - - - - -	24	- 6 -	" - - -	9 - -		
Ditto - - - - -	80	- 5 3	" - - -	26 4 -		
Ditto - - - - -	55	- 4 -	" - - -	13 12 -		
Ditto - - - - -	24	- 3 -	" - - -	4 8 -		
Ditto - - - - -	18	- 4 8	" - - -	5 4 -		
Ditto - - - - -	13	- 2 -	" - - -	1 10 -		
Biggaries - - - -	44	- 2 -	" - - -	5 8 -		
Smiths - - - - -	8	- 4 8	" - - -	- 14 -		
Hammermen - - -	3	- 2 3	" - - -	- 6 9		
Bellows Boys - -	3	- 2 3	" - - -	- 6 9		
<i>Materials:</i>						
Iron - - - - -	15	13 8 -	120 seers	1 11 -		40 4 3
Charcoal - - - -	10 maunds	9 8 -	20 maunds	4 12 -		
Stones - - - - -	997 cub. ft.	588 - -	20,952 cub. ft.	27 15 9		
Government Bullocks, pairs - - - - -	14	58 7 2	140	5 13 6		
TOTAL - - -				Rs.	132 13 9	

Rate - - - Rs. - 4 4 1/4 to each.

(signed) *M. M'Nally*, Serjeant, Overseer.(signed) *Dajee Sucharam*, Carcoon.  
(signed) *Nursoo Venkoo*, Overseer.

(No. 42.)

## STORE BILL, No. 1—continued.

Appendix (C.)

(No. 42.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*  
The under-mentioned Labour and Materials used at the *Undwell* Bridge, during the month of  
February 1851, for rough Stones collected, 20,952 cubic feet.

ITEMS	Number.	Rate.	Per	Amount.	TOTAL.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>
<i>Labour :</i>					
Biggaries - - -	760	- 2 -	each - -	95 2 -	
Women - - -	130	- 1 3	" - -	10 2 6	
Boys - - -	101	- 1 -	" - -	6 5 -	
Biggaries (Minners) -	28	- 4 -	" - -	7 - -	
Ditto - ditto -	9	- 2 7	" - -	1 7 3	
Carpenters - - -	3	- 6 -	" - -	1 2 -	
Ditto - - -	1	- 2 -	" - -	- 2 -	
Smiths - - -	16	- 4 8	" - -	4 10 8	
Ditto - - -	6	- 6 -	" - -	2 4 -	
Hammermen - - -	16	- 2 3	" - -	2 4 -	
Bellows Boys - - -	16	- 2 3	" - -	2 4 -	
Minners - - -	549½	- 2 -	" - -	68 3 -	
Carts, Village - - -	179	- 8 -	" - -	89 8 -	290 6 5
<i>Materials :</i>					
Gunpowder - - -	120 seers	15 - -	120	15 - -	
Ditto - - -	97	20 - -	120	16 2 8	
Iron - - -	9	13 8 1	120	1 - 2	
Fine Steel - - -	12½ seers	48 - -	56	10 14 10	
Charcoal - - -	20 maunds	9 8 -	20 maunds	9 8 -	
Iron - - -	1½ ½	1 - -	4½ seers	- 6 4	
Earthen Pots - - -	10	- 7	each - -	- 5 10	
Carts hired - - -	4	1 - -	" - -	4 - -	
Hemp - - -	17	7 12 -	120	- 1 7	
Coir Rope - - -	6	1 - -	8 seers	- 12 -	
Cart, prepared in Store, as per Abbajee's Bill } }	1	165 10 10	each - -	165 10 10	
Cart-conveyed Wood from Thul Ghaut to Undwell Bridge } }	52	- 8 -	" - -	26 - -	
Government Bullocks, pairs - - - } }	112	58 7 2	140	46 12 2	97 10 5
TOTAL - - - Rs.					588 - 10

Rate - - - *Rs. 2 12 10 ½ ½ ½* per 100 cubic feet.(signed) *M. McNally*, Serjeant, Overseer.(signed) *Dajee Sucharam*, Caroon.  
(signed) *Nursoo Venkoo*, Overseer.

## STORE BILL, No. 1—continued.

(No. 43.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*The under-mentioned Materials and Labour at *Undwell* Bridge, during the month of February 1851, for grinding Chunam, including Sand, Musula, &c., 94 candies.

ITEMS.	Number.	Rate.	Per	Amount.	TOTAL.	
<i>Labour:</i>						
Biggaries - - -	116	Rs. 2 -	each - -	Rs. 14 8 -	Rs. 66 12 6	
Women - - -	122	- 1 3	" - -	9 8 0		
Boys - - -	44	- 1 -	" - -	2 12 -		
Bullocks, pairs, Village	96	- 5 -	" - -	30 - -		
Carpenter - - -	-	- - -	- - -	- - -		
<i>Materials:</i>						
Dry Chunam - - -	49½	4 - -	candee -	198 - -	Rs. 293 4 3	
Ditto - - -	5	3 - -	" - -	15 - -		
Hemp - - -	180	8 - -	120	12 - -		
Ditto - - -	92	7 12 -	120	5 15 1		
Goand - - -	80	1 - -	7 seers	11 6 10		
Ditto - - -	26	26 - -	120 "	5 10 1		
Kath - - -	89	1 - -	6 "	14 13 4		
Ditto - - -	12	4 - -	120 "	2 6 5		
Goor - - -	170	1 - -	18 "	9 7 1		
Hurday - - -	25 pielies	1 - -	10 pielies	2 8 -		
Ditto - - -	34	1 - -	10 "	3 6 5		
Carts, hired - - -	5	1 - -	each - -	5 - -		
Oil - - -	5½ seers	1 - -	5½ seers	1 - -		
Bags for Grain - - -	2	- 3 6	each - -	- 7 -		
Government Bullock, } Pairs, with Puckals - }	14	58 7 2	140 seers -	5 13 6		
Earthen Pots - - -	6	- - 7	each - -	- 3 6		
Puckalls, repaired -	1	- 3 -	" - -	- 3 -		
TOTAL - - - Rs.						350 - 9

Rate - - - Rs. 3 11 7 to each candee.

(signed) *M. M'Nally*, Serjeant, Overseer.(signed) *Dujee Sucharam*, Carkoon.  
(signed) *Nursoo Venkoo*, Overseer.

(No. 44.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*The under-mentioned Labour and Materials used at the *Undwell* Bridge, during the month of February 1851, for Government Cattle "Feeding," 140 Pairs.

ITEMS.	Number.	Rate.	Per	Amount.	TOTAL.
<i>Labour:</i>					
Cartmen - - -	140	Rs. 4 8 -	month -	Rs. 22 8 -	Rs. 23 4 6
Women - - -	10	- 1 3	each - -	- 12 6	
<i>Materials:</i>					
Gram - - -	133 pielies	1 - -	6 pielies	22 1 8	Rs. 35 2 8
Grass (bundles) - - -	2,400	2 8 -	1,000	6 - -	
Ditto - - -	2,000	2 8 -	1,000	5 - -	
Oil - - -	12	1 - -	6 seers	2 - -	
TOTAL - - - Rs.					

Rate - - - Rs. - 6 8  $\frac{2}{10}$  per pair.(signed) *M. M'Nally*, Serjeant, Overseer.(signed) *Dujee Sucharam*, Carkoon.  
(signed) *Nursoo Venkoo*, Overseer.

(No. 45.)



STORE BILL, No. 1—continued.

Appendix (C.)

(No. 45.)

Lieutenant W. Chapman, Engineers, First Assistant Superintendent Roads, &c. Dr.  
The under-mentioned Labour and Materials used at the *Undwell* Bridge, during the month of  
February 1851, for Bond Stone cut, 21, in size 3 × 3 × 2.

ITEMS.	Number.	Rate.	Per	Amount.	TOTAL.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>
<i>Labour :</i>					
Stonecutters - - -	21	- 6 3	each - -	8 3 3	
Ditto - - -	6	- 6 -	" - -	2 4 -	
Ditto - - -	16	- 6 11	" - -	6 14 8	
Ditto - - -	12	- 4 -	" - -	3 - -	
Ditto - - -	11	- 5 -	" - -	3 7 -	
Ditto - - -	18	- 5 3	" - -	3 14 6	
Ditto - - -	3	- 4 8	" - -	- 14 -	
Ditto - - -	4	- 2 -	" - -	- 8 -	
Biggaries - - -	101	- 2 -	" - -	12 10 -	
Women - - -	9	- 1 3	" - -	- 11 3	
Boys - - -	18	- 1 -	" - -	1 2 -	
Carts - - -	13	- 8 -	" - -	6 8 -	
Smiths - - -	3	- 4 8	" - -	- 14 -	
Hammermen - - -	3	- 2 3	" - -	- 6 9	
Bellows Boys - - -	3	- 2 3	" - -	- 6 9	
					53 12 2
<i>Materials :</i>					
Government Iron - -	2 seers	1 - -	8 seers -	- 4 -	
Ditto - - -	4½ "	1 - -	8 " -	- 1 -	
	2¼ "	1 - -	4 " -	- 9 -	
Ditto - - -	5 "	13 8 -	120 " -	- 9 -	
Coir Rope - - -	8 "	1 - -	8 " -	1 - -	
Charcoal - - -	3 maunds	9 8 -	20 maunds	2 6 -	
Steel - - -	5¼ seers	1 - -	3¼ seers -	1 - -	
Cart, hired - - -	1	1 - -	- - -	1 - -	
					6 13 -
TOTAL - - - <i>Rs.</i>					60 9 2

Rate - - - *Rs.* 2 14 1½ each, including conveyance at the Bridge.  
(signed) M. M'Nally, Serjeant, Overseer. (signed) Dajee Sucharam, Carcoon.  
(signed) Nursoo Venkoo, Overseer.

(No. 46.)

Lieutenant W. Chapman, Engineers, First Assistant Superintendent Roads, &c. Dr.  
The under-mentioned Labour and Materials used at the *Undwell* Bridge, during the month of  
February 1851, for Bond Stones dressed, 36 number, size 3' × 2' × 2'.

ITEMS.	Number.	Rate.	Per	Amount.	TOTAL.
		<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>
<i>Labour :</i>					
Stonecutters - - -	13	- 6 3	each - -	5 1 3	
Ditto - - -	8	- 5 3	" - -	2 10 -	
Ditto - - -	2	- 7 -	" - -	- 14 -	
Ditto - - -	9	- 6 -	" - -	3 6 -	
Ditto - - -	21	- 5 -	" - -	6 9 -	
Ditto - - -	4	- 4 -	" - -	1 - -	
Boys - - -	6	- 1 -	" - -	- 6 -	
Smiths - - -	2	- 4 8	" - -	- 9 4	
Hammermen - - -	2	- 2 3	" - -	- 4 6	
Bellows Boys - - -	2	- 2 3	" - -	- 4 6	
					21 - 7
<i>Materials :</i>					
Charcoal - - -	2½ seers	9 8 -	20 maunds	1 3 -	
Iron - - -	5 "	13 8 -	120 seers -	- 9 -	
Bond Stone for Jan. 1851	25	206 5 3	73	70 10 7	
Ditto for Feb. 1851	11	60 9 2	21	31 11 8	
					104 2 3
TOTAL - - - <i>Rs.</i>					125 3 10

Rate - - - *Rs.* 3 7 7½ each.  
(signed) M. M'Nally, Serjeant, Overseer. (signed) Dajee Sucharam, Carcoon.  
(signed) Nursoo Venkoo, Overseer.

(True copies.)

(signed) P. M. Melvill, Lieut.-col.,  
Secy. to Govt. in the Military Department.

(True copies)

(signed) R. J. H. Birch, Lieut.-col.,  
Offg. Secy. to the Govt. of India in the Military Department.

No. 7. DAY BOOK of LABOUR; and No. 8. DAILY (or Figured) ABSTRACT.

No. 7.  
DAY BOOK of LABOUR.

Date.	No.	ITEMS.	Rate.	Per	Amount.	TOTAL.	GRAND TOTAL.
1851:			<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>
February 1	1	Carkoon - -	- 5 9	each	- 5 9	29 12 1	
	1	Maistry - -	- 11 5	"	- 11 5		
	1	Ditto - -	- 8 5	"	- 8 5		
	2	Muckadums - -	- 2 10	"	- 5 8		
	1	Smith - -	- 6 6	"	- 6 6		
	1	Hammerman - -	- 2 6	"	- 2 6		
	1	Bellows Boy - -	- 2 6	"	- 2 6		
	1	Carpenter - -	- 6 -	"	- 6 -		
	1	Chowkedar - -	- 2 3	"	- 2 3		
	5	Masons - -	- 7 -	"	2 3 -		
	2	Ditto - -	- 6 6	"	- 13 -		
	4	Ditto - -	- 5 -	"	1 4 -		
	7	Ditto - -	- 6 4	"	2 12 4		
	7	Ditto - -	- 6 -	"	2 10 -		
	1	Ditto - -	- 4 -	"	- 4 -		
	3	Stonecutters - -	- 7 -	"	1 5 -		
	1	Ditto - -	- 6 6	"	- 6 6		
	1	Ditto - -	- 6 -	"	- 6 -		
	90	Biggaries - -	- 2 -	"	11 4 -		
	33	Women - -	- 1 3	"	2 9 3		
12	Boys - -	- 1 -	"	- 12 -			
February 2	1	Carkoon - -	- 5 9	"	- 5 9	23 8 3	
	1	Maistry - -	- 11 5	"	- 11 5		
	1	Ditto - -	- 8 5	"	- 8 5		
	2	Muckadums - -	- 2 10	"	- 5 8		
	1	Smith - -	- 6 6	"	- 6 6		
	1	Hammerman - -	- 2 6	"	- 2 6		
	1	Bellows Boy - -	- 2 6	"	- 2 6		
	1	Carpenter - -	- 6 -	"	- 6 -		
	1	Chowkedar - -	- 2 3	"	- 2 3		
	5	Masons - -	- 7 -	"	2 3 -		
	2	Ditto - -	- 6 6	"	- 13 -		
	3	Ditto - -	- 5 -	"	- 15 -		
	6	Ditto - -	- 6 4	"	2 6 -		
	7	Ditto - -	- 6 -	"	2 10 -		
	1	Ditto - -	- 4 -	"	- 4 -		
	1	Ditto - -	- - -	"	- - -		
	2	Stonecutters - -	- 7 -	"	- 14 -		
	1	Ditto - -	- 6 6	"	- 6 6		
	61	Biggaries - -	- 2 -	"	7 10 -		
	23	Women - -	- 1 3	"	1 12 9		
7	Boys - -	- 1 -	"	- 7 -			
February 3	1	Carkoon - -	- 5 9	"	- 5 9	29 7 5	
	1	Maistry - -	- 11 5	"	- 11 5		
	1	Ditto - -	- 8 5	"	- 8 5		
	2	Muckadums - -	- 2 10	"	- 5 8		
	1	Smith - -	- 6 6	"	- 6 6		
	1	Hammerman - -	- 2 6	"	- 2 6		
	1	Bellows Boy - -	- 2 6	"	- 2 6		
	1	Carpenter - -	- 6 -	"	- 6 -		
	1	Chowkedar - -	- 2 3	"	- 2 3		
	5	Masons - -	- 7 -	"	2 3 -		
	2	Ditto - -	- 6 6	"	- 13 -		
	4	Ditto - -	- 5 -	"	1 4 -		
	7	Ditto - -	- 6 4	"	2 12 4		
	7	Ditto - -	- 6 -	"	2 10 -		
	1	Ditto - -	- 4 -	"	- 4 -		
	2	Stonecutters - -	- 6 11	"	- 13 10		
	3	Ditto - -	- 7 -	"	1 5 -		
	1	Ditto - -	- 6 6	"	- 6 6		
	81	Biggaries - -	- 2 -	"	10 2 -		
	35	Women - -	- 1 3	"	2 11 9		
15	Boys - -	- 1 -	"	- 15 -			
Carried forward - - - <i>Rs.</i>						92 11 0	

## No. 7.—DAY BOOK OF LABOUR—continued.

Date.	No.	ITEMS.	Rate.	Per	Amount.	TOTAL.	GRAND TOTAL.
			<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>
1851:			Brought forward - - -			82 11 9	
February 4	1	Carcoon - -	- 5 9	each	- 5 9		
	1	Maistry - -	- 11 5	"	- 11 5		
	1	Ditto - -	- 8 5	"	- 8 5		
	2	Muckadums - -	- 2 10	"	- 5 8		
	1	Smith - -	- 6 6	"	- 6 6		
	1	Ditto - -	- 6 -	"	- 6 -		
	1	Hammerman - -	- 2 6	"	- 2 6		
	1	Bellows Boy - -	- 2 6	"	- 2 6		
	2	Carpenters - -	- 6 -	"	- 12 -		
	1	Chowkedar - -	- 2 3	"	- 2 3		
	5	Masons - -	- 7 -	"	2 3 -		
	2	Ditto - -	- 6 6	"	- 13 -		
	5	Ditto - -	- 5 -	"	1 9 -		
	7	Ditto - -	- 6 4	"	2 12 4		
	7	Ditto - -	- 6 -	"	2 10 -		
	1	Ditto - -	- 4 -	"	- 4 -		
	2	Stonecutters - -	- 6 11	"	- 13 10		
	4	Ditto - -	- 7 -	"	1 12 -		
	1	Ditto - -	- 6 6	"	- 6 6		
	83	Biggaries - -	- 2 -	"	10 6 -		
	35	Women - -	- 1 3	"	2 11 9		
	12	Boys - -	- 1 -	"	- 12 -	31 - 5	
February 5	1	Carcoon - -	- 5 9	"	- 5 9		
	1	Maistry - -	- 11 5	"	- 11 5		
	1	Ditto - -	- 8 5	"	- 8 5		
	2	Muckadums - -	- 2 10	"	- 5 8		
	1	Smith - -	- 6 6	"	- 6 6		
	1	Ditto - -	- 6 -	"	- 6 -		
	1	Hammerman - -	- 2 6	"	- 2 6		
	1	Bellows Boy - -	- 2 6	"	- 2 6		
	3	Carpenters - -	- 6 -	"	1 2 -		
	1	Chowkedar - -	- 2 3	"	- 2 3		
	1	Carpenter's Boy - -	- 2 -	"	- 2 -		
	5	Masons - -	- 7 -	"	2 3 -		
	2	Ditto - -	- 6 6	"	- 13 -		
	5	Ditto - -	- 5 -	"	1 9 -		
	7	Ditto - -	- 6 4	"	2 12 4		
	7	Ditto - -	- 6 -	"	2 10 -		
	1	Ditto - -	- 4 -	"	- 4 -		
	2	Stonecutters - -	- 6 11	"	- 13 10		
	4	Ditto - -	- 7 -	"	1 12 -		
	1	Ditto - -	- 6 6	"	- 6 6		
	1	Ditto - -	- 6 -	"	- 6 -		
	84	Biggaries - -	- 2 -	"	10 8 -		
	40	Women - -	- 1 3	"	3 2 -		
	12	Boys - -	- 1 -	"	- 12 -	32 6 8	
February 6	1	Carcoon - -	- 5 9	"	- 5 9		
	1	Maistry - -	- 11 5	"	- 11 5		
	2	Ditto - -	- 8 5	"	1 - 10		
	2	Muckadums - -	- 2 10	"	- 5 8		
	1	Smith - -	- 6 6	"	- 6 6		
	1	Ditto - -	- 6 -	"	- 6 -		
	1	Hammerman - -	- 2 6	"	- 2 6		
	1	Bellows Boy - -	- 2 6	"	- 2 6		
	3	Carpenters - -	- 6 -	"	1 2 -		
	1	Chowkedar - -	- 2 3	"	- 2 3		
	1	Carpenter's boy - -	- 2 -	"	- 2 -		
	5	Masons - -	- 7 -	"	2 3 -		
	2	Ditto - -	- 6 6	"	- 13 -		
	5	Ditto - -	- 5 -	"	1 9 -		
	7	Ditto - -	- 6 4	"	2 12 4		
	7	Ditto - -	- 6 -	"	2 10 -		
	1	Ditto - -	- 4 -	"	- 4 -		
		Carried forward - - -		<i>Rs.</i>	15 2 9	146 2 10	

No. 7.—DAY BOOK OF LABOUR—continued.

Appendix (C.)

Date.	No.	ITEMS.	Rate.	Per	Amount.	TOTAL.	GRAND TOTAL.
			<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>
1851:		Brought forward	-	-	15 2 9	146 2 10	
February 6 (contd).	2	Stonecutters	6 11	each	- 13 10		
	1	Ditto	5 -	"	- 5 -		
	4	Ditto	7 -	"	1 12 -		
	1	Ditto	6 6	"	- 6 6		
	1	Ditto	6 -	"	- 6 -		
	1	Ditto	4 -	"	- 4 -		
	70	Biggaries	1 3	"	8 12 -		
	35	Women	1 3	"	2 11 9		
	10	Boys	1 -	"	- 10 -		
						31 3 10	
February 7	1	Carcoon	5 9	"	- 5 9		
	1	Maistry	11 5	"	- 11 5		
	2	Ditto	8 5	"	1 - 10		
	2	Muckadums	2 10	"	- 5 8		
	1	Smith	6 6	"	- 6 6		
	1	Ditto	6 -	"	- 6 -		
	1	Hammerman	2 6	"	- 2 6		
	1	Bellows Boy	2 6	"	- 2 6		
	3	Carpenters	6 -	"	1 2 -		
	1	Chowkedar	2 3	"	- 2 3		
	2	Carpenter's Boys	2 -	"	- 4 -		
	5	Masons	7 -	"	2 3 -		
	2	Ditto	6 6	"	- 13 -		
	5	Ditto	5 -	"	1 9 -		
	7	Ditto	6 4	"	2 12 4		
	7	Ditto	6 -	"	2 10 -		
	1	Ditto	4 -	"	- 4 -		
	2	Stonecutters	6 11	"	- 13 10		
	2	Ditto	5 -	"	- 10 -		
	1	Ditto	6 3	"	- 6 3		
	4	Ditto	7 -	"	1 12 -		
	1	Ditto	6 6	"	- 6 6		
	3	Ditto	6 -	"	1 2 -		
	1	Ditto	4 -	"	- 4 -		
	82	Biggaries	2 -	"	10 4 -		
	36	Women	1 3	"	2 13 -		
	12	Boys	1 -	"	- 12 -		
						34 8 4	
February 8	1	Carcoon	5 9	"	- 5 9		
	1	Maistry	11 5	"	- 11 5		
	2	Ditto	8 5	"	1 - 10		
	2	Muckadums	2 10	"	- 5 8		
	1	Smith	6 6	"	- 6 6		
	1	Ditto	6 -	"	- 6 -		
	1	Hammerman	2 6	"	- 2 6		
	1	Bellows Boy	2 6	"	- 2 6		
	3	Carpenters	6 -	"	1 2 -		
	1	Chowkedar	2 3	"	- 2 3		
	2	Carpenter's Boys	2 -	"	- 4 -		
	6	Masons	7 -	"	2 3 -		
	2	Ditto	6 6	"	- 13 -		
	5	Ditto	5 -	"	1 9 -		
	6	Ditto	6 4	"	2 6 -		
	7	Ditto	6 -	"	2 10 -		
	1	Ditto	4 -	"	- 4 -		
	2	Stonecutters	6 11	"	- 13 10		
	2	Ditto	5 -	"	- 10 -		
	1	Ditto	6 3	"	- 6 3		
	4	Ditto	7 -	"	1 12 -		
	1	Ditto	6 6	"	- 6 6		
	3	Ditto	6 -	"	1 2 -		
	1	Ditto	4 -	"	- 4 -		
	87	Biggaries	2 -	"	10 14 -		
	36	Women	1 3	"	2 13 -		
	12	Boys	1 -	"	- 12 -		
						34 12 -	
		Carried forward			<i>Rs.</i> 246 11 -		

Appendix (C.)

## No. 7.—DAY BOOK of LABOUR—continued.

Date.	No.	I T E M S.	Rate.	Per	Amount.	TOTAL.	GRAND TOTAL.
			Rs. a. p.		Rs. a. p.	Rs. a. p.	Rs. a. p.
			Brought forward - - -			246 11 -	
1851:							
February 9	1	Caroon - - -	5 9	each	5 9		
	1	Maistry - - -	11 5	"	11 5		
	2	Ditto - - -	8 5	"	1 10		
	2	Muckadums - -	2 10	"	5 8		
	1	Smith - - -	6 6	"	6 6		
	1	Ditto - - -	6 -	"	0 -		
	1	Hammerman - -	2 6	"	2 6		
	1	Bellows Boy - -	2 6	"	2 6		
	1	Carpenter - - -	6 -	"	6 -		
	1	Chowkedar - - -	2 3	"	2 3		
	5	Masons - - -	7 -	"	2 3 -		
	2	Ditto - - -	6 6	"	13 -		
	3	Ditto - - -	5 -	"	15 -		
	5	Ditto - - -	6 4	"	1 15 8		
	7	Ditto - - -	6 -	"	2 10 -		
	1	Ditto - - -	4 -	"	4 -		
	2	Stonecutters -	6 11	"	13 10		
	1	Ditto - - -	5 -	"	5 -		
	1	Ditto - - -	6 3	"	6 3		
	4	Ditto - - -	7 -	"	1 12 -		
	1	Ditto - - -	6 6	"	6 6		
	2	Ditto - - -	6 -	"	12 -		
	2	Biggarics - - -	2 -	"	4 -		
						17 9 8	
February 10	1	Caroon - - -	5 9	"	5 9		
	1	Maistry - - -	11 5	"	11 5		
	2	Ditto - - -	8 5	"	1 10		
	2	Muckadums - -	2 10	"	5 8		
	1	Smith - - -	6 6	"	6 6		
	1	Ditto - - -	6 -	"	6 -		
	1	Hammerman - -	2 6	"	2 6		
	1	Bellows Boy - -	2 6	"	2 6		
	3	Carpenters - - -	6 -	"	1 2 -		
	1	Chowkedar - - -	2 3	"	2 3		
	2	Carpenter's boys	2 -	"	4 -		
	5	Masons - - -	7 -	"	2 3 -		
	2	Ditto - - -	6 6	"	13 -		
	4	Ditto - - -	5 -	"	1 4 -		
	3	Ditto - - -	6 4	"	1 3 -		
	7	Ditto - - -	6 -	"	2 10 -		
	1	Ditto - - -	4 -	"	4 -		
	2	Stonecutters -	6 11	"	13 10		
	2	Ditto - - -	5 -	"	10 -		
	1	Ditto - - -	6 3	"	6 3		
	4	Ditto - - -	7 -	"	1 12 -		
	1	Ditto - - -	6 6	"	6 6		
	2	Ditto - - -	6 -	"	12 -		
	1	Ditto - - -	4 -	"	4 -		
	84	Biggarics - - -	2 -	"	10 8 -		
	38	Women - - -	1 3	"	2 15 6		
	11	Boys - - -	1 -	"	11 -		
						32 9 6	
February 11	1	Caroon - - -	5 9	"	5 9		
	1	Maistry - - -	11 5	"	11 5		
	2	Ditto - - -	8 5	"	1 10		
	2	Muckadums - -	2 10	"	5 8		
	1	Smith - - -	6 6	"	6 6		
	1	Ditto - - -	6 -	"	6 -		
	1	Hammerman - -	2 6	"	2 6		
	1	Bellows Boy - -	2 6	"	2 6		
	3	Carpenters - - -	6 -	"	1 2 -		
	1	Chowkedar - - -	2 3	"	2 3		
	1	Carpenter's Boy	2 -	"	2 -		
	5	Masons - - -	7 -	"	2 3 -		
	2	Ditto - - -	6 6	"	13 -		
	5	Ditto - - -	5 -	"	1 9 -		
	6	Ditto - - -	6 4	"	2 6 -		
	8	Ditto - - -	6 -	"	3 -		
	1	Ditto - - -	4 -	"	4 -		
		Carried forward - - -		Rs.	15 2 5	296 14 2	

No. 7.--DAY BOOK of LABOUR--continued.

Appendix (C)

Date.	No.	ITEMS.	Rate.	Per	Amount.	TOTAL.	GRAND TOTAL.
			<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>
1851:		Brought forward	- - -		15 2 5	296 14 2	
February 11 (cont <sup>d</sup> ).	2	Stonecutters	- 6 11	each	- 13 10		
	2	Ditto	- 5 -	"	- 10 -		
	1	Ditto	- 6 3	"	- 6 3		
	4	Ditto	- 7 -	"	1 12 -		
	1	Ditto	- 6 6	"	- 6 6		
	2	Ditto	- 6 -	"	- 12 -		
	1	Ditto	- 4 -	"	- 4 -		
	85	Biggaries	- 2 -	"	10 10 -		
	3 9	Women	- 1 3	"	3 - 9		
	1 1	Boys	- 1 -	"	- 11 -		
						34 8 9	
February 12	1	Calkoon	- 5 9	"	- 5 9		
	1	Maistry	- 11 5	"	- 11 5		
	2	Ditto	- 8 5	"	1 - 10		
	2	Muckadums	- 2 10	"	- 5 8		
	1	Smith	- 6 6	"	- 6 6		
	1	Ditto	- 6 -	"	- 6 -		
	1	Hammerman	- 2 6	"	- 2 6		
	1	Bellows Boy	- 2 6	"	- 2 6		
	2	Carpenters	- 6 -	"	- 12 -		
	1	Chowkedar	- 2 3	"	- 2 3		
	1	Carpenter's Boy	- 2 -	"	- 2 -		
	5	Masons	- 7 -	"	2 3 -		
	2	Ditto	- 6 6	"	- 13 -		
	4	Ditto	- 5 -	"	1 4 -		
	7	Ditto	- 6 4	"	2 12 4		
	8	Ditto	- 6 -	"	3 - -		
	1	Ditto	- 4 -	"	- 4 -		
	4	Stonecutters	- 6 11	"	1 11 8		
	2	Ditto	- 5 -	"	- 10 -		
	1	Ditto	- 6 3	"	- 6 3		
	4	Ditto	- 7 -	"	1 12 -		
	1	Ditto	- 6 4	"	- 6 6		
	4	Ditto	- 6 -	"	1 8 -		
	1	Ditto	- 4 -	"	- 4 -		
	86	Biggaries	- 2 -	"	10 12 -		
	41	Women	- 1 3	"	3 3 3		
	11	Boys	- 1 -	"	- 11 -		
						36 2 5	
February 13	1	Carkoon	- 5 9	"	- 5 9		
	1	Maistry	- 11 5	"	- 11 5		
	2	Ditto	- 8 5	"	1 - 10		
	2	Muckadums	- 2 10	"	- 5 8		
	1	Smith	- 6 6	"	- 6 6		
	1	Ditto	- 6 -	"	- 6 -		
	1	Hammerman	- 2 6	"	- 2 6		
	1	Bellows Boy	- 2 6	"	- 2 6		
	12*	Carpenters	*- 6 -	"	- 6 -		
	1	Chowkedar	- 2 3	"	- 2 3		
	1	Carpenter's Boy	- 2 -	"	- 2 -		
	5	Masons	- 7 -	"	2 3 -		
	2	Ditto	- 6 6	"	- 13 -		
	4	Ditto	- 5 -	"	1 4 -		
	7	Ditto	- 6 4	"	2 12 4		
	7½	Ditto	- 6 -	"	2 13 -		
	1	Ditto	- 4 -	"	- 4 -		
	4	Stonecutters	- 6 11	"	1 11 8		
	2	Ditto	- 5 -	"	- 10 -		
	1	Ditto	- 6 3	"	- 6 3		
	4	Ditto	- 7 -	"	1 12 -		
	1	Ditto	- 6 3	"	- 6 3		
	4	Ditto	- 6 -	"	1 8 -		
	1	Ditto	- 4 -	"	- 4 -		
	86	Biggaries	- 2 -	"	10 12 -		
	42	Women	- 1 3	"	3 4 6		
	11	Boys	- 1 -	"	- 11 -		
						35 10 8	
		Carried forward	- - -	<i>Rs.</i>	403 4 -		

\* Sic orig.

Appendix (C.)

## No. 7.—DAY BOOK of LABOUR—continued.

Date.	No.	ITEMS.	Rate.	Per	Amount.	TOTAL.	GRAND TOTAL.
			<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>
1851:			Brought forward - - -			403 4 -	
February 14	1	Carcoon - -	5 9	each	5 9		
	1	Maistry - -	11 5	"	11 5		
	2	Ditto - -	8 5	"	1 10		
	2	Muckadums - -	2 10	"	5 8		
	1	Smith - -	6 6	"	6 6		
	1	Hammerman - -	2 6	"	2 6		
	1	Bellows Boy - -	2 6	"	2 6		
	2	Carpenters - -	6 -	"	12 -		
	1	Chowkedar - -	2 3	"	2 3		
	1	Carpenter's Boy - -	2 -	"	2 -		
	5	Masons - -	7 -	"	2 3 -		
	2	Ditto - -	6 6	"	13 -		
	4	Ditto - -	5 -	"	1 4 -		
	7	Ditto - -	6 4	"	2 12 4		
	8	Ditto - -	6 -	"	3 - -		
	1	Ditto - -	4 -	"	4 - -		
	4	Stonecutters - -	6 11	"	1 11 8		
	1	Ditto - -	5 -	"	5 - -		
	1	Ditto - -	6 3	"	6 3		
	4	Ditto - -	7 -	"	1 12 -		
	1	Ditto - -	6 6	"	6 6		
	2	Ditto - -	6 -	"	12 -		
	85	Biggaries - -	2 -	"	10 10 -		
	43	Women - -	1 3	"	3 5 9		
	10	Boys - -	1 -	"	10 -		
						34 6 11	
February 15	1	Carcoon - -	5 9	"	5 9		
	1	Maistry - -	11 5	"	11 5		
	2	Ditto - -	8 5	"	1 10		
	2	Muckadums - -	2 10	"	5 8		
	1	Smith - -	6 6	"	6 6		
	1	Hammerman - -	2 6	"	2 6		
	1	Bellows Boy - -	2 6	"	2 6		
	1	Carpenter - -	6 -	"	6 -		
	1	Chowkedar - -	2 3	"	2 3		
	5	Masons - -	7 -	"	2 3 -		
	2	Ditto - -	6 6	"	13 -		
	4	Ditto - -	5 -	"	1 4 -		
	9	Ditto - -	6 4	"	3 9 -		
	8	Ditto - -	6 -	"	3 - -		
	1	Ditto - -	4 -	"	4 - -		
	4	Stonecutters - -	6 11	"	1 11 8		
	2	Ditto - -	5 -	"	10 -		
	1	Ditto - -	6 3	"	6 3		
	4	Ditto - -	7 -	"	1 12 -		
	1	Ditto - -	6 6	"	6 6		
	3	Ditto - -	6 -	"	1 2 -		
	85	Biggaries - -	2 -	"	10 10 -		
	42	Women - -	1 3	"	3 4 6		
	10	Boys - -	1 -	"	10 -		
						35 5 4	
February 16	1	Carcoon - -	5 9	"	5 9		
	1	Maistry - -	11 5	"	11 5		
	2	Ditto - -	8 5	"	1 10		
	2	Muckadums - -	2 10	"	5 8		
	1	Smith - -	6 6	"	6 6		
	1	Hammerman - -	2 6	"	2 6		
	1	Bellows Boy - -	2 6	"	2 6		
	1	Carpenter - -	6 -	"	6 -		
	1	Chowkedar - -	2 3	"	2 3		
	5	Masons - -	7 -	"	2 3 -		
	2	Ditto - -	6 6	"	13 -		
	3	Ditto - -	5 -	"	1 5 -		
	5	Ditto - -	6 4	"	1 15 8		
	7	Ditto - -	6 -	"	2 10 -		
	1	Ditto - -	4 -	"	4 - -		
		Carried forward - - -		<i>Rs.</i>	12 8 1	473 - 3	

No. 7.—DAY BOOK of LABOUR—continued.

Appendix (C.)

Date	No.	ITEMS.	Rate	Per	Amount.	TOTAL.	GRAND TOTAL.
			Rs. a. p.		Rs. a. p.	Rs. a. p.	Rs. a. p.
1851:		Brought forward	- - -		12 8 1	473 - 3	
February 16 (cont <sup>d</sup> )	2	Stonecutters	- 6 11	each	- 13 10		
	1	Ditto	- 6 3	"	- 6 3		
	1	Ditto	- 5 -	"	- 5 -		
	4	Ditto	- 7 -	"	1 12 -		
	1	Ditto	- 6 6	"	- 6 6		
	2	Ditto	- 6 -	"	- 12 -		
	2	Biggaries	- 2 -	"	- 4 -		
						17 3 8	
February 17	1	Caroon	- 5 9	"	- 5 9		
	1	Maistry	- 11 5	"	- 11 5		
	1	Ditto	- 8 5	"	- 8 5		
	2	Muckadums	- 2 10	"	- 5 8		
	1	Smith	- 6 6	"	- 6 6		
	1	Bellows Boy	- 2 6	"	- 2 6		
	1	Hammerman	- 2 6	"	- 2 6		
	1	Carpenter	- 6 -	"	- 6 -		
	1	Chowkedar	- 2 3	"	- 2 3		
	5	Masons	- 7 -	"	2 3 -		
	2	Ditto	- 6 6	"	- 13 -		
	4	Ditto	- 5 -	"	1 4 -		
	7	Ditto	- 6 4	"	2 12 4		
	7	Ditto	- 6 -	"	2 10 -		
	1	Ditto	- 4 -	"	- 4 -		
	4	Stonecutters	- 6 11	"	1 11 8		
	2	Ditto	- 5 -	"	- 10 -		
	4	Ditto	- 7 -	"	1 12 -		
	1	Ditto	- 6 6	"	- 6 6		
	3	Ditto	- 6 -	"	1 2 -		
	90	Biggaries	- 2 -	"	11 4 -		
	42	Women	- 1 3	"	3 4 6		
	8	Boys	- 1 -	"	- 8 -		
						33 12 -	
February 18	1	Caroon	- 5 9	"	- 5 9		
	1	Maistry	- 11 5	"	- 11 5		
	1	Ditto	- 8 5	"	- 8 5		
	1	Smith	- 6 6	"	- 6 6		
	1	Hammerman	- 2 6	"	- 2 6		
	1	Bellows Boy	- 2 6	"	- 2 6		
	2	Muckadums	- 2 10	"	- 5 8		
	1	Carpenter	- 6 -	"	- 6 -		
	1	Chowkedar	- 2 3	"	- 2 3		
	5	Masons	- 7 -	"	2 3 -		
	2	Ditto	- 6 6	"	- 13 -		
	4	Ditto	- 5 -	"	1 4 -		
	7	Ditto	- 6 4	"	2 12 4		
	7	Ditto	- 6 -	"	2 10 -		
	1	Ditto	- 4 -	"	- 4 -		
	1	Ditto	- 3 -	"	- 3 -		
	4	Stonecutters	- 6 11	"	1 11 8		
	2	Ditto	- 5 -	"	- 10 -		
	4	Ditto	- 7 -	"	1 12 -		
	1	Ditto	- 6 6	"	- 6 6		
	3	Ditto	- 6 -	"	1 2 -		
	85	Biggaries	- 2 -	"	10 10 -		
	41	Women	- 1 3	"	3 3 3		
	8	Boys	- 1 -	"	- 8 -		
						33 3 9	
February 19	1	Caroon	- 5 9	"	- 5 9		
	1	Maistry	- 11 5	"	- 11 5		
	1	Ditto	- 8 5	"	- 8 5		
	2	Muckadums	- 2 10	"	- 5 8		
	1	Smith	- 6 6	"	- 6 6		
	1	Hammerman	- 2 6	"	- 2 6		
	1	Bellows Boy	- 2 6	"	- 2 6		
	2	Carpenters	- 6 -	"	- 12 -		
	1	Chowkedar	- 2 3	"	- 2 3		
		Carried forward	- - - Rs.		3 9 -	557 3 8	



Appendix (C.)

No. 7.—DAY BOOK of LABOUR—continued.

Date.	No.	ITEMS.	Rate.	Per	Amount.	TOTAL.	GRAND TOTAL.
			<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>
1851:		Brought forward	- - -		3 9 -	557 3 8	
February 19 (cont <sup>d</sup> )	2	Masons	- 6 6	each	- 13 -		
	5	Ditto	- 7 -	"	2 3 -		
	3	Ditto	- 5 -	"	- 15 -		
	7	Ditto	- 6 4	"	2 12 4		
	7	Ditto	- 6 -	"	2 10 -		
	1	Ditto	- 4 -	"	- 4 -		
	1	Ditto	- 3 -	"	- 3 -		
	4	Stonecutters	- 6 11	"	1 11 8		
	2	Ditto	- 5 -	"	- 10 -		
	1	Ditto	- 6 3	"	- 6 3		
	4	Ditto	- 7 -	"	1 12 -		
	1	Ditto	- 6 6	"	- 6 6		
	3	Ditto	- 6 -	"	1 2 -		
	87	Biggaries	- 2 -	"	10 14 -		
	46	Women	- 1 3	"	3 0 6		
	12	Boys	- 1 -	"	- 12 -		
						34 0 3	
February 20	1	Carkoon	- 5 9	"	- 5 9		
	1	Maistry	- 11 5	"	- 11 5		
	2	Ditto	- 8 5	"	1 - 10		
	2	Muckadums	- 2 10	"	- 5 8		
	1	Smith	- 6 6	"	- 6 6		
	1	Hammerman	- 2 6	"	- 2 6		
	1	Bellows Boy	- 2 6	"	- 2 6		
	2	Carpenters	- 6 -	"	- 12 -		
	1	Chowkedar	- 2 3	"	- 2 3		
	5	Masons	- 7 -	"	2 3 -		
	2	Ditto	- 6 6	"	- 13 -		
	3	Ditto	- 5 -	"	- 15 -		
	8	Ditto	- 6 4	"	3 2 8		
	8	Ditto	- 6 -	"	3 - -		
	1	Ditto	- 4 -	"	- 4 -		
	1	Ditto	- 3 -	"	- 3 -		
	4	Stonecutters	- 6 11	"	1 11 8		
	2	Ditto	- 5 -	"	- 10 -		
	4	Ditto	- 7 -	"	1 12 -		
	1	Ditto	- 6 6	"	- 6 6		
	3	Ditto	- 6 -	"	1 2 -		
	87	Biggaries	- 2 -	"	10 14 -		
	44	Women	- 1 3	"	3 7 -		
	12	Boys	- 1 -	"	- 12 -		
	1	Stonecutter	- 6 3	"	- 6 3		
						35 11 6	
February 21	1	Carkoon	- 5 9	"	- 5 9		
	1	Maistry	- 11 5	"	- 11 5		
	2	Ditto	- 8 5	"	1 - 10		
	2	Muckadums	- 2 10	"	- 5 8		
	1	Smith	- 6 6	"	- 6 6		
	1	Hammerman	- 2 6	"	- 2 6		
	1	Bellows Boy	- 2 6	"	- 2 6		
	2	Carpenters	- 6 -	"	- 12 -		
	1	Chowkedar	- 2 3	"	- 2 3		
	5	Masons	- 7 -	"	2 3 -		
	2	Ditto	- 6 6	"	- 13 -		
	4	Ditto	- 5 -	"	1 4 -		
	8	Ditto	- 6 4	"	3 2 8		
	7	Ditto	- 6 -	"	2 10 -		
	1	Ditto	- 4 -	"	- 4 -		
	1	Ditto	- 3 -	"	- 3 -		
	4	Stonecutters	- 6 11	"	1 11 8		
	2	Ditto	- 5 -	"	- 10 -		
	1	Ditto	- 6 3	"	- 6 3		
	4	Ditto	- 7 -	"	1 12 -		
	1	Ditto	- 6 6	"	- 6 6		
	3	Ditto	- 6 -	"	1 2 -		
		Carried forward	- - -	<i>Rs.</i>	20 9 6	627 8 5	

No. 7.—DAY BOOK OF LABOUR—continued.

Appendix (C)

Date.	No	ITEMS.	Rate.	Per	Amount.	TOTAL.	GRAND TOTAL
			<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>
1851:		Brought forward	-	-	20 9 6	627 8 5	
February 21 (cont <sup>d</sup> )	87	Biggaries	2	each	10 14 -		
	43	Women	1 3	"	3 5 9		
	12	Boys	1 -	"	- 12 -		
						35 9 3	
February 22	1	Carkoon	5 9	"	- 5 9		
	1	Maistry	11 5	"	- 11 5		
	2	Ditto	8 5	"	1 - 10		
	2	Muckadums	2 10	"	- 5 8		
	1	Smith	6 6	"	- 6 6		
	1	Hammerman	2 6	"	- 2 6		
	1	Bellows Boy	2 6	"	- 2 6		
	2	Carpenters	6 -	"	- 12 -		
	1	Chowkedar	2 3	"	- 2 3		
	5	Masons	7 -	"	2 3 -		
	2	Ditto	6 6	"	- 13 -		
	4	Ditto	5 -	"	1 4 -		
	8	Ditto	6 4	"	3 2 8		
	9½	Ditto	6 -	"	3 9 -		
	1	Ditto	4 -	"	- 4 -		
	1	Ditto	3 -	"	- 3 -		
	4	Stonecutters	6 11	"	1 11 8		
	2	Ditto	5 -	"	- 10 -		
	4	Ditto	7 -	"	1 12 -		
	1	Ditto	6 6	"	- 6 6		
	4	Ditto	6 -	"	1 8 -		
	84	Biggaries	2 -	"	10 8 -		
	42	Women	1 3	"	3 4 6		
	12	Boys	1 -	"	- 12 -		
	1	Stonecutter	6 3	"	- 6 3		
						36 7 -	
February 23	1	Carkoon	5 9	"	- 5 9		
	1	Maistry	11 5	"	- 11 5		
	2	Ditto	8 5	"	1 - 10		
	2	Muckadums	2 10	"	- 5 8		
	1	Smith	6 6	"	- 6 6		
	1	Hammerman	2 6	"	- 2 6		
	1	Bellows Boy	2 6	"	- 2 6		
	1	Chowkedar	2 3	"	- 2 3		
	3	Biggaries	2 -	"	- 6 -		
	1	Carpenter	6 -	"	- 6 -		
						4 1 5	
February 24	1	Carkoon	5 9	"	- 5 9		
	1	Maistry	11 5	"	- 11 5		
	2	Ditto	8 5	"	1 - 10		
	2	Muckadums	2 10	"	- 5 8		
	1	Smith	6 6	"	- 6 6		
	1	Hammerman	2 6	"	- 2 6		
	1	Bellows Boy	2 6	"	- 2 6		
	1	Carpenter	6 -	"	- 6 -		
	1	Chowkedar	2 3	"	- 2 3		
	5	Masons	7 -	"	2 3 -		
	2	Ditto	6 6	"	- 13 -		
	4	Ditto	5 -	"	1 4 -		
	8	Ditto	6 4	"	3 2 8		
	8	Ditto	6 -	"	3 - -		
	1	Ditto	4 -	"	- 4 -		
	1	Ditto	3 -	"	- 3 -		
	4	Stonecutters	6 11	"	1 11 8		
	2	Ditto	5 -	"	- 10 -		
	2	Ditto	6 3	"	- 12 6		
	4	Ditto	7 -	"	1 12 -		
	1	Ditto	6 6	"	- 6 6		
	4	Ditto	6 -	"	1 8 -		
	83	Biggaries	2 -	"	10 6 -		
	43	Women	1 3	"	3 5 9		
	12	Boys	1 -	"	- 12 -		
						35 13 6	
		Carried forward	-	-	<i>Rs.</i> 739 7 7		

## No. 7.—DAY BOOK OF LABOUR—continued.

Appendix (C.)

Date.	No.	ITEMS.	Rate.	Per	Amount.	TOTAL.	GRAND TOTAL.
			<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>
1851:			Brought forward		- - -	739 7 7	
February 25	1	Carcoon	- 5 9	each	- 5 9		
	1	Maistry	- 11 5	"	- 11 5		
	2	Ditto	- 8 5	"	1 - 10		
	2	Muckadums	- 2 10	"	- 5 8		
	1	Smith -	- 6 6	"	- 6 6		
	1	Hammerman	- 2 6	"	- 2 6		
	1	Bellows Boy	- 2 6	"	- 2 6		
	1	Carpenter	- 6 -	"	- 6 -		
	1	Chowkedar	- 2 3	"	- 2 3		
	5	Masons	- 7 -	"	2 3 -		
	2	Ditto	- 6 6	"	- 13 -		
	4	Ditto	- 5 -	"	1 4 -		
	7	Ditto	- 6 4	"	2 12 4		
	8	Ditto	- 6 -	"	3 - -		
	1	Ditto	- 4 -	"	- 4 -		
	1	Ditto	- 3 -	"	- 3 -		
	4	Stonecutters	- 6 11	"	1 11 8		
	2	Ditto	- 5 -	"	- 10 -		
	2	Ditto	- 6 3	"	- 12 6		
	4	Ditto	- 7 -	"	1 12 -		
	1	Ditto	- 6 6	"	- 6 6		
	4	Ditto	- 6 -	"	1 8 -		
	84	Biggaries	- 2 -	"	10 8 -		
	41	Women	- 1 3	"	8 3 3		
	12	Boys -	- 1 -	"	- 12 -		
						35 6 8	
February 26	1	Carcoon	- 5 9	"	- 5 9		
	1	Maistry	- 11 5	"	- 11 5		
	1	Ditto	- 8 5	"	- 8 5		
	2	Muckadums	- 2 10	"	- 5 8		
	1	Smith -	- 6 6	"	- 6 6		
	1	Hammerman	- 2 6	"	- 2 6		
	1	Bellows Boy	- 2 6	"	- 2 6		
	1	Carpenter	- 6 -	"	- 6 -		
	1	Chowkedar	- 2 3	"	- 2 3		
	5	Masons	- 7 -	"	2 3 -		
	1	Ditto	- 6 6	"	- 6 6		
	4	Ditto	- 5 -	"	1 4 -		
	7	Ditto	- 6 4	"	2 12 4		
	8	Ditto	- 6 -	"	3 - -		
	1	Ditto	- 4 -	"	- 4 -		
	1	Ditto	- 3 -	"	- 3 -		
	3	Stonecutters	- 6 11	"	1 4 9		
	2	Ditto	- 5 -	"	- 10 -		
	1	Ditto	- 6 3	"	- 6 3		
	4	Ditto	- 7 -	"	1 12 -		
	1	Ditto	- 6 6	"	- 6 6		
	5	Ditto	- 6 -	"	1 14 -		
	87	Biggaries	- 2 -	"	10 14 -		
	42	Women	- 1 3	"	3 4 8		
	12	Boys -	- 1 -	"	- 12 -		
						34 7 10	
February 27	1	Carcoon	- 5 9	"	- 5 9		
	1	Maistry	- 11 5	"	- 11 5		
	2	Ditto	- 8 5	"	1 - 10		
	2	Muckadums	- 2 10	"	- 5 8		
	1	Smith -	- 6 6	"	- 6 6		
	1	Hammerman	- 2 6	"	- 2 6		
	1	Bellows Boy	- 2 6	"	- 2 6		
	1	Carpenter	- 6 -	"	- 6 -		
	1	Chowkedar	- 2 3	"	- 2 3		
	5	Masons	- 7 -	"	2 3 -		
	2	Ditto	- 6 5	"	- 13 -		
	4	Ditto	- 5 -	"	1 4 -		
	7	Ditto	- 6 4	"	2 12 4		
	8	Ditto	- 6 -	"	3 - -		
	1	Ditto	- 4 -	"	- 4 -		
	1	Ditto	- 3 -	"	- 3 -		
		Carried forward	- - -	<i>Rs.</i>	14 2 9	809 6 1	

No. 7.—DAY BOOK of LABOUR—continued.

Date.	No.	ITEMS.	Rate.	Per	Amount.	TOTAL.	GRAND TOTAL.
			<i>Rs. a. p.</i>		<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>
		Brought forward	- - -		14 2 9	809 6 1	
February 27 (cont <sup>d</sup> )	4	Stonecutters	- 6 11	each	1 11 8		
	1	Ditto	- 5 3	"	- 5 3		
	2	Ditto	- 5 -	"	- 10 -		
	2	Ditto	- 6 3	"	- 12 6		
	4	Ditto	- 7 -	"	1 12 -		
	1	Ditto	- 6 6	"	- 6 6		
	6	Ditto	- 6 -	"	2 4 -		
	86	Biggaries	- 2 -	"	10 12 -		
	41	Women	- 1 3	"	3 3 3		
	12	Boys	- 1 -	"	- 12 -		
						36 11 11	
February 28	1	Carkoon	- 5 9	"	- 5 9		
	1	Maistry	- 11 5	"	- 11 5		
	2	Ditto	- 8 5	"	1 - 10		
	2	Muckadums	- 2 10	"	- 5 8		
	I	Smth	- 6 6	"	- 6 6		
	I	Hammerman	- 2 6	"	- 2 6		
	I	Bellows Boy	- 2 6	"	- 2 6		
	1	Carpenter	- 6 -	"	- 6 -		
	I	Chowkedar	- 2 3	"	- 2 3		
	5	Masons	- 7 -	"	2 3 -		
	1½	Ditto	- 6 6	"	- 9 9		
	3½	Ditto	- 5 -	"	1 1 6		
	7	Ditto	- 6 4	"	2 12 4		
	8	Ditto	- 6 -	"	3 - -		
	1	Ditto	- 4 -	"	- 4 -		
	1	Ditto	- 3 -	"	- 3 -		
	4	Stonecutters	- 6 11	"	1 11 8		
	1	Ditto	- 5 3	"	- 5 3		
	2	Ditto	- 5 -	"	- 10 -		
	1	Ditto	- 6 3	"	- 6 3		
	3	Ditto	- 7 -	"	1 5 -		
	I	Ditto	- 6 6	"	- 6 6		
	6	Ditto	- 6 -	"	2 4 -		
	86	Biggaries	- 2 -	"	10 12 -		
	42	Women	- 1 3	"	3 4 6		
	11	Boys	- 1 -	"	- 11 -		
						35 9 2	
TOTAL LABOUR						- - - Rs.	881 11 2
Materials, as per Stock Sheet						- - -	1,545 9 7
GRAND TOTAL						- - - Rs.	2,427 4 9

(signed) W. Chapman, Lieutenant.

DAILY OF FIGURED ABSTRACT

LABOUR

DATE.	Carloons.		Muckadums.		Maistry.		Biggaries.		Women.		Boys.		Carts.
	No	Rs a p.	No.	Rs. a. p.	No.	Rs. a. p.	No.	Rs. a. p.	No.	Rs. a. p.	No.	Rs. a. p.	
1851 February - 1	1	- 5 9	2	- 5 8	2	1 3 10	90	11 4 -	33	2 9 3	12	- 12 -	-
2	1	- 5 9	2	- 5 8	2	1 3 10	63	7 10 -	25	1 12 9	7	- 7 -	-
3	1	- 5 9	2	- 5 8	2	1 3 10	81	10 2 -	35	2 11 9	15	- 15 -	-
4	1	- 5 9	2	- 5 8	2	1 3 10	83	10 6 -	35	2 11 9	12	- 12 -	-
5	1	- 5 9	2	- 5 8	2	1 3 10	84	10 8 -	40	3 2 -	12	- 12 -	-
6	1	- 5 9	2	- 5 8	3	1 12 3	70	8 12 -	35	2 11 9	10	- 10 -	-
7	1	- 5 9	2	- 5 8	3	1 12 3	82	10 4 -	36	2 13 -	12	- 12 -	-
8	1	- 5 9	2	- 5 8	3	1 12 3	87	10 14 -	36	2 13 -	12	- 12 -	-
9	1	- 5 9	2	- 5 8	3	1 12 3	2	- 4 -	-	- - -	-	- - -	-
10	1	- 5 9	2	- 5 8	3	1 12 3	84	10 8 -	38	2 15 6	11	- 11 -	-
11	1	- 5 9	2	- 5 8	3	1 12 3	85	- 10 10	39	3 - 9	11	- 11 -	-
12	1	- 5 9	2	- 5 8	3	1 12 3	86	10 12 -	41	3 3 3	11	- 11 -	-
13	1	- 5 9	2	- 5 8	3	1 12 3	86	10 12 -	42	3 4 6	11	- 11 -	-
14	1	- 5 9	2	- 5 8	3	1 12 3	85	10 10 -	43	3 5 9	10	- 10 -	-
15	1	- 5 9	2	- 5 8	3	1 12 3	85	10 10 -	42	3 4 6	10	- 10 -	-
16	1	- 5 9	2	- 5 8	3	1 12 3	2	- 4 -	-	- - -	-	- - -	-
17	1	- 5 9	2	- 5 8	2	1 3 10	90	11 4 -	42	3 4 6	8	- 8 -	-
18	1	- 5 9	2	- 5 8	2	1 3 10	85	10 10 -	41	3 3 3	8	- 8 -	-
19	1	- 5 9	2	- 5 8	2	1 3 10	87	10 14 -	46	3 9 6	12	- 12 -	-
20	1	- 5 9	2	- 5 8	3	1 12 3	87	10 14 -	44	3 7 -	12	- 12 -	-
21	1	- 5 9	2	- 5 8	3	1 12 3	87	10 14 -	43	3 5 9	12	- 12 -	-
22	1	- 5 9	2	- 5 8	3	1 12 3	84	10 8 -	42	3 4 6	12	- 12 -	-
23	1	- 5 9	2	- 5 8	3	1 12 3	3	- 6 -	-	- - -	-	- - -	-
24	1	- 5 9	2	- 5 8	3	1 12 3	83	10 6 -	43	3 5 9	12	- 12 -	-
25	1	- 5 9	2	- 5 8	3	1 12 3	84	10 8 -	41	3 3 3	12	- 12 -	-
26	1	- 5 9	2	- 5 8	3	1 12 3	87	10 14 -	42	3 4 6	12	- 12 -	-
27	1	- 5 9	2	- 5 8	3	1 12 3	86	10 12 -	41	3 3 3	12	- 12 -	-
28	1	- 5 9	2	- 5 8	3	1 12 3	86	10 12 -	42	3 4 6	11	- 11 -	-
During the Month	28	10 1 -	56	9 14 8	75	44 10 3	2,102	262 12 -	985	76 15 3	279	12 7 -	-

(True copies.)  
(signed) P. M. Melvill, Lieut.-col., Secretary to Government.

(True copies.)  
(signed) R. J. H. Birch, Lieut.-col.,  
Offg. Secy. to the Govt. of India, Military Dept.

DAILY OF FIGURED ABSTRACT.

LABOUR.

Masons' Sorts.		Carpenters.		Stonecutters' Sorts.		Smith.		Hammermen.		Bellows Boys.		Chowke drs		TOTAL Labour.
No.	Rs. a. p.	No.	Rs. a. p.	No.	Rs. a. p.	No.	Rs. a. p.	No.	Rs. a. p.	No.	Rs. a. p.	No.	Rs. a. p.	Rs a p
26	9 14 4	1	- 6 -	5	2 1 6	1	- 6 6	1	- 2 6	1	- 2 6	1	- 2 3	29 12 1
24	9 3 -	1	- 6 -	3	1 4 6	1	- 6 6	1	- 2 6	1	- 2 6	1	- 2 3	23 8 3
26	9 14 6	1	- 6 -	6	2 9 4	1	- 6 6	1	- 2 6	1	- 2 6	1	- 2 3	29 7 5
27	10 3 4	2	- 12 6	7	3 - 4	2	- 12 6	1	- 2 6	1	- 2 6	1	- 2 3	31 - 5
27	10 3 4	4	1 4 -	8	3 6 4	2	- 12 6	1	- 2 6	1	- 2 6	1	- 2 3	32 6 8
27	10 3 4	4	1 4 -	10	3 15 4	2	- 12 6	1	- 2 6	1	- 2 6	1	- 2 3	31 3 10
27	10 3 4	5	1 6 -	14	5 6 7	2	- 12 6	1	- 2 6	1	- 2 6	1	- 2 3	34 8 4
26	- 13 -	5	1 6 -	14	5 6 7	2	- 12 6	1	- 2 6	1	- 2 6	1	- 2 3	34 12 -
23	8 12 8	1	- 6 -	11	4 7 4	2	- 12 6	1	- 2 6	1	- 2 6	1	- 2 3	17 9 8
22	8 5 -	5	1 6 -	13	5 - 7	2	- 12 6	1	- 2 6	1	- 2 6	1	- 2 3	32 9 6
27	10 3 -	4	1 4 -	12	5 - 7	2	- 12 6	1	- 2 6	1	- 2 6	1	- 2 3	34 8 9
27	10 4 4	3	- 14 -	17	6 10 5	2	- 12 6	1	- 2 6	1	- 2 6	1	- 2 3	36 2 5
26½	10 1 4	2	- 12 -	17	6 10 5	2	- 12 6	1	- 2 6	1	- 2 6	1	- 2 3	35 10 8
27	10 4 4	3	- 14 -	13	5 5 5	1	- 6 6	1	- 2 6	1	- 2 6	1	- 2 3	34 6 11
29	11 1 -	1	- 6 -	15	6 - 5	1	- 6 6	1	- 2 6	1	- 2 6	1	- 2 3	35 5 4
23	8 12 8	1	- 6 -	11	4 7 7	1	- 6 6	1	- 2 6	1	- 2 6	1	- 2 3	17 3 8
26	9 14 4	1	- 6 -	14	4 10 2	1	- 6 6	1	- 2 6	1	- 2 6	1	- 2 3	33 12 -
27	10 1 4	1	- 6 -	14	4 10 2	1	- 6 6	1	- 2 6	1	- 2 6	1	- 2 3	33 3 9
29	9 12 4	2	- 12 -	15	6 - 5	1	- 6 6	1	- 2 6	1	- 2 6	1	- 2 3	34 9 3
28	10 8 8	2	- 12 -	15	6 - 5	1	- 6 6	1	- 2 6	1	- 2 6	1	- 2 3	35 11 6
28	10 7 8	2	- 12 -	15	6 - 5	1	- 6 6	1	- 2 6	1	- 2 6	1	- 2 3	35 9 3
30½	11 6 8	2	- 12 -	16	6 6 5	1	- 6 6	1	- 2 6	1	- 2 6	1	- 2 3	36 7 -
-	- - -	1	- 6 -	-	- - -	1	- 6 6	1	- 2 6	1	- 2 6	1	- 2 3	4 1 5
29	10 13 8	1	- 6 -	17	6 12 8	1	- 6 6	1	- 2 6	1	- 2 6	1	- 2 3	35 13 6
28	10 7 4	1	- 6 -	17	6 12 8	1	- 6 6	1	- 2 6	1	- 2 6	1	- 2 3	35 6 8
27	10 - 7	1	- 6 -	16	6 5 6	1	- 6 6	1	- 2 6	1	- 2 6	1	- 2 3	34 7 10
28	10 7 4	1	- 6 -	20	7 13 11	1	- 6 6	1	- 2 6	1	- 2 6	1	- 2 3	36 11 11
27	10 1 7	1	- 6 -	18	7 - 8	1	- 6 6	1	- 2 6	1	- 2 6	1	- 2 3	35 9 2
719	271 8 1	59	19 2 -	354	144 6 11	38	15 2 -	28	4 6 -	28	4 6 -	28	3 15 -	881 11 2

Total Materials during the Month - - - 1,545 9 7

GRAND TOTAL - - - Rs 2,427 4 9

(signed) W. Chayman, Lieutenant.

## Appendix (G.)

## MINUTE by the Chief Engineer

1. I would propose the following scheme for the future class of Assistants in the Engineer Department

2. The grades to be three, and subdivided into two classes, with corresponding pays as follows :

		Pay per Mensem.	
Assistant Engineer	{ 1st Class	- - Rupees, one hundred and fifty	- 150
	{ 2d Class	- - - ditto, one hundred and twenty	- 120
Surveyors and Builders	{ 1st Class	- - - ditto, one hundred	- - 100
	{ 2d Class	- - - ditto, eighty	- - - 80
Assistant Surveyors and Builders	{ 1st Class	- - - ditto, sixty	- - - 60
	{ 2d Class	- - - ditto, forty	- - - 40

3 The grade of each individual to be determined with reference to qualifications and conduct, and not to length of service

4 The qualification to be as follows —

*Assistant Engineer*

A knowledge of a complete course (Hutton's) of arithmetic, logarithms, the simple elements of algebra and plane geometry, mensuration of planes and solids, plane trigonometry and mensuration of heights and distances, the use of the theodolite and spirit level; simple trigonometrical surveying

The calculation, plotting and fair delineation of simple trigonometrical and topographical surveys, the delineation and finishing in shade and colour of designs in architecture and civil engineering, the calculation and estimating of the same, as also their lining out for execution, an acquaintance with the properties and qualities of building materials, and of the principles of simple training in carpentry

*Surveyors and Builders*

A knowledge of the arithmetic (Hutton's Course), to the end of logarithms, practical geometry, mensuration of planes and solids, the use of all ordinary drawing instruments, and the ordinary masons and road levels; surveying with the plane table, compass and chain, fair plotting, and delineation in lines and shades of such surveys, the delineation and shading in ink of simple designs in architecture and civil engineering, the calculation and estimating, as also the lining out of such simple designs for executions, a partial acquaintance with the properties of materials for buildings

*Assistant Surveyors and Builders.*

A knowledge of arithmetic (Hutton's Course), integers and fractions to the end of the square root, the elements of practical geometry, mensuration of planes and solids, the use of compasses and scales, the delineations in ink of the simplest description of topographical drawings and designs in architecture and civil engineering, the lining out of the latter for execution; surveying with chain and cross-staff, the fair delineation of such simple survey.

A practical acquaintance with the properties and qualities of the ordinary simple building materials.

5. Thus for each grade there is one scale of general professional attainment; but each is subdivided into two classes, with two corresponding scales of pay.

6. The qualifications above enumerated will be considered equally meritorious whether attained and applied through the medium of English, or either of the two vernacular dialects under this Presidency of "Mahatta" or "Gozrattee," in conformity with the rules laid down by Government for the late Government (Engineer) Institution, and which for twenty years have been attended with such advantages to Government in the employment as subordinates of the Engineer Department of the persons who were trained on the system pursued in that institution

7. Candidates, when examined upon the foregoing scale of qualifications, will be allowed the use of their books for reference

8. The examination of the candidates shall be conducted, registered and reported on by the Examiners of the Board of Education in committee with the Garrison Engineer, and Assistant Chief Engineer, or other two Engineer Officers, the Chief Engineer and Executive Officer, member of the Board, presiding.

9. Certificates of qualifications to be furnished by the Examiners, countersigned by the President of the Board of Education, the Chief Engineer and the Secretary to the Board

10. In whatever department of Government the service and practice of engineering may be required (Revenue Survey to be included), a preference to employment in that department shall be given to those individuals who shall produce the prescribed certificates of qualification over all other applicants for employment therein who do not possess such testimonials

11. An individual will be appointed to any particular grade according to his general attainments. The rank of First Class, however, in any grade, will be accorded to those only who by testimonials either from the Examining Committee, or from the functionaries under whom they have been employed, are reported deserving of such distinction

12. No one will be admitted as a candidate for promotion from a lower to a higher grade, unless he shall have previously attained to the position of First Class of the grade he holds

13. Classification and promotion shall be regulated according to proficiency, usefulness and good conduct, without reference of time of service

14. Any candidates for promotion from a lower to a higher grade shall, on application, appear, when practicable and convenient to the public service, before the Committee of Examination, in order to undergo the prescribed examination

15. Under circumstances by which the public service might be impeded by the absence from the sphere of his occupations of a candidate for promotion, the production by him of a certificate of the attainment of proficiency prescribed, and of usefulness and good conduct, granted either by a local committee, or by the head of the office in which the candidate is serving, shall entitle the said candidate to immediate promotion, provided always, that he shall, on the first favourable opportunity, appear before the Examining Committee at the Presidency, to obtain from them a confirmation of his merits, and in default thereof to be to the lower grade from which he was

16. The rates of pay allotted shall be considered solely as a remuneration for professional service. All extra charges for establishment or stores will be borne by the State.

17. Batta or travelling allowance will be granted according to the following rates —

		<i>Rs. a p.</i>	
Assistant Engineer	- 1st Class	1	2 - one rupee and two annas per diem
Ditto	- - - - - 2d Class	14	5 fourteen annas and five pies ,,
Surveyors and Builders,	1st Class	14	- fourteen annas - - - - - ,,
Ditto	- - - - - 2d Class	11	2 eleven annas and two pies ,,
Assistant Surveyors and	} 1st Class	8	5 eight annas and five pies ,,
Builders			
Ditto	- - - - - 2d Class	6	5 six annas and five pies ,,

\* The rates according to the scale laid down in the order of the Bengal Government of 6th July 1826 for batta to public servants a tent and pony will be furnished by Government in particular instances, according to the exigencies of the case.

\* To be applied in cases where a higher salary is allotted than that of the First Class Assistant's Engineer, as above.

18. The following are the rates for leave of absence applications for leave of absence will be forwarded to the Military Board, who will grant or withhold it at their discretion, provided the period does not exceed three months, the authority of Government will be required for any longer period. Leave of absence may be granted for one month without any reduction of salary, and for any period above that to the extent of two months with the loss of one-third salary, and from that to three months with loss of half salary, when leave of absence is obtained for a longer period than three months, the proportion is in each instance according to period of absence and the circumstances of the case

19. The rules for suspension (Appendix, No 1), notified in the Government Gazette of the 28th December 1843, and likewise the Superannuation Pension Rules published under date the 8th September 1835, Jameson's Code, section XLII., Art 200, page 652, shall be applied to this class of servants.

20. Individuals possessed of and displaying mental acquirements, practical skill and general usefulness (combined with good character) beyond the scale laid down in the 4th para, shall meet with special consideration, and their case shall be specially recommended to Government for remuneration. Pay in proportion to the degree of merit of each case.

6 May 1846

(signed) *G. Jervis*, Lieut.-col.,  
Chief Engineer

(True copy)  
(signed) *P. M. Melvill*, Lieut.-col.,  
Secretary to Government.



## Appendix (K.)

## STATEMENT of the Number of SURVEYORS and BUILDERS, inclusive of the ELPHINSTONE INSTITUTION STUDENTS.

BOMBAY.	No.	SOUTHERN PROVINCES.	No.	NORTHERN PROVINCES.	No.
Expecting discharge with Pension	1	Superintending Engineer - -	2	Superintending Engineer - -	2
Acting Gar. and Civil Architect	2	*Executive Engineer, Poona - -	4	Ex. Engineer, Surat and Broach	3
Engineer to the Dockyard - -	1	Ditto - - - Belgaum - -	4	Ditto - - Ahmedabad - -	3†
		Ditto - - - Dharwar - -	4	Ditto - - Decsa - -	1
		Ditto - - - Ahmednuggur	1		
		*Civil Engineer, Candeish - -	3		
		* Ditto - - Sattara - -	2		
	4		20		9
SCINDE	No.	COMMANDING ENGINEER, ADEN.	No.	ROAD AND TANK DEPARTMENT.	No.
Superintending Engineer, Scinde	-	Commanding Engineer - -	1	Superintendent Roads - -	1
Ex. Engineer, Lower Scinde - -	2	†Executive Engineer - -	1	Lieutenant Chapman - -	1
Ditto - - Central Scinde - -	1			Lieutenant Scott - -	3
				Lieutenant Prevost - -	1
				Lieutenant Fuller - -	3‡
				Mr. R. Scott - -	2
				Mr. T. P. Armistead - -	1
				Captain Dennis - -	1
	3		2		13

\* Note.—Officers marked thus \* have a Draftsman in their office in addition.

† Includes Mr. T. Scott, temporarily attached to Captain Jopp, Commissioner Sirshee and Pahlunpoor.

‡ There is a Mr. Randall also in the office: he was educated at Poona, and taken into the service before any of the Elphinstone Class.

§ One is attached to the office Captain Cowper was recently in charge of, and to which Lieutenant Fuller has been appointed; two attached to Lieutenant Fuller's own office in the Tama Collectorate.

The following Surveyors, not above accounted for:—

Under Superintendent of Railway - - - -	1	} 1. Mr. I. Edge, in charge Survey Department.
Under Collector of Land Revenue - - - -	3	
Under Collector of Kaira - - - -	1	
Under Superintendent, Guzerat Trigonometrical Survey - -	1	
Under Collector, Surat - - - -	2	
Under Settlement Officer, Deccan - - - -	1	
Mr. R. Scott, a Second Assistant Superintendent Roads - -	1	
Mr. T. Sangers, Second Assistant Grand Trigonometrical Survey	1	
Mr. W. S. Price, Assistant Superintendent Revenue Survey - -	1	
Under Superintendent Cotton Experiments, Candeish - -	1	
Ditto - - - ditto - - - - Surat - - - -	1	
<b>TOTAL - - - -</b>	<b>14</b>	

## ABSTRACT.

Bombay - - - -	4
Southern Provinces - - - -	20
Northern Provinces - - - -	9
Scinde - - - -	3
Aden - - - -	2
Road and Tank Department - - - -	13
Attached to other offices, and holding special appointments - -	14
Mr. Randall at Aden - - - -	1
<b>GRAND TOTAL - - - -</b>	<b>66</b>

(True copy.)

(signed) P. M. Melvill, Lieut.-col.,  
Secretary to Government.

(True copies.)

(signed) R. J. H. Birch, Lieut.-col.,  
Offg. Secy., India, Military Department.

## Appendix (M.)

Appendix (M.)

## MILITARY DEPARTMENT

(No. 2,971.)

From Lieutenant-colonel *P. M. Melvill*, Secretary to Government, to the Secretary to the Government of *India*, dated 11 November 1851.

Sir,

ADVERTING to my letter, No. 2,961, of the 10th instant, forwarding the Report of the Commission on Public Works for submission to the Government of India, I am directed by the Right honourable the Governor in Council to transmit the annexed papers, marginally noted, and to request you will be pleased to bring to special notice the services rendered by Captain Gaisford, as Secretary to the Commission, together with the respectful recommendation of this Government that those services may be compensated by a salary of (300) three hundred rupees per mensem during the period the Commission continued engaged in its important labours, deducting therefrom the additional batta and boat allowance which have been drawn under the ordinary regulations.

1. Letter from Capt. Gaisford, dated 4 Sept.  
2. Report of the Auditor-general, dated 23 Sept.  
3. Min. of the Commission, dated 5 Aug.

I have, &amp;c.

(signed) *P. M. Melvill*, Lieut.-colonel,  
Secretary to Government

Bombay Castle,  
11 November 1851.

(1.)

From Captain *Thomas Gaisford* to *J. G. Lumsden*, Esq., Secretary to Government, *Bombay*, dated 4 September 1851.

Sir,

I HAVE the honour to request that you will solicit the orders of Government respecting the allowances I may be permitted to draw while deputed as a member of the Public Works Commission, and acting as secretary to the same.

I left Ahmednuggur for the above duty on the 14th April. The Report was finished on the 1st instant. I have received my garrison pay and official salary while thus employed, but have abstained from drawing any batta, Presidency house-rent, or boat allowance.

I have, &amp;c.

(signed) *T. Gaisford*, Captain Artillery.

Ahmednuggur,  
4 September 1851.

(2.)

REPORT by the Auditor-general, No. 348, dated 23 September 1851.

CAPTAIN GAISFORD has been in receipt of the full allowances of his appointment, as Director of the Artillery Depôt of Instruction at Ahmednuggur during the period embraced in his application; viz.—

	Rs.	a.	p.
Staff Pay, rupees six hundred	600	—	—
Pay and Garrison Allowances, three hundred and ninety-two and five annas	392	5	—
Nine hundred and ninety-two and five annas	Rs 992	5	—

And this officer will further be entitled to receive the additional batta of his rank, or *Rs. 91 5 a.* (ninety-one and five annas) per mensem, with *Rs. 23* (twenty-three) for boat allowance, between Panwell and Bombay.

2. But, from the nature of the duty that devolved on Captain Gaisford, that of secretary and member of the Commission on the Public Works Department, and the concurring testimony of the Commissioners to his valuable and important services, I would respectfully recommend a salary of *Rs. 300* (three hundred) per mensem for the consideration of your Lordship in Council, and that of the Government of India, to whom the subject will have to be referred.

(signed) *G. Moore*, Colonel,  
Military Audr. Genl.

23. September 1851.

Appendix (M.)

(3.)

MINUTE of the Commission, dated 5 August.

ON the completion of our Report on the Public Works Department, I propose we should submit for the consideration of the Right honourable the Governor in Council the subject of remuneration to our Secretary, who, by the Government letter dated 26 March 1851, was specially appointed to such duty, in addition to that of a member of this Commission.

It must be apparent, from the Report, with its Appendices, the very great amount of labour and research that has devolved on Captain Gaisford in the arrangement and condensation of the opinions and reports this Commission has received from the civil and military officers who were consulted on the important subject of our inquiry, and the attention of Government should be drawn thereto.

I consider Captain Gaisford's valuable services in the Commission justly entitle him to an adequate compensation beyond the amount of his official salary which he would have otherwise drawn for the ordinary duty of Director of the Depôt of Instruction.

5 August.

I concur fully.

(signed) *G. Moore.*(signed) *J. D. Inverarity.*  
*H. B. Turner.*

(True copies.)

(signed) *P. M. Melvill*, Lieut.-colonel, Secretary to Government.

(True copies.)

(signed) *R. J. H. Birch*, Lieut.-colonel,  
Officg. Secy., Govt. of India, in the Military Department.

## MILITARY DEPARTMENT.

(No. 38.)

From Colonel *J. Stuart*, c. B., Secretary to the Government of *India*, Military Department, with the Governor-general, to the Officiating Secretary to the Government, *India*, Military Department, *Calcutta*, dated 3 January 1852.

Sir,

IN returning the original enclosures of your despatch, No. 401 of the 16th ultimo, I am directed to acquaint you, for the information of the honourable the President in Council, that as the Report of the Commission assembled at *Bombay* to report on the system of Public Works at that Presidency must be taken into consideration in connexion with the Report of the Bengal Committee, it will be desirable to have it examined and epitomised by his Lordship's arrival in *Calcutta*.

2. The Governor-general thinks that the allowance proposed for the Secretary is reasonable.

I am, &amp;c.

(signed) *J. Stuart*, Colonel,  
Sec. to the Gov. of India, Military Department,  
with the Governor-general.Camp, Chowbeepore,  
3 January 1852.

(True copy.)

(signed) *R. J. H. Birch*, Lieut.-colonel,  
Officg. Sec. to the Gov. of India, in the Military Department.

(No. 401.)

From Major *J. S. Banks*, Officiating Secretary to the Government of *India*, Military Department, to Colonel *J. Stuart*, c. B., Secretary to the Government of *India*, Military Department, with the Most noble the Governor-general; dated 16 December 1851.

Sir,

WITH reference to the correspondence\* noted in the margin, I am desired to forward for submission to the Most noble the Governor-general the accompanying despatches, No. 2,961 of the 10th, and No. 2,971 of the 11th November 1851, from the Secretary to the Government, Military Department, *Bombay*; the former submitting the Report of the Commission appointed to inquire into the existing system of Public Works at that Presidency, and the latter

\* Letter from the Officiating Secretary to Government, Military Department, *Calcutta*, No. 501, dated 19 April 1851,

latter conveying the recommendation of the Bombay Government, that Captain Gaisford may be remunerated for services rendered as Secretary to the said Commission. and your Reply thereto, No. 181, dated 30 July 1851.

I have, &c.  
(signed) *J. S. Banks*,  
Officg. Sec. to the Gov. India, Military Department.

Council Chamber, Fort William,  
16 December 1851.

(True copy.)  
(signed) *R. J. H. Birch*, Lieut.-colonel,  
Officg. Sec. to the Gov., India, Military Department.

(No. 829.)

From Lieutenant-colonel *P. M. Melvill*, Secretary to Government, to Lieutenant-colonel *R. J. H. Birch*, c. B., Officiating Secretary to the Government, *India*, in the Military Department, Bombay Castle, 25 March 1852.

Sir,

With reference to my despatch, No. 2,961, dated 10th November last, I am directed to transmit the accompanying extract, Section VI. of the Report of the Commission appointed to inquire into the existing system of Public Works, together with a letter from the Military Board, No. 1,795, dated 1st instant, and to request that, in laying them before the Most noble the Governor-general of India in Council, you will be pleased to submit the request of the Right honourable the Governor in Council, that the expenditure stated in the Military Board's letter as necessary, in order to carry out the proposed plan for extending the Sappers' School at Poona, may receive the sanction of his Lordship in Council.

I have, &c.  
(signed) *P. M. Melvill*, Lieut.-colonel,  
Sec. to Government.

### SECTION VI.

#### ENGINEER SCHOOLS.

108. AFTER the Government Institution had been some years abolished, the Quartermaster-general's Department felt the want of qualified persons as draftsmen and surveyors. To remedy this, Government, in 1840, sanctioned a plan by Lieutenant Wemyss, who then commanded at head quarters of the Engineer Corps (now called the Sappers and Miners), for remodelling the Regimental School, so as to qualify recruit boys for filling those situations.

109. The number was fixed at 40 boys, of whom the best were to be appointed to the Corps of Guides, and the remainder, if eligible, were to be permitted to enlist in the ranks on attaining the age of 18 years.

110. At present 27 boys attend this school, 10 of whom belong to the Sappers, and 17 to other native corps. They are instructed by an English teacher, a Sapper, and two Mahratta Pundits, on stipends of *Rs. 30*, *Rs. 15*, and *Rs. 3*, respectively.

111. The subjects of instruction, and the students' allowances, are as follows -

CLASS	Number of Boys.		Monthly Allowances.	SUBJECTS TAUGHT
	Established.	Actual.		
1st - -	10	-	<i>Rs.</i> 6	Plane trigonometry and surveying.
2d - -	10	5	5	Geometry, mensuration, plane drawing.
3d - -	20	22	3½	Mahratta and English reading, writing, &c.

112. The Quartermaster-general informs us, that the lads entertained in his department from this school have all been found capable on joining of carrying on an ordinary road survey with perambulator and compass, keeping a field-book, and plotting neatly. Thirteen of these young men are now employed, whereof five have been promoted to draftsmen, on salaries varying from 30 to 50 rupees, all of them drawing with neatness and correctness, able to read and write English with tolerable facility, and to use the plane table and theodolite.

Appendix (M.)

theodolite. Lieut.-colonel Holland considers that this Engineer School adequately fulfils the purpose for which his predecessor supported in 1810 the late Captain Wemyss' plan.

113. The East Indian youths permitted, by Article 64, p. 311, Jameson's Code, to be entertained as apprentices to the European artificers, seem to be tacitly declined. The Regimental School, when enlarged, may supply lads more suitable for apprenticeship to maistries; but we are diffident of engineer maistries being thus produced from any class; they should rather spring from among the operatives of the country. We prefer, therefore, to advise, that young workmen approving themselves by skill in handicraft already attained, and by superior intelligence, should be recommended by executive engineers for instruction in the Sapper School, and there allowed ordinary wages for a certain period, with a view to their acquiring practice in accounts, and ability to work from a plan; or where, from distance, this would be inconvenient, we recommend their being attached to the Engineer's own office for instruction by the officer himself, or by his establishment, as circumstances might admit, on the same terms.

114. We have visited the Sapper Schools. The Europeans have a creditable knowledge of plane drawing, writing and accounts: they are all instructed in surveying, levelling, and estimating.

115. We found the older native boys tolerably instructed in English reading, writing and accounts. Reflecting on what we had thus far seen, we were all disposed to question whether it was not a mistake to give up so much time to English instruction, particularly as a correct knowledge of the vernacular is commonly found wanting in lads who from an early age have been taught through the medium of a foreign tongue.

116. Considering the Public Work Department only, and not that of the Quartermaster-general, we were at first inclined to think, that, instead of teaching the many natives a difficult language like English, the few Europeans should rather have instruction in Mahratta, whereby not only might all the subordinates communicate one with another, but the Europeans, as overseers, would become a far more efficient body.

117. However, having since consulted Major Candy, Superintendent of the Poona College, and having witnessed what the scholars at that institution can do, we are satisfied that a competent knowledge of English may be required from candidates for the Public Works Department without the slightest apprehension of deficient numbers offering, or that this additional qualification will at all impair their fitness for that portion of engineering business which is conducted in Mahratta.

118. We would, therefore, expunge the 6th clause from Colonel Jervis's scheme, and require from every grade of surveyors and builders a thorough acquaintance with English. There are various institutions all deserving a share of such encouragement, from which competitors for employment will come forward.

119. We find that the Poona College alone is capable of supplying, in any numbers likely to be wanted, young men, most Brahmins, thoroughly grounded in mathematics and English, and needing only the superstructure of engineering knowledge to become qualified as surveyors and builders.

120. From these sources the present deficiencies of the branch may be replenished without long delay, and its future wants may certainly be supplied at Poona from a class of willing lads preferable to those bred in Bombay, from their moderate expectations, hardier training, and better fitness, as Decannees, to fare abroad in the districts.

121. Major Candy is of opinion that Rs. 7 per mensem would be a sufficient rate of subsistence for students while under instruction in the Sapper School.

122. Colonel Jervis's rules, in the Appendix, containing all the main provisions that will not be better left to the officer who will direct the engineering institution than attempted by us, the only arrangements remaining for us to name as requisite for improving the present means of instructing engineer subordinates, are as follows:

122-3. To accommodate classes of European overseers, native surveyors and maistries, an appropriate building must be erected: the present school-rooms are not more than sufficient for the recruit boys: a competent English teacher, not liable to be moved for the upper classes, with a native assistant, drawn perhaps from among the present surveyors, must be appointed: general supervision of the whole will appropriately rest with the Commanding Officer of the Sappers. Before determining his scheme, that officer should communicate with the principal of the Civil Engineering College at Roorkee, whence may probably be obtained a course of instruction made ready to his hand.

---

PUBLIC WORKS.

(No. 1,795 of 1852.)

To the Right honourable Lord Viscount *Falkland*, G. C. H., Governor and President  
in Council.

My Lord,

WITH reference to Secretary Lieutenant Colonel Melvill's letter, No. 2,962, dated 10th November last, and its accompanying extract from the report by the Commission upon Public Works, proposing a re-modelling of the Sapper School at Poona, in view to obtaining qualified persons for the Department of Public Works, we have the honour to report, that we approve of the proposition, and think it offers a fair chance of success. The only point

on which we entertain any doubt, is the propriety of giving the instruction in English; but in making the foregoing remark, we do not wish that the proposals of the Commission should be hindered or altered. We strongly recommend that they be carried into effect as early as possible.

2. On receipt of Secretary Lieutenant-colonel Melvill's letter, we addressed Captain Studdert, commanding Sappers and Miners, and Major Candy, Superintendent of the Poona College, requesting the former officer's opinion as to the buildings that would be requisite, and requesting him to furnish rough plans, and approximate estimate of the same, and requesting the favour of the opinion of the latter as to the salary of the European teacher and his assistant.

3. Major Candy, in reply, has stated, "I do not think that a well-educated man, competent to teach the upper classes of the proposed Institution, could be procured from Great Britain under a salary of Rs. 300 per mensem. This sum I should look on as the minimum amount of stipend to be given, Rs. 400 per mensem would be a more suitable sum a Native Assistant Teacher might, I think, be procured on a salary of from Rs. 75 to Rs. 100 per mensem.

"As two or three hours a day would probably be sufficient for the instruction of the upper classes, I would suggest that this work might, with advantage to the economical working of the Institution, be committed to some competent person, who would not be entirely dependent for support on the remuneration received for it. The professor of mathematics in the Poona College, for instance, could give a couple of hours or so to this work, without trenching on his duties in the College, and I am authorized by him to say that he would be happy to do so for a remuneration of Rs. 200 or Rs. 150 per month."

4. Captain Studdert has submitted (under date 30th January) an estimate of the probable cost of constructing a school-room capable of accommodating 30 students, which amounts to Rs. 3,527.

5. The expenditure involved in the contemplated extension of the Sapper School at Poona will thus be as follows:

The erection of School-rooms	Rs. 3,527
Monthly Expenses:	
Head Teacher	150 or 200
Native Assistant	75

6. The Commission seems to have considered that it would be necessary to subsist the youths, whilst under instruction, at a cost of about Rs. 7 per mensem for each. The expense of such subsistence, were it found necessary, would, of course, depend on the number of the students: it is difficult to make a satisfactory calculation as to what this number should be; but, supposing the course of instruction to average two years, thirty students of both classes (surveyors and builders and maistries) might be assumed as the average of a good many years: perhaps 15 as maistries, and the same number of the superior class, might be considered as the complement of the school, or the number under instruction might be left undetermined, and only five appointments of the superior class and five as maistries assured per annum; but we think that the grant of subsistence would be an unnecessary expenditure, and we recommend that at least the attempt be made to obtain students without any such grant.

We have, &c.  
(signed) C. Waddington,  
Lieut.-colonel Commandant, Chief Engineer.  
J. Swanson, Major.

Bombay, Military Board Office,  
1 March 1852.

(True copies.)  
(signed) P. M. Melvill, Lieut.-colonel,  
Secretary to Government.

(True copies.)  
(signed) R. J. H. Birch, Lieut.-colonel,  
Officg. Secy. to Govt., India, in the Military Department.

(No. 1,996.)

From J. G. Lumsden, Esq., Secretary to Government, to Secretary to the Government of India, Bombay Castle, 9 August 1852.

Sir,

I AM directed by the Right honourable the Governor in Council to transmit the accompanying copies of a letter from the Military Board, No. 7,527, dated 22d ultimo, and its enclosure, relative to the want of surveyors experienced by the Superintending Engineer, Southern Provinces, and to request, under the urgency of the applications, that, in submitting them, you will be pleased to move the Government of India to favour this Govern-

Appendix (M.) ment with a decision on the subject submitted in the letter from this department, dated the 25th of March last, No. 829.

Military Department, Bombay Castle,  
9 August 1852.

I have, &c.  
(signed) *J. G. Lumsden*,  
Secretary to Government.

(No. 7,527 of 1852).

To the Right honourable Lord Viscount *Falkland*, G. C. H., Governor and President in Council, dated 22 July 1852.

My Lord,

WE have the honour to submit the accompanying letter, No. 2,764, of the 26th June 1852, from the Superintending Engineer, Southern Provinces, and to state, that it is the result of a correspondence regarding the want of surveyors.

2. The want of this class of public servants is great; but we can make no further definite recommendations to remedy the want pending the decision on the proposed institution at Poona, which formed the subject of reference by your Lordship in Council, under date the 10th November 1851, in Secretary Lieutenant-colonel Melvill's letter, No. 2,962, on which we reported in our letter, No. 1,795, of 1st March 1852.

3. We strongly recommend that the proposals of the Public Works Commission on this subject be put in force as early as possible.

Bombay, Military Board Office,  
22 July 1852.

We have, &c.  
(signed) *C. Waddington*,  
Lieut.-colonel Commandant, Chief Engineer.  
*J. Swanson*, Major.

(No. 2,764 of 1852.)

From Lieutenant-colonel *Walter Scott*, Superintending Engineer, Southern Provinces, to the Secretary Military Board, Bombay, dated 26 June 1852.

Sir,

WITH reference to your memorial, No. 4,818, of 30th April last, I have now the honour to report, that I have received several applications from young men educated at the Poona College for appointments: generally speaking, their mathematical acquirements are beyond, and some very much beyond, what is required.

2. They all, however, labour under the fatal objection of want of practical knowledge; and I submit, that in an executive office the use of instruments and the rudimentary portion of surveying could not be imparted without delays injurious to the conduct of Public Works.

3. If they were well grounded in the rudimentary part of practical surveying, they would improve in practice; but without some preliminary knowledge, they would occasion great and vexatious delays.

4. I believe that by the time a class for field instructions has been established for 12 months, we should be able to obtain from 12 to 15 young men, not perfect surveyors, but able to undertake simple surveys, and who would improve themselves by real practice.

5. I have been disappointed with respect to East Indians. I had hoped that with so many European pensioners in Belgaum, Captain North would have been able to obtain some; but he has not yet reported any applications.

6. As I understand that the subject has been discussed by the Commission of Public Works, I will not again trouble you with my views, which, of course, are less matured than theirs, and the proposition of different schemes distracts attention.

7. I believe, however, in urging the speedy establishment of a field surveying class, I am in accordance with them.

8. The extreme urgency of our wants is so great, that I trust I may be excused agitating this matter.

S. E. O. S. P., Poona,  
26 June 1852.

I have, &c.  
(signed) *Walter Scott*, Lieut.-colonel,  
Supg. Engineer, S. P.

(True copies.)  
(signed) *J. G. Lumsden*, Secretary to Government.

(True copies.)  
(signed) *R. J. H. Birch*, Lieut.-colonel,  
Offic. Secy, Govt. of India, Military Department.

(No. 103.)

Appendix (M.)

From Lieutenant-colonel *R. J. H. Birch*, c. b., Officiating Secretary to the Government of India in the Military Department, to Lieutenant-colonel *P. M. Melvill*, Secretary to Government, Military Department, *Bombay*, dated 2 October 1852.

Sir,

IN reply to your despatch, No. 1,996, of the 9th August last, I am directed to acquaint you, for the information of the Right honourable the Governor in Council of Bombay, that the Most noble the Governor-general of India in Council is pleased, under the circumstances stated, to sanction the expenditure necessary for carrying out the proposed plan for extending the Sapper School at Poona to the extent set forth in the Bombay Military Board's letter, No. 1,795, of the 1st March 1852.

I have, &amp;c.

(signed) *R. J. H. Birch*, Lieut.-colonel,  
Offg. Secy. to Govt. of India, Military Department.

Council Chamber, Fort William, 2 October 1852.

(True copy.)

(signed) *R. J. H. Birch*, Lieut.-colonel,  
Offg. Secy. to Govt. of India, in the Military Department.

(No. 570)

From Lieutenant-colonel *R. J. H. Birch*, c. b., Officiating Secretary to the Government of India, Military Department, to Lieutenant-colonel *P. M. Melvill*, Secretary to Government, Military Department, *Bombay*, dated 28 May 1853.

Sir,

YOUR despatch, No. 2,971, of the 11th November 1851, having been submitted to the Government of India, I am desired to state, that, in compliance with the recommendation of the Bombay Government, the Most noble the Governor-general of India in Council is pleased to sanction the grant of salary of *Rs 300* (three hundred) per mensem to Captain Gaisford, for the period during which he performed the duties of Secretary to the Commission on Public Works at Bombay, deducting therefrom the additional batta and boat allowance which it appears have been already drawn by him under the ordinary regulations.

The report of the Commission, received with your letter, No. 2,961, of the 10th of November, and the subject of your despatch, No. 829, of the 25th March 1852, are under consideration.

I am &amp;c.

(signed) *R. J. H. Birch*, Lieut.-colonel,  
Offg. Secy. to Govt. of India, Military Department.

Council Chamber, Fort William, 28 May 1853.

(True copy.)

(signed) *R. J. H. Birch*, Lieut.-colonel,  
Offg. Secy. to the Govt. of India, in the Military Department.

(True copies.)

(signed) *T. L. Peacock*,  
Examiner of India Correspondence.

East India House, 17 January 1854.



**PUBLIC WORKS (BENGAL, &c.)**

**COPIES of the REPORT of the COMMISSIONERS  
on PUBLIC WORKS at *Bombay*, in the Year  
1851-52; with the MINUTES of the Members  
of the Government, and ORDERS or DES-  
PATCHES of the COURT of DIRECTORS relating  
thereto.**

5  
(*Mr. Hume.*)

---

*Ordered, by The House of Commons, to be Printed,  
6 February 1854.*

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[*Price 1s. 3d.*]

6

PUBLIC WORKS (INDIA).

RETURN to an Order of the Honourable The House of Commons,\*  
dated 14 February 1854;—for,

COPIES “of the REPORTS of the COMMISSION ON PUBLIC WORKS at *Bombay*,  
and of the SECOND REPORT of the COMMISSIONERS ON PUBLIC WORKS at  
*Madras*, together with the MINUTES or REPORTS of the Governor and  
Members of Council at *Madras*, to the Governor-General or Court of  
Directors, respecting those Reports:”

“Of all MINUTES or REPORTS of the Governor-General to the Court of  
Directors in answer to or respecting those Reports:”

“Of any MEMORIALS from the Commissioners on Public Works at *Madras* to  
the Court of Directors, respecting those Reports:”

“And, of any of the ANSWERS of the Court of Directors to the said Memorials,  
Minutes, and Reports.”

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*Note.*—The Report of the Commission on Public Works at Bombay has been presented to,  
and printed by, both Houses of Parliament. (House of Lords Paper, No. 17 of Session 1853-4 ;  
House of Commons Paper, No. 21 of Session 1853-4.) The Second Report of the Commis-  
sioners on Public Works at Madras, has not yet been received in this country.

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East India House, }  
2 May 1854. }

JAMES C. MELVILL.

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(Mr. Hume.)

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*Ordered, by The House of Commons, to be Printed,*  
*4 May 1854.*

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L I S T.

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East India House, }  
2 May 1854. }

*T. L. Peacock,*  
Examiner of India Correspondence.

COPIES of the REPORTS of the COMMISSION ON PUBLIC WORKS at *Bombay*, and of the SECOND REPORT of the COMMISSIONERS ON PUBLIC WORKS at *Madras*, together with the MINUTES or REPORTS of the GOVERNOR and MEMBERS of COUNCIL at *Madras*, to the GOVERNOR-GENERAL or COURT of DIRECTORS, respecting those Reports;—Of all MINUTES or REPORTS of the GOVERNOR-GENERAL to the COURT of DIRECTORS in answer to or respecting those Reports;—Of any MEMORIALS from the Commissioners on Public Works at *Madras* to the COURT of DIRECTORS, respecting those Reports;—And, of any of the ANSWERS of the COURT of DIRECTORS to the said Memorials, Minutes, and Reports.

[THE COURT'S Despatch of 30th January 1850, directing the formation of Commissions on Public Works at the several Presidencies of India, has already been laid before Parliament (Sessional Paper, No. 622 of 1851, pp. 146-154), but it appears essential to the completeness of this Return to give Extracts of so much of it as relates to the Presidency of Madras.]

EXTRACT Public Letter to India, dated 30 January (No. 2) 1850.

Para. 1. SEVERAL very important and intimately connected questions in relation to the superintendence and management of public works have been brought under our consideration in letters from all the Presidencies. We have thought it desirable to embrace the subject in one view, and to communicate our opinion on it to your Government.

2. We shall notice these questions, and the subjects from which they have arisen, in the following order.

\* \* \* \* \*

3. The District Roads of Madras.

\* \* \* \* \*

Madras District Roads:

18. The letters noted in the margin from the Government of Fort St. George relate chiefly to the formation and maintenance of roads under that Presidency. The letter dated 3d January 1849, transmits a general report of the Road Department from its establishment to the 1st May 1848, and the orders passed thereon by the Government.

19. The whole of the proceedings referred to in these letters, lead to the following conclusions:

20. The roads in some instances, from want of previous survey and other causes, have not been well planned with respect to the line, so that a road on a new line becomes desirable, and even necessary for permanent traffic.

21. They have been carried below the level of tanks, when they might have been carried above it, and embankments have been broken and bridges carried away by inundations which, on the higher line, would have been comparatively innocuous.

22. They have been constructed without due provision for their permanent maintenance, so that either the entire road has gone to decay, or one portion of it has become unserviceable, while another portion was in progress of construction.

## RETURNS RELATING TO PUBLIC WORKS, INDIA.

23. In many parts of the Presidency it is impossible, from the want of local materials, to construct metalled roads, except at an altogether disproportionate cost.

24. The carts generally used are constructed on a principle calculated to destroy the roads. This principle was introduced about 50 years ago, and it may be, therefore, presumed that the people would not object to the introduction of an improved form.

25. To construct a system of trunk and branch roads on a permanent and generally useful principle would require a greater outlay than can be afforded by Government, unless aided by one or all of three modes of contribution: the levy of tolls, the levy of a cart tax, the requisition of village labour. The objections to the first of these methods are clearly and forcibly stated by Captain Best, who advocates the second and third. He calculated that the requisition of a day's labour at the rate of one cooly per cawny from places within two miles of a road, and of a commutation of two annas per cawny from places within that distance, and of one anna per cawny from places at a greater distance, would yield 34,00,000 days' labour, and 3,18,750 rupees per annum; but he does not state by what machinery, at what cost, and with what checks and securities against exaction and oppression, these very minute contributions of labour and money could be levied.

26. Captain Best appears also to regret the prohibition of a fourth mode of assistance, convict labour, which he thinks not liable in the Madras territory to the objections which were taken to it in Bengal.

27. Labourers require vigilant superintendence, and there is a great deficiency of practical knowledge in local overseers. Lord Tweeddale, in his minute of 25th January 1848, dwelt very strongly on the necessity of having men of practical experience to do justice to the science which is abundantly possessed by the engineers of the Presidency. The letter from the Government, dated 4th February, No. 3 of 1848, requested that two practical overseers, who understood the business of road-making in all its branches, should be sent out from England for the purpose of instructing the local overseers and operatives.

\* \* \* \* \*

59. With respect to the chief superintending authorities, the present practice at the several Presidencies is different.

\* \* \* \* \*

61. Under the Presidency of Madras, the control of all works connected with the land revenue, especially all works of irrigation, is intrusted to the Board of Revenue in the Department of Public Works, which consists of the ordinary members of the Board, with the addition of the chief engineer, and with a distinct establishment, at the head of which is placed an engineer officer as secretary; all other works are placed under the superintendence of the Military Board.

\* \* \* \* \*

63. It is most important that the system of the superintendence of public works should be assimilated at all the Presidencies; but considering that the opinion of the Governor-General has not yet been given on the division of public works in Bengal; considering also the unsatisfactory working of the system at Madras, which formed the subject of our despatch to that Presidency, 29th May (No. 12) 1845, and the great differences of opinion in relation to the change of system at Bombay, the subject is not brought before us in a state for final decision; it is desirable that the entire question in relation to all the Presidencies should first pass under the deliberate review of your Government.

64. In forming a judgment of the system of superintendence, it is necessary to have a clear view of the actual state of all the work which is the subject of superintendence; this, in the districts, and especially in the district roads, embraces a most extensive field of operations. The documents which we have examined exhibit many proofs of cost and labour thrown away, of work done over again and again without a good final result, of great excess of expenditure  
over

over estimates ; in short, an extensive admission of defects, and a great diversity of opinion as to the mode in which those defects should be remedied.

65. We think it desirable that you should select two or three competent officers from persons already at the Presidency, and whose services can be either wholly or partially spared for the purpose, to form a temporary commission to inquire into the whole subject of the superintendence and execution of public works, not omitting any subject noticed in this despatch ; that similar commissions should be formed at the other Presidencies ; that they should make full and detailed reports to their respective Governments, embodying such suggestions as may appear to them advisable ; that these reports should be submitted to you, and that we should receive from you such a distinct opinion on the whole of the questions herein considered, as shall place it in our power to come to a decision respecting them.

\* \* \* \* \*

67. We do not consider that any great public advantage would result from the engagement of two practical overseers thoroughly conversant with road-making in all its branches, as proposed in Lord Tweeddale's minute of January 1848, especially as it would be impossible to send out persons possessing the essential qualification of a knowledge of the native languages.

68. Of all other applications and suggestions for purposes of permanent utility, but not of immediate temporary necessity, we shall postpone the consideration till we are in possession of the opinions with which we have required you to supply us.

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EXTRACT Military Letter from Bengal, dated 9 September (No. 231) 1853.

3. We have received from the Government of Fort St. George, with the documents herewith transmitted as per margin, the First Report of the Commission for inquiry into the Department of Public Works at Madras, with an intimation that five copies of the printed report referred to have been forwarded direct for your information.

Cons. 4 March  
1853, No. 705.  
Cons. 3 June 1853,  
No. 33/41.

4. Your Honourable Court will observe (Cons. 3 June 1853, No. 41) that we have deferred the consideration of the report and documents until favoured with a full exposition of the views of the Government of Fort St. George on the subject.

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Home Department, No. 69 of 1853, dated 7 October.

To the Honourable the Court of Directors of the East India Company.

Honourable Sirs,

WITH reference to your Honourable Court's Despatch, No. 32, dated 24 May last, we have the honour to forward the accompanying communication from the Government of Fort St. George, promising shortly to submit their final proceedings on the First Report of the Commission appointed to inquire into the whole subject of the superintendence and execution of Public Works under the Madras Presidency.

Home Cons. 5 Aug.  
1853, No 56 to 59.  
Home Cons. 26 Aug.  
1853, No. 25 & 26.  
Home Cons 7 Aug.  
1853.

2. The reports of the Commissions appointed at the three Presidencies have been received, and are now under consideration in the Military Department, but no decision on the subject can be arrived at until we are in possession of the minutes of the Madras Government on the report from that Presidency.

We have, &c.  
(signed) *Dalhousie.*  
*J. Lewis.*  
*J. Dorin.*  
*J. Low.*

Fort William, 7 October 1853.

# RETURNS RELATING TO PUBLIC WORKS, INDIA.

## PUBLIC WORKS DEPARTMENT.

No. 118.

EXTRACT from the Minutes of Consultation, under date the 6th April 1852.

READ again letter from the Commissioners for inquiring into the system of Public Works in the Madras Presidency, dated 21 November, and recorded in Cons. 16 December 1851.

Read also the following papers :

Extract from the proceedings of the Board of Revenue, D.P.W.  
(Here enter 15 January 1852, No. 31.)

Memorandum by the Right Honourable the President.  
(Here enter 27 February 1852.)

Minute by the Honourable Mr. Thomas.  
(Here enter 6 March 1852.)

Memorandum by the Right Honourable the President.  
(Here enter 15 March 1852.)

The Right honourable the Governor in Council is of opinion that there are serious objections to the proposition recommended by the Commissioners, and supported by the Board of Revenue in the Department of Public Works, of replacing the trunk roads under the Board's charge, and resolves to defer the consideration of the subject until the final report of the Commissioners on the Department of Public Works generally, which may shortly be expected, is laid before him.

2. In regard, however, to the recommendation for the appointment of an assistant to the secretary to the Board in the Department of Public Works, the Governor in Council, satisfied on the representation of the Commissioners that that officer needs additional aid to enable him efficiently to discharge his duties, will be prepared to recommend the appointment to the Government of India, on the Board submitting an application in the prescribed form, showing the charge which the measure will involve.

(signed) *H. C. Montgomery*, Chief Secretary.

(True copy.)

(signed) *H. C. Montgomery*, Chief Secretary.

(True copy.)

(signed) *R. J. H. Birch*, Lieutenant-Colonel,  
Officiating Secretary to the Government of India  
in the Military Department.

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No. 889.

From Lieutenant-colonel *R. J. H. Birch*, c.b., Officiating Secretary to the Government of India in the Military Department, to Lieutenant-Colonel *C. A. Browne*, Secretary to Government in the Military Department, Fort St. George.

Sir,

THE Chief Secretary to the Government of Fort St. George having, with his letters to the Secretary to the Government of India in the Home Department, No. 121, of the 13th April 1853, forwarded a printed copy of the "First Report of the Public Works Commission," with correspondence regarding the subject under investigation by that Commission, the whole of the documents have, under the

the orders of the Supreme Government, been transferred to this department, from which instructions for the assembly of the Commission were originally issued.

2. The printed report and the other papers have been laid before the Most noble the Governor-General in Council, who would at once have entered upon the consideration of the report and papers, in order to be prepared for the further communications from the Government of Madras, which are promised, were it not for the terms of the minute by the Honourable Mr. Thomas, dated the 12th April 1853, regarding the imputations against the proceedings of Government contained in the report of the Commissioners. In the sentiments recorded in that minute the Right honourable the Governor entirely concurred (*see* his minute of the 13th April), and added: "I shall endeavour at some future period to show my reasons for the opinion I have formed that this first report of the Commissioners is one-sided; that it misrepresents the actuating motives and real feelings of Government, with regard to its measures for the improvement and amelioration of the country, and therefore that it is not entitled to that confidence, though some facts set forth in it may be well supported, which such a document should command, to render it of any general practical use."

Under these circumstances, the Most noble the Governor-General of India in Council will defer the consideration of any part of the report or documents until a full exposition of the views of the Madras Government shall have been submitted.

I have, &c.  
(signed) *R. J. H. Birch*, Lieutenant-Colonel,  
Officiating Secretary to the Government of India  
in the Military Department.

Council Chamber, Fort William, 28 May 1853.

(True copy.)  
(signed) *R. J. H. Birch*, Lieutenant-Colonel,  
Officiating Secretary to the Government of India  
in the Military Department.

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No. 353.

From Sir *H. C. Montgomery*, Bart., Chief Secretary to the Government of Fort St. George, to *G. Plowden*, Esq., Officiating Secretary to the Government of India.

Sir,

I AM directed, in reply to Mr. Couper's letter of the 20th ultimo, to state for the information of the Most noble the Governor-General in Council, that the Honourable Mr. Elliott and the Honourable Mr. Thomas have recorded their opinions at considerable length on the First Report of the Commissioners for inquiring into the system of Public Works at this Presidency, and that the Right honourable the Governor has nearly concluded his review of the subject. These papers being voluminous, it has occurred to the Government to be desirable that, together with the final proceedings of Government, they should be laid before the Most noble the Governor-General in Council in a printed form. They are now in the press for this purpose; and I am instructed to notify that it is expected they will be despatched to Calcutta before the termination of the present month. Public Works Department.

I have, &c.  
(signed) *H. C. Montgomery*, Chief Secretary.

Fort St. George, 13 September 1853.



VIEWS and Proceedings of the Madras Government on the First Report of the Commission on Public Works.

PUBLIC WORKS DEPARTMENT.

No. 407.

EXTRACT from the Minutes of Consultation, under date the 8th November 1853.

READ again the First Report from the Public Works Commissioners, dated 23 December 1852, and entered in Diary to Consultation, 15th April 1853.

Read also the following Minutes :

Minute by the Honourable Mr. Elliott, with Postscript.

(Here enter 19th July and 19th September 1853.)

Minute by the Honourable Mr. Thomas.

(Here enter 23 August 1853.)

Minute by the Right honourable the President.

(Here enter 29 October 1853.)

The above Minutes having been printed, ordered, that five copies be forwarded to the Government of India with the following letter.

Ordered also, that 30 copies of the same be forwarded to the Honourable the Court of Directors, with a copy of the letter addressed to the Government of India.

To the Secretary to the Government of India, in the Military Department.

(Here enter 8 November 1853, No. 408.)

To the Secretary at the India House.

(Here enter 8 November 1853, No. 409.)

(True extract.)

*H. C. Montgomery*, Chief Secretary.

PUBLIC WORKS DEPARTMENT.

No. 408.

From Sir *H. C. Montgomery*, Bart., Chief Secretary to the Government of Fort St. George, to the Secretary to the Government of India in the Military Department.

Sir,

Para. 1. In continuation of my letter of the 13th April last, and with reference to the intimation contained in my further letter of the 18th ultimo, I am now directed to lay before the Most noble the Governor-General in Council the proceedings in print of this Government on the First Report of the Commissioners appointed under the orders of the Supreme Government to inquire into the system of Public Works in the Madras Presidency.

2. These embrace minutes recorded by the Right honourable Sir Henry Pottinger and the Honourable Messrs. Elliott and Thomas.

3. The subjects adverted to by the Commissioners have, it will be observed, been discussed in detail in these documents, and as the individual opinions of the members of this Government do not in some points coincide, it is necessary to solicit the particular attention of his Lordship the Governor-General in Council to the respective views enunciated in these minutes, as well as to the appendices annexed in support of them.

4. The

4. The Commissioners in their concluding remarks (page 270) state that their chief recommendations are addressed to three main objects.

1st. The past neglect of even the existing works of irrigation and the high expediency of repairing past omissions, and entering vigorously on the task of both restoring the old works to their highest point of efficiency, and of greatly extending irrigation by new works.

2d. The absolute necessity of taking measures without delay to form a general system of internal communications; and,

3d. As an essential means to both these objects, the necessity of greatly enlarging and improving the engineer establishments.

5. The allegations of past neglect of existing works the Governor in Council believes to be, if not a mis-statement, very greatly exaggerated by the Commissioners, who in other parts of their Report (*vide* paras. 241, 245, 252 and 271), instance the benefits this Presidency has secured by attention to irrigation in the districts of Tinnivelly, South Arcot, Tanjore and Rajahmundry. But while admitting that in some instances possibly more might have been effected, the Commissioners, in page 110, para. 275, afford ample justification for any supposed and asserted neglect on the part of this Government in the following remarks:—

“ Indeed we fully believe that this neglect by the Government of undertakings so remunerative, is to be accounted for in a great measure by the extreme paucity of engineers. Superficially and imperfectly as those officers are compelled to perform even their ordinary and routine duties, these are yet quite sufficient to engross all their time, and to leave them none to attend to new undertakings. Here and there indeed an officer is found with energy to take up the investigation of great projects, but this cannot be done except by the neglect of the ordinary duties of his charge; and this is no slight evil, though perhaps the lesser of the two. In the case of the Godavery works, not only were the ordinary duties of the division entirely neglected, as we learn from Colonel Cotton’s own correspondence, but other divisions were deprived of no inconsiderable part of their far too scanty establishments, in order to provide for carrying on that one undertaking, and still the number of officers employed upon it was far too small, and the progress in consequence very slow.”

6. The Right honourable the Governor in Council fully concurs with the Commissioners as to the benefits that must result from a greatly increased expenditure in works of irrigation, provided the means of superintendence under able and judicious direction is available, but without this indispensable requisite it is manifestly impracticable to entertain projects for the improvement of the country, either as regards irrigation or internal communications on any extensive scale. At the present moment, works which have received the sanction of this Government and of the Government of India are indefinitely and necessarily postponed because efficient supervision is wanting.

7. To the proposed plan of obtaining the increased agency for supervision of works solely by enlargement of the engineer corps, the Governor in Council is not able to record his assent. It appears to him inexpedient that Government should continue wholly dependent on the military corps of engineers for the supply of officers for civil engineering. In again recommending, therefore, that the military corps should be increased, the Governor in Council would suggest that the increase need not be carried to the extent required to provide for all the appointments which should be filled by scientific officers, but that a proportion might be left to be supplied by civil engineers sent from England, and by officers of the artillery and the line, and any qualified persons that may be found out of the service.

V. letter to Government of India, under date 2 June 1853, No. 605.

8. The Governor in Council does not support the proposal of the Commissioners for specifying any particular sum to be annually laid out on public works. He is of opinion that the amount to be expended on works of all descriptions, would most conveniently and properly be left to be fixed within a certain limit by the local government when proper supervision is forthcoming. He does not however object to a prospective estimate of the expenditure intended to be made within the year being submitted to the Government of India, that the amount may be known to that authority, and that it may see that the authorised limit

is not exceeded, but he is fully of opinion with the Commissioners, for the solid reasons they advance in para. 492, page 198, that whatever the admitted amount of annual expenditure may be, it should be placed at the unfettered and exclusive disposal of the local government.

Board of Revenue  
D. P. W.  
Military Board.  
Superintendent of  
Roads.

9. On the subject of the controlling agency for the Department of Public Works, it will be observed there is a difference of opinion. The Right honourable the President and the Honourable Mr. Thomas are opposed to the adoption of the recommendation of the Commissioners for the constitution of a new Board to have control over public works of all kinds, in lieu of the three distinct authorities now existing. They are in favour of continuing the trunk roads throughout the Presidency, until finally completed, under the superintendence, as at present, of a separate officer corresponding direct with Government, and combat the opinion that the existing system, as the Commissioners assert, has failed. The Honourable Mr. Thomas considers that a new Board would be a cumbrous and expensive machinery, especially objectionable as excluding individual responsibility, and he would advocate the division of the Presidency into four divisions with a general superintendent to each. The Right honourable Sir H. Pottinger concurs in these views, believing that a Board on the principle proposed would prolong the present evil system; whereas the superintendence suggested would comprise personal inspection, individual responsibility, and vastly improved efficiency. The Honourable Mr. Elliott agrees with the Commissioners as to the composition of the proposed Board, except that he thinks that it will be sufficient to appoint one engineer officer to be a member of the Board besides the chief engineer, who is to have a seat in it *ex officio*. Mr. Elliott, in a postscript to his minute (page 33), has stated his reasons at length for preferring a Board consisting of an able and experienced revenue officer, and a select officer of engineers, eminent for his professional skill and experience, and thoroughly conversant with the practice of the department, to an individual officer for the control of the Department of Public Works at this Presidency, or to dividing this control by arranging the district in four grand divisions, with a superintendent to each, with reference especially to the union of the management of the Maramut with the administration of the Land Revenue.

10. To the arguments in support of these separate views I am instructed to solicit especial attention, as the controlling agency for the Maramut Department must ever be a matter of vital concern to the future prosperity of this Presidency, where the existence of the land revenue so much depends upon irrigation. But though the Government of Madras are not unanimous on the question of the future controlling agency of the Public Works Department, they agree fully on the impolicy of continuing any portion of it in the hands of the Military Board. The Honourable Mr. Thomas pronounces that delay and ineffectual supervision are marked characteristics of this Board, and he strongly advises that it should be abolished at the earliest possible date, and the Right honourable the Governor declares it to be worse than useless.

11. In paras. 173 to 181 of his minute, the Honourable Mr. Elliott has carefully reviewed the subordinate agency proposed by the Commissioners, and with the modifications suggested by Mr. Elliott the Governor in Council is inclined to recommend it on the proposed scale, but is of opinion that such details as are referred to by the Commissioners, must be left to be carried out gradually by the local government.

12. The Commissioners, in paras. 606 to 626, have largely discussed the subject of training a succession of subordinate officers, European and native, for the Department of Public Works. This subject has long engaged the attention of this Government, and the Government of India will remember that a project has been already submitted for raising a Government institution for this purpose, on the foundation of the existing school for the instruction of artificers established by Major Maitland.

13. The Right honourable the Governor in Council would again urge this project on the attention of the Most noble the Governor-General in Council. Anticipating the approval of the Government of India, the Governor in Council has lately authorised the extension to the Department of Public Works of the system of entertaining apprentices under the district civil engineers, which had been found to be so successful in the Road Department.

14. The

14. The Governor in Council will not in this communication further follow the Commissioners through their very lengthened and reiterated discussions, as the principal points of their report have been fully treated of in the minutes recorded, but he directs me in conclusion, to bring prominently to the notice of the Supreme Government the tone which the Commissioners have used in reference to proceedings and orders of Government, and the principles and views ascribed to it; and the exaggerations and misrepresentations with which they have endeavoured to support the studied reflections they have cast upon its conduct in many instances, which an exact statement of the case would have shown to be unfounded.

I have, &c.  
(signed) *H. C. Montgomery,*  
Chief Secretary.

Fort St. George, 8 November 1853.

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MINUTE by the Honourable *D. Elliott, Esq.*

Section I.

1. THE attention of the committee was directed to "the whole subject of the superintendence and execution of Public Works" under this Presidency.

2. The public works of this Presidency, the Commission point out, "are Para. 3. carried on under three distinct and independent departments; viz, 1st, the Public Works Department of the Board of Revenue; 2d, the Superintendent of Roads; 3d, the Military Board.

3. The Board of Revenue has the control of all irrigation works, all civil buildings in the provinces, and all roads and bridges not included in the trunk roads, nor in military cantonments, and all canals, &c.

4. The superintendent of roads has the sole superintendence of the great lines of communication which have been classed under the term Trunk Roads; he proposes all new roads on these lines, as well as all repairs and improvements, and he and his subordinates execute the greater part of the work.

5. The Military Board have the superintendence of the construction and repair of fortifications, of all public buildings, both military and civil, at the Presidency, the Government roads and bridges at the Presidency, all military buildings and forts in the provinces, and roads and bridges, &c. in military cantonments; as well as the roads, bridges, and civil buildings and works in the Saugor Division.

6. Besides these the work at the Paumbem Channel is under the sole superintendence of the chief engineer.

Section II.

7. IN the 2d section of their Report the Commission treat of the department "of Public Works under the Board of Revenue.

8. In this department the civil members of the Board of Revenue are assisted by the chief engineer, who has a seat at the Board, and their secretary is an officer of engineers.

9. The general charge of the works under the superintendence of the Board of Revenue is vested in the collectors, assisted by professional officers designated as civil engineers.

10. The Commission represent the 20 collectorates under this Presidency as Para. 11. distributed into eight principal divisions, to each of which a civil engineer stands appointed, and one sub-division, in which an assistant civil engineer of the first class performs the same duties as the civil engineers in the other divisions. When they wrote, the first division (exclusive of the sub-division) comprised the three collectorates of Rajahmundry, Masulipatam, and Guntoor. But these districts have since been formed into two divisions, called the Godavery and the Kistna divisions, and placed respectively under the civil engineers charged with the anicuts on these rivers and the subsidiary works for the irrigation of the

country dependent on them. There are, therefore, under the orders of the Board of Revenue nine civil engineers and one first-class assistant civil engineer, with distinct charges. In general each civil engineer has to attend to two districts. In one only the charge of the civil engineer extends to a third district; but the second district of this division has no artificial irrigation, and the third is a small one.

3d Division, Bel-  
lary, Canara, Kur-  
nool.

Paras. 13 to 16.

11. The nature of the works of irrigation in this Presidency is described by the Commission. The revenue immediately dependent on those belonging to Government is estimated by them at \*135 lacs of rupees per annum, besides †15 lacs alienated as Enam. The custody of the works on which this revenue depends, the Commission observe, "devolves primarily on the collectors and tahsildars; then on the civil engineer department, whose more special province it is to give advice and assistance to the collector in preventing danger and repairing damage."

Para. 17.

Para. 20.

12. All repairs and alterations of works of irrigation, and of the other works above specified as appertaining to this department, are made under the orders of the Board of Revenue, which receives and discusses all projects for constructing new works or improving and enlarging old ones. Estimates for such works are submitted to the Board by the local officers, and if approved, are laid by the Board before Government. The Board receives and examines and submits to Government the bills for work done; distributes and transfers the assistants and other subordinate officers of the civil engineer; and exercises a general control over every part of the department, whether under the civil engineers or under the collectors.

13. These duties involve a vast deal of business, which, owing, as the Commission think, to the inadequacy of the office establishment, it has not been possible to discharge without arrear. It is stated that from the heavy pressure of business in the office, bills for work done can rarely be examined in less than a year after receipt, and a still longer time sometimes elapses between the completion of a work and the transmission of the bill for it to the Board.

14. The Commission omit to mention that the office establishment was strengthened by the appointment of an assistant secretary long before the date of their report; and that the establishment under the secretary was increased to the extent that seemed to be sufficient to enable it to carry on the current business without arrear, while a separate provision was made for the disposal of arrears at a much earlier period.

Para. 22.

15. The Commission represent that "the Board have done their best with the aid in general of a highly efficient secretary, but with a very inadequate office establishment, to deal with the business brought before them; but they have attempted very little beyond that, and have rarely taken the initiative in suggesting improvements." The Board not having done more, the Commission attribute to the full occupation of the civil members with their proper revenue duties, and to circumstances which prevent the chief engineer from giving much of his time to the general business of the department. The result, the Commission allege, is, that "the secretary alone has long been the real head of the department;" and this, they say, is more emphatically the case in consequence of a late despatch from the Court of Directors, implying that they held the secretary responsible for the sufficiency of the estimates recommended by the Board, whereupon the secretary claimed the right of recording his dissent from the opinion of the Board, a right which it is stated the Board conceded, and which he has exercised.

Para. 23.

16. Upon this state of matters the Commission remark, that it "appears to them very objectionable; it being obviously contrary to good policy that a Board should

\* This estimate excludes Malabar and Canara, which have no artificial irrigation, also Kurnool and the five Northern Circars. The latter are omitted on account of the large proportion of them under Zemindary settlement; but large tracts have reverted to Government of late years. By the latest statement, the revenue from irrigated lands in Kurnool and the Northern Circars was close upon 15 lacs (14,94,004 rupees), raising the total to 150 lacs.

† This is a mere conjecture much short of the mark, I conceive.

should be so weak or so encumbered as to be obliged to leave the disposal of business wholly to the secretary, and still worse that a secretary, whose duty it is to carry into effect the orders of the Board, should be placed in the mixed and anomalous position of also sharing their responsibility, and therefore of discussing and disputing their orders."

17. The Commission conclude that "the Board of Revenue is of necessity, and from the very nature of the case, unequal to the control of the Maramut Department," and that it is "absolutely necessary that this duty should be transferred to a different body." Para. 25.

18. The Commission give a brief abstract of the present system of carrying on work in the provinces. The work connected with irrigation is shown to be divided into three classes, "Emergent," "Ordinary," and "Occasional." The "Emergent" work is that which cannot be postponed, as when a tank or channel is breached and must be repaired immediately to save the crops and the revenue of the year. This is done immediately by the collector, on his own responsibility. The "Ordinary" works are those repairs to tanks and water-courses, &c., which are necessary to keep the works in efficient condition, the estimates for which, for the most part, are made by the civil engineer (or his subordinates) at the suggestion of the collector or tahsildars, or of his own motion, from his personal knowledge of what is requisite, and the rest by the tahsildars. The collector decides upon the works to be executed, and enters them in an annual list, and then issues his orders to the tahsildars to commence the works, advancing to them for the purpose about half or a third of the amount of the estimates. The tahsildar causes engagements to be made with workmen, ordinarily through the officers of the village where the work is to be done; advances are made and renewed from time to time. The work is marked out and explained by the talook maistry, who visits it while in progress, and reports on it. Many of the works are also visited, while in progress, by some officer of the civil engineer's department; when finished, the work is measured by the tahsildar's department and the maistry, and in many cases by the civil engineer's department, and the accounts are then made up. The estimates for ordinary works are not previously submitted to the Board, but are ordered to be executed by the collector on his own responsibility. "Occasional" \* estimates are such as are designed for the improvement or extension of existing works, or for the construction of new works. They are made almost chiefly by the civil engineer, though often on suggestion or recommendation from the collector. They require the previous sanction of Government before execution, and are submitted through the Board of Revenue. They are executed generally in the same manner as ordinary estimates, but the larger and more important works are now often executed under the superintendence of European overseers. Paras. 25 to 33.  
"Emergent."  
"Ordinary."  
"Occasional."

19. The rules for "occasional" works of irrigation are applied to estimates for roads, bridges, and buildings. The work is done in most cases by the tahsildar's department, aided, when necessary, by the instructions of the civil engineer. Larger works are often executed under the superintendence of an European overseer.

20. Thus it appears that the execution is almost entirely in the hands of the tahsildars, under the control of the collectors, while the duties of the civil engineer's department are, first, projecting and estimating, and, secondly, directing and inspecting.

21. With respect to the civil engineer's branch of the department, the Commission pronounce that its present and chief want is an increase of engineer officers, Paras. 34 to 36.

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\* Note.—The Commission remark that of late years some sorts of work have been required to be included in the occasional list, which are merely "ordinary" in their character. I am not aware of this. I have known objections made to works "occasional" in their character, that is, for the improvement or extension of existing works being included in ordinary estimates for repairs; but I do not recollect instances the reverse of this. Perhaps they allude to the large expenditure for maintaining the Godavery Anicut, &c., which is somewhat exceptional. respecting which it was ordered, under date the 8th May 1852, that while the practice in regard to ordinary estimates generally should not be altered, any expenditure sanctioned by the Board on account of the anicut, ordinary or emergent, should be immediately reported to Government.

officers, in order both to the efficient discharge of the ordinary and routine work of the department, and to the development of the resources of the country, and the increase of the revenue, by the restoration of works that have gone to decay, the improving and enlarging of existing works, and the formation of new works, and also with a view to the improvement of the roads.

Para. 37.

22. The subordinates of the department are of two classes, the revenue surveyors and the overseers; the former have, with one exception, been invariably East Indians. The term surveyor is an improper designation, as their duties

	Rs.	
<sup>a</sup> Salary - - -	30	- -
Allowances when detached from the office - -	49	- 8
	79	- 8
<sup>b</sup> Salary - - -	65	- -
Field allowances - -	76	4 -
	141	4 -
<sup>c</sup> First - - -	100	- -
Second - - -	140	- -
(with field allowances as above.)		

are not confined to surveying; they are employed by the civil engineer in all the various duties of the department; besides surveying and taking levels, they project small works, make estimates, and inspect works performed by the collector's department, and are occasionally employed in the superintendence of important works in execution. They are instructed, mostly, in what is called the "Survey School" attached to the office of the Public Works Department, from which, after passing a certain examination, they are advanced to be sub-assistant surveyors, and placed under the civil engineers, with an allowance of *Rs. 79. 0. 8.*\* a month, to which is added *Rs. 24. 8.* tent allowance, when reported qualified for detached duty. After seven years from entering the school, their allowances are raised to *Rs. 141. 4.*† on their being re-

commended to it by the civil engineer, and two further advances of salary are open to them after certain terms of service, on the same recommendation. There are now in the department 26 revenue surveyors of different grades.

Paras. 38 to 41.

23. The Commission have formed an unfavourable opinion of this class, but their defects seem to be capable of amendment; they seem at first joining to have a foundation of professional knowledge, which, with good practical instruction and experience afterwards, ought to make them gradually serviceable; and it appears that, in fact, their services do, by such training, become useful at an early period, and that the best of them are found by the civil engineers to be "extremely useful" after they have been seven or eight years in the department.\* It is desirable to know what proportion of those of this standing are considered to merit such high praise.

Para. 39.

Para. 40.

24. They are represented to be in general intelligent, and for the most part both honest and sober; the testimony to the general integrity of the class is said to be very uniform. The defects ascribed to them are indolence, a want of activity and energy, an over estimate of their own importance, and a false estimate of what constitutes respectability, which makes them regard it as a degradation to put their own hands to any work. A better early training would, probably, in a great measure, cure these defects; such a training, for example, as the youths in the institution under Major Maitland are now subjected to. The remedy proposed by the Commission, of amalgamating them with the Europeans, I doubt not would be very efficacious, and, as at present advised, I see no objection to it.

25. The overseers appear to be all Europeans, drafted from the Sappers.† The number now belonging to the Maramut Department is stated to be 25, viz., seven in the first division, and one or two in each of the other divisions; there are also 11 under the superintendent of roads. They have been employed almost exclusively on superintending work in execution, occasionally in making surveys and taking levels, and in a few instances in inspecting works done. Their acquirements on first joining seem to be, in general, a good deal inferior to those of the surveyors, but they vary greatly. The Commission state that the results of the employment of this class have been most satisfactory, and they adduce testimonies in

\* Note.—I am informed by the secretary to the Board D. P. W. that of 31 surveyors educated at the school, only six have turned out very inefficient.

† Note.—The order of the Government of India, dated 19 September 1851, expressly sanctions the employment of non-commissioned officers of the Sappers exclusively. But I am informed that Sappers not being available, vacancies are now supplied from the artillery and infantry, which cannot be expected to furnish men nearly so well qualified, and I understand that in fact many of those lately brought into the department have failed to give satisfaction.

in support of this statement; they also mention some very marked instances of direct saving produced by their vigilant and energetic superintendence, not only by the prevention of fraud, but by obtaining more and better work from the people employed, by saving in material, &c.

26. The Commission represent that the men of this class have been "unfairly treated by Government." In this report, dated 23 December 1852, they allege that "not one has yet been advanced from the lowest step of rank and pay," and that they are "without any prospect of improvement;" and they express their hope "that Government will now be induced to take up the subject, and to relieve this very deserving class from the causes of discontent from which they suffer;" which representation they make in the face of a communication addressed to them, under date 14 June 1851, in which they were apprised that the Government had applied to the Government of India to promote nine out of the 27 overseers in the department, or one-third of the whole, both in rank and pay, and that the Government desired to have their opinion upon the proposition of the Board of Revenue for extending the employment of non-commissioned officers of the Sappers and Miners, before they decided upon it. With this reference before them, the Commission were not warranted in the comments they have introduced into their report; and if the comments were penned, as is intimated in a note, before they were informed of what the Government had done, there was ample time to modify them according to the truth in the 18 months that elapsed before the report was closed. By the promotion sanctioned, two of the overseers had their allowances, including their military pay, increased to Rs. 107. 12. 8, one had his increased to Rs. 102. 8. 3, and the rest had an increase which raised their allowances, on the aggregate, the highest to Rs. 90. 11. 1, and the lowest to Rs. 85. 3. 5. Paras. 52 to 54.  
Sanctioned by Government of India,  
19 Sept. 1851.

27. The Government of India, on the 14th June 1852, at the recommendation of this Government, granted tent allowance to three of the overseers while employed on special duty. The Board of Revenue afterwards applied to Government to allow the tentage of a sub-assistant surveyor to be drawn by any overseer whom the civil engineer of any division may find it necessary to employ in the duties of inspection properly pertaining to the Survey Department. The Government did not think it proper to assent to so general a proposition, but intimated that they would not object, on the Board bringing any special case to their notice, to apply for the sanction of the Government of India to the allowance of tentage for a specified period. 29 Nov. 1852.

28. It appeared to me at the time, and I think still, that a general discretion might be given to the Board to authorise tentage to overseers when the duties on which they are employed call for it; that is, when they render it necessary for them to move about the country.

29. The Commission next speak more fully of the execution of works in the Revenue Department, in which they regard the tahsildars as the executive officers, and the collector as the controlling authority over them, describing the jurisdiction and general duties of the tahsildar and the officers under him, pointing out the several steps towards the execution of work after the collector has given his orders to the tahsildar, and explaining the duties of the talook maistry; also setting forth the manner in which accounts are kept of the details of work, which form the materials from which the tahsildar makes up bills to be submitted to the collector, and examined in his office, and finally sent through the civil engineer to the Board of Revenue, and eventually to Government for sanction. Para. 55.  
Para. 56.  
Para. 57.  
Para. 58.

30. In commenting upon the existing system as described by them, the Commission point out that one of the chief inconveniences of it is dilatoriness, particularly in the smaller works which are executed by village officers; they do not think that the delay is owing to malversation, but chiefly to the procrastinating bent of the native character. Whatever\* frauds there may have been formerly Para. 59.

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\* The late Captain Best, superintendent of roads, previously employed for a long time in the Maramut Department, and one of our very best engineers, made the following statements in a letter dated 22 August 1850: "There were formerly cases of gross carelessness in estimating, gross neglect



Para. 60. formerly in misapplying advances, they are assured that they are now rare. The accounts they represent as being kept irregularly, especially the daily accounts, with regard to which even in great works there is in general great laxity. But precautionary measures they observe are taken in some districts, particularly Canara and Trichinopoly, which are calculated to prevent the accounts being tampered with. It is stated that the opinions of the collectors vary as to the degree of credit due to these daily accounts—some think they are generally authentic, but the majority express the opinion that they are not very faithful, or exactly kept, and the civil engineers express the same conviction. As to the final accounts of works, some of the collectors think that they are fairly made up from the daily accounts, while others, and all the civil engineers, express their belief that they also are garbled.

Para. 62. 31. The Commission suggest the means by which these evils may be corrected, all of which seem to me advisable, except the use of English in the daily accounts as a general rule. The Commission recommend this "for the figures certainly, and probably at no distant period for the headings and remarks also." The use of English in the accounts would no doubt facilitate check by the civil engineers in their inspections, and, where it is practicable, it would be well to introduce it, but I conceive it would be very rarely practicable. It is a suggestion, I think, worthy of note, that "strict agreement between estimate and bill ought not to be insisted on, as that directly encourages tampering with accounts."

Para. 66. 32. The Commission discuss the question how far the existing rates of labour are sufficient, how far the labour employed in public works is voluntary, and how far otherwise. On these points, they say, opinions are various. In Malabar and Canara the people in general are stated to be too independent to work for insufficient wages, yet the Commission come to a conclusion which appears to contradict this, in stating that, "on the whole there appears to be no district in which labour is not more or less obtained by compulsion."\* They observe that "little coercion is used, but it is known that it will be used if required, and indeed the workpeople themselves, from long custom, consider themselves under a sort of obligation to work for Government on the established terms; but where the remuneration is inadequate they work unwillingly and slowly."

Paras. 67 and 68. 33. They state what they consider to be the causes of this practical insufficiency of the hire, and suggest the means of remedying it. In some districts they conceive the rate of hire to be too low, but more generally they believe the people would be content with the rate if they got full and prompt payment, to secure which is the great object; and this the Commission think will be best secured by the extended employment of European overseers.

Para. 69. 34. Without adopting the extreme opinion of the Commission as to the impossibility of inducing native functionaries to pay for work punctually, an opinion which, if well founded, goes to destroy all confidence in native agency generally, and would reduce one to despair of a good administration in any department, since in none can native agency be dispensed with, I agree with them that the extended employment of Europeans as overseers would have a beneficial effect in the manner specified by them.

Para. 70. 35. The present practice of retrenchments from the cost of works, in consequence of inspections by the civil engineer or one of his officers, appears to be liable to the objections of the Commission. But I do not feel competent to form an opinion of the fitness of the rules proposed for limiting such retrenchments and fixing responsibility. A reference should be made to the department on the subject. I observe that Government, under date the 11th October 1849, in  
deciding

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in executing, and gross frauds in charging for these works, pervading whole districts, and repeated from year to year; but such have never come to my knowledge. And I do not hesitate to state my belief that in no department under Government has there been anything like so great improvement within recollection as in this. Year after year the works are better chosen, better done, more fairly paid for, and more honestly charged for.

\* In a late report, Major Cotton, in charge of the Godavery works of irrigation, states that he has 14,000 labourers who have come voluntarily for employment. Some degree of compulsion was necessary at first to procure the amount of labour required; but there is now not only no necessity for compulsion, but the demand for work by the labouring classes is so great that employment cannot always be given to all that seek it.

deciding upon objections made by the civil engineer of the 4th division to accounts of work done in Chingleput, disallowed the objections for reasons similar to those advanced by the Commission.

36. The subject treated in these paras. is of much importance. There can be no doubt of the expediency of improving so valuable a class of servants as the district and talook maistries. That there is great room for improvement is unquestionable. I take it to be clearly necessary both to improve their personal qualifications and to give them a more independent and respectable position, with better pay. Paras. 75 to 89.

37. The successful experiment of Captain Best of taking youths as apprentices for instruction, with an allowance of seven rupees a month during their apprenticeship, ought to be carried out in the Maramut Department in the manner proposed by the Commission. If a school shall be hereafter instituted on the plan recommended by the Commission, or on the foundation of that established by Major Maitland for the instruction of the Ordnance artificers, as this Government has proposed to the Government of India, the apprentice system might merge in it. But in the meantime much might be done towards the improvement of the department by the instruction of apprentices under the civil engineer and their principal assistants. I think it expedient that this be ordered at once. Para. 81.

38. The question whether the talook maistries should be under the tahsildars or the collector, is hardly worthy of consideration until we have better qualified maistries. Para. 82.

39. I am strongly in favour of increasing the pay of both the superintendents and the maistries as duly qualified persons are found. I think it is not an unreasonable suggestion of the Commission that the superintendent should be put on the footing of a tahsildar in regard to pay. Indeed this is the case already in some districts. The rates proposed for maistries rising from 15 to 40 rupees do not appear to be excessive. The highest rate of course would not be attainable without a long service and superior qualification. Paras. 83 to 85.

40. That the number of the maistries also needs be increased appears to me to be demonstrated. Para. 86.

41. The Commission give their views upon certain rules proposed by Government for modifying the present system for the conduct of the department. Paras 91 to 106.

42. The Commission entirely overlook that these rules were proposed as a temporary provision to make the most of the existing establishment "until the thorough reform of the Department of Public Works which had been submitted for the consideration of the Government of India should be authorised." It is evident from the discussions which issued in the Minute of Consultation, wherein the rules in question were proposed, that the Government fully recognised that the grand defect of the system was the want of officers. It being impossible with the present establishment to give a civil engineer to each district, the question was how to employ the officer having the charge of two or more districts so as to admit of his concentrating his attention upon the principal works in each district, and how he might be enabled to superintend more closely the execution of those requiring professional skill, with a view to fixing a greater responsibility upon him. I beg to refer to my minute on the subject, in which, after having expressed my opinion that every district should have its own engineer, I assented to the suggestion that until Government should be empowered to extend the establishment, the engineer in charge of each division should be required to remain in one of the districts composing it, six or eight months consecutively in alternate years, explaining my views as follows: "I concur in the principle of this suggestion, viz., that the engineer shall concentrate his energies upon one district for the greater part of every year, in executing, or directing and superintending the execution of the works of importance enough to require his personal attention, which have been sanctioned, and in planning and estimating for new works to be executed in a future year, employing the rest of the year in inspections, &c., in the other district, as far as his time will permit, for thus, I conceive, the work which is the proper business of the engineer (that is, the work requiring professional direction) may be as well Recorded in Cons. 31 January 1851.

well done in quality as if each district had its own officer, and Government will have the satisfaction of finding the plans submitted to them bear the marks of mature deliberation and careful elaboration and adjustment, and will have assurance in sanctioning them that they will be well executed. There can be no doubt, however, that though what is done may be expected to be better done than at present, the quantity of work performed will be much less, and certainly short of the demand. This, however, applies only to works classed as 'Occasional,' and it is of more importance that every work of this sort should be well executed than that a greater number of such works should be executed in a less efficient manner. While therefore the department is not of sufficient strength to admit of an engineer being attached to each district, I am inclined to think that its actual strength will be turned to the best account in the manner suggested. But it must be understood that this is only an expedient, and that to get work better done, by insisting on a closer attention to the planning in the first instance, and enforcing a more direct responsibility for the execution, it will be necessary to leave much undone, which will be a check to the improvement of the country."

43. With regard to "ordinary" works, however, it was expected that these would be expedited by dispensing with the intervention of the engineer, and that not less, but more, would be done in this branch.

Para. 98.

From Board of  
Revenue, 10 April  
1851, paras. 13  
to 20.

44. The Commission say that the remarks of the Board of Revenue on the 3d rule, which embodies the suggestion I am now considering, appear to them to show convincingly that it is impracticable, and if put in operation would produce more harm than good. The Board did not assert that it was impracticable, but submitted that it would be found difficult in practice, assuming that Government did not intend that the planning or superintendence of works should be partly entrusted to the assistant civil engineer, implying that if this was intended their objection would not hold. It was, however, certainly presumed that the civil engineer of the division would so employ his assistant as most effectually to fulfil the design of Government that he should himself be occupied the greater part of every year in one district, in pursuance of which the assistant would naturally be employed in the district in which the civil engineer was not engaged, and when the civil engineer passed from one to the other before the completion of works begun under his direction, he would of course place them in charge of the assistant. This explanation seems to meet the particular objection of the Board. But they would still apparently prefer the existing practice, by which the civil engineer having two districts under his charge, "does for the most part confine himself to one district, and employ his assistant in the other, visiting it only when his presence is necessary for the determination of a professional question which may be too difficult for the unaided judgment of a less experienced officer, and for general inspection." This arrangement gives arbitrarily the advantage of an engineer of superior qualifications to one district, and one of inferior qualifications to another. As it may be hoped that the establishment will shortly be increased to an extent which will admit of a civil engineer being put in charge of each district, the question which is the best arrangement for the meantime is not of much practical importance, and I should be disinclined to insist upon the rule against the judgment of the Board.

Para. 98.

45. It was not, as the Commission suppose, forgotten that the civil engineer is not under the existing system an executive officer, except to a very trifling extent. This was distinctly considered, and it was judged to be expedient that more should be required of him in this line of duty.

From Board of  
Revenue, as above,  
paras. 22 to 29.

46. The 4th rule is that by which it was intended to give to the civil engineer the relief requisite to enable him to give that greater personal attention to the execution of works which Government thought expedient. The Board say they are sensible of the importance of relieving the civil engineer from the duty of attending to petty works, but submit that an unconditional money limit to the sphere of that officer's superintendence would not be found to answer. The reasons they give for this opinion appear to me to be valid, and I would yield to their suggestion, that "the intention of Government would be best accomplished if the civil engineer, while relieved from the duty of attending to petty works, should be allowed to use his own discretion in determining what are properly such, and not be restricted to a money limit." The Commission point

point out that of 4,339 estimates for works of irrigation sanctioned in 1850, amounting to 6,68,368 rupees, only 96 estimates, to the amount of 1,71,251 rupees, were above 1,000 rupees each.

47. In commenting upon the 1st rule, which requires that no new work or renewal of a work, to cost above 2,000 rupees, shall be submitted to Government till the collector or sub-collector has made inquiry on the spot in person, and satisfied himself of the data on which the expected return from the work has been calculated, the Commission overlook the proviso, leaving it to the collector to depute his assistant in less important cases to report to him, the responsibility for the recommendation of the work resting with the collector. In most districts there is a head assistant competent to take charge of two talooks, and another assistant of sufficient experience to take charge of one talook. When works above the limit of 2,000 rupees are proposed in those talooks, the collector will naturally devolve upon the assistant in charge the duty of making the inquiry contemplated by the Government, except in the case of works of extraordinary importance. In the talooks under his own charge he will take the opportunities that offer in the course of his jumabundy tour and at other times to make the necessary local inquiries. The sub-collector will do likewise. It is an erroneous assumption that a collector in the annual jumabundy "can only visit the chief place in each talook." He will very ill perform his duty and transgress the instructions for his guidance, if he does not stay at several places in each talook for the purpose of meeting the ryots in order to the settlement, and for the delivery of their puttahs, and in passing from one halting place to another he can easily arrange to make the necessary visitations. When it is considered that, as shown by the Commission, the whole number of estimates above 1,000\* rupees, in 1850, was only 97 in the 20 collectorates, it will be obvious how they have exaggerated the difficulty of carrying this rule into effect. Of the propriety of the rule I have no doubt.

Para. 94.

\*The rule refers to estimates above 2,000 rupees.

48. The remarks of the Commission on the second rule do not seem worthy of notice. Those of the Board of Revenue appear to deserve attention, particularly the doubt they express "of the advantage of a rule which connects the expectation with a return of the whole capital expended, rather than of interest thereupon." They "recommend that projects for which a return of 10 per cent. upon the outlay is certain (as far as certainty is possible in such cases) to be realised should be favourably entertained. I am inclined to support this recommendation, taking the 10 per cent. to be clear of what is necessary to be allowed for repairs and superintendence, which Captain Collyer, I observe in his estimate for the Palar Anicut, &c., reckons at 10 per cent. This allowance will vary with the nature of the work. A net return of 10 per cent. on the outlay will provide for interest on the capital until it is redeemed, and at the same time constitute a fund for its redemption, which being effected, it will remain as a permanent addition to the revenue. On the term "certain," I would observe that the Government in requiring it to be declared that the supply of water is "certain," meant nothing more than that it is to be depended upon in ordinary seasons.

Para. 97.

From Board of Revenue, as above, para. 8.

49. With reference to the general remarks of the Commission in this para. I would observe that I do not think Government meant to intimate that ill-considered plans are commonly sent up; I believe that little more was meant, than is admitted by the Commission. The following are my remarks on this point in the Minute before quoted: "After all, as far as I know, the cases are rare in which the Government have been led into error in yielding to recommendations submitted by the Board of Revenue on a too implicit reliance on the reports of the engineers, supported as these must be by the collectors, at least in which it has been ascertained that the works sanctioned were not conducive to the improvement of the country, although perhaps some of them might have been spared."

Para. 105.

50. In closing the recapitulation of this section of the report, the Commission recommend for immediate adoption some of the suggestions offered by them. One is the suggestion that in every large work in which an overseer is employed, he should be charged with the payment of the workpeople and the keeping of the accounts; that he should be empowered to reject inferior materials and determine the price of all, subject to an appeal to the civil engineer; and that whenever practicable, the materials should be provided by him. The last two propositions appear to me questionable. The overseer ought to report to the engineer

Para. 644.

Para. 50.

when

when he considers the prices excessive, if his objections to them are not admitted by the local officer, and if the engineer concurs with him, he should hand up the report to the collector, with his opinion to that effect. I see many objections to the overseer providing materials himself, but it might be allowed occasionally, when unnecessary difficulties were made by the tahsildar or his officers. With respect to the rest, without laying down an absolute rule to the effect proposed, I think the Board should be instructed to cause the suggestion to be followed out whenever the officer responsible for the execution of the works felt sufficient confidence in the overseer. Another suggestion relates to the reform of the accounts, which I have adverted to above. The attention of the Board, I think, should be called to the subject, in order to the introduction of a uniform system, in accordance with the recommendation of the Commission.

### Section III.

51. In the third section the Commission treat of the Roads and the working of the Road Department.

Para. 110.

52. In this para. the Commission mention the greatly extended use of wheel-carriages in this Presidency for the traffic between the inland districts and the coast, the last returns in 1848 showing 90,000 bandies, an estimate supposed to be much too low. There could not be a more convincing proof that the roads have been to a considerable extent much improved, but it is undeniable that there is great room for further improvement, indeed that the want of roads is our great and crying want. It is true also that the river navigation of the country has not been improved, and that canals for traffic have only been attempted on the very smallest scale.

Para. 111.

Para. 125.

53. Without stopping to inquire whether the Commission have fully exhibited all that was done in this department prior to 1846, when, as they justly observe, a new era commenced in the history of the roads of the country, I take up the subject at this point of time, just noticing that increased attention had been lately given to it, particularly under the administration of Lord Elphinstone, so that while the yearly expenditure on roads during the first ten years of the period from 1826 to 1845 had averaged 84,503 rupees, the average during the last ten years had been 1,79,348 rupees. In 1845 a separate department was constituted for the superintendence of the roads, and early in 1846 the Government received the sanction of the Court of Directors to the appropriation of 4 lacs of rupees annually to the formation, maintenance, and repair of the main or trunk roads, exclusive of the expenditure on minor roads still left under the collectors and civil engineers, to be provided for separately under instructions issued at the same time, among which the Commission notice a very important one, whereby they observe collectors were authorised "to disburse money for the repair of made roads of this class, on the responsibility of the civil engineer for the necessity of the outlay, to an amount not exceeding 50 rupees a mile annually." On referring to the order of Government, I find it more restricted than is to be understood from the words of the Commission. It authorised collectors, "during the monsoon season, to disburse a fixed annual amount for emergent repairs, or for keeping up a temporary establishment for the preservation of the roads, and especially of the ghauts, on the distinct understanding that such charges were to be confined within the narrowest limits, or emergency demand, never to exceed 50 rupees the mile, and to be reported without delay for the sanction of Government." From some oversight, this order it appears has not been acted upon. It should now, I think, be repeated.

Report, paras. 125  
to 143.

M. C. 27 January  
1846, para. 14.

54. In sanctioning this scheme for the Road Department, the Court of Directors, it is to be observed, established a precedent for vesting a subordinate government with discretion to lay out money for certain purposes within a certain annual limit, without a previous reference to the Supreme Government to obtain sanction for the plans of improvement projected.

55. The charge of the superintendent of roads, as laid down in the instructions for his guidance, was far too extensive, and extremely able, zealous, energetic, and active as Captain Best was, it was impossible for him to compass what was prescribed as his duty. It was intended that he should be executive as well as superintending. But endeavouring to inspect himself the many lines of road

over

over which his superintendence extended, he was obliged to be almost always travelling, and of course was unable to give any considerable attention to the execution of particular works: Early in 1851 the Government felt it to be necessary to direct him to concentrate his efforts, "laying it down as a general rule, that the superintendent of roads should confine himself to the execution and completion of such great lines of road only as he can personally and efficiently inspect," and expressing the opinion, "that a system of superintendence based upon this principle, by which the energies of the superintendent and his department will be concentrated, will in the end be found the most economical and effective, and better calculated to yield permanently beneficial effects, than by the plan now pursued by that officer of passing hurriedly throughout the whole Presidency, leaving the works in progress to his assistants without his frequent supervision." Para. 138.

56. The superintendent of roads had been previously authorised, so early as August 1847, to avail himself of the aid of the civil engineers occasionally, for the formation of portions of the trunk roads, the construction of bridges, &c., for which he could not provide by means of his own establishment; and this aid was pretty largely called for, and very zealously and ably afforded. Para. 136.

57. Undoubtedly the orders of January 1851 reduced the Road Department to a much narrower immediate sphere of action than was originally contemplated; but it is not to be admitted that the effect was, as alleged by the Commission, "that all the trunk roads, excepting the lines to which specially the personal attention of the superintendent was to be confined, were left worse off than the cross roads, and far worse off than they themselves were before the Road Department was formed," for the order remained in force which authorised the superintendent to call for the assistance of the civil engineers to do for them what, from the information they rendered to him, he judged to be immediately requisite, and thus much work was done on the trunk roads beyond the limits within which the superintendent's personal supervision was thenceforward exercised. Para. 140.

58. My own opinion was, that the superintendent was too much confined by the above orders; I thought it was not in accordance with the intention of Government, in constituting the office of superintendent, that he should be personally employed in road making, though I deemed it indispensable that he should closely overlook the work in progress under his assistants. Entertaining this opinion, I considered it unnecessary to defer the commencement of other roads, besides those particularly mentioned by Government, the construction of which it would be possible for the superintendent to overlook personally. My idea was that the great roads in hand should be completed with all possible expedition, laying out upon them annually until they were finished, as much of the four lac fund as could be profitably employed in their execution with the means available, so that the superintendent might be able the earlier to transfer his attention to other lines of road, taking up in order the lines which, while they were recommended by the importance of the traffic which might be expected to pass by them, could most easily be superintended by him without drawing him off too much from those simultaneously in progress. Minute recorded in Consultation, 31 January 1851.

59. I still think that the best way of laying out the four lacs annually is, not by distributing it over a great many roads, but by concentrating it on a few, working on those in hand at many points at once. If a road is to cost, say four lacs, I think it would be better to provide for its construction in two years,\* by allotting to it two lacs per annum, than in four years by an assignment to it of one lac per annum; the gain in time in bringing it into use is an obvious advantage, and another great advantage is the setting the superintendent free to commence other projects so much earlier.

60. I think it was a mistake not to give the superintendent the assistance of a subordinate department, constituted as he proposed in 1846. It is to be regretted that the superintendent so early lost the services of the engineer officer originally Paras. 140 to 145.

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\* This I conceive to be the minimum time that must of necessity be allowed for making a road in this country to admit of its settling properly.

originally appointed his assistant, and that the department has since been without the advantage of a second professional officer to take a share of the superintendence, so as to admit of its being more widely extended, without intermission of the closer oversight of the works under construction by the agency of the department, which the Government required to be maintained. With such aid, I doubt not Captain Best would have been able to expend the four lacs annually on trunk roads with economy and efficiency by the agency of his own department, but not if he made "numerous, almost continual, journeys from one end of the Presidency to the other," and not without some such concentration of the operations of the department as the Government contemplated. It is to be observed that Captain Best had a good reason for his lengthened journeys at first, in order to become personally acquainted with the several lines in all their extent, which object having been accomplished, there would have been less occasion in future for his absenting himself from the localities where the principal roads were in process of execution.

See letter from  
Captain Best to  
Government, 25  
March 1851, p. 15.

Para. 147. 61. The statement referred to of the works executed by the Road Department, and the sums they have cost, is made up to 1 May 1851; the amount expended is 13 lacs of rupees. I fully consent to the opinion of the Commission that all the money spent has been most economically used; that the cost of the magnificent bridges over the Cavery\* and Coleroon,† including losses by destructive accidents, came to no more than 55 rupees for each running foot of bridge, is, I think, a most signal proof of the ability of the architect, Major Lawford, and the careful superintendence given by him to the execution of those great works.

Para. 148.

62. By an account brought up to 30 October 1852, it appears that the amount drawn on account of sanctioned estimates to that date was 16,04,405 rupees, for 9,22,454 rupees of which bills had been sanctioned, and bills to the amount of 75,870 rupees were ready to be submitted, making a total of 9,98,344 rupees, leaving 6,06,080 rupees for which bills were yet to be made out, instead of 8,34,427 rupees, the amount unadjusted, as noted by the Commission, on the 1st May 1851.

Paras. 149 to 155.

63. In these paras. the Commission give an account of the Great Western Road from Madras to Vaniambaddy, a distance of 125½ miles, upon which the expenditure from April 1845 to May 1851, exclusive of superintendence, amounted to 3,71,212 rupees, an expenditure which the Commission pronounce has been very economically managed. "The road," they observe, "has improved, the traffic increased, and the cost of carriage fallen to two-thirds of what it was, and this at a cost, when compared with the traffic, at one-eighth of the sum, which, making allowances for the difference in the value of money, &c., would have been considered necessary in Ceylon for the mere maintenance of a road already in the highest order." An interesting memorandum is exhibited in para. 151, showing the great reduction in the cost of carriage, in proportion as this road has been improved: the hire of a cart carrying 900 lbs., from Wallajahnugger to Madras, was, in 1823, seven rupees; in 1851 the hire of a cart carrying 1,600 lbs. was reduced to Rs. 3. 10.; the mode of travelling on this road, now almost universally used, is by post carriages drawn by horses, running at from six to seven miles an hour; the post is carried in the same manner.

Para. 154.

Para. 153.

About 70 miles.

Para. 156.

64. Of the 13 lacs of rupees expended from the funds appropriated to the Road Department, the Commission point out that nearly five lacs, being more than one-third, was really expended by other agency, chiefly by the aid of the civil engineers; they add, that the works on which this money was expended were not only executed, but projected by other departments.

Para. 157.

Para. 158.

65. They conclude that the Road Department has failed in relieving the civil engineers, as was anticipated, but rather has led to an increase of labour on the Civil Engineers' Department in this description of work, by reason of a fund being ready to supply the means for it, which they suppose has, in a measure, diverted

\* Consists of 32 arches of 45 feet each, and spans a breadth of more than a quarter of a mile (1,714 feet). Cost, including losses, 98,640 rupees.

† 38 arches of 60 feet each. Cost, including losses, about 1,46,000 rupees.

diverted the attention of the officers of the Maramut Department from the works properly belonging to it.

66. The Commission doubt whether the money spent has been applied to the works most required. Speaking of the great bridges particularly, they intimate their opinion that although most useful works,\* more especially those near Trichinopoly, over the Cauvery and Coleroon, above adverted to, they were not so urgently required as similar works are at other places mentioned. The Commission, however, overlook the consideration that led to the construction of the bridges over the Cauvery and Bhowany, viz., that there were local funds available for the purpose, and that the general fund was drawn upon merely in aid, and to make up the losses from the casualties that befel them in the course of construction. It is true that the importance of the Bhowany Bridge is not to be compared with the advantage that would arise from a bridge over the Palar on the Western Road; but it was not from a mistake on this point that the former was undertaken, but simply because it afforded a means of employing the local fund referred to in a way to improve an important trunk road, while a special benefit would accrue to the district.

Para. 159.

No. 5. Madras to Combatore through Salem, and to Palghaut and Ponany, on the Malabar coast.

67. The Commission state that the accounts of the Road Department, though kept with the most minute accuracy, have not been brought to an adjustment, because there was no inspection. The orders of Government, of January 1851, were calculated to remedy this in some measure. I confess that I do not perfectly understand after all why bills to the amount of 8,34,427 rupees for work done and paid for several years previously should still be hanging over the executive officers, considering the not very extended limits within which the expenditure must for the most part have taken place. The Commission observe that the bills for work done on the roads under the superintendent's own personal management are sent up by him for sanction without any check but his own. On this point I quote the following explanation given by Captain Best in a letter dated 22 August 1850, in answer to a remark to the same effect, in a minute of Major Pears, then a member of the Military Board: "The accounts presented by me to Government for sanction are not my own accounts, but those of the above-mentioned officers (viz., the executive officers under him), or of the civil engineers who have built bridges or executed road work from funds supplied by me. It is their accounts which I audit. All advances are, in the first instance, debited against me by the collectors and the accountant-general, and I am held personally responsible for them until bills are passed by Government; but this is merely a variation of form. My office with regard to the accounts of money expended upon trunk roads is precisely the same as that of the Board of Revenue, D.P.W., as to what is spent upon branch roads and the works of maramut."

Para. 161.

Reduced by the end of October 1852 to 6,06,080 rupees, as above noted.

Para. 162.

68. Concluding that the Road Department has failed to attain the objects aimed at, the Commission recommend that it be abolished, and give their opinion that the charge of the roads ought to be re-united to that of the works of irrigation, both in the local offices and in the controlling office at the Presidency; a recommendation which will fall under consideration in the sequel. I must observe, however, in this place, that, somewhat inconsistently with the opinion expressed by them, that the employment of the civil engineers in aid of the superintendent of roads was objectionable, because it took them off from their proper duties, which, with all their exertions applied to them, they could not overtake, and added to the burden of an already overworked establishment, the Commission, on the 21st November 1851, proposed that the office of superintendent of roads

Para. 164.

\* The following statistics, which I have extracted from a report of the civil engineer, dated 11 September 1852, show that they are indeed "most useful."

Average daily passage over the Coleroon Bridges, from 5 July to 20 August 1852.

Carts and carriages	-	-	-	-	-	-	432
Horses and bullocks	-	-	-	-	-	-	1,036
Foot passengers	-	-	-	-	-	-	19,157

Over the Cauvery Bridge, from 31 August to 1 September 1852.

Carts and carriages	-	-	-	-	-	-	606
Horses and bullocks	-	-	-	-	-	-	1,144
Foot passengers	-	-	-	-	-	-	24,730



roads should be abolished, and the superintendence again vested in the Board of Revenue, represented to be already overworked and incompetent to the performance of such a duty, and the charge of the trunk roads, and the direction and supervision of the executive officers employed on them, committed to the civil engineers. It appearing to the Government that there were serious objections to this proposition, it was thought proper to let the present system continue until the whole subject should come under consideration on a review of the more complete account of it expected to be submitted in the General Report of the Commission.

6 April 1852.

Paras. 167 and 168. 69. Referring to the remarks of the Commission in these paras., I must confess that I am not satisfied that the trunk road from Madras to Trichinopoly is likely to be of such importance as to make it so well worth the money laid out upon it as a road in some other direction might have been; for instance, the projected trunk road to Bellary, No. 11. With regard to the Northern Road, I am inclined to think it advisable now that the whole line should be examined with a view to ascertain to what extent the making of a road might be dispensed with, by adapting the back waters for navigation. A beginning is being made by the improvement and extension of Cochrane's Canal navigation through the Pulicat Lake, and to some distance northward, which has been commenced. It may be well to note, with reference to para. 167, that the project of a direct road from Salem to the sea at Cuddalore has been approved by this Government, and will be recommended for the sanction of the Government of India as soon as certain information that has been called for is received.\*

#### Section IV.

70. The 4th section gives an account of the Engineer Department under the Military Board, with suggestion of changes in the structure of the department.

Para. 170.

71. The Board consists of the commandant of artillery, the chief engineer, and two stipendiary members, with a secretary and assistant secretary. But at present there is only one stipendiary member attached to the Board, the place of the other, which became vacant last year, not having been filled up, pending a reference to the Court of Directors.

Para. 172.

72. The work of the Board is divided into two departments, the Ordnance Department and the Engineer Department. The latter alone is now brought under consideration.

Para. 73.

73. The Board has control in this department over all military works in the interior, and all Government buildings and works at the Presidency, whether military or civil; also, in the interior, over roads and bridges, and Government buildings of whatever kind in cantonments. In the Saugor and Mhow division, lately transferred to the charge of this Government, the Board has more extended control over public works, under the orders of this Government as regards military works, and with regard to other works partly under the Government of India and partly under the Lieutenant-Governor of Agra.

74. The expenditure controlled by the Board independently of the Saugor and Mhow division, is about 2½ lacs annually, of which 130,341 rupees is expended at the Presidency. In the other divisions the maximum is about a quarter of a lac, the minimum under 9,000 rupees. The Military Board has power, without reference to Government, to direct the execution of repairs on estimate not exceeding 500 rupees; for new works, and extensions, and improvements of old works, the previous sanction of Government is necessary.

Para. 175.

75. Under the Board there is a superintending engineer for the Presidency division with an assistant, and a superintending engineer in each of the Mysore, Hyderabad, Nagpore, Saugor and Mhow divisions. In the last there are also three executive officers. In the Hyderabad division the executive duties at Jaulnah are entrusted to the local cantonment staff officer, who corresponds direct with the Board. In the other divisions there is no engineer, or other officer,

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\* Since this was written the requisite information has been received, and application has been made to the Government of India.

officer, permanently under the orders of the Board for the execution of work; the work required is executed by commanding and staff, and other officers, as may be most convenient.

76. In the Saugor division the superintending engineer is in the position of direction and supervision, with an executive officer under him in three of the four circles of which it is composed; in the fourth he is himself executive also. In all the other divisions where there is a superintending engineer, he is exclusively an executive officer. In the other divisions, where there are no superintending engineers or other officers permanently at the Board's disposal, considerable inconvenience has been experienced. A partial remedy has been lately applied by assigning an allowance to officers occasionally charged with the execution of work. Paras. 184 to 186.

77. The absence of inspection in the interior and beyond the frontier is represented to be a material defect, and suggestions for removing it are brought forward in the sequel. At the Presidency, the duty of inspecting work done by the superintending engineer is laid on the chief engineer, but he has not much time to give to this duty; and many details devolve on the Military Board not properly appertaining to an office of general control. Para. 181.

78. The native subordinates of this branch of the department are described in terms similar to those applied to the maistries in the Civil Department. Para. 189.

79. The execution of works on contract is extremely limited in the up-country stations, because very few men of respectability, capital, and skill, can be found to take contracts, and because it is found that work in course of execution by contract requires fully as much careful superintendence as that done by the direct agency of the department. It is very much the practice, however, to obtain supplies of building materials by contract. At the Presidency, contracts are more generally in use. Para. 178.  
Para. 180.

80. With respect to roads and bridges in cantonments, they are usually, at division head quarters, in charge of the division quartermaster-general, and at other stations in charge of the station staff officer. It is said to be the practice in most cantonments to devote to this object all the fines levied at the police office. At some stations beyond the frontier where there is cultivated land within the cantonment, the Government revenue is laid out on the roads without being brought to account. Government have lately allowed the grazing rent for the glacis and esplanade of Fort St. George to be applied to the repairs and maintenance of the railing, &c. and of the esplanade roads; and this order has been extended to up-country stations also. Para. 190.

81. The Commission justly regard it as objectionable that the amount available for local improvements should depend on the sum that is levied in the way of police fines, and considering the practice open to abuse, they recommend that it be put a stop to. They propose that in every cantonment certain roads should be fixed to be maintained at the Government charge, with a certain mileage allowance for them; from which, when there are any local funds available, (excepting fines) these should be deducted, the receipts and disbursements of such funds being subjected to regular audit no less than the expenditure of the mileage allowance. This plan I think should be followed. With respect to fines, while it is improper that the expenditure upon roads should depend upon such a fund, I do not see why, when the fines have been duly brought to account, the amount should not be appropriated to the roads in reduction of the mileage allowance. Para. 191.

82. The suggestion of the Commission in para. 192, as to the value of the labour of Lascars employed on cantonment roads, and the value of tools, &c., supplied from the Government stores being charged against the roads, appears to me to be proper. Para. 192.

83. Changes are proposed by the Commission directed chiefly to the removal of anomalies and inconveniences arising from the mixture of duties now laid on the Military Board and the Chief Engineer. Paras. 193 to 199.

84. The changes adverted to will be more conveniently considered in the sequel.

## Section V.

85. The fifth section contains the views of the Commission as to the constitution of a new Board of Public Works to perform the duties now committed to the Board of Revenue in that department, and those of the Military Board in what is called the engineer department; and the ninth details the establishment which appears to them to be necessary to make the executive department adequate to the work which they think ought to be performed in order to the due maintenance and improvement of the present works of irrigation, roads, &c., and the construction of new works of the same description urgently called for in all parts of the country.

86. The views of the Commission as to the value of irrigation to the revenue and to the general wealth, and the importance of maintaining and extending it, and the urgent necessity for the real and effective improvement of the roads, are set forth at large in the sixth and seventh sections; and the eighth submits a scheme of expenditure proposed to be laid out annually on works of irrigation and communication.

87. It seems to me advisable to review these sections, before entering on the questions of the superintendence and control under which it may be expedient to place the whole Department of Public Works, and of the agency to be at the disposal of the superintending and controlling authority, both as to its organization and its strength. These questions I propose to consider in close connexion after having seen what is the nature and extent of the work to be provided for.

88. I therefore pass over the fifth section, and proceed to the sixth.

## Section VI.

89. The subject treated of in this section I consider of the highest importance, and I am bound to say that it is handled in a manner to set its importance in a very strong light. I have always been an advocate for laying out money in improving and extending the means of irrigation, and in my place as a member of the Board of Revenue, I gave my strongest support to the projects that were brought forward for that end during the period that I sat there.\* I may mention particularly the Coleroon Anicuts. The annual net gain by these two anicuts in South Arcot and Tanjore, as shown by the table in para. 273, is in the proportion of  $133\frac{1}{16}$  per cent. to the cost for the lower one, and  $144\frac{1}{16}$  per cent. for the upper one. Since I have had a seat at this Board I have done all in my power to further the completion of the Godavery Anicut and the subsidiary works for the spread of irrigation by means of the waters of that great river, and have strongly advocated the adaptation of the channels originally designed for irrigation, to the object of navigation, to facilitate the carriage of the increased produce of the country to markets where prices are more remunerative than are to be obtained from grain dealers coming to the villages to lay in their stocks. I earnestly supported the project of an anicut across the Kistna,† towards the execution of which the most active exertions have been made this season, and such an advance has been effected that in the course of another working season it may be expected to be to a certain degree operative, by throwing larger supplies into the channels leading from it, which will have been prepared for conducting a larger body of water, and for carrying it farther, and distributing it more widely.

90. The Commission have vividly stated the terrible effects of drought in the district of Guntoor, which lies on the right bank of the Kistna. The Government in recommending this work strongly insisted on the importance of it as a means under Providence of preventing the recurrence of calamities so dreadful as this district had been afflicted with, but at the same time, upon careful

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\* From 1832 to 1838.

† I may here remark that the information contained in the note appended to para. 294 of their report, might have led the Commission to expunge that paragraph lamenting the supposed indefinite postponement of this work, which they were aware for months before the close of the report, was incorrect in fact. The civil engineer in charge of the work was appointed on the 9th March 1852, nearly nine months before the date of the report.

careful consideration, expressed their conviction that it would be highly remunerative. Upon calculations which I made at the time, and which are set out in my minute on the subject, I have not a doubt that this project will prove, as the Commission anticipate, an investment of capital most profitable to the Government, while it will create a vast amount of private wealth.

91. I have earnestly supported several other projects of the same description, promising like profitable results, for which Government have obtained sanction, not always without difficulty; and I have had the pleasure very lately of concurring cordially with the Right honourable the President in recommending for the sanction of the Court of Directors a great scheme for turning the waters of the Palar, which hitherto have run waste to the sea, to the fertilization of the country on both its banks, by means of an anicut, which will furnish a full supply to a series of great reservoirs, whence the lands depending on them will be fully and constantly irrigated in season. The waters of the river will thus be brought down to the vicinity of Madras, and will probably be made further available for the supply of this great place (said to contain a population of about 700,000) with water, both for domestic purposes and for the object of sewerage. The anicut and subsidiary works of irrigation are estimated to cost 8,66,114 rupees.

In the districts of North Arcot and Chingleput.

92. But while I have always been sensible that by a judicious expenditure in promoting irrigation the Government as well as the people would be largely benefited, my convictions on this subject have been strengthened by the forcible manner in which the Commission have adduced practical proof of the soundness of the theory they maintain in their synopsis of what has been actually effected by this means in Tinnevely and Tanjore, South Arcot and Rajahmundry. An instructive example is drawn from the two Southern Talooks of South Arcot of the deterioration caused by neglect of the sources and channels of irrigation, checked immediately by the operation of works designed specifically to cure the defects which that neglect had occasioned, whereby not only was the loss of revenue which had been the consequence of those defects recovered, but a large augmentation secured, the improvement of the revenue being an unquestionable indication of proportionate improvement in the resources of the Ryots. I would point also to the beneficial results springing directly and obviously from the improvement of irrigation in the tracts depending on the Samulcottah channel in Rajahmundry, and in the Woondy Talook of that district, both under the influence of the Godavery Anicut; not to speak of the effects of the anicut in other directions, so far as it has come into operation, which cannot yet be correctly estimated, but which we may assume with confidence have already much overpaid its cost, and the eventual results of which I am fully persuaded will be, if not equal to the anticipations of Colonel Cotton,—anticipations endorsed by the Commission, but which I conceive are too speculative to be entirely depended on,—at any rate productive of a very rich additional revenue to Government, and a vast accession of wealth to the people, who will be enabled to turn their land to such a profitable account as is indicated in para. 265.

Paras. 241 to 269.

Para. 266.  
Para. 267.

Paras. 257 to 265.

93. The advantage of cultivating sugar is strikingly exhibited in this para. The introduction and spread of a variety of valuable products is the great desideratum in the agriculture of this country—of products more valuable than rice, to the raising of which the irrigated lands have been too exclusively confined. The principle of our assessment\* takes the rate of tax upon land capable of producing rice and sufficiently supplied with water to render it fully productive when employed to raise that kind of crop, as the maximum demand upon the land, howsoever it may be employed. The ryot cannot be required to pay more for

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\* In the districts under survey field assessments "the lands have been assessed without reference to the species or value of the crops produced, and the same tax is collected from the same land, whether the produce be sugar or rice," and in 1837 the same rule was introduced in all the other districts, viz, "that land cultivated with sugar cane by irrigation should be taxed thereafter in the same manner as land employed in the cultivation of rice" v. C. O. Board of Revenue, 13 November 1837. This order was passed by authority of Government, under instructions from the Government of India and the Court of Directors. In no case can land cultivated with sugar cane be charged with a tax additional to what would be charged on it if cultivated with rice. But if the land was classed

for the land when cultivated with sugar-cane, betel, chillies, plantains, &c., than when it is cultivated with rice. The whole profit of the more valuable crop goes to enrich himself. Hence the high importance of providing such a supply of water, so ample and so constant as will enable the ryot to interchange crops of those more valuable articles with his rice crops, and bring into the market products which may be exchanged for rice, or which in the course of traffic will have the same effect, and so tend to prevent the glut of rice which some apprehend will be the result of extending irrigation. On this point I concur generally in the observations of the Commission.

Paras. 320 to 322.

Paras. 271 to 274.

94. I would direct attention particularly to the remarks of the Commission on the statement given in Appendix Z, showing the revenue results of the outlay incurred by Government from 1836 to 1849 in the extension and improvement of irrigation, pointing out that from thirteen of the works entered in the statement there is an annual gain of 134 per cent. on the first cost, and upon the whole an annual gain of 69½ per cent., excluding the charge of the engineering and other establishments, which it is thought will be more than covered by an allowance of 25 per cent. I cannot but concur in the conclusion of the Commission, that "the result is most satisfactory; a most convincing proof of the value of irrigation, and of the ease with which the resources of the Government, as well as of the people, may by that means be immensely increased."

Page 274.

Paras. 295 to 302  
and 312.

Para. 301.

95. Upon the very important question discussed in these paras., I am inclined upon mature reflection to think that the arguments of the Commission are just and sound. I allude to the effect of increased production in overstocking the market and causing a reduction in the prices of grain, and thus *pro tanto* disabling the cultivator from paying the present money assessment. I apprehend it will have some effect in this way. But considering, as observed by the Commission, that "all improvements such as we are contemplating must be gradual, and the enlargement of cultivation in any one year must be atomic compared with the total agriculture of the country," I do not anticipate that it will be very sensibly felt. Should experience prove that the ryot is really unable to carry on the cultivation of irrigated land profitably at the present money assessment, by reason of the reduction in the price of rice (partly, it may be, from increased production, but more probably and in a greater degree from the cause adverted to by the Commission in para. 312, which must be met at any rate), notwithstanding the gain on so much of the land as he can employ in the cultivation of more valuable products, there will be no alternative, certainly, but to apply the remedy of reducing the assessment proportionately; but it is to be remembered that the great difference between the assessment of dry and irrigated land, in the case of land converted from one class to the other by means of extended irrigation, and the still greater gain to the revenue by land hitherto utterly unproductive being made capable of yielding rice and more valuable products, will afford the fund which will enable the Government to make a sufficient allowance on this score, and still retain a large profit. In this view there would be an advantage, as far as the revenue is concerned, in the extension of irrigation, if it only gave such a return as, besides redeeming the cost of the works and paying for their maintenance, would leave a fund just sufficient to replace any remissions that might become necessary to meet the fall of prices. It would surely be an advantage to secure the present revenue, if nothing more was gained, by a self-redeeming expenditure of this kind. When the inestimable good of cheap food is enjoyed by the people, and the state still gets the same revenue, the common weal is promoted, and the direct benefit to the community is reflected upon the state, which gains by it in various ways. The cheapness of food of course will cause increased consumption by the existing population, and we know that population has a constant tendency to increase not only in proportion to the increase of food, but beyond it. I do not anticipate therefore any such

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at the survey as one crop land with reference to its supply of water at that period, and the supply has since admitted of its producing two crops of rice, it is charged with an additional tax for that additional supply, equally whether cultivated with rice or with sugar cane, it being reckoned that sugar cane, requiring permanent irrigation, takes as much water as two crops of rice. How much this rule favours the cultivation of sugar cane is shown by the statement in the report, that the value of an acre of rice is 20 rupees, and of an acre of sugar cane 230 rupees; which however, perhaps, requires some qualification.

such fall in the prices of grain from the combined influence of increased production within and increased importation from without, as will ever necessitate remissions to the extent or nearly to the extent of the gain which will accrue to the state by the improvement resulting from irrigation extended gradually with a wise discretion.

96. It behoves the Government, of course, while it provides the means for increased production, to provide also, and simultaneously, all possible facilities for the transport of produce by means of good roads, canals, &c., which will best conduce to the equalization of prices, and tend to prevent the anomaly occasionally known of famine prices prevailing in one district, while the ryots in another can hardly obtain a remunerative return for their crops. And so it will be the duty of the Government to adjust the assessment carefully.

97. And here I may observe, with reference to the remarks of the Commission in para. 249, that several months before the close of their report, measures had been taken for the revision of the assessment of South Arcot, an overt fact of which they could hardly have been unaware, though they appear to ignore it. Para. 249.

98. I may also remark, that a plan of the civil engineer for partially improving the harbour of Porto Novo, and connecting it with that of Cuddalore, in South Arcot, by a navigable canal, has been sanctioned. Para. 251.

99. I do not think it necessary in this place to enter into a discussion of the other suggestions offered by the Commission in the paras. noted in the margin. But with reference to para. 323 I have to note that this Government has recommended the abolition of the moturpha tax. Para. 316 to 322.

100. I wish I could pass from this section, in which I have found so much to commend, without an expression of disapprobation; but there is one part of it upon which I cannot but animadvert; it is the passage contained in paras. 278 to 280, with the foot note to the latter para.

101. It is true that the Government, having already sanctioned a very large sum for the repairs of damages to tanks in the Bellary district, hesitated to authorise the expenditure of 37,998 rupees for the repair of a tank originally constructed upon an extravagant scale, whereon depended a revenue of only 7,524 rupees, and called for more particular information as to the circumstances which rendered the tank of importance; at the same time requiring the civil engineer and the Board of Revenue to consider whether the cost could not be diminished by some plan which would contract the tank to a size and capacity suitable to the object which it was to serve. They hesitated also at first to authorise the expenditure of 60,500 rupees\* for the repair of another large tank, upon which depended a revenue of 12,239 rupees, calling for similar information respecting it. But upon mature consideration of the further information afterwards submitted, it was deliberately resolved, with special reference to the interests of the ryots,† that it was the duty of Government to undertake the repairs, costly as they were, and the Government of India, assenting to this principle, granted the sanction which this Government applied for. As the Commission must have known the grounds upon which the Government of Madras applied for sanction for the outlay of 98,500 rupees in the repair of these tanks, and the Government of India allowed the expenditure, if their object had been simply to advocate the principle that the interests of the ryots should be considered as well as those of Government, they would have done it with more force by correcting their statement that Government had "completely ignored the rights of the ryots," and

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\* The Commission erroneously, in para. 278, state this as the amount required for the repair of the two tanks.

† Extract from Minutes of Consultation, 17th November 1851, para. 8.

"The object is not only to recover revenue which may be considered as lost, but to restore the means of subsistence to the large body of ryots who have lived by the cultivation of the lands irrigated by these tanks. There is a marked distinction between the cases of outlays on new projects, and applications for expenditure of the nature of those now before Government. In the case of a new project no private capital is destroyed by the failure to execute the work, and no individual can be ruined or injured by its abandonment. But where, as in the present instances, a large amount of private capital and whole communities may be ruined by the failure to repair these great works, it becomes alike the duty and the interest of Government to make the necessary outlay."

and showing that the principle had been admitted and acted upon by Government. The first resolution of Government, calling for information to which the Commission refer, is dated 6 September 1851, the second, to the effect above stated, is dated 17th November 1851; \* the authority of the Government of India for the outlay recommended by this Government, was given under date the 23d January 1852, and was communicated to the Board of Revenue D. P. W. on the 17th February 1852. The report is dated the 23d December 1852. The resolution of Government of the 17th November 1851 was equally open to the Commission as that of the 6th September preceding; and if the paragraphs in question were written intermediately, it is certain that they were not then printed. There was no excuse therefore for retaining in the text observations obviously intended to cast a reflection upon the Government, and suppressing what would have obviated it. For this the foot note to para. 280 makes no amends.

102. I am constrained reluctantly to notice another passage in this section, which contains a gratuitous reflection on this Government. I refer to the note to para. 263, where the Commission, in offensive terms, represent that the civil engineer who devised the project of the Godavery Anicut, and superintended its execution, was severely censured merely for "the grave offence of making too small an estimate;" for "an error of judgment" in under-estimating the cost, "which might have been supposed pardonable in an undertaking of such vastness and such novelty." I am sorry to be obliged to say that this is a misrepresentation. The Government, as the Commission must have known, simply expressed "regret that the estimates originally submitted were so deficient as they have now been shown, and that the work should have advanced so far without this fact having been brought to notice." What the engineer was really censured for, and that not severely, was "a profusion and want of economy in the expenditure of the public money," for which, it was observed, the Government "could find but little excuse in that officer's earnest desire and endeavours to expedite the work so as to bring it into early operation."

Minutes of Consultation, 13 February 1849, para. 5.

#### Section VII.

103. In the seventh section is presented a general view of the condition of the roads of this Presidency, with remarks on the necessity of improving them.

104. In paras. 329 to 366 the Commission give a detailed abstract of the annual reports on the state of the district roads from Ganjam to Tinnevely in the period since 1846, which is followed by a more general view. I have already said that the want of roads is our great and crying need. Those that exist, except in some districts which have been particularly attended to, are generally bad. The assertion, however, may be questioned that there are "not above 1,000 miles over the whole extent of the country on which it is possible to travel in a wheel conveyance at the rate of six miles an hour with any degree of comfort." And bad as the roads generally must be admitted to be, we have seen that in 1848 there were more than 90,000 bandies, or carts drawn by bullocks, in use upon them.

Para. 377 and seq.

Salem, Tanjore and Madura.

105. The Commission undervalue what has been effected in Salem, which they notice as being generally regarded as the model district with respect to roads. They think little of its\* having "400 miles of road suitable to a light traffic, infinitely superior to the common roads of other districts," because they are "very inferior to first-class roads," that is, roads equal to English turnpike roads. Let us see how the roads of this district are spoken of by a writer who brings down the statistics of the district to 1852, at the end of which the report of the Commission is dated. "From one end of the district to the other, from north to south, and from east to west, there are excellent roads bordered by flourishing avenues." "The whole extent of roads within the district which has been completed, planted, guarded by ditches, and with few exceptions marked by milestones, amounts to 726 miles. They are traversed night and day by hundreds of country carts, without let or hinderance, and may be traversed by any English traveller in his own carriage." "The bridges built in the district

Calcutta Review, June 1852.

amount

\* More than 13 months before the date of the report.

amount to 84." The Commission remark, that in 1850 three new lines were opening in addition to the 400 miles they speak of. They make little account of the carts having increased between 1836 and 1847 from 1,189 to 3,296, to which 80 were added in 1848; of the bandy load having increased from 300 lbs. to 1,000 lbs., and the bandy hire decreased from 14 to eight annas for every 10 miles. In the district of Cawnpore, with all the attention that, according to the Commission, is given to roads in the N. W. P., the extent of the cross roads is 500 miles unmetalled. And it may well be doubted that they are nearly so efficient as those of Salem. Indeed it is evident they cannot be so, as the description of them represents that they are passable only for nine months in the year.

Para. 378.

106. It is undeniable that the lines from the interior to the coast, which are of the most importance with a view to opening up the resources of the inland districts, have been unaccountably neglected. The condition of the military road from Masulipatam to Hyderabad is not to be excused. An estimate for the formation of a road to the Hyderabad frontier was called for under date the 19th June 1851, but has not been received, though the call for it was repeated on the 23d August 1852. It should be immediately attended to. The improvement of different portions of the northern road is in progress; the first part of it leading out of Madras is, I am informed, in excellent order.

Para. 379.

See Minutes of Consultation, 11 January 1853. Para. 5.

In Ganjam, Vizagapatam, Rajahmundry, Nellore and Chingleput.

107. The districts of Bellary and Cuddapah have not been cared for as they ought to have been in respect to roads. But by the last reports the works noted in the margin\* were in progress in the former district. In the Cuddapah district "the opening of the Goolcherroo Ghaut has been successfully accomplished, and there is little doubt that during the next season the improvements of the roads from it to Cuddapah on the one side, and towards the Damulcherroo Ghaut on the other, will open Cuddapah to the Western Trunk Road, and so make it easily accessible from the Presidency. An allowance of 15,000 rupees has been made for improving the road from Madras to Cuddapah *via* Naggery, which it is not intended to maintain as a principal road.

Para. 381.

Minutes of Consultation, 11 January 1853, para. 8.

Ibid. p. 9.

Para 379.

108. With respect to the road from Berhampore to Russellcondah, in Ganjam, which is the subject of remarks in the paras. noted in the margin, I may notice that on the 19th March last, this Government applied to the Government of India for authority to lay out the whole sum required for metalling and bridging it completely, so as to make it available at all seasons, if it shall be found that the traffic increases to an extent that will warrant the additional expense, and that conditional sanction has been accorded for that expense.

Paras. 332 and 383.

1,42,246 rupees.

28 April 1853.

109. I agree with the Commission in the opinion they express, that Government, generally speaking, ought to make and maintain not only the main roads of the country at large, but those connecting principal towns or points in the same or contiguous districts, with exception, perhaps, of district roads which run through large zemindaries, such as that of Vizianagram in the Vizagapatam district, the advantage of which is confined to the zemindary, or to it and to other zemindaries contiguous to it. Also, speaking generally, I agree with them, that the duty of the ryots is confined to the formation and preservation of the village roads connecting the outlying parts of the country with such main lines. If the ryots can be made to perform this duty, they will do, I think, as much as can fairly be required of them. Where the villages are widely separated and not populous, it will hardly be possible to get so much by this means.

Para. 386.

110. The Commission say, that in other parts of India this duty, or interest, on the part of Government has been recognised, and in the North-western Provinces in particular, enormous sums, such as have never been dreamed of in this

Ibid.

	Estimate.
* Road from Bellary to Dharwar - - - -	Rs. 11,489
Extending the work to parts not made - - - -	28,744
Road from Bellary to Bangalore - - - -	21,000
Ghaut Hill road to Ramandroog - - - -	647



Para. 324.

this Presidency, are expended on the great lines of communication.\* It seems to be assumed by the Commission that in Bengal, as well as in the North-western Provinces, and also, as I understand them, in Bombay, that is to say, generally throughout India, the roads, other than the trunk roads, are in a much better condition than in this Presidency; that the other Presidencies are all "more on a footing with the rest of the civilised world" in this respect than this Presidency. I should like to have full information on this point. For my own part, from what little I know of the Bengal Presidency, and from what I was accustomed, when I was at Calcutta, to hear of the cross roads, and indeed of some main roads, and from such knowledge as I have of the roads of this Presidency, I was not prepared for the statement that Bengal is better off than Madras in its secondary communications, or to speak definitely, that its cross roads, or its roads generally, exclusive of the one great trunk road, are in a condition, on the whole, which will admit of traffic by wheeled vehicles for a greater number of days in the year, those vehicles being able to travel a greater distance daily and to carry a heavier load than the roads of Madras, other than the western trunk road. I must say, I doubt it.†

Para. 392.

111. In Bengal and the North-western Provinces the Ferry Funds, which are of considerable amount, are given up for local improvements, under the direction of local committees. In this Presidency the receipts from ferries are inconsiderable, except in Malabar. It is true that the Court of Directors authorised the tolls collected at ferries being set apart as a fund for providing ferry-boats, and building bridges over rivers and nullahs, and the appropriation of any surplus there might be, after defraying the expense of these accommodations, to the repair of the public highways in the respective districts. I presume that this order was not carried into effect in the districts generally, simply because of the inadequacy of the fund to the purpose contemplated. In Malabar, however, it would have amply provided the accommodations of ferry-boats and bridges to the extent required, and would moreover have paid for the formation of a good system of internal communication, and it is to be regretted that the authorised appropriation was not made. With respect to the other districts, it is absurd to say, as the Commission do, that they have been injured by these particular funds not having been expended specifically for local purposes, when larger sums have been expended out of the general revenue for the objects to which they were meant to be appropriated—it may be affirmed that they have been virtually expended as intended, as part of the assignments from the Treasury for those objects. The Commission recommend that now, at least, the funds may be appropriated as authorised by the Court of Directors. This might be allowed in Malabar; but *cui bono* elsewhere? If the collections from ferries amount in any district to 3,000 rupees, for example, what would be the advantage of assigning that sum specifically to the maintenance of the ferries of the district,

Para. 393.

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\* Whatever has been expended, it would seem less has been done than might have been expected, if we may rely upon the statements in a recent work—*vide* Kaye's Administration of the East India Company, pages 306 to 310. Under the Presidency of Fort William, including the North Western Provinces, there is the great trunk road from Calcutta, which has been completed as far as Kurnaul, a distance of 960 miles, having cost, it is stated, about 10,000 rupees per mile. "Two other trunk roads of lesser proportions, but still of very considerable extent, have also been commenced, and carried some way towards completion." One between Bombay and Agra, the extent of which will be 734 miles; this, it is stated, is not metalled except in parts. The other, from Bombay to Calcutta, will be upwards of 1,160 miles. How much of these two trunk roads has been completed is not stated in the work to which I refer, nor have I any means of ascertaining otherwise. Whether the second of these roads is to have more metalling than the first does not appear. Probably not.

† I find in the Friend of India of 14 April 1853, some remarks which indicate the contrary. Referring to a Table of the rates of speed at which the mail is carried in Bengal, it is observed, that "the grand trunk is the only road upon which a good speed has been attained, remarks being attached to all the remainder, strongly indicative of the want of improved means of communication. From Shergotty to Gya and Gya to Patna, for instance, the pace is 4½ miles an hour, but there the road is cutcha, and the slightest shower of rain renders it puddly, and impracticable for speedy transit." Again, "the southern roads are, however, in the worst condition, the mails travelling to Jelasore at three miles an hour, or less than a groom can walk, and even between Calcutta and Baraset (that is in the immediate vicinity of the capital) the rate rises to only four miles and a half an hour, while everywhere we have such notices as 'Road intersected by numerous unbridged rivers and nullahs.' 'Road has not been repaired for these many years.' 'Road not repaired for years.' 'The road is so bad a state and so much intersected by rivers and nullahs, that no great improvement in the speed of the mails can be effected.'"

district, the expense of which has hitherto been borne by Government. It is a mere begging of the question to assume that Government would have laid out that money equally if the ferry collections had been originally given up, and it is clear the Court of Directors meant exactly the reverse. The Commission would hardly argue that, if Government should consent to assign to the improvement of the communications in Malabar, the whole of the ferry collections, amounting, as they state, to 35,000 rupees a year, Government must still contribute to the same extent as before to that object—and why should they in any other district? It would be far more for the advantage of the district that the tolls on ferries should be carried to the account of revenue, as before, and that an allowance should be granted for keeping up its roads, bridges, and ferries.

112. I do not agree with the Commission that the receipts from Cochrane's Canal ought to be appropriated of course to the improvement of the canal. This income might be kept in account together with ferry collections and such like receipts, under a separate head, as constituents of a fund appropriated to the improvement of the communications, but there is no reason why it should be laid out on this work particularly, or that the expense necessary for the improvement of this work should be confined to what the net income from it would admit of. At present a large sum, equal to a third of what the Commission say has been realised as net profit from the canal, is about to be expended in its extension and improvement. Para. 394.

113. I fully concur with the Commission in their view of the direct and powerful tendency of improvements in the roads to re-act on the revenue. I have already adverted to the importance of such improvements as tending to equalise prices. The remarks of the Commission as to the effect of good roads in promoting the production of crops other than grain fit for foreign markets are very just. I have before said that the great agricultural desideratum is the growth of such crops, and the most effectual encouragement towards the accomplishment of it, I conceive, will be afforded by facilitating the transport of such produce to the places where a demand for it will be found. Those who have a strong apprehension that the improvement of irrigation gives too great a stimulus to the production of grain, ought most strenuously to support a very liberal expenditure on roads, with a view to give the greatest possible vent and diffusion to produce, as the only means of preventing the glut they anticipate. Para. 396.

114. The Commission point out the effect of improved roads in facilitating the carriage of salt into the interior, and thus creating a greatly increased demand to the advantage of the revenue, as developed by the experience of Canara since the opening of the passes, and of Madras since the sale of salt for inland consumption has been permitted there, and the Western Trunk Road has admitted of its easy transport at a comparatively cheap cost. Paras. 401 to 402.  
Paras. 404 to 406.

115. In a minute which I recorded as a member of the Board of Revenue, on the 9th November 1836, I took up a suggestion of Captain Cotton, in a recent report\* on the project of forming railways on the principal lines of communication, in which he mentioned salt as one of the principal articles of traffic which would be greatly facilitated by this means. I proposed by way of experiment that a railway should be constructed on his plan from Madras to Wallajah-nugger 70 miles inland, and that a salt depôt should be there established, a main object being to reduce the expense of the conveyance of salt, and thereby to lower the retail price in the interior, and thus increase the consumption. My scheme was adopted by the Board of Revenue and recommended to Government, and approved by the Governor in Council, who "entirely concurred with the Board as to the expediency and practicability of the proposed undertaking." This scheme is the germ from which has eventuated, at a long distance of time, the railway which has just been begun, the first terminus of which will be within a few miles of Wallajahnugger. \* Dated 6 May 1836.  
Proceedings of Board of Revenue, 5 December 1836. Min. of Cons., 20 December 1836.

116. In support of the general argument of the Commission for the improvement of roads, I may observe that the position taken by the Board of Revenue in the proceedings just referred to, was that "the construction of roads and canals has been found to create trade and property with extraordinary rapidity." Having adverted to the report made by Captain, now Colonel, Cotton in 1836, on the improvement of the communications in this Presidency, by means of Para. 8.

canals and railroads, I cannot pass it by without drawing attention to its great merit, and especially to its far-reaching suggestiveness.

Disp: Rev. Dept.,  
No. 13 of 1852,  
para. 9.

117. The Court of Directors have lately signified their approval of a suggestion of the Honourable Mr. Thomas for the establishment of salt depôts at important inland stations, and if this suggestion be carried into act, as I hope, it will be necessary to make roads to such stations from the principal places of manufacture on the coast, where such do not already exist, which will promote general traffic and contribute to the object, stated in p. 407, of facilitating the transport of the raw produce of the interior to the nearest shipping port. The views in this and subsequent paras. as to the principles on which the communications should be planned, I mainly agree in.

Paras. 407 to 411.

Para. 410 & Paras.  
433 to 439.  
From Govt. of  
India, 1 April 1853.  
From Board of  
Revenue, 6 June  
1853, enclosing  
letter from the Civil  
Engineer, dated 18  
May, reporting that  
the expedition  
would set out in  
four days.

118. I concur with the Commission in regarding the opening of the Godavery for navigation as an object of the greatest importance. The Government of India having sanctioned the sum proposed for the survey of the river, &c., this work is in progress, and I trust that it will be successful in proving the feasibility of making the river easily navigable, so as to afford a ready outlet to the cotton of Bejar, and to admit of a return of rice and salt from the coast.

119. The Commission have not fairly stated Captain Best's sentiments in para. 413. The question was, what could be best done to promote commerce generally in a large extent of country with a limited sum to expend on roads? Speaking generally, as stated in the extract from the remarks of Government, given in the next para., he laid down the position that the benefit to commerce from 150 miles of road made practicable for carts for two-thirds or three-fourths of the year by an expenditure of 100 rupees the mile, would be many times greater than would ever be derived from 10 miles of good road made at an expense of 1,500 rupees the mile. There is not the least reason to suppose that Captain Best, or the Government which concurred with him on this point, had any idea of applying his suggestion to roads traversing the Ghauts; it was distinctly meant to apply to cross roads, or roads other than those classed as trunk roads, in the plain country only; to improve them generally up to a certain point, and to provide for their being kept in that state, rather than to give one and another district the advantage of good cross roads practicable at all seasons for short distances, leaving the roads of the other districts in the meantime wholly unimproved. Captain Best thought that having, say 1,50,000 rupees to lay out on cross roads, he would do more for commerce by using it so as to make 1,500 miles practicable for carts during nine months of the year, the other three months being, from the state of the weather, unsuitable for the transport of many sorts of goods, and otherwise unfavourable for traffic, than to make 100 miles by which carts could travel during those three months, and which would always be easier for draught, so as to admit of larger loads and longer stages. Supposing the good road to admit of a cart carrying two-thirds of a ton at 15 miles a day, and the inferior cross road to admit of only one-third, and for a distance of only 10 miles, still the amount of tonnage carried in the year by the 1,500 miles of the latter description would greatly exceed the amount carried by the 100 miles of the former, even supposing that the latter were traversed equally as at other times during the three months that the former are assumed to be impracticable, a supposition which is improbable.

Para. 415.

Para. 422.

120. The Commission say dogmatically, that it is a mistake to suppose that trade ends when the rainy season commences, from any other cause than the roads being impassable; whereas there are, as above remarked, certain kinds of goods which cannot be carried in the wet season without great risk of loss; sugar and salt, for instance, and the weather of itself is sufficient to check, though not absolutely to put a stop to, general traffic.

121. I cannot but think that the Commission go quite beyond the mark when they propose, as they seem to do in para. 419, that our roads generally should be made equal to English turnpike-roads, so as to admit of bullock carts carrying from 1,800 lbs. to a ton, and travelling with ease 20 miles a day, indeed, so as "to render fast travelling practicable and moderately cheap." It would seem that they are speaking of cross roads as well as the trunk roads, for it is Captain Best's suggestions regarding cross roads that they are canvassing; I am, however, inclined to think that where the actual traffic on a particular line is considerable,

siderable, and that which may be reasonably expected, with reference to the products of the country which it opens, is promising, the road should always be made so good as to give such a decided facility to the carriage of commodities by it as will be likely to encourage a greater use of it; I mean that the quality of the road, where there is a good promise of increased traffic, should be in advance of what the actual traffic requires, and that "when a road inferior to the best is deemed sufficient at first, its quality should be raised to that standard as the traffic is found to exhibit or to promise commensurate increase." It was upon this principle that the Government lately sought and obtained the sanction of the Government of India to converting the road from Berhampore to Russellcondah, in Ganjam, into a first-class one, by bridging and metalling it throughout. Still I apprehend that Government must be content, with respect to the great mass of the cross roads, to do little more in the way of improvement than Captain Best suggested, that is, to put them, and to take care to keep them, in a state practicable for carts during three-fourths of the year, until all the trunk roads and the more important cross roads, especially those leading from the interior to the coast, have been finished in a way to entitle them to be called really good roads, though not so perfect as the turnpike-roads of England \*

Para. 424.

Para. 310.

122. I agree generally with the Commission, that greater attention ought to be paid to the state of the harbours. Measures have already been taken, as I have noted above, for the improvement of the ports of Porto Novo and Cuddalore. I think the improvement of the roadstead of Cocanada and the harbour of Coringa, which are closely connected, a very important object, and I hope it will soon be taken up by Government. The memorandum of Colonel Cotton, in the Appendix to the Report of the Commission, demonstrates the great value of these ports, particularly of the protected harbour of Coringa, and the defects for which a remedy is required, and proposes a plan for removing them which seems to be well deserving of consideration.

Para. 426 & seq.

Porto Novo and Cuddalore, p. 444 and 445. Paras. 429 to 432. Cocanada and Coringa.

123. I was of opinion, and expressed it at the time, that the small additional expenditure proposed for the improvement of the harbour of Negapatam, for which the ship and boat-owners were willing to pay a tax at a rate which would replace the outlay in little more than two years, ought to be allowed. I am not aware that any project for the improvement of the port of Cochin has been laid before Government; the project for connecting the back waters here adverted to has been lately sanctioned by Government.

Paras. 441 to 443 Negapatam Note on letter from Board of Revenue, D. P. W., 30 Sept. 1850 Paras. 446 and 447, also 370. Cochin

124. I agree with the Commission, that the fund accruing from the operation of Act XIII of 1839, may very properly be applied, in part, to the improvement of the harbours; but the expenditure should not be limited to what such a fund can immediately afford. The suggestion of Colonel Cotton, recommended by the Commission, of raising the capital required occasionally by opening a loan on the security of the port dues, seems to be worthy of attention.

Para. 450.

125. The Commission give an account of the Paumbem Channel, between Ceylon and the main land, and of the improvements effected in it, the cost of the improvements, and the beneficial results, the value of which to the community they estimate at above five lacs a year. There can be no doubt that the facility of intercourse between the opposite coasts of the Peninsula, which has been effected by the improvement of this channel, evidenced by an increase in the tonnage from 30,000 to 168,000 tons, has been cheaply purchased at the cost of 1½ lac laid out on the work between 1834 and 1851. It may be taken as certain, that the direct benefit to trade has indirectly had a favourable influence on the revenue.

Paras. 457 to 460.

### Section VIII.

126. I come now to the 8th section, in which the Commission submit a scheme of expenditure on works of irrigation and communication.

127. They

\* It appears from the work I have referred to above, that the cross roads even in the North Western Provinces are not metalled at all. In the quotation given to illustrate the system for the management of the cross roads, it is noted with respect to Cawnpore, that "the district is intersected in every direction by unmetalled roads passable for nine months in the year," just the kind of roads suggested by Captain Best.—*Vide* Statistics of Cawnpore, para. 90, page 19.

† Since this was written a resolution has been passed for effecting this object.

Irrigation.  
Para. 463.

127. They first consider the amount proper to be annually devoted to the maintenance and improvement of irrigation works. The sum now expended annually on repair and maintenance they assume to be about seven lacs, which, though it might be sufficient if the works were in good order, they take to be much under what is required for the purpose of bringing them into that condition; they reckon that an expenditure of 15 lacs yearly will be necessary for some time, to be progressively decreased as the works are brought into the efficient state contemplated, after which the charge for them respectively will be no more than will repair the annual deterioration. The charge will be diminished and the revenue augmented as the works are successively made perfect.

Para. 466.

128. Besides this annual expenditure, commencing at 15 lacs, which they propose to be devoted to the restoration and maintenance of the existing works, they recommend that at least  $7\frac{1}{2}$  lacs annually should be devoted to the object of extending the benefits of irrigation; the whole amount to be laid out annually on works of irrigation would thus be  $22\frac{1}{2}$  lacs.

129. In treating of the expenditure necessary to keep the works of irrigation in repair, the Commission notice a set-off which is not usually taken into account, viz., the cess under the denomination of tank meras, or some corresponding term, which, originally intended to provide for this object, has been, in most districts, consolidated with the ordinary land revenue. The aggregate amount of this cess cannot be ascertained, but it is proper to bear in mind that there is such a fund in considering the burden of maintaining these works.

130. The aggregate of the expenditure proposed for the restoration and maintenance of existing works, and the formation of new works, is a good deal more than double what has been laid out annually on works of irrigation during the five years from 1846-47 to 1850-51, the average of which is 10,37,393 rupees; the proportion of this average applied to the maintenance of existing works, and the construction of new works respectively, is not distinguishable.

Para. 463.

131. The Commission, as I have remarked in a note above, have under-estimated the revenue actually received by Government from lands irrigated from Government works, in stating it at 135 lacs, by omitting the Northern Circars and Kurnool, including which it will not be short of 150 lacs, without reckoning the land irrigated from Government works which are held on enam tenure, the value of which I conceive is still more under-stated. There has been hitherto but a trifling expenditure in several of the Northern Circars, particularly Ganjam, Vizagapatam, and Masulipatam, in which in future, from the reversion to Government of lands hitherto held by zemindars, a considerable expenditure will be necessary to restore works which have been suffered to go to decay. The expenditure proposed by the Commission for the restoration of such works, the complete repair of others which are out of order, and the ordinary annual repair of the rest, will be about 10 per cent. of the Government revenue depending on artificial irrigation as estimated by me. It is impossible, from any data before us, to estimate with any degree of exactness the expenditure required for these objects; but supposing five per cent. of the revenue to be not an extravagant allowance for the maintenance of the works, after they have been put in good order, and I am inclined to think that it is not extravagant, the annual charge for that alone would be  $7\frac{1}{2}$  lacs, and I believe that if it were doubled for five years we should hardly accomplish the object of complete restoration and repair, so as to leave nothing to be done annually in future but to provide for the ordinary accidents of season and the usual wear and tear. I conclude, therefore, that the Commission have made a reasonable proposition on this head. I think that they have at least reasonably estimated what is required, though I rather doubt that, with the means of superintendence likely to be available, it would be possible at once to provide for the profitable expenditure of 15 lacs annually in the manner proposed, with a further simultaneous expenditure to a large amount in the execution of projects of improvement. The latter expenditure, if judiciously employed, would certainly reproduce itself with a large profit; the former would also be, in a measure, reproductive, by the irrigation being made sufficient to admit of the land being fully cropped, and so yielding constantly a revenue approaching to the maximum formerly obtained only in the best years, and of course greatly above the average.

132. The question of how much should be laid out annually for the extension of irrigation must depend, irrespectively of other considerations, on the means at the command of Government for the investigation of the projects of improvement that may be suggested, and for obtaining trustworthy plans and estimates, and eventually for their efficient execution. It is the primary duty of Government to provide for the object considered in the last para., and however remunerative a scheme of improvement may promise to be, beyond what will be gained by mere restoration and repair, the obligation to attend to the works required to keep up the present irrigation and make it more perfect, must not yield to such a consideration. Improvement, if the means for it are available, should go on *pari passu* with restoration and repair, but if there are not means for both, improvement must be postponed. The Commission observe, that there is no want of profitable projects to be undertaken; that in every district there are favourable openings for such undertakings, which will be brought forward rapidly as soon as officers shall be available for the important duty of investigation. Of this I have no doubt; but the officers required cannot be created at once.

133. With respect to roads, which the Commission divide into three classes, viz. 1st, the main arteries, consisting of roads running inland from the coast, those parallel with the coast, and those connecting important posts and places in the interior, the extent of which they estimate at about 8,000 miles; 2d, roads connecting towns of inferior importance with each other, and with the main lines, and connecting the chief stations of the talooks, and the chief talook towns of different districts with each other, where contiguous; the extent of these they estimate at 20,000 miles; 3d, the village roads connecting villages with the towns, or with roads of the first and second class. They think that not less than 1,50,000 miles of these roads are required.

Roads.  
Para. 467.

134. The first class of roads, they think, should all be made equal to an English turnpike-road, to admit of carts with a pair of bullocks, carrying from 1,800 lbs. to a ton, and travelling with ease and certainty 20 miles a day, the cost of which, from the experience of the Trichinopoly Trunk Road, they estimate at 3,500 rupees per mile. The second class they propose should be made as good as the Western Trunk Road, that is to say, fit to admit of carts carrying 1,600 lbs., and travelling 15, or, in dry weather, 20 miles a day, which they think may be done for 2,500 rupees a mile; viz., 1,500 for construction and bridging, and 1,000 for metalling.

Para. 419.

Para. 417.

135. The cost of these two classes of roads they estimate at 7,74,00,000 rupees, viz.: 1st class, including canals, 2,74,00,000; 2d class, 5,00,00,000 rupees.

Para. 470.

136. They are not so sanguine as to expect that the construction of these roads can be accomplished within a short period, but are only anxious to point out what there is to be done, and to urge that now at length the task should be entered upon with vigour. With this view, they propose that, as a beginning, 20 lacs annually should be steadily expended on the communications, in improving the roads already existing, and in opening new lines, exclusive of ordinary repairs.

Para. 471.

137. The Commission present no data for their assumption that the extent of the second class of roads is not overstated at 20,000 miles. It is purely a conjectural estimate, which I will not attempt to test, for I hold it to be quite out of the question that Government should undertake to form such a network of subordinate roads on such a plan as is proposed by the Commission, before the construction of those of primary importance has been accomplished, and that will be a work of many years. The former are the roads to which the remark I have made above applies, that Government must be content with respect to them to do little more in the way of improvement than Captain Best suggested.

138. The Commission have given the elements of their calculation, that the extent required for the first-class roads is about 8,000 miles. But they are not the result of investigation. They assume, for example, that 28 new roads from the coast into the interior are needed between the northern frontier of Ganjam and Cape Comorin, and from Comorin to the northern limit of Malabar, merely because in Canara there is on an average one road into the interior for every 35 miles of coast. They have not gone over the districts inquiring what are the ports which it is desirable to open to the inland districts, and what natural lines offer for communication between them, and how far one common line will serve

Para. 410.

for several districts, or parts of several districts. They have not adverted to the effect of railways in drawing to them at different points the traffic of many districts at greater and less distances, and causing the abandonment of lines leading more directly to the port whence their produce is shipped, but which, though more direct, will not, however improved, admit of the carriage of produce with anything like the rapidity, safety and cheapness with which it could be carried by the cross roads of the country to the railway, and by the railway to the place of exportation. Such a railway, for example, as that now commenced, to run out from the capital for some 60 miles in a line due west, as a trunk to two main branches, one to be carried by Vaniembady through Salem and Coimbatore to the Malabar coast, with a branch from Vaniembady to Bangalore, and the other through North Arcot, Cuddapah and Bellary towards Bombay. Considering these things, I feel pretty sure that probably one-half of the number of roads of this description suggested by the Commission would suffice; and still more sure I am that the average length of 150 miles assumed by the Commission is exaggerated. This indeed I think is self-evident on the least consideration of the data presented by the Commission. I should say the average would not exceed 120 miles, or one-fifth less. The length of 14 roads at 120 miles each, would be 1,680 miles, instead of 4,200. I think the lines parallel to the coast are also over-estimated at 1,500 miles.\* There is to be deducted, at any rate, the southern trunk road, already far advanced; and making allowance for the improvements to the northern trunk road already sanctioned, and in course of execution, and for the water communication in Malabar, which, with the canal lately sanctioned, will be complete along the coast, and allowing also for the existing coast roads in Canara, I am inclined to think the estimate may be reduced to less than 1,000 miles. The Commission, I conceive, would be very much puzzled if they were required to lay down inland main lines answering to their description to the extent of 2,000 miles. With such abatements as I have suggested, it seems to me that 4,000 miles will be more nearly the extent of road required† to be made substantially, and bridged and metalled throughout. But I do not think that all these roads would need to be made at the expense proposed by the Commission. I should be disposed to say, taking the total at 4,000, that 1,500 miles might be made at the cost proposed for the first class, 3,500 rupees, and 2,500 miles at the cost proposed for the second class, 2,500

Para. 468.

Miles.	
1,500 at 3,500	= 52,50,000
2,500 at 2,500	= 57,50,000
	<u>110,00,000</u>

See also para. 47, App. B.

100 × 3,500	= 3,50,000
200 × 2,500 × 5,00,000	
	<u>8,50,000</u>

rupees. On this view, the estimate for roads to be made substantially, bridged and metalled, is reduced to 110 lacs. For this sum we should obtain 4,000 miles of road fit to be travelled at all seasons, with such a facility of draught as to admit of the cart load being trebled or quadrupled, and the distance travelled daily nearly doubled, and by which the mails might be carried at the rate of seven miles an hour, and travellers post in carriages drawn by horses to all the principal places in the Peninsula. I have said roads, but I conceive that it will probably be found most advantageous to provide for a considerable part of the aggregate length by canal; and I am myself disposed to think that on some of the lines the tram-roads proposed by Colonel Cotton, in his report of 6 May 1836, above referred to, might be introduced with excellent effect. I concur with the Commission as to the considerations which ought to determine the kinds of communication to be resorted to in different localities; I apprehend that with all the means that could be brought into operation, it would be difficult to execute in the year more than 300 miles of new road, say 100 at an expense of 3,500 rupees, and 200 at an expense of 2,500 rupees, besides giving some improvement to the cross roads in the manner proposed by Captain Best, and providing for the repairs of existing roads, as well as for the execution of the works proposed in the Maramut Department on the great scale already considered. The execution of 300 miles of new road would require an expenditure

\* The length of the coast from the frontier of Cuttack to Cape Comorin, the Commission say is about 1,000 miles, the length of Malabar 140, of Canara 220=1,360. Deducting 200 miles for the southern road to Trichinopoly, there remain 1,160 miles.

† It does not appear to me that the example of England and Wales which the Commission refer to, is relevant in considering the accommodation that this country requires in the matter of roads. They look only to the area and population, without regard to the amount of traffic in the countries brought into comparison. But when this is considered, and the immense disproportion between the wealth and commerce of England and Wales and of the Madras Presidency is adverted to, it is apparent that there is no practical analogy between them.

expenditure of 8½ lacs, at which rate it would take about 13 years to complete the project. The present allowance for trunk roads is four lacs, which includes their repair. It is in my opinion expedient that at least double this sum should be allowed in future for making new roads, and improving existing roads, to bring them into the condition proposed, and that a separate provision should be made for repairs, as may be found necessary according to the extent to be kept in repair.

139. I am inclined to think that tolls to provide for the repair of roads might be established under Act VIII of 1851, at least at ghauts, and at bridges over great rivers, where the advantage to be paid for is palpable, and perhaps at the entrances to towns; at such places tolls could not be evaded, and being few, I should imagine that means might be used to maintain such a control as would tend to prevent the exaction which would be likely at places removed from supervision.

140. In these paras. the Commission discuss an important question, namely, whether the expenditure for works of irrigation and for roads, &c. should be dependent on the amount of surplus revenue available, or whether if the year's revenue be insufficient to admit of the full expenditure required for the execution of works which may be expected directly or indirectly to reproduce their cost with a considerable profit, whereby the public revenue will be permanently augmented, and private wealth increased, the deficit may not be raised by borrowing on the credit of Government. The Commission strongly advocate the raising of the capital required for such works by loans, when the revenue from the drain for war or other objects is insufficient to afford it, pointing out the essential difference between raising a loan for the purpose of war, which is a mere sinking of capital, and for works which, besides returning a large profit to Government, will be the means of enriching and adding to the comfort of the community. Such a debt, they contend, cannot be regarded at all as a burden on the finances, because it is morally certain that the investment of the sum borrowed will create a fund for its repayment within a short period. They urge, therefore, that the sum fixed as proper to be annually expended on public works should be so expended, without consideration of the current surplus revenue; that the amount should be considered no less necessary to be provided, and no less an essential part of the year's expenditure than the pay of the army or the interest of the debt; and that any deficiency in the year's revenue to meet the charge, should be made good by loans. In these views I entirely concur. I observe that similar views have lately been propounded in Parliament, and cogently advocated. Paras 482 to 488.

141. I have further to express my concurrence with the Commission in the opinion they submit, that whatever sum is fixed as proper for the usual annual expenditure in this Presidency on public works, should be at the unfettered disposal of the local Government. A precedent for the assignment of a certain sum annually for a certain purpose, to be at the disposal of the local Government, without reference to other authority, is afforded, as I have already remarked, by the grant of four lacs per annum as a fund for the construction and maintenance of the trunk roads. Para. 492.

142. I concur also in the recommendation that a standard for the usual expenditure having been fixed, an estimate of the probable actual expenditure of the two years next to ensue should be laid annually before the local Government, and if approved, communicated to the Government of India, provided that, if the estimate exceed the fixed standard, it should be first sent for the approval of the Court of Directors, and communicated to the Government of India after the approval of the Court has been obtained for the excess. Para. 493.

143. Having now seen the nature and extent of the public works of this Presidency, under the present system, and having formed some conception of what more is required for the material improvement of the country, I come next to the constitution and organization of the department for directing, controlling, and conducting the execution of those works. And first, I return to the fifth section of the report, in which a new Board of Public Works is proposed, to undertake the duties now divided between the Board of Revenue, the Military Board, and the chief engineer. Here I am prepared to say at once that I agree with the Commission, that it is not possible for the members of the Board of Section V.



Revenue, with such assistance as the chief engineer can render them, to sustain the burden which the greatly increased business in this department imposes on them. The present constitution was a great improvement on that which preceded it, but it is no longer adequate to the requirements of the department. I agree with the Commission also in thinking it expedient that the superintendence of the roads should be conjoined with that of the Maramut, as the agency for the latter must at any rate be largely used in the formation and repair of the roads. For the same reason, I think that the buildings, &c. in the provinces, now under the control of the Military Board, may be better placed under the control of the authority to which the officers, whose agency must be resorted to for their improvement, alteration or repair, are ordinarily subject; and for consistency, the authority which has the control of such buildings, &c. in the provinces, should have it equally at the Presidency.

Para. 208.  
Paras. 210 and 211.

144. Agreeing with the Commission that the whole of the public works should be under one control, I agree with them too, for the reasons they assign, in preferring a Board to an individual officer for the exercise of that control.

Para. 213.  
Para. 216.

145. I agree also with the Commission in thinking that an experienced revenue officer should be one of the members of the Board, and that his salary should be fixed at such a rate as to make the appointment eligible to any collector, so that Government may be able to select the fittest of the officers of that class. I think the chief engineer should be a member of the Board *ex officio*. I do not think that two other engineer officers are necessary to complete the Board. It appears to me that, with the chief engineer to give the Board the benefit of his advice on all professional questions of importance, and he being relieved from his present most burdensome duties, one other engineer officer will be able to conduct all the business that is purely professional, and to superintend the correspondence with the officers of the department who communicate directly to the Board, while the civil member, it may be presumed, will take charge of the correspondence with the collectors and the communications with the Board of Revenue, and also, of the accounts which do not require a professional revision, such as do require that revision falling to the professional member. The Board, I think, should have an engineer officer as their secretary, of the standing proposed by the Commission.

Para. 216.

146. The salaries proposed for the members and secretary of the new Board appear to me suitable.

147. The civil member, I think, should be also a member of the Board of Revenue, in order that he may take a part in the discussion of all subjects referred to that Board by the Board of Works, according to the 5th of the rules proposed in para. 232, and, if he thinks proper, record his sentiments; also in cases where the Board of Revenue, according to the 7th rule, may desire to initiate a project of improvement, or to bring before Government a scheme which the Board of Works may not approve. I may here observe that the other rules proposed in the same para. appear to me to be unobjectionable.

Para. 220.

148. I am of opinion with the Commission, that it should be the duty of the Board rather to control and direct operations, and to check and examine results, than to interfere with details which may be better left to the local officers; and that the proper method for a controlling Board to exercise its functions is by general rules, leaving cases and details within those rules to the discretion of the subordinate authorities, whose proceedings should be brought annually under review by detailed reports: and I approve of the practical application of those principles by the propositions submitted in para. 224, which appear to be essentially in accordance with the long established practice in Bengal.\* With respect to the ordinary repairs of buildings and roads, the proposed rules will introduce the practice which already obtains with respect to works of irrigation, the necessary repairs of which the collector orders on his own responsibility.

Vide Appendix O.

149. I have-

\* Since writing this I have had an opportunity of seeing the Report of the Commission on Public Works in Bengal, para. 26 of which appears to contradict the statement furnished by the Military Board at Calcutta with respect to estimates for repairs, all which, when the amount exceeds 25 rupees, it is said, must be ultimately submitted for the sanction of Government.

149. I have felt that the Government has not the means of really dealing with the details of bills; that no real check is applied by their being submitted to it. Government must trust, and does practically trust, to the Board which has the means of check. I never could see any compensation for the trouble and waste of time caused by all bills being required to pass before Government. If it has any effect, it can only be to detract something from the sense of responsibility on the part of the Board, which ought by all means to be quickened. It is equally in vain, according to my experience, for Government to have estimates for ordinary repairs submitted to it. Government cannot of itself judge whether the repairs are necessary; the opinion of the local officer must really be its guide, and it is better to fix the responsibility upon him, whose report after all must of necessity be depended upon. I am persuaded that an annual report from the Board, showing the expenditure in repairs to buildings, and the time when each was last repaired, and explaining any particular circumstances, would be, as the Commission think, far more useful to Government, and a more real and effective check on wasteful outlay, than the present plan of submitting all the bills for such works in detail for sanction. Para. 222.

150. I am farther disposed to agree with the Commission, that it may be expedient to give a discretion to collectors to undertake, within certain limits, improvements in irrigation works and roads, as well as to provide for keeping them in repair. Para. 225.

151. I quite approve of the arrangement which the Commission propose, in order that the Government may be put in possession of the information necessary to give it a complete view of the proceedings of the Public Works Department, and to enable it to exercise a due control. The reports and returns described by the Commission I conceive will very well answer the purpose. The information indicated under the 6th head in para. 226 is very much required. I think an account current of the costs and profits of irrigation works, such as the Commission contemplate, is very desirable. I think it would not be worth while, however, to have it made up for the numerous petty works of irrigation, which would be an immense task, but only for first-class works, defining these as being above a certain value. Para. 227 to 229.

152. I do not think such an account could be made up for the roads. Para. 230.

153. The Commission suggest that one\* of the stipendiary members of the Military Board and the assistant secretary may be dispensed with, and that the salary of the secretary may be reduced in consequence of the duties of that Board being so much diminished. On these points I am disposed to agree with the Commission. I do not think it advisable to give seats ex-officio to the Adjutant-general and Quartermaster-general. If it is not necessary that the commandant of artillery shall have a voice in Ordnance matters, I incline to vest the whole duty in a single officer. The Commission contemplate also the abolition of the offices of superintendent of roads and secretary to the Board of Revenue, D. P. W. This will follow of course the establishment of the new Board. Para. 218.

#### Section IX.

154. I proceed to the 9th section, in which the Commission discuss the necessity of enlarging the public works establishment in all its grades, and submit a statement of the new establishment proposed.

155. Without following the Commission through the remarks which they offer to show the necessity of a much more liberal provision for superintendence than has hitherto been allowed, and the need there is for more engineers to watch, repair, and improve the tanks and channels for irrigation, upon the efficiency of which the revenue of this Presidency so largely depends, a need that I am perfectly convinced of from my own experience and knowledge, coinciding with the statements in this report which I have already considered, I go at once to their scheme of an establishment for the Public Works Department in all its branches. Paras. 494 to 524.

156. First

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\* The appointment of the second stipendiary member has not been filled up since a vacancy occurred last year.

Para. 525.

156. First, they present a statement of the number of commissioned officers they consider to be required for the department, including the Board and its secretary, and the chief engineer and his adjutant.\* The number is 113, which comprehends the officers to be employed executively in the Road Department, and in the performance of the duties relating to buildings now superintended by the Military Board, as well as those required for the Maramut Department. For this are proposed an engineer officer and assistant to each district to perform the duties with which the civil engineer is now charged, and an inspecting engineer to each † of the divisions now under the civil engineers, that is 20 district engineers, 20 assistant district engineers, and 9 inspecting engineers for the provinces immediately under this Government, with an inspecting engineer for the Presidency. Besides this establishment for our own territories, provision is made for an inspecting engineer and four district engineers for Mysore, and an inspecting engineer for the Saugor division and contiguous districts, also an inspecting engineer for railroads. Total 13 inspecting engineers, 24 district engineers, and 20 assistants. Further allowance is made for nine "special assistant district engineers," to be employed in investigating special projects of works.

157. Among the districts proposed to be provided each with a district engineer and an assistant, is Kurnool, with a revenue of only seven lacs, of which only a small part is dependent on irrigation, and a population of a lac and three-quarters; I conceive it to be unnecessary to give the same establishment to this small district as to the largest. It should be placed under the charge of the district engineer of Cuddapah or Nellore, with an extra assistant to aid him in this part of his range.

Para. 526.

158. I have always thought it to be desirable that there should be an engineer to each of the large collectorates (excepting perhaps Malabar and Canara ‡), with an assistant in some of them. Considering, that on the plan before us, the roads generally, as well as the Maramut works, will be under the district engineer, and that there will probably be hereafter much more work in both branches, I now think it advisable to allow an assistant for every district including Kurnool, partly, as the Commission suggest, to give assistance to the district engineer, and partly to train up a body of young officers in the practical knowledge of Indian civil engineering, especially in regard to hydraulic works.

159. With regard to the inspecting engineers, whose intended duties are described in para. 528, the need of such officers to stand between the district engineers and the superintending Board has not hitherto occurred to me. There can be no question that the department would be made more efficient by the introduction of inspecting engineers, but without this provision, I should expect it to be generally sufficiently effective with the establishment of an engineer and assistant to each collectorate. I should look upon these officers as the professional staff of the collector, and I have no doubt that the material improvement of every district would be greatly advanced by concert and co-operation between the administrative head of the district, and the engineer appointed to conduct the business of the Maramut and Road departments under him, who from his duty being confined to the district, would be equally interested with himself in its progress. I think the district engineer should be under the collector, just as the sub-collector is under him, subject to his authority in a general way, but without direct interference on the part of the collector in regard to the details of his duty.

Para. 537.

160. A great assistance would be afforded to the district engineers by the appointment of a certain number of unattached officers for the investigation of special projects either of irrigation, or of communication, or of other kinds. Under this arrangement, when a district engineer, and the collector of the district, and the inspecting engineer, if there was such an officer, agreed in recommending a project

\* I do not see why the adjutant of engineers should be included in this list, for no duty is assigned to him in the Department of Public Works.

† There are at present eight divisions, but the first division is temporarily subdivided into two, an arrangement proposed to be continued.

‡ These districts not depending on artificial irrigation, there would hardly be sufficient work for an engineer of the superior class in each; one might be appointed to superintend the two districts, with an assistant in each.

a project of improvement, the district engineer would be relieved from the duty of investigating the scheme in detail and the labour of preparing a plan and estimate for its execution. One of the "special assistant district engineers"\* would be sent to undertake this work, in the prosecution of which he would of course consult with the district officer, and if there was an inspecting engineer, would execute the duty under his control. I do not know that so many as nine officers are required for this kind of duty, but I think it is very expedient that in laying out the department, provision should be made to place a certain number of officers at the disposal of the Board and Government, for the purpose indicated.

\* I do not think this a very apt designation.

161. According to my view, if inspecting engineers cannot be afforded, as proposed, the regular establishment within our own provinces, exclusive of the Presidency, to carry on the duties of the Department of Public Works under the Board, would consist of 19 district engineers.†

20 assistant engineers.

—  
39

Say 5 special assistant district engineers.

—  
44

† Or 18, if one be assigned to the two districts of Malabar and Canara;

or 43.

162. The Commission reckon that besides the regular establishment for the districts, there will be employment for about 30 occasional executive officers, and considering that 20 such officers are employed at present, I apprehend that this estimate will prove not much, if at all, beyond the actual requirement, should works of irrigation and communication be undertaken in future to the extent to which my views go.

163. Supposing inspecting engineers to be allowed, as proposed by the Commission, I think it is proper that they should have the same allowances as the civil engineers have at present. If inspecting engineers be not allowed, I think that all the present civil engineers should be retained as district engineers with their present allowances, and that the first class of district engineers should consist of nine, whose allowances should be fixed at that rate; to the second class, which would consist of 10, I would give the staff allowance proposed by the Commission for the first class of district engineers, with the tent allowance of the first class. I conceive that two classes will be sufficient. I think there should be two classes of assistant engineers, with 8 or 10 in the first, and 10 or 12 in the second. The first class to receive a staff salary of 200 rupees, the same as the head assistant engineers at present; the second, 100 rupees, the same as second assistant engineers at present. The two classes to have the tent allowance at present received by the head assistant and second assistant engineers respectively. I would arrange the occasional executive officers likewise in two classes, assigning to them respectively the same allowances.‡ The "special assistant district engineers," that is, the engineers employed in special projects, I think should be in a position intermediate between the second class of district engineers and the head assistants, with a staff salary of 350 rupees.

Para. 540.

500 rupees.  
4 rupees per diem.

164. I have hitherto considered only the establishment required for the Maramut Department in the provinces within our own territory, exclusive of the Presidency.

165. For the Presidency there may be an inspecting engineer and an executive engineer, on the footing and with the allowances proposed by the Commission.

Inspecting Engineer, staff salary, 1,000 rupees;  
Executive Engineer, 600 rupees.  
Both without tentage.

166. For Mysore the Commission propose an inspecting engineer and four district engineers, with an executive officer for the works under the Board at Bangalore.

‡ I have proposed the same allowances as at present to the head assistant and second assistant engineers, and to the executive officers of the first and second classes, but I doubt whether 100 rupees is a sufficient allowance for the second assistants and second-class executive officers. I think that it should not be less than 150 rupees, and that to preserve a due gradation, the allowance of the head assistant engineers, and the first-class executive officers, should be 250 rupees.

Bangalore. At present there is only one engineer officer, styled superintending engineer, for the whole territory of Mysore. It appears to me to be necessary on this occasion to consider only what agency is required for the performance of the work under the superintendence of the Board; and I should say that an inspecting engineer for the whole division, and one permanent executive officer for Bangalore, would be a sufficient provision.

167. For the duties to be performed under the control of the Board of Works in the Hyderabad, Nagpore, and Saugor territories, it seems to me that it will be sufficient to allow one inspecting engineer with a permanent executive officer, at Hyderabad and Nagpore respectively, and four for the stations in the Saugor territory. Further, following the Commission, I suppose a permanent executive officer must be allowed for the Straits of Malacca, the Tenasserim Coast,\* Cannanore and the Neilgherry Hills (when the barracks are finished). In all, three inspecting engineers and 12 permanent executive officers. Of these 12 permanent executive officers, one is intended for the Presidency, with a salary of 600 rupees, as above noted. Of the rest, four might be allowed a salary of 300 rupees; † and the remaining seven, a salary of 200 rupees, † or the same as the head assistant district engineers. I do not see reason for giving the former 400 rupees, as proposed by the Commission.

† With tent allowance.

168. Without inspecting engineers in the districts within our own territory, the permanent establishment would thus be—

	Inspecting Engineers.	District Engineers.	Assistant Engineers.	Special Assistant Engineers.	Executive Officers.
Presidency - - - - -	1	- - - - -	- - - - -	- - - - -	1
Maramut and roads within the Madras territory - - - - -	- - - - -	19	20	5	—
Beyond the territory and at certain military stations within the territory -	2	- - - - -	- - - - -	- - - - -	12
	3	19	20	5	13

Total, 60.

With 9 inspecting engineers for the Maramut and Road Departments in the districts within our own territory, the number would be 69, besides about 30 officers required for occasional works. Total, 90 or 99.

Para. 539.

169. The Commission are not of opinion that all these officers need to be engineers. Where engineering skill and science are required, they would employ professional officers only; and in this view they would confine all the permanent appointments in the Maramut Department, all the inspecting engineer-ships, and as a general rule all the special appointments for the examination of projects, to "the professional corps;" and they think that generally the executive officers at the Presidency, at Tenasserim, Singapore, Hyderabad and Kamptee, should be engineers.

Para. 569.

170. Their reasons for confining the appointments specified to "the professional corps" are given in the 10th section, in which they discuss the question whether it will be best to provide the additional engineers absolutely necessary to render the Maramut Department efficient, by enlarging the corps of engineers which forms a part of the army, or by constituting a separate body of engineers for civil duties without military commissions or organization. They conclude that the best plan to effect the object in view, the cheapest and the most effectual, will be to extend the present system. They deprecate the employment of officers of the line in duties which require engineering science and skill.

Para. 571.

\* This however will be regulated by the Government of India in connexion probably with the arrangements for the Province of Pegu.

skill. Their opinion on these points differs from that expressed by Colonel Cotton in 1837, who advised that the department should be opened to officers of the line and the artillery, and to others not in the Company's service, proposing that even "the highest appointments should be open to any one who could fit himself for them." "I cannot see anything in the nature of the department (he said) which can make it advisable to keep it exclusively for one body of men; a turn for these duties may be found in any class, and in England civil engineering is open to all, and the effects of it are very evident and beneficial." I confess myself inclined to adopt the above opinion of Colonel Cotton. I think it desirable to increase the strength of the military corps of engineers considerably, and to employ the officers who can be spared from military duties in civil engineering as heretofore. But I think it is quite inexpedient to depend wholly on a body of officers who must be held primarily subject to the calls of military service, and liable at any time to be withdrawn to answer those calls. We are experiencing the inconveniences of being so dependent at the present moment. I would therefore have not only the occasional executive appointments open to all persons who may be qualified for them, but also a proportion of the permanent appointments supposed to require engineering skill and science. The Commission recommend that the young military engineer officers may in future pass through a prolonged course of civil engineering in England, in order that they may come out like the young officers in the medical service, with practical as well as scientific knowledge. This is no doubt highly advisable, and should be strongly recommended to the Court of Directors. But I apprehend that effective service would be earlier obtained from civil engineers who had already actually practised their profession in England, and that not only would the present exigency therefore be more quickly supplied by such recruits to the department, but generally there would be less time lost in preparatory training in India, in the case of persons already practically proficient in civil engineering, who would only have to get an acquaintance with the modes of operation adapted to the circumstances of the country and native agency, and a knowledge of the language of the people with whom they have to work, to make their services useful; whereas officers of the military corps must in the first instance undergo a practical training for all the duties of military engineers, and must actually serve for that purpose with the corps of Sappers.

Appendix B., page XVIII.

Para 597.

Paras. 598 & 599.

171. Supposing the number of permanent appointments under the Board of Works of a nature to require engineering skill to be 60, a fifth, or perhaps a fourth part, might be left to be filled up partly by professional men sent from England, and partly from among the officers of artillery and the line, and other qualified candidates who may be found in the country. I have noted that the Commission propose that there shall be an assistant under each district engineer, not as absolutely necessary to assist him in his work, but that a body of young men may be in training in the practical knowledge of hydraulic engineering especially, and I doubt not that young men will be forthcoming from the army\* with a tolerable scientific foundation to begin upon, and some natural aptitude for this kind of employment, who may soon be taught to make themselves useful to the engineer, and gradually under his instruction, with constant opportunities of observing his operations, will gain sufficient practical skill to undertake the charge of works in execution, and presently to relieve the district engineer from many duties of detail.

172. This question must be decided before it can be determined what ought to be the strength of the engineer corps of the army; a subject upon which I do not feel myself called upon to enter further at present.

173. I turn now to the subordinate agency proposed for the Department of Public Works: Para. 547.

174. A large

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\* In the 41st para. of the printed account of Roorkee College, it is remarked that "the Indian army is one of the sources whence scientific agency is most easily supplied. Besides the officers of the scientific corps, properly so called, there are in the Indian army many well-informed and highly educated men, who have much taste and capacity for civil engineering. It is only necessary that the persons possessed of this talent should be known, and that they should be provided with the means of improving themselves, and of perfecting their knowledge."

174. A large staff of warrant and non-commissioned officers is proposed,\* viz., 80 of the former to be styled sub-engineers, with allowances running from Rs. 431. 12. to Rs. 176. 8. per month; 60 overseers and 64 sub-overseers, with allowances running from Rs. 145. 14. to Rs. 52. 12. 8. per month; total, 204.

175. The allowances proposed for the sub-engineers of the first class exceed the military pay and staff salary and tent allowance of a first lieutenant of engineers, with the appointment of second assistant engineer. This appears to me inconsistent. The sub-engineers are a new class of officers intended to assist the engineer officers in all branches of their duty by relieving them from the more detailed and mechanical parts of it. Their work will be strictly of an engineering character. With two engineer officers to each district it may be questioned whether these sub-engineers are necessary. It is proposed that there shall be two to each district, 16 for main roads, 20 for special projects, and one for the Presidency division. The total charge for this new class of officers is Rs. 2,44,912. 8., which considerably exceeds the present† charge for the whole of the Civil Engineer's Department. I cannot say I am satisfied that there is a necessity for this additional charge, at least to the amount proposed, supposing the number of superior professional officers to be increased as suggested. The case would be different if that increase could not be given. In some districts, where there are very extensive and important works, the district engineer might with advantage have an officer of this class to aid him, besides the assistant district engineer; and such officers would no doubt be very serviceable in the execution of special projects, such as the Godavery and Kistna anicuts, and in directing and superintending occasionally the construction of main roads, ghauts, &c. I think it expedient on the whole to have such a class as this on the establishment as an opening for promotion, among other considerations, for the most able and deserving of the subordinates. But I conceive that the allowance proposed for the second rank of this class in the plan of the Commission, viz., Rs. 301. 5., may be sufficient. I do not observe, however, that such a class has hitherto been proposed. To the highest subordinate officer, called by the superintendent of roads "supervisor," the maximum salary was to be 140 rupees, including the pay of a conductor, to which warrant rank it was supposed the overseers of this class would be promoted. This rate was proposed by the superintendent of roads, as corresponding with the maximum rate allowed to the same class in Bengal and Bombay, including horse allowance. The same system was to be followed in the Maramut Department. In the North-Western Provinces a class of officers has been introduced denominated "sub-assistant executive engineers,"‡ but their salary is limited to 100 rupees a month, with travelling allowance when in the field to the extent of  $\frac{1}{10}$  of their salary.

176. Of the 124 overseers it is proposed that 46 shall be distributed among the 20 collectorates in the interior, including Kurnool, 18 employed on main roads, 20 on special projects, and the rest at military stations, &c. The charge will

\* The establishment for the whole of Bengal and N. W. P. proposed by the Bengal Commission on P. W., I observe, is—

Conductors - - - - - 15

(corresponding apparently with the overseers of first class in the plan of the Madras Commission).

Sub-conductors - - - - - 20  
Overseers - - - - - 65  
Assistant Overseers - - - - - 200

Total - - - 300

Ordinary Regimental Pay - - - - - 234 14 -  
Staff Salary - - - - - 100 - -  
Tent Allowance - - - - - 90 - -

Total - - - 424 14 -

(According to military pay and audit regulations, p. 177, first and second assistant, same tent allowance).

‡ The number of this class was at first limited to four, but was afterwards increased to 20. Up to 1851 only four had been appointed.

Para. 548.

43 to the 21 districts, including Kurnool and Madras.  
† 2,25,588. Appendix H. H.

From Board of Revenue, 30 July 1849, para. 57, Appendix H.

From Capt. Best, 16 May 1846.

See printed account of Roorkee College, 1851, p. 12 and 13, and p. 614 of this Report.

60 Overseers.  
64 Sub-Overseers.

will be Rs. 1,40,289. 4. If sub-engineers are not employed, I should think that two overseers might properly be allowed under every district engineer, and three in some; it would be necessary to allow some for main roads and special projects; what the numbers should be for these and other services I am not able to judge. It must depend upon experience. The Commission propose 40 more officers of the non-commissioned grades for the duties of the Presidency division, and of the various military divisions and stations. The maximum rate of allowance to overseers of the first class in the plan of the Commission somewhat exceeds what was intended as above remarked for the supervisors with the rank of conductors, the highest officers in the subordinate department in the scheme hitherto contemplated.

*Vide* letter from Board of Revenue, D. P. W., 24 October 1850, and statement appended.

177. The Commission speak of the proposed establishment of warrant and non-commissioned officers as an establishment of Europeans, and they say expressly that, in their opinion, "it is absolutely necessary that for many years to come the superior grades of the subordinate department should be almost exclusively European." Again they say, "appointments to this corps of subordinates should be confined almost wholly to men of European birth and education; at first this should be so strictly." I differ with them on this point, thinking that the sure way to bring up natives and East Indians to the required standard, is at once to make them eligible to any and every appointment in the list of subordinate offices on the ground of proved qualification and tried character. I would therefore do at once what the Commission propose to do eventually, that is, lay the appointments open to competition, and give them to the best men without distinction of race or colour, or place of birth or education. I think that the grade of sub-engineers, if there be such a grade, should from the first be declared "attainable by a superintendent of maramut, having displayed in a pre-eminent degree those qualities of zeal, energy, and honesty, which (the Commission observe) it is only fair to say that some few of the class have already evinced, and on passing the required examination," and that East Indians should be immediately "admissible to the grade of assistant overseers, and then compete for promotion on equal terms with their European comrades," of course subject to their furnishing sufficient testimony to their character and qualification. Otherwise the *élite* of the young men who have distinguished themselves by the manner in which they have gone through the training of the institution under Major Maitland, for example, who have had their minds disciplined and stored with useful theoretical and practical knowledge, and their physical energies developed by the laborious practice of a mechanical art in which they have acquired a high degree of skill, and through a long course of close observation have been found unexceptionable in their moral conduct, would be excluded, in order to make way for Europeans, who would probably have no pretensions to a like degree of knowledge and skill, and whose moral character and conduct could not be so well attested. The injustice and inexpediency of such exclusion seems to me to be so self-evident, that I need not dwell upon it. But I would just point to the high character which many of the East Indians in the class of medical subordinates have attained both for professional ability and for integrity. I would advert also to what is more in point, the fact that East Indians are now commonly employed in this country as engineers in steam vessels. The engineers in the Bengal marine I am informed are all of this class. The principal subordinate officer (with the rank of conductor) in the gun-carriage manufactory is an East Indian, a most able man. The services of persons of this class have been used with great advantage in responsible offices in the Mint and other working establishments, and I believe that they have been found worthy of trust.

Para. 547.

Para. 556.

Page 556.

177. The Commission submit their views as to the establishment of native subordinates required. The scheme of establishment they propose provides for a superintendent of maramut to each of the 20 districts, and a deputy superintendent to 15 of them. At present there are 15 superintendents and 3 deputies. There are now 97 maistries; the Commission propose 251 maistries and 302 under maistries, total 553, to be called respectively foremen and sub-foremen. Including the superintendents, the number is 588, at a charge of 2,11,620 rupees per annum in place of 33,375 rupees. The pay of the superintendents is proposed to range from 90 to 120 rupees. That of the deputies to be 60 rupees.

Para. 553.



The pay of the foremen to range from 30 to 60 rupees, and of the sub-foremen from 15 to 25 rupees.

- I. 178. In the paper by Major H. C. Cotton, referred to by the Commission, and printed in the Appendix, the number of servants of this class proposed, including a superintendent and deputy superintendent to every district, was 349, which the Board of Revenue D. P. Works reduced to 150 maistries of all classes. The rates of pay proposed by Major Cotton were 100 rupees to the superintendent and 60 to the deputy, and from 35 to 14 rupees for the talook maistries. The Board proposed to give 100 rupees to maistries of the first class, 10 in number, and 70 rupees to those of the second class, comprehending 15. Under these were four classes with rates of pay from 50 to 15 rupees. The total charge proposed was 65,100 rupees. The Commission "have no hesitation in declaring that this establishment was far too small for efficiency," and as far as appears without any warrant, they proceed to say they are "fully convinced that in thus limiting their demands the Board were actuated too much by a regard to the known indisposition of the Government to admit any enlargement of existing establishments. They deemed it hopeless to ask for a sufficient establishment, but they hoped by asking for little, to get that little." I know not how the Commission presumed to make such observations, and seeing no foundation for them, I must take the Board to have meant what they said.

Para. 560.

179. I cannot pretend to determine what addition to the present establishment is really required. I have already expressed my opinion generally that it is highly expedient to take measures for improving this valuable class of servants; that they should be better paid, and that their number should be increased. I have said that it seems reasonable that the superintendent should be put on the footing of a tahsildar in regard to pay, and that the rates proposed for the maistries do not appear to me to be excessive. I would add, that I think it very proper that there should be a superintendent of maramut in every district where there are artificial works of irrigation, upon which the revenue considerably depends, and which are of such extent as to fully occupy such an officer.\*

Para. 563.

180. It does not appear to me to be a change likely to have much effect on the respectability of this class to call the maistries foremen and sub-foremen, as proposed by the Commission. Upon a suggestion of this kind Captain Best remarked that he "deprecated high-sounding titles." This very experienced officer frequently pointed out the expediency of providing for the systematic instruction of the maistries. The plan he himself adopted with this view has been already noticed. In the letter from which I have made the above quotation, he observed, in continuation, "If a maistry's rank and salary be made dependent upon the certificate he receives upon examination by an engineer officer, he will not want motive to exertion. I would have every maistry in public employ examined, and I would reward some of those who show diligence and skill, by the gratuitous instruction, for shorter or longer periods, of their sons or other relatives or nominees." He proceeded to say, "The sum that pays a surveyor or overseer for one year would suffice to educate a maistry who would do surveyor or overseer's work for half the salary. The surveyor or overseer must then improve himself or sink below the maistry. With better superintendence for the small and less important works, the engineer would have more time to spare for the more important. The teaching of one maistry would often save the salary of an engineer for many days, and the work the instructed maistry superintends will be better and more economical than those made now by the ignorant and unskilful. The education of maistries would spread downwards as well as upwards, and would be a boon to the whole population, valuable and cheap, for it would make workmen more skilful, and dwellings more comfortable." He added, "I believe that more may be done by the systematic instruction of maistries to remedy the deficiencies that are felt and complained of, and at less cost to Government than by any other measure, excepting the substitution of engineer officers for those of other corps who now hold engineer appointments." These are

To Government,  
22 August 1850.

\* The Commission provide equally for Malabar and Canara, in which there is no artificial irrigation, as for the districts in which the revenue is mainly dependent on such works, and for the small districts of Kurnool, as for the large districts of Bellary and Cuddapah adjoining.

are important observations, coming from an officer of Captain Best's ability and experience, gained by long and varied service in the Maramut Department, as well as in the charge of the roads, especially with reference to the question of resorting largely to the aid of Europeans instead of natives in the subordinate department.

181. Besides the maistries, or foremen and sub-foremen, the Commission propose to have a class of surveyors, on pay varying from 20 to 10 rupees, at an aggregate charge of 23,900 rupees, the number being 139. I have no doubt that it will be useful to afford to the engineer officers the assistance expected to be rendered by this class of servants, but the number appears to me excessive. Para. 567.

182. The Commission propose that the duty of nominating district engineers and assistant engineers to particular districts, as well as of nominating all the executive officers to particular works, shall be reposed in the chief engineer and the Board of Works, and that the recommendation of officers for promotion shall emanate from the chief engineer, and shall be sent up to Government, accompanied by the concurrence or dissent of the Board of Works; and that the same rule shall apply to the designation of the inspecting engineers, and of the permanent executive officers to particular divisions and stations. They also propose that it shall be recognised as the duty or privilege of the chief engineer and the Board to recommend officers for employment on executive duties. I do not see adequate reason for individualising the chief engineer, and assigning to him a special privilege or function in the manner proposed. I do not think it advisable that he should have power to act apart from the Board in this or in any respect. Para. 546.

183. I think that Government should reserve the power of determining the districts and divisions to which district and inspecting engineers respectively should be appointed, but I would give liberty to the Board to recommend the arrangement which they consider advisable, and also to recommend officers for promotion. I would leave to the Board the disposal of the officers of the department under the district engineers. I would permit the Board to recommend officers from the Line for executive duties, and would authorise them to make arrangements for the examination of officers desirous to enter the department in the manner proposed. Para. 546.

184. With regard to the subordinate department, I see no objection to the suggestions of the Commission regarding the appointment and employment of men in the different grades, and their promotion, except as to the separate action of the chief engineer. Paras. 556 to 566.

185. The suggestions of the Commission in regard to the training of the young officers of the corps of engineers, both in England and in this country, appear to me judicious. Paras. 597 to 601.

186. I agree with the Commission that it is advisable to abolish the present survey school, and to make a larger and better provision for the instruction and training of the subordinates of the Public Works Department. Paras. 609 to 611.

187. The Commission propose to form a great establishment for this purpose, on the model of the Roorkee College; with some modifications. Paras. 612 to 637.

188. This Government, under date the 9th August 1850, recommended to the Government of India to take advantage of the foundation for a school of theoretical and practical instruction, calculated to form men for the duties of the Public Works Department, afforded by the school already existing, established by Major Maitland for the instruction of the Ordnance artificers under his command, by which he designed to raise them from mere manual labourers into skilful scientific mechanics, and to give them a good sound practical education, such as workmen of all trades require to fit them to serve as foremen and overseers. I went pretty fully into the subject in my minute of the 25th July 1850, in which I endeavoured to show how well the plan of this school is calculated to furnish men thoroughly qualified for the duties of overseers in the Department of Public Works, by the combination of science with the actual practice of mechanical arts. I need not repeat what I there expressed, but I will repeat my conviction that by extending and improving this school as a Government institution, under the direction of the superintendent of the gun-carriage manufactory, with an officer of engineers, or any other officer duly qualified, to assist

in the scientific instruction of the pupils in the manner proposed, a very effectual and at the same time a very economical provision would be made for the immediate object of preparing men for this department of the service with qualifications eminently fitting them to give the engineer officers the aid they so urgently require.

189. I contemplate, primarily, the training of Europeans and East Indians in this institution, but I mean that it should be adapted also to afford to the class of native maistries the instruction which it is so necessary to impart to them; and I anticipate great advantage from their competing in the school with the Europeans and East Indians who are under instruction along with them. I have already said that I think all should be equally eligible for employment in the class of overseers, and in every rank of the subordinate department.

190. In the Minute referred to, I presumed that sanction would be given eventually for the appointment of a professor of civil engineering as a part of the system of public instruction, and I suggested that a provision might then be made for the election, from the highest class of the artificer's school, of a certain number of the students found to be most proficient, at an examination to be held for the purpose annually, to engineer scholarships, to be held by them during a course of study under the professor, by which they might acquire a higher degree of science than would fall within the scope of the school.

5 April 1853.

191. A letter has been lately addressed to the Government of India, again soliciting the attention of that authority to the scheme here noticed, and until we are favoured with the views of the Governor-general in Council on the subject, the discussion of the great project of the Commission may be deferred.

192. I have thus followed the Commission through their Report, and have given my views upon the topics on which they have treated. In doing so, I have been led on to a greater length than I anticipated when I began my review, and I fear it will be a weary task to follow me through it.

193. I think the Commission have done good service in bringing prominently and strikingly to view the importance of irrigation in this Presidency, with regard equally to the interests of Government and the people. They have done this very ably; and I think have proved incontestably the necessity of increased expenditure in maintaining, improving, and extending the works of irrigation, and carrying out the system of making the waters of the rivers available for this object, which has proved so successful on the Cauvery and Coleroon, and now on the Godavery, the works on which are notable examples of the profit to be derived from well-contrived projects of that nature. The peculiarity in the revenue system of this Presidency which gives Government a special interest in the improvement of irrigation, and the peculiarity of climate which makes irrigation extraordinarily valuable here, are well stated and forcibly applied. I am free to own that I have been led by the representations and arguments of the Commission to take a larger view of the duty and responsibility of Government in this behalf, than I had previously entertained.

194. I must say the same with regard to roads and communications. I have become more sensible of the importance of opening the country by this means, as the most effectual method of drawing out its resources, and more conscious of the obligation upon Government to lay out money liberally in the formation of roads and canals with a view to the promotion of commerce—more confident, at the same time, of a return for the expense in the improvement of the revenue, an improvement distinctly appreciable in the case of the revenue from salt—and not less certain, though not so obvious, as produced indirectly, in the revenue from the land, the grand resource of Indian finance.

195. I am persuaded that it is only by simultaneous efforts on a great scale, in the improvement and extension of irrigation, and in facilitating the transport of produce by making good roads and other communications leading to the principal marts, and especially from the heart of the country coastward, that we have reason to expect any augmentation of the public revenue, if indeed, without such means, it can be maintained at the present standard. By such efforts I am convinced that we may not only maintain it, but largely augment it, with infinite relief to those from whom it is raised; that not only will the cost be recovered  
and

and the revenue permanently secured, while the people will be eased and put in the way of acquiring wealth, but that with the same benefit to the people, the finances of the State will be growing and a large profit accruing.

196. With such convictions, I concur with the Commission in advocating a greatly increased expenditure annually on these reproductive works. It has appeared to me, however, on grounds which I have stated, that the Commission have formed extravagant estimates of the expenditure required, both for irrigation and for roads, &c., especially for the latter, with regard to which they propose a scheme which I conceive to be utterly beyond what is called for under present circumstances, and in truth impracticable.

197. The expenditure which I propose is large when compared with what has hitherto been laid out; but I am satisfied that it will be for the advantage of Government to incur it, as soon as it has at its disposal a sufficient agency for the construction of works on which it will be profitably employed. I think it of such importance to follow out the scheme of improvement proposed steadily, without intermission, that I agree with the Commission that it is expedient to raise the necessary funds by loan when the surplus revenue may from any temporary drain be insufficient to afford them.

198. I have been led to agree with the Commission that the management of the roads and communications, and the works of irrigation should be combined, and that as the charge of both could not possibly be attended to by the Board of Revenue without prejudice to the proper business of that Board, it is necessary to provide otherwise for the superintendence of these departments; and I concur in their opinion that it is advisable to constitute a new Board of Works, to take charge of those departments, and of the buildings, &c., now under the management of the Military Board, confining the duties of the latter to the Ordnance Department. I further agree with the Commission as to the composition of the new Board, except that I think that it will be sufficient to appoint one engineer officer to be a member of the Board, besides the chief engineer, who is to have a seat at it *ex officio*.

199. With regard to the agency under the Board, while I agree with the Commission that it is greatly inadequate at present, and must be largely increased, I have not been able to concur entirely in their views as to the extent of the increase, either in the commissioned or subordinate ranks, or the manner in which it should be provided for. It has appeared to me inexpedient that Government should continue wholly dependent on the military corps of engineers for the supply of the officers required for civil engineering. In recommending therefore that the military corps should be increased, I have suggested that the increase need not be carried to the extent required to provide for all the appointments which should be filled by scientific officers, but that a proportion might be left to be supplied by civil engineers sent from England, and by officers of the artillery and the line, and any qualified persons that may be found out of the service.

200. With regard to the subordinate agency, I have been unable to subscribe without reserve to the scheme submitted by the Commission, which it appears to me has been drawn on an extravagant scale.

201. I concur with the Commission in thinking it not only expedient, but necessary, that some provision should be made for the instruction and training of men to fill the subordinate offices in the Department of Public Works, but I am not at present prepared to adopt the scheme they propose for this object, deeming it proper to wait for a communication of the views of the Government of India on a project some time ago submitted for raising a Government institution for the same purpose, on the foundation of the existing school for the instruction of artificers, established by Major Maitland, Superintendent of the Gun Carriage Manufactory.

202. Having thus briefly noted in a general way the principal points on which I agree and disagree with the Commission, I wish I could at once conclude my Minute. But while amply acknowledging the merit of this Report, and giving the Commissioners the praise they well deserve for the ability with which it has been drawn up, and the lucid manner in which they have explained the existing system, and expounded their views of the reforms they deem requisite, I think it

my duty as a member of this Government to animadvert upon the extraordinary tone which the Commissioners have thought proper to use in reference to proceedings and orders of the Government, and the principles and views ascribed to it, a tone of presumption and disrespect which seems to me to call for rebuke.

203. In the course of my review of the Report I have noticed, as they passed before me, some individual instances of studied reflection on the Government, which an exact statement of the case would have shown to be unfounded; and they are not the only instances of exaggeration and misstatement that might be pointed out. It is with great regret that I advert to these blemishes, which disfigure and discredit a work that would otherwise deserve unqualified praise.

Fort St. George, 19 July 1853.

*D. Elliott.*

#### POSTSCRIPT.

In the 144th para. of the above Minute, I have said that, for the reasons assigned by the Commission, I concur with them in preferring a Board to an individual officer for the control of the Department of Public Works. I would now add a few words to explain more particularly my views on this very important point. In considering under what control it would be best to place this department, I have had especially in mind the two elements of which it is constituted in the Maramut branch, which is incomparably of most importance, viz., the officers of revenue, and the civil engineers, and the agency subordinate to them respectively. We have seen how intimately the Maramut works are connected with the Revenue Department; that in fact the general management of the sources and channels of irrigation rests, and must rest, with the collectors; we have noted how large a part is performed by the revenue establishments in the execution of such works as are planned by the civil engineers, while the great bulk of the ordinary work which is necessary annually for the repairs which are indispensable for keeping the reservoirs and channels in efficient condition is done by them exclusively. Seeing how deeply the collector is interested in the conduct of the Maramut, upon which the prosperity of his district so essentially depends, and how extensively his revenue establishment is engaged, and must of necessity be engaged, in carrying on the ever recurring operations which it requires, he must be looked to as the head of the department. I hope that in future there will be allowed to every district a civil engineer and an assistant; but according to my view they will be the professional staff of the collector, subject to his authority in a general way, and bound to give him their professional assistance at his requisition, but not liable to be interfered with by him in the actual performance of what is of a strictly professional nature. Now the practical question is, how can a department so constituted be superintended and controlled, so as to secure to the controlling authority due respect and deference, to give it a due command over the executive, that it may be able to keep each of the branches in its proper place, and preserve that harmony of co-operation between them, which is essential to the orderly and efficient conduct of the department as a whole. It appears to me that the solution to the question is to be found in a Board constituted as proposed, consisting of an able and experienced revenue officer, to whom the collectors will be prepared to yield deference, and of a select officer of engineers eminent for his professional skill and experience, and thoroughly conversant with the practice of the department, in whose judgment the local engineers, and probably not less the collectors, will be ready to acquiesce; aided in professional questions by the head of the engineer corps, whose position will give him authority with the officers belonging to that body. And I do not see how it is to be found otherwise. If it be proposed to place the department under the superintendence and control of an individual, he must of necessity be an officer of engineers, for professional knowledge would be an indispensable qualification; and I think it is not to be expected that the collectors would submit with due respect to his sole authority. There would, I fear, be endless contentions between them, which would never be settled without the intervention of Government. It would be worse if there were no general superintendent, and the Presidency were distributed in four grand divisions; with a superintendent to each; for the superintendents of divisions would mostly (all but one, probably) be of lower rank, and would, it may be presumed, carry less weight personally than an individual selected from the whole body of scientific officers. Under either of these arrangements for individual

Para. 158 above.

vidual superintendence, there would, I apprehend, be a failure in the government of the department. I doubt very much whether anything would be gained in the dispatch of business. I have supposed that, with a Board constituted as proposed, the business would be divided between the two ordinary members; the engineer officer taking the conduct of the business that is purely professional, and superintending the correspondence with the professional officers, who communicate directly with the Board, and the civil member taking charge of the correspondence with the collectors, and the communications with the Board of Revenue, and also of the accounts which do not require a professional revision. I think that promptitude in the disposal of business would thus be better obtained in a Board by a regular division of labour in all the details of a nature not calling for consultation, than through an individual superintendent, who must give his personal attention to every part of the business. I feel confident that the correspondence with Government would not be diminished, but increased, by the substitution of one general superintendent, or four superintendents of divisions for a Board, for the reason I have already given, that references to Government would be more frequently called for to settle questions between the superintendent and the collectors, and the local agency. If there were four superintendents there would be a tendency to diversity of system, and Government would find occasion to maintain a closer oversight, in order to restrain that propensity and preserve uniformity. The Government would to some extent be obliged to take the place of the Board for this end. These considerations and others relating to matters of detail, which I need not here enter upon, confirm me in the opinion before expressed, that it is advisable to commit the superintendence of the Department of Public Works at this Presidency to a Board, with reference especially to the union of the management of the Maramut with the administration of the Land Revenue.

19 September 1853.

*D. Elliott.*

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MINUTE by the Honourable *J. F. Thomas, Esq.*

Para. 1. Before entering upon an examination of this Report in detail, I will offer a few preliminary remarks upon its general character and tone, in support of the opinion expressed in my Minute of 12th April 1853.\*

2. A further examination has confirmed me in the opinion, that the Report is chargeable, so far as it relates to, and purposes to set forth, the views and proceedings of this Government in past years, with misrepresentation, however unintentional, whilst there prevails throughout, a tone of exaggeration, and an undue appreciation of the merits and services of the existing civil engineers department, neither justified, in my opinion, by the records, nor by experience.

3. As an example of the mis-statement referred to, I quote the following passage in para. 225, in which it is asserted, that though professing to approve of outlays for the improvement of the country, yet the view practically acted upon by the Government has been, that "all expenditure is an evil." And again, in para. 18, it is alleged without qualification, that this Government "has never duly recognised the importance of improving the communications of the country;" and that "an expenditure on the roads has almost always been an unwelcome subject." Against such representations of the views and proceedings of the Government of this Presidency, for many years past, I can only enter my protest, and declare them to be unfounded.

4. It is difficult indeed to understand if the records of Government had been fairly examined by them, how the Commission could permit themselves to record these statements. They had before them the fact, that in 1844, the then Head of this Government, Lord Tweeddale, had placed the question of roads in this Presidency in so strong a light before the Home Authorities, as to obtain a grant of 4 lacs per annum, to be laid out upon trunk lines alone, and not to be subject to the control of the Government of India. And in consequence, although the department took unavoidably some time to organise, and has been comparatively but a short time effective, sums to the extent of 23 lacs of rupees have been already sanctioned by Government for trunk roads, independently of

\* See also Appendix A.

considerable sums for other roads. So little foundation is there for the statement, that "all expenditure on roads has been unwelcome;" and so far is it from the fact, that this Government has never duly recognised the value and importance of the communications of the country. They assuredly did most fully appreciate their importance—not less fully than the Commission.

5. In like manner the Commission wholly mis-state the facts, in declaring, that all expenditure was deemed by this Government "an evil." The following were the views of this Government recorded in 1848, and urged upon the Government of India, in reply to a despatch pointing out the necessity of rigid economy. I give them here at some length, as they will clearly show that there is no foundation for the statement of the Commission, that this Government has been always opposed to a liberal expenditure upon public works, especially when it is considered that the Government had previously proposed (1845) to the Court of Directors, the construction of the large and costly work, the Godavery Anicut, to which was added subsequently, in 1848, that of the Kistnah.

Letter to the Government of India, 3d January 1848, para. 21: "The Government of India in closing their letter, state their concurrence in the views expressed by the Honourable Court, and urge upon this Government, 'the duty of sparing no exertion to bring the public expenses down to the level with the public income, and the absolute necessity which exists for the adoption of the utmost economy in all branches of the administration.'" In paras. 19, 20, and 24, this Government expressed their views as follows: "The point to which this Government would desire to attract the attention of the Supreme Government, is, that the returns submitted show an almost stationary or very slowly advancing land revenue during the last 30 years. This may be deemed unsatisfactory, considering the general security, and the peace which has prevailed in Southern India for years past. It is no doubt in a great measure to be ascribed to the peculiar circumstances of this Presidency, which labours under the disadvantage of the want of navigable rivers, and of roads and means of interior communication. These deficiencies cramp and even preclude a development of its sources of prosperity, and forbid the increase of the revenue. They limit the products of the soil to the common grains and other articles for home consumption alone; and whatever natural capability there may be for raising cotton, sugar, &c., or other raw produce for the British market, this Presidency is in a great degree disabled by these disadvantages from competing with other countries in the markets of Europe."

"The remedy is plain: and is in the hands of the controlling authorities themselves. They have only to sanction, and provide efficiently for the early construction of good and permanent communications from the inland districts to the coasts, and throughout the country; and to encourage the influx of European skill and capital, applied to the improvement of the indigenous cotton or sugar cane, &c., or to the raising a foreign and better species, by judicious and well-considered leases to *bonâ fide* capitalists on favourable terms, similar to that granted to Messrs. Arbuthnot & Co. in Vizagapatam, and to Mr. Hutson in Malabar, and by perfecting the works of irrigation on the Godavery, and constructing similar ones on the Kistnah; inducing at the same time the influx of British capital and its outlay in such projects as the Arcot Railway, (which would indicate a desire on the part of the Government for improvements,) and the Presidency will prosper. By these means, which would not require a very large annual outlay, for the progress of the works must be gradual, the country will at an early date advance steadily, if not rapidly; and it is not easy to understand why measures of this nature, involving comparatively so small an annual expenditure, should be postponed."

"Adverting to the facts that the land revenue is still increasing, rather than diminishing, and that a large saving has been lately made in the civil charges by the abolition of the provincial courts and of principal collectors, the Government of Fort Saint George sees no sufficient foundation for the further statement, that Madras must be dependent on external means for support. And whilst this Government would counsel a wise economy in all branches, it is of opinion that a considerable outlay of its revenues at this time on internal improvement, even if there were no surplus, would prove in the end a more sound policy, and more beneficial to the finances, than any other course; and they

they would deprecate the view of its financial state taken by the Honourable Court and by the Government of India, chiefly from the apprehension that it might lead to restrictions greatly calculated to retard its general and its financial prosperity."

6. The foregoing views are those which have guided me in my duties as a Member of the Government for nearly four years; and I am not prepared, by silence, to give countenance to the mis-statement of the Commission, nor to leave it to be supposed that the Government has been at all times adverse to a large and wise expenditure of the revenues in developing the resources of the country.

7. I will now proceed to examine each section of the Report separately, avoiding, as far as practicable, the notice of minor points; for I fear these papers are already too voluminous.

Section II.

8. I concur with the Commission, in their representation of the present unsatisfactory condition of the Department of Public Works under the Board of Revenue; but I think their statements in this Section are too often loose, and deficient in accuracy.

9. Take for example their assertion, in almost their opening paragraph,\* \* Para. 6. that "the whole of the territories of the Madras Presidency carry on their cultivation in great part by means of artificial irrigation; the waters for this purpose being obtained either by channels taken off from the rivers, or by the tanks or reservoirs." The truth being, that it is only a few districts which thus depend so greatly on artificial channels and tanks; whilst some of our largest and most important provinces (as will be seen by the following data) scarcely depend at all for their cultivation on such artificial irrigation as channels and tanks. It is also well known to those acquainted with this Presidency, that the food of the great mass of the people in our inland provinces, is chiefly raised by dry land cultivation. A fact of itself, showing that the statement of the Commission cannot be correct.

10. The facts are as follows, in 1851-52.†

† See Appendix B.

1. "Guntoor" had lands under tanks and nullahs, but 21,408 acres. Under other cultivation, 7,19,004. This manifests how little the province was dependent on artificial irrigation.
2. "Bellary" had 18,95,717 acres under cultivation, of which, under tanks and nullahs, but 90,690.
3. "Cuddapah," another large province, had 12,89,073 acres; of which 87,006 only were under artificial channels.
4. "Salem," 7,11,886 acres; under tanks, &c., 51,384.
5. "Coimbatore," 14,23,429 acres; under tanks and channels, 67,761.
6. "Kurnool," 4,53,156 acres; under tanks, &c., 6,973.

11. The above districts form a large portion of the Madras territories, and the data given, though not to be taken as accurate to an acre, are sufficient to demonstrate with what a want of precision statements are made by the Commissioners. It is this exaggeration, which runs through their report, to which I have adverted in the preliminary remarks.

12. But though I cannot follow the Commission in these and other statements, I entirely agree with them in the conclusion at which they have arrived, as expressed in para. 23, that the Board of Revenue in the Department of Public Works is essentially defective, and unequal to the duties of the department.

13. They state the case as follows: "And the cause of these deficiencies is not difficult to discover; it lies undoubtedly in the fact that the Board is physically utterly unequal to the various duties required of it. It is primarily a Board of Revenue, and its duties in connexion with the Public Works of the country, highly important as they are, have always, and unavoidably, been regarded as supplementary and subordinate. The revenue duties are fully sufficient to occupy the whole time of the members, and they are unable to give more than a very limited amount of attention to the Public Works Department. It is true that the chief engineer has a seat in the Board in that branch of its

business,



business, and, nominally, he is the professional head of the department; but he has, besides that, two other offices to attend to, his own, and the Military Board, in which also he has a seat; hence he also, though he gives his written opinion on new projects agreeably to the orders of the Honourable Court, has but little time to give to the general business of the Board, or to devote to the improvement of the department."

14. It is obvious here to remark, that if such has been the real state of the Board for years, as I am satisfied that it has, the alleged efficient working of the department, as averred in para. 21, in which all errors and "misfeasances" charged at different times upon the Board are declared to have no foundation, can scarcely be correct. It seems to me indeed incredible, and contrary to the nature of things, that a Board "utterly unequal to its duties," and giving "little attention to them," with an inadequate ministerial establishment, should be free from all the omissions and oversights charged against it; yet this I understand to be the assertion in para. 21, and that the Commission maintain that the Government and the Honourable Court have been throughout in error in all their animadversions. I am unable to reconcile the statement in paras. 21 and 23, whilst those in para. 21 are, in my opinion, refuted by the records of Government.

15. As an instance in point, it will suffice to refer to the circumstances attendant upon the destruction of the first Bowany Bridge, as I view the records. It was then explained to Government by the Board, that one officer of engineers had designed the structure, but had not fixed the exact site, nor ascertained the true width of the river; that another, pursuing the same course, had estimated for the bridge; and a third commenced building, laid the foundations insecurely, and in order to make the bridge span the river, added, of his own authority, two additional arches, but to include them in the cost sanctioned, he reduced and weakened the buttresses. Upon the first trial of its strength, not merely the arch injured, but the whole structure fell like a pack of cards, owing, I believe, to these defective proceedings of the several civil engineers.

16. I am also equally satisfied that the loss at the Yenamaikal dam, another costly work, might and would have been avoided if the Board had been efficient and exercised a careful supervision or control, for this work would not then have been allowed to go forward in incompetent hands. The Government, at the time, condemned the Board in the latter case. I give these instances as two out of several which occur to me, and I must be allowed to express the opinion that the statement of the Commissioners merits little confidence.\*

\* See Appendix C.  
"Memo."

17. Further, in addition to their remarks upon the total inefficiency of the Board of Public Works, I agree also to a great extent with the Commission in their view (para. 34), that one of the chief defects of the department is the limited number of engineer officers; I should however especially add, of the class proposed in the minute of the Most noble the President upon this department in August 1846.† I shall quote that minute at some length, as it exhibits, I think, a just view of the prominent defects and wants of the Department of Public Works. The only point in which I could not concur is in the salaries to be assigned to executive civil engineers, which I think too low to secure the class of men needed.

† See also Appendix C., as above.

18. After pointing out that the first and chief defect was the absence of real individual responsibility, it was added, "I will now touch upon the second part of my objections to the present constitution of the Department of Public Works.

"Under the present system there is no adequate supervision in the execution of works for irrigation, or in the great bulk of the repairs. Works are suggested, and estimated frequently without any reference whatever to any scientific officer, by parties wholly incompetent to form any opinion as to their necessity or advisableness, and by whose want of skill and judgment I have reason to believe much of what is laid out is now expended in vain; and even in the works projected by scientific men under the present system, the same result is seen. Minor works are executed by parties ignorant of any but the rudest methods of construction, and wholly without any scientific aid. In larger works the collector of the district and the engineer stand in such anomalous relations to one another, and there is such a confusion of duties and responsibilities, that it were vain to make either really accountable for the result. The engineer has the sole ability, and the

the collector has the sole power, and between the two the natural consequences of the divided responsibility are delay and inefficiency. Finally, there is no check in such a case; the same officers who have thus guided the operations of a large work are the sole authorities by whom its successful completion can be attested, and who can make a report of it to the Board. I would propose to alter this. I would desire to see a system established, and such a constitution of the department made, that all the expenditure of the public funds should be made under judicious and scientific direction, and that there should be a proper series of checks. My proposal would be, therefore, that the duties which the collector now performs in the large expenditure of public funds, with no assistance except that of his native servants, he should hereafter invariably discharge by the assistance of an engineer officer; I would propose that each collector should have an engineer officer attached to his district as an executive Maramut engineer, who should undertake on his behalf, and under his orders, all the outlays now made by the collector in the Department of Public Works. It would not be necessary to have officers of very high standing or salaries, on account of the other parts of the arrangement which I shall presently allude to, but I would recommend that a salary of 150 rupees per month, in addition to tent allowances, be given to the nine most important collectorates, and 100 rupees, with the same addition, to the rest. I would keep about the same number of civil engineers as at present, giving them the supervision of the executive works performed by ordinary engineers. By this means, and with the addition of a supply of the non-commissioned subordinate assistants lately promised to be sent out annually by the Honourable Court, we should be able to transfuse into the native agency a mass of European science, energy, and intelligence, and practical skill, which could not fail to tell powerfully upon the effects of their industry.

“These subordinate executive engineers should not be liable to be removed for military duty, but when once attached to the Public Works Department they should be considered altogether as in civil employ. Without this provision it is obvious that the efficiency of the system might be at any moment destroyed, and the experience gained in the duties of a civil engineer lost to the one branch of the service, whilst they could be of no use in the Military Department.

“The additional expense of such a constitution of the department would be saved, not in the diminution of the outlay upon the public works, but in the three-fold usefulness derived from them, and in the means of insuring that the large outlays annually made should not, as at present, be too often thrown away.

“Let the cultivation of the sources of the revenue be once taken up in earnest, not as a secondary thing, but, as it really is, one of the chief and most important objects of the solicitude of the Government, and I have not the slightest doubt but that all objections on the score of expense will speedily vanish before the obvious results of the system.

“I will not enter here into the details of the system which I propose should be established further than to say, that the executive engineer attached to each collectorate would be essentially the executive officer for all works executed in that district; he would, in more important works, originate plans and estimates, and send them through the civil engineer of the division to the Board, the projects being thus, on their passage, subjected to the local check and scrutiny of the experienced scientific local officer, and finally submitted to the two officers at the head of the department. This I cannot but think would be found more advantageous than the present arrangement.

“Out of the body of such executive engineers thus constantly employed there would be gradually raised a school of really experienced men upon whom Government could depend, and from amongst whom, as vacancies occurred, a selection would be made from time to time of the most experienced to rise to the office of civil (divisional) engineers. We might thus hope, by keeping a larger body in constant training, to be ever ready to fill up those most important posts with men of undoubted qualifications; a thing which at present it is of the utmost difficulty to effect at any sacrifice, and which it is quite impossible to combine with the necessary regard to the fair and equitable claims of the commissioned officers themselves to higher employment in other branches; and through their instrumentality an amount of superior practical knowledge would be diffused through the native subordinate agency, of vast importance to the community generally.

“The number of collectorates in this Presidency being 19, the number of effective engineer officers necessary to be employed in the civil establishment on the system I propose, would be 19 executive engineers, and allowing a civil engineer to every two or three collectorates, probably a total of 28 always on duty. If an allowance of one-fifth be made for absentees, we should require a body of 34 officers for the revenue branch of employment, exclusively of the exigencies of the military branch.

“I have thought it my duty to enter into the above brief calculation, because from the remark made by the Honourable Court upon this subject, it would seem to be understood by them that all the necessary wants of the Revenue Department in engineer officers would be fully satisfied were 16 set apart for appointment to the eight divisions; whereas I am of opinion that the experiment is not fairly tried until a proper and efficient system is established and fully brought into action, and that to attain this a larger number of officers will be necessary than the Honourable Court originally contemplated.”

19. Should the proposition here made, for giving each collectorate an intelligent civil executive engineer, permanently attached to the district, and competent to instruct and raise up a body of good native workmen be carried out, more would, in my opinion, be done for the department than by any of the recommendations of the Commission.

20. I may here point out, by an example which has lately come before the Government, my view. The Neilgherry Barracks, now under construction, were necessarily planned for a lower story alone, though not recommended as the best for that climate by the military authorities. It has been resolved that they shall now be an upper-storied building. This has only become practicable since skilled builders, brickmakers, &c., have been obtained from the European regiments. Till their practical skill was obtained, the officers of engineers have never, during the last thirty years, made, nor could they ever procure, either a really good solid brick or tile on the Neilgherries. They were indeed of opinion that clay of the requisite quality could not be found, and they have been compelled in consequence, for years, to build with very inferior materials, for they did not themselves possess the practical knowledge to remedy the evil.

21. This want in the Civil Engineers Department, viz., superior practical knowledge, cannot be supplied by adding to the corps itself. The scientific young officers who join it will be no more qualified to direct or superintend the native maistry or workman in his business than the present intelligent officers now serving, and the department will not benefit by the addition of any number of such officers, as it would by the introduction of a superior and practical executive civil engineer, such as proposed in the foregoing minute. It is this class which I think to be so greatly required, and without which the department will always be most defective.

22. I observe in the paragraphs (34-6) under consideration, which refer to the civil engineers and their duties, the same inconsistency before commented upon. The civil engineer of a division, it is pointed out, has an extent of charge and duties averaging “16,000 square miles,” and “10,000 works,” with other routine calls upon his time, which it is justly observed he is “unequal to.” At the same time the Commission would have us infer that the shortcomings and defects in particular cases, when noticed by Government, have no existence. The two statements cannot stand together, and there can be no doubt that this branch of the department has been very inefficient, from the paucity of officers and their practical inexperience. And it should have been added also, in some cases, from neglect or indolence on the part of engineer officers,\* so that the public works have been neglected or ill executed.

23. Such an addition to the corps of engineers is, I think, required, as may always leave an engineer officer with two assistants in each division. This addition, with an executive civil engineer permanently attached to each collectorate,

Para. 34.

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\* The recent communications from the Board of Revenue, as respects the officers lately in charge of the second and fifth divisions, show their neglect and inefficiency, as well as the inefficiency of the Board as a controlling authority.

torate, would supply the ordinary wants of the department, and I would limit any increase to this extent.

24. An additional number will still be required for other duties of the corps, such as to provide for the corps of Sappers and Miners, the military divisions at Hyderabad and Kamptee, &c., but to what extent I am not prepared, nor is it necessary to offer an opinion.

25. On the further points discussed in this section (II.), The subordinate agency of the department, the revenue surveyors, the European overseers, and the native maistries, I have only to record my agreement in every point with the Commission, and especially as to the importance at the present time of the European subordinates. The testimony borne to the value of the trained European workman, and the saving arising therefrom, fully confirms the remarks offered by the late President in 1846, quoted above.

26. We see that in one instance (Report, p. 48) the work of a properly qualified foreman, even when compared with other European overseers, produced a saving of 15 per cent., and was better work at the same time. The Commission thus state the fact:—"In all the foregoing cases the estimates appear to have been made at the usual rates, and it is unlikely that there would have been much to spare from them under the common superintendence. It may be asked, then, to what cause is the saving to be ascribed; is there really this amount of cheating under ordinary circumstances? We believe not, cheating and peculation to a certain extent are no doubt practised in maramut works, but a large part of the saving effected by means of European superintendence is ascribable to other causes, besides the mere prevention of direct fraud. The skill of all classes of workpeople in this country is at a low point, and their tools are bad; again, all of them are much disposed to loiter over their work, and especially when they are working in large bodies. Now an active intelligent overseer will correct all this, and to this cause we believe a great part of the result of their employment is due. Thus Captain Best, speaking of bridges built by one of his overseers (Brown), states that by good workmanship and good management every cubic yard of masonry built by him consumed much less chunam and employed considerably less labour than the work even of other overseers, so that there was a saving of 15 per cent. in the cost of the work (even compared with that of other overseers), while the work was much better, because the joints were closer." Nothing could more forcibly point out the advantage of the practical knowledge of a civil engineer well trained.

27. I also most fully participate with the Commission in the regret they express, that the European overseer has been deprived for a long period in this Presidency of advantages possessed by others of his class in the other Presidencies, but I do not doubt but that this will be remedied when the whole subject comes before the Government of India. I would urge this point the more, as it is scarcely possible to overrate the importance of giving due encouragement to this class of men. I am convinced, with the Commission, that the remedy for nearly all the evils in the details of the department is to be found at this time solely in the larger employment of this class, when superintended by well educated civil engineers.

28. It is also, I think, chiefly through them, by their influence and example, and by his associating with them, that the native workman or maistry will rise in efficiency and in character. I most cordially concur therefore in their recommendation and remarks on this head, paras. 43-64.

29. There cannot also, I think, be any doubt as to the value of the further recommendations, in paras. 75 to 89, for the improvement of the class of native Maramut superintendents or maistries. I would hold out, as the Commission propose, every inducement to this class to improve, and I would advance them both in pay and position to the utmost whenever found qualified.

30. I shall not enter at length upon the questions discussed in paras. 93 to 108. The real point at issue is, whether it is the best and wisest policy at the present juncture, when the department is under-supplied with officers, that they should be employed each year in going hastily over the whole extent of their too extensive charge, and doing nothing thoroughly for want of time; or

whether, as the Government suggested, they should give their time in alternate years more exclusively to one district of their charge, and thus be enabled to overlook, with a care and efficiency now impossible, large and costly works executed under very imperfect supervision. I should not agree in the view the Commission take of the proposed rules in the existing state of the department. And I should have been glad if this Government had before them not only the opinions of the Commission, but those of the civil officers, as well as of the engineers in the provinces. I much doubt if they would concur with the Commission.

### Section III.—*Trunk Roads.*

31. I am quite unable to agree in either the statements, or in the views in this section. The representation here given of the intentions and orders of Government in constituting the department of the superintendent of trunk roads, and of the instructions issued for the conduct of the department, appear to me rather a laboured perversion than a correct exposition of the facts of the case. Equally incorrect do I consider the statement,\* more than once repeated in this section, that the department has been a "complete failure." The reverse can, I think, be proved. I am also of opinion that it can be shown that the orders and proceedings of Government, from 1845 to 1848, commented upon by the Commission, were practical and judicious.

\* Para. 132, Section III.

32. For what were those orders, suggested in part, as the Commission observe, (para. 132), by Captain Best himself. The orders of Government, as I understand them, were to this effect: That one uniform system should be enforced in the Road Department; that to this end all trunk lines should be placed under one officer, not removable for other duty, thus securing individual responsibility and practical experience for the department, and constant attention to the state of the roads, providing thereby for their timely and perfect repair. That the lines should be constructed and the department enlarged gradually. That the lines and works were to be undertaken as the superintendent and his subordinates could properly supervise them, and consequently that he should confine himself and the department, in the first instance, to three great lines.

33. There does not seem to have been any difficulty on the part of the Honourable Court, in apprehending the views of the President, which are thus given in their despatch approving the scheme, and I am at a loss to understand why the Commission should have so mis-stated them.

Despatch dated 23 September, No. 38 of 1845.

"We approve of the suggestions for that purpose offered in your President's minute of the 21st of January last. Lord Tweeddale proposes that an experienced officer of engineers, with an assistant attached to him, should be entrusted with the control and management of the great trunk roads, and that the collectors and district engineers should have charge of the branch roads. His Lordship also proposes that a sufficient number of overseers for the constant superintendence of road repairs should be placed under the several engineer officers.

"The lines of road of chief importance are stated by the chief engineer to be the following :

"1st. The western road to Mysore to be completed, and provision made for keeping it in thorough and permanent repair.

"2d. The southern road to Trichinopoly, ditto.

"3d. The northern road, with the connecting line to Cuddapah and Bellary, thus opening up a more direct communication with those large fields of cotton and indigo."

\* Captain Best named 15 years for the construction of the nine trunk lines.  
† See para. 649, page 257.

34. Yet these orders for the gradual progress\* of the trunk lines, and for placing the whole of the lines under one head and system, and for carrying them on under efficient and *bonâ fide* superintendence, are represented by the Commission,† first, as impracticable, inasmuch as they gave a charge of some hundreds of miles of road to one head, and so overwhelmed him with duty, overlooking the fact that if there was to be one uniform system, that there must be one head, and forgetting at the same time that it was proposed that time should be given for the work, and that the whole department was to be gradually extended and enlarged. Again, it is on the other hand alleged, that the instructions so limited and crippled the superintendent, that the department was rendered almost useless, its agency being confined to so few roads; forgetting

ting equally, that if the work in the department was to be thoroughly done, and experience acquired to warrant its enlargement, it must be by a gradual progress; and that this was the precise object of the orders of Government in limiting the superintendent's field of labours in the early stages of the department.

35. The course prescribed is, in my view, the proper course to be followed; and anything but unwise and impracticable. The Commissioners themselves, if they were called upon to lay down a system for the improvement of the harbours of this coast, as adverted to by them in para. 426 of their Report, would no doubt propose this identical course. Of commencing upon some one or two in the first instance, training assistants, and gaining experience, and so carrying on the work gradually; whilst they would probably, at the same time, propose that some one officer, best qualified for the task, should have the general charge of the whole.

36. I confess I am unable, therefore, to perceive either the justice or the force of their remarks throughout this section. They would, I think, apply to, and condemn, every large scheme intended to be carried to completion systematically and gradually.

37. But to advert now to the facts. The Commission themselves have fully admitted that, prior to the date of the appointment of the superintendent of roads, and of the formation of this separate department,—that is, so long as the roads were under the charge of the Board of Revenue, Department of Public Works, and of the Civil Engineers,—nothing had been done through a long series of years, and that at that time the whole country was without a good road in any direction. What are now the facts? Though the Road Department has been constituted but a few years, and it early lost the assistant engineer appointed to it, through illness, and some time back the superintendent, Captain Best; and although, necessarily, much time was at first given to the mere organisation of the department, yet these are, at this hour, the results, taken from the latest Report laid before the Government, dated 28 June 1853.\*

\* Appendix D.

38. In the seven years from 1 May 1846 to 30 April 1853, the estimates sanctioned by Government for this one class of roads amounted to Rupees 23 lacs, and upwards; † and the superintendent reports, that satisfactory progress has been made in all the works in hand under the department. He thus speaks (para. 6) of the condition of Trunk Road No. 1, the most important line, and the extracts show the great advantage of systematic attention, and of the experience gained by placing these most important works under a separate and independent charge.

See Superintendent's Report, para. 48.  
† 23,33,809 rupees.

“Probably the best criterion of its improvement may be formed from the trifling extent of damage it sustained during the late very severe monsoon, compared with former years, as mentioned by Captain Best, in his general report of the department, to the 1st October 1848. The gradual improvement may be dated from the monsoon of 1846, during which no fewer than 11 bridges were destroyed; these having been substantially rebuilt, all the smaller tunnels and culverts carefully strengthened, others added to admit of the passage of water where necessary, and proper attention, as before stated, having been paid to the side slopes and drainage, I feel sanguine that, with the additional metal now being laid on, the present annual allowance of 39,178 rupees will be found sufficient to keep the surface of the road in good order for some years to come.”

39. It will be further seen that the Government, notwithstanding the great difficulty experienced in finding qualified assistants, has lately strengthened the department. ‡

40. These statements, and the report throughout, § entirely disprove, in my opinion, the reiterated assertion of the Commission, that the department has been a total “failure,” as well as the prior assertion, that the Government have never recognised the value of roads. I cannot view these allegations but as a misapprehension

§ Appendix D.

‡ The superintendent thus gives the facts: “The establishment for European superintendence, which, on my first joining the department, consisted of one superintendent, three assistants, one assistant supervisor, and 14 assistant overseers, in all 19, has now been increased to one superintendent, five assistants, one second assistant, one assistant supervisor, 21 overseers; in all 29.”—*Superintendent's Report, para. 52, Appendix D.*

prehension of the facts; and I should consider the abolition of the department, or any alteration, except to strengthen its executive, as calculated to retard, if not put a stop to, the effective progress now making in this branch of the Public Works. I will refer for a further statement of my views to the minute recorded in March 1852,\* on the proposition then made by the Commission, to transfer this department to the existing Board of Revenue, even though they declare that Board "utterly unequal" to its actual duties; and although they were fully aware that, under it, nothing had ever been permanently done for the roads of this Presidency.

\* See Appendix E.

#### Section IV.—*Military Board.*

41. I have very few remarks to offer upon this section. I have known, and I may add, have carefully observed the proceedings of the Military Board for several years past, and it has always appeared to me as peculiarly inefficient. The most ordinary and trifling matters take weeks for their disposal; and delay, with ineffective supervision, are, so far as I can form a judgment, the marked characteristics of this Board.

42. Its composition seems to me essentially defective. The official members, who have a voice on all questions equally with the stipendiary members, have other important duties. Those in the Board may be secondary in their estimation; they feel, therefore, that they are not responsible for the acts of the Board, nor does their public character depend in the least on the efficiency of the Board. On the other hand, the stipendiary members, not having the sole direction, they are not responsible; and in point of fact, the Government has not the power to fix responsibility upon any one; consequently it can neither stimulate to exertion nor secure an effective performance of duty.

43. This division of the Board into official and stipendiary members, leading also to continual changes, is, I believe, in itself a source of delay; independently of the fact, that the commandant of artillery, the senior member, resides of necessity at St. Thomas' Mount, and there is nothing in his former service which qualifies him to take the lead, nor any part in the despatch of nine-tenths of the business devolving upon the Board; and even the stipendiary members, unless they are officers who have been its secretaries, have ordinarily no special knowledge or qualification to fit them for the duties. I see no prospect of improvement in this department of the Public Works, but by the abolition of the Board, and by placing its several departments under officers conversant with the duties entrusted to them; upon whom actual and individual responsibility will rest, with whom the Government therefore can deal if the department is inefficient.

44. I should not consider it at all probable that any modified arrangements in detail, such as those suggested by the Commission, would effect anything of moment so long as the Board exists, or is constituted as at present.

45. I do not now, therefore, enter upon the consideration of these details, nor upon the statement made (para. 196) of the chief engineer's position and duties. It is manifest that the chief engineer can have no time for his special duties so long as he has more important duties in the Revenue Board, Department Public Works, and in the Military Board, confided to him. The sooner he is relieved from some of these multifarious duties, and they are entrusted to officers who can be made responsible for them, the better, I believe, for the public interests. But arrangements to this effect can only be made when the Military Board is abolished, which I should strongly advise at the earliest date. It is the more practicable at this moment, as only one stipendiary member is now in the Board.

#### Section V.—*Proposal for constituting a new Board of Public Works.*

46. We now come to perhaps the most important part of the Commissioners' Report: their view of the best means of remedying the defects which exist in the administration of the Department of Public Works. They propose a new and distinct Board, to consist of three members: two officers of engineers and one revenue officer, aided by the chief engineer, to have the charge and control of all Public Works throughout the Presidency.

47. I cannot concur in this proposal, and I am decidedly opposed to the formation of any new Board for Public Works. A Board at once puts an end to individual responsibility, which I look upon as essential to efficiency in this department. I am unable also to see any necessity for a Board. It is only when

when large, or new untried projects are brought forward, that the sifting and the matured elaborate opinions, which are the results of the deliberations of a Board, can be needed. In the case of Public Works this is, I think, best obtained by a committee of engineer officers examining such projects on the spot. In all other cases, where there is nothing new or difficult—that is, in the great mass of the business of the department—an early decision and prompt disposal of the matter, without the delay which a Board is sure to interpose, is of more value than any little improvement of a plan, such as a Board sitting at the Presidency might suggest.

48. I am not also prepared to admit that an engineer officer or officers at the Presidency, who may not know the localities of works, are better judges of them, and of the expediency of their construction, than the local divisional officer, who has not only a perfect knowledge of all the circumstances of the district, but who must have the concurrence of the collector in his view of any project he may propose.

49. A Board will be found as heretofore, I should fear, a cumbrous and expensive machinery. It will not only create delays, but overload the Government—if there are to be three members, or even two, and a duly qualified secretary—with elaborate communications; whilst the subordinate officers will be burdened with additional correspondence and calls for information, as they will have to satisfy the various views of the several minds sitting at a Board. I should deprecate therefore the establishment of any such Board.

50. But in lieu of it, and of the present system, I would strongly advocate local superintendence and control, under a single responsible head. I would propose therefore to divide the Presidency into four divisions, or into any other more advisable number, and give to each a separate general superintendent, who should communicate immediately with the Government. He should not be a fixture at any one place, but move, when necessary, into any part of the division, and he should confer in person with the district officers under him, who should remain, as at present, in charge of two districts. The general superintendent should recommend important projects to Government, only after conference with the local officers and personal examination, certifying therefore from personal inquiry that they were sound in principle, and well and economically planned, and could be carried out without difficulty at the cost estimated.

51. It is the personal control and responsibility, under the immediate eye of Government, extended over not too large a charge, which will, I think, chiefly infuse vigour, and give efficiency to the department, and thus secure the due and early execution of works. Such superintendent would have an advantage which a Board never would possess. He would thoroughly know the wants and peculiarities of his division; and considering how diverse are the provinces of this Presidency, *e. g.*, Malabar, Tanjore, Ganjam, Bellary, this full local knowledge I look upon to be of the highest importance. Again, each division of the Presidency would, under this system, be equally well looked after and cared for, and the Government would know where to fix responsibility, and be able to apply a remedy if the Public Works in any district or division were neglected or ill executed. This system of divisional superintending engineers would also, I think, be found less expensive, and yet in my opinion be far more effective and conducive to the public interests than a Board.

52. I may further add, that I do not see why a collector in his own district is not as capable of judging of projects proposed for its improvement as the single revenue member of the proposed Board, who may really know little or nothing personally of the district. I should certainly prefer the opinion of the local officer, if he was one who had been any length of time in his district, to the judgment of the member of the Board. In whatever light therefore it is viewed, the Board proposed does not seem to be an advisable agency for the Public Works Department, but the contrary.

53. I think it also Utopian to expect and to propose a Board, on the ground that the two best men in the service will be always, and under all circumstances, selected for the Board. A Board opens the door for the employment of a second-rate man, with one superior man; and it is in the nature of things, therefore, that such second-rate man with interest, or a popular man, will find



entrance into the Board, and remain there, whatever might be the advantage to the public interests by his supersession.

Section VI.—*On Works of Irrigation.*

54. I agree to so great an extent with the Commission, as to the value and importance of such works in this Presidency, that it is not necessary for me to follow them into the details by which they seek to establish this point. It is almost sufficient to advert to the known facts, that the Carnatic with the Northern Circars, embracing a large portion of this Presidency, depend upon the annual fall of rain from the north-east monsoon; and that this monsoon is always variable and uncertain, often scanty, and not infrequently fails.

55. The advantage, therefore, it may even be said the duty, of providing supplies of water to meet the deficiency of this monsoon, from the never-failing south-west monsoon, can need no arguments; and I shall but add here the opinion I have already expressed in a minute on the projected Palar Anicut, in further support of the Commissioners' views: "I should have wished that, in lieu of this general statement, the Government had been furnished with well-ascertained data, that in years such as 1823-24, 1832-33, the seasons of our severest droughts, the Palar would have then supplied the tanks.

"It is in such seasons chiefly that these works are so invaluable, and repay the heaviest outlay; as they then preserve the lives of the agricultural labourers, and save the stock of a district."

56. Still, all-important as are works for irrigation, they have, I believe, if the interests of the producers or ryots are to be considered, their limit, unless they are executed gradually to admit of population increasing, and the demand for additional produce being thus augmented simultaneously with their execution. I think it would be an error to continue annually a very large expenditure upon new works of this description, when once the great object had been attained, of bringing such a breadth of land under certain irrigable culture, as shall secure the people against the famines consequent upon the failure of the north-east monsoon.

57. After this object has been secured the chief want of this Presidency is not so much, it appears to me, the execution of new extensive works of irrigation, such as the Commission urge, for the production of large additional quantities of grain, but roads and other facilities for the distribution of the produce of the land.

58. The low range of prices in all ordinary seasons shows that, at present, the supply is fully equal, and more than equal to the local demand; and in abundant years, the prices of grain fall so largely, that it is very doubtful if they are remunerative to the ryot, at the present rate of assessment upon his land.

59. I may adduce, as illustrating this point, the following statement, not selected, but taken from papers at this time in circulation. In the Government review of the North Arcot annual settlement, they observe, "In consequence of the increased extent of cultivation in so propitious a season, the price of grain underwent a great decline, as compared with the rates obtaining in the preceding year. The prices in the principal and subdivision were, respectively, 15 and 21 per cent. below those of Fusly 1260, 1850-51, and 31 and 39 per cent. below the commutation rates."

60. So again, the price of paddy the produce of irrigated land. That produce, which the Commission propose so largely to augment, is stated by the Board of Revenue, in their proceedings on the Bellary settlement, 1261 (at this time also under review), to have been gradually diminishing for years: "taking," they say (para. 3, Board's Proceedings, 10th July 1853, on the Bellary settlement). "the last 40 years in even periods of 10 years, the price of paddy has fallen gradually from 115 to 84 rupees the garce."

61. We here observe the steady reduction of price, and its great extent, largely enhancing, as the Board notice, the assessment upon the ryot, for his tax is a permanent money rent per acre, payable within the year, let prices be what they may. The Board thus state the case: "It is of great importance to be able to compare the prices at the time the settlement was made, with those now prevailing,

vailing, in order to judge how the assessment bears upon the ryot. It was supposed to be about 45 per cent. of the gross produce, when the settlement was made; but having been converted into a money payment, the prosperity of the ryots must always greatly depend on the price they can obtain for their produce, and the share virtually taken by Government will increase in proportion to the decrease in the price of grain. The average price of paddy during the first four years of the Company's Government was, it will be seen, as high as 152 rupees a garce; but the last two appear to have been years of great scarcity. During the next period of four years, the price of only one year (Fusly  $\frac{1828}{1808}$ ) is given, when it was 104 rupees per garce. Taking the last 40 years in even periods of 10 years, the average price has been

		<i>Rupees.</i>	
From Fusly 1222 to Fusly 1231	- -	115	per garce.
„ 1232	„ 1241	- -	101 „
„ 1242	„ 1251	- -	103 „
„ 1252	„ 1261	- -	84 „
—			
or 1851			

Had the assessment remained unaltered, therefore, the average share of the produce taken by Government during the past 10 years would have been 61 per cent., assuming it to have been 45 per cent. when paddy was at 115 rupees per garce. But the general remissions of 25 per cent. and 33 per cent. made in 1820, were considered to have reduced the share of Government to 33 per cent., in accordance with what Colonel Munro, in his plan for a permanent ryotwar settlement, considered it ought to be, and the share of Government would now appear to have risen again, through the operation of low prices, to 46 per cent. of the gross produce, or about what it was previous to the general remissions." See also note as regards the district of Nellore.\*

62. My

\* Extract from the Proceedings of the Board of Revenue, dated 22 August 1853; reviewing the Annual Settlement of Nellore, 1851-52.

Para. 4. The prices of grain continue in a very depressed state. From the marginal statement given in para 9 of the Collector's Report, it is seen that they are considerably below the average of the last 10 years, and less even than in the year immediately preceding, while, as compared with the commutation price, there is a falling off of  $22\frac{1}{2}$  per cent. in the price of paddy, and no less than 40 per cent. in that of dry grains.

Extract from a Report from D. White, Esq., Collector of Nellore, dated 18 February 1853, No. 17.

Para. 9. The grain market continued during the year under review, depressed as before. Compared with Fusly 1260, there was no improvement in the prices. On the contrary, the average rate for wet grains was less; that for dry produce being nearly on a par, but they were respectively  $22\frac{1}{2}$  and 40 per cent. below the commutation standard.

Fuslies.	Fine Paddy.	Coarse Paddy.	Jonnaloo.	Natcheny.	Varegaloo.	Prices.
	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	<i>Rs. a. p.</i>	
1251 - - -	17 1 10	14 15 3	17 2 4	15 13 2	13 1 2	
1252 - - -	16 4 9	14 4 2	15 6 1	14 8 11	11 14 4	
1253 - - -	15 15 8	13 5 8	14 3 7	13 8 5	11 12 9	
1254 - - -	18 4 8	15 13 4	19 3 5	16 15 6	15 11 3	
1255 - - -	27 6 7	24 6 10	32 12 6	29 7 3	23 11 2	
1256 - - -	23 3 11	20 5 4	29 13 6	25 11 3	21 15 5	
1257 - - -	21 9 1	18 6 3	28 3 1	24 2 -	20 8 6	
1258 - - -	19 11 5	16 15 -	21 11 11	19 7 6	16 15 1	
1259 - - -	18 - 4	15 9 5	19 8 -	16 14 5	16 9 9	
1260 - - -	17 8 -	15 9 5	20 5 2	17 10 8	16 10 8	
Total - -	195 2 3	169 10 8	218 5 7	194 3 1	168 14 1	
Average - - -	19 8 $2\frac{1}{2}$	16 15 $5\frac{1}{2}$	21 13 $4\frac{1}{2}$	19 6 $8\frac{1}{2}$	16 14 $2\frac{1}{2}$	
Fusly 1261 - - -	16 5 -	14 11 4	19 11 3	17 9 2	16 10 1	
Wet average - - -	- - -	15 8 2	Dry average - - -	- - -	17 15 6	
Commutation - - -	- - -	20 - -	Commutation - - -	- - -	30 - -	
Decrease - - -	- - -	4 7 10	Decrease - - -	- - -	12 - 6	
		$22\frac{1}{2}$ per cent.			40 per cent.	

62. My view, therefore, is, and I am not aware that it differs widely from that of the Commission, though in some passages in this section they would appear to controvert it, that to give new or additional works of irrigation, if at all extensive, their due value, they must be combined, with opening up, by roads, canals, &c., new and additional markets; and that, simultaneously with the execution of the works. That if this is not done, and there is no new market, but only the old local market, then such works must be carried on gradually, to allow of a population growing up to consume the large additional produce annually raised. Without this, prices must continue to fall, to the ruin of the ryots, or the Government must lower its rate of assessment. Or, to use the language of an authority quoted by the Commission, para. 281, "The decrease of price must be followed by a corresponding decrease in the commutation at which the assessment is rated, whereby both grower and consumer will be directly benefited, and the Government repaid by the extension of cultivation and the improved means of the people." This is no doubt true in the end; but it is not the view the Commission would seem to take; as they calculate on an increase of revenue at the present rates on the land, and do not apparently allow that there can be an excess of production beyond the remunerative demand. They appear to me to overlook the necessary consequence of raising within a limited period, large additional quantities of ordinary grain by means of an expenditure of Government capital; that if there is no co-incident extension of the market, the result of these works must be to diminish the money value of the produce of every acre previously under cultivation, and so to raise the assessment on the ryots generally.

63. The Commission would seem indeed to recognise this partially, in paras. 303, 304-307, as they there state, that "the intimate relation between the extent under cultivation and the (lower) range of price is very observable;" but they afterwards argue against the plain and obvious deduction from their own statement; and their views generally in this respect, and in this section, seem to me somewhat confused and contradictory, and I cannot fully subscribe to them.

64. I may adduce in support of the foregoing remarks, the following observations, already offered in the minute referred to in para. 55: "A glance at the map will, I think, show that the local demand for home consumption can never take off the enormous additional produce which the anicuts of the 'Godavery and the Kistna,' and I should add, that of the Palar, will bring almost immediately into existence. And without, therefore, some permanent extension of the market,\* co-incident and corresponding with this instant or early extension of production, a great fall of price must in a short time ensue, if rice is chiefly raised. This fall may indeed enable Rajahmundry (especially as the ryot is there aided by grants of Tuccavey) and Masulipatam to export largely, and probably to under-sell the rice of Ganjam and Vizagapatam, where there is no such Government outlay on works of irrigation. But this may not so much benefit the state as raise, in time, one class of ryots at the expense of another." On this point the following statement will be found in a letter from the collector of Rajahmundry, enclosed in the Board's letter of 9th August 1853, just circulated.

"I conceive that the export will go on increasing, because hitherto the trade has been vigorously carried on in competition with the ports of Vizagapatam and Ganjam,

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This commutation rate was fixed, it will be seen from the following extract,† on an average of 55 per-centage of the gross produce, after deducting village fees. The present low range of price therefore raises the assessment very largely, *i. e.*, 75 per cent. on the dry grain lands, and 67 per cent. on the wet, and must be most oppressive, if not ruinous to the ryots. It is not easy to see what advantage would result, under these circumstances, from new works of irrigation, the additional supplies of produce still further lowering prices and ruinously enhancing the assessment if new markets are not created simultaneously, or the assessment lowered.

† Para. 243, Minute of Board of Revenue, 5 January 1818.

243. Having ascertained the average gross produce of each goontah of land, "from information obtained by the survey, as well as what is admitted by the inhabitants," Mr. Travers proceeded to assess it as follows: He first deducted from the gross produce six and a half per cent. for bandoooloo, the admitted fees of the curnums, village artificers, servants, &c.; the remainder was then, in supposition, divided between Government and the ryot, in the proportion of 11 in 20, or 55 per cent., to the former, and nine in 20, or 45 per cent., to the latter, and the Government share of 11 in 20, or 55 per cent., was finally converted into money at the rate of seven Madras pagodas for dry grain, and five Madras pagodas for paddy per pooty.

\* Not depending, as at present, on the large mass of well-paid labourers congregated on the works.

Ganjam, where rice is produced at a very cheap rate, as the wages of labour are very low."—Para. 2, Collector's letter, 14th May 1853.

65. In further examining the section, I cannot also agree in the views contained in paras. 295, and I might add 296-7 and 301; they seem to me to a great extent unsound. And I am not aware of any facts to sanction the statement in para. 316.

66. I will only advert, in conclusion, to the opinion expressed in para. 320: the great importance of the introduction of some agricultural product, not a common article of food in the country. Upon this point I entertain a strong opinion. This Presidency cannot, I believe, make any great advance in wealth till its produce finds its way largely into, and commands the great European or foreign market. So long as it is limited to a home demand and local markets, the returns from the land will be small, and the people continue poor. But I much doubt if exportable produce of articles of a quality, and of a kind to compete with those of other tropical countries, can be, or will be largely raised, except by a modification of the assessment, by holding out, by that means, inducement to the ryot to produce for the foreign market, and enabling him also to do so by lessening the tax on his land. For if a crop of sugar-cane, for example, is not only liable, as at present, to the highest tax of a single crop, but to an additional tax, that of double crop lands, because it requires more water than a crop of rice, I doubt if this country can, under such a system of taxation, compete with the rich untaxed soils of the Mississippi or Brazil.

67. I will not pursue this subject, as it would lead to a long digression; but I will state my opinion briefly, that I consider the present rules for assessing the land, as laid down by the Honourable Court, to be often injurious; and that I believe it to be a fallacy, to view the land tax of this country as identical with rent in England. I will only observe, that in England the whole produce of the land is readily consumed in the home market; that there is no land there pure waste, to be had for asking; whilst in this Presidency there are tens of thousands of acres of as good soil waste, to be had by any applicant, as there is under the plough, and as near the market too; that it requires no more labour nor capital to raise additional crops when food is wanted, than on land previously under the plough; that when land is irrigated by Government works, large areas are at once made as fertile as the land previously irrigated; and neither has the Government nor the occupant expended more capital or labour on this additional area, to make it equally productive with the old land.

68. I do not see, therefore, the applicability of the theory of rent at the present hour to this Presidency; and I look upon the assessment upon the land at this time as essentially, with but limited exceptions, a tax, and not rent; that a high assessment does, therefore, now operate precisely as a heavy tax. It may shut out the produce of the land from all but the home market, as it so raises the cost of production, that it cannot compete with the products from other countries, or in distant markets; and I am strongly of opinion that some modification of the existing system of assessment is necessary, whenever the land tax forms a large element in the cost of production, to attain the object the Commission so strongly press, and in the importance of which I so fully agree with them.\*

Section

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\* The following Minute, recorded on the 12th January last, will further explain my views upon this point:

MINUTE.

Letter from the Board of Revenue, 9 December 1852, on the Survey and Revision of Assessment in South Arcot.

As this experimental survey and assessment will form the basis of a more general measure, it is of the first importance that sound principles should be laid down; I am induced therefore to call attention to what appears to me an error in these orders.

In para. 4 the Board direct "that such articles as require water for more than six months, as betel, sugar-cane, &c., should be declared liable to the assessment for two crops."

2. The principle here laid down is, to subject articles of produce, however essentially different in their character, and in the circumstances which confer value upon them,—that is, in their ability to bear a tax,—to one and the same rate of tax or assessment, and two products entirely dissimilar are put on the same level, though the one, betel, can bear the highest possible tax,—and even if over-taxed, it would be but little detriment to the country,—whilst the other, sugar-cane, if too heavily taxed, must cease to be grown, and the district will then be deprived of a most important source of wealth, at present a valuable article of export extensively produced.

Section VII.—*The Roads of the Presidency.*

69. The observations already made upon this head in Section II. render it unnecessary for me to do more than to state my entire concurrence with the Commission on the importance which they attach to good roads in every district of the Presidency. As I have before stated, roads, or facilities of communication, are the chief want of the present hour in this Presidency, whether the rail, or tramroad, or ordinary road, as the means of distributing the produce of the land, and of giving it, and the fruits of all productive industry, more extensive markets and an increased value.

70. The outlay of Government capital upon roads has one special advantage over other outlays; for, however large it may be, it interferes with no capital previously laid out; and it does not, like an expenditure upon works of irrigation, specially aid one particular class, and increase production without reference to demand; but the expenditure on roads benefits alike all interests and all classes; its only result is to give additional value to the products of all industry equally, and the largest outlay, if judiciously made, will certainly repay the State in the increased wealth of the people.

71. Upon the further question discussed in this section, whether the more or (as advocated by Captain Best) the less perfect road should be now constructed, it appears to me that each case must stand on its own merits; that it must depend upon the extent of traffic, the density of population, and whether the road will open up rich or poor tracts, and limited or extensive markets; and also upon the relative cost of the more perfect road. No one rule can, it seems to me, be laid down universally, and I should think it therefore an error to adopt one course, as the Commission appear to recommend,\* and in all cases make the most perfect, that is, the most costly road.

72. I am not aware that I can add anything to the remarks of the Commission upon the harbours of this Presidency, para. 426. I only wish that it was in my power to bring home the conviction to the mind of others, as it rests on my own mind—as an eye-witness of so many wrecks, and of such deplorable loss  
of

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3 If we take the two articles named by the Board, and apply to them the great first principle of all sound taxation, that the tax be imposed so as to check or interfere as little as possible with future production, we shall, I think, at once see how entirely the Board's orders in the case of South Arcot are opposed to this principle; betel is there an article of pure luxury; it is consumed individually in very small quantities, so that a high price but little affects its sale; it is so perishable and incapable of transport, that it is not open to the competition even of a neighbouring district, and is wholly an article for home consumption, and for the home market.

4 Sugar-cane, on the other hand, in South Arcot, is largely grown for the foreign market. It is exposed, therefore, in the market of Europe, to the competition of the whole world; and so far from being in daily demand; at almost any price, like betel, if the price is not kept low, so that the manufacturer can continue to manufacture with a profit, all demand for it must cease, and it will cease to be grown; or, if the tax or assessment is not so heavy as to produce this result, the extension of the cultivation may be most seriously impeded.

5 I should not agree, therefore, with the Board in placing these articles in the same category; though I am aware of the grounds upon which this is done, that land of like capability shall bear the same tax, whatever its produce. This will be correct and sound in the case of all ordinary grains for the home market,—that is, as regards seven-eighths of the land under the plough in this country,—but is a questionable rule, and I cannot but think likely to prove highly detrimental, when applied, as the Board here propose, to products like sugar-cane, grown for the supply of manufactories already established in the district.

6. I should, therefore, request the Board to modify their instructions, and in lieu of now fixing one and the same high rate for the betel-vine and sugar-cane, &c., to direct the collector carefully to ascertain whether sugar cane can easily bear this two crop rate of tax, and to authorise him, if he found that the two crop assessment would interfere with, or in any material degree check the growth and extension of the cane, to lower the rate to one crop. This measure of encouragement I should think just, both to the ryots and to the manufacturers who have sunk their capital in sugar-works; and I cannot doubt its subserving the interest of the district. It is of secondary importance, but I should see no objection also, at this date, now that the town and inland duty on betel have been abolished, greatly to increase the rates of assessment on betel-vine land, in accordance with the old native usages in this district, which seems to me sound in policy. I annex a memorandum, drawn up some years back by the head sheristadar of South Arcot, bearing on this point. The Board might be asked (if there is no objection), with a view to a reference hereafter to the Honourable Court, whether the rates on betel-vine land might not be increased, and a higher revenue drawn from an article so legitimately a source of revenue.

12 January 1853.

(signed) J. F. Thomas.

\* Para. 420.

of life in the storms at Madras—of the absolute necessity of a pier at the port, as noticed by the Commissioners, para. 448. If a return were made from the master attendant's office of the loss of life during the last five years, I do not think that there would be any hesitation in ordering the construction of a pile pier, such as that projected and proposed by Messrs. Mitchell & Son, patentees of the screw pile, at the cost of six lacs of rupees. I believe it possible that a boat might live in the sea, and carry aid, which could not by any effort cross the surf, and a pier running out beyond the surf line would then afford means of preservation for life and property which nothing else could.

73. There can be no question that a pier would at the same time confer a vast benefit on the trade of the place, and amply repay the cost of construction by tolls; whilst it must be remembered that Madras is the great mart and port of the Presidency, and will be still more exclusively so when the rail is completed. It seems to me that it may prove a short-sighted policy to promote the construction of a railroad to bring the commerce of the country to the beach, and then to have no better means of transport to the shipping than the rude Masulla boat. I should therefore urge the construction of a pier at Madras, whether by a guaranteed loan or out of the revenues, at the earliest possible date; and I regret that the Commission have not brought this work more prominently under consideration as one of the first—next to a railroad, the very first want of the Presidency.

Section VIII.—*Proposed Scheme of Expenditure on Works of Irrigation and Communication.*

74. Having stated my full concurrence in the views of this Government, as recorded in 1848, which the Commission here, in effect, merely reiterate or expand, I need not swell this paper by many remarks upon this section. The actual fact of the unimproved condition of far the greater part of this Presidency, the comparatively small amount of capital yet laid out on improvements of any kind, except in two or three districts, leave in my mind no room to doubt that the largest outlays on roads, canals, and similar works for communication, and for the general improvement of the country, will amply repay their cost; and I am satisfied that a large expenditure, as compared with past outlays, is absolutely necessary to develop the resources of the Presidency and to augment its finances, even though there should not be “a surplus revenue,” as observed by the Government in 1848.

75. I hold the same opinion, to a great extent, as to expenditure upon works of irrigation; but the course to be pursued as respects them, when once the magnificent works of the Godavery and Kistnah, and the Palar are carried out, should, I think, be by a gradual improvement of existing works, as seen in Tinnevely.

76. The Commission thus state the facts as regards that district under Captain Horsley's charge, and it will be seen, though they are probably exaggerated by the Commission, that the results obtained by his judicious plans are more important, and I believe more certain and at less annual cost for repairs, than the returns obtained from new works and projects: “We think we are fully justified in ascribing this large and progressive increase in the revenue to the improvement of the works of irrigation, since it is spread over far too long a term to be attributable to a series of good seasons, and we have already remarked that the last 15 years contain two decidedly bad seasons; we have then an increase of outlay to the amount of 3,23,419 rupees, producing a direct return in revenue of 19,74,830 rupees, or about six for one, besides an addition of 30 lacs to the income of the people.

“We have already observed, that by far the greater part of the gain in Tinnevely was obtained by the efficient repair of existing works, and a very large part of it by rendering supplies of water comparatively certain, which before were precarious. This is a most important species of improvement.” Paras. 241, 243.

77. Under these views, I would not push outlays on new irrigation works to an unlimited extent, nor require such outlays to be annually large specified sums;

neither would I limit the expenditure, unless it was to secure for the local Government the power to disburse a given per-centage of the revenue upon public works.

78. What is required, in my opinion, is, authority for the local Government, not to expend large specified sums, but authority to lay out any amount upon well-considered and well-sifted plans and projects, without reference to immediate returns; that they should be permitted, therefore, to sanction upon their own responsibility, all projects which they can carry out with the means at their command. The means this Government possesses of executing even the necessary public works must for some time be limited, and if, therefore, only ordinary care and consideration are exercised in sanctioning the projects submitted to them, there can be no doubt that the annual outlay will not be very large, and that it will be long before even the necessary works are all completed.

79. I am not aware, therefore, that anything can be gained by specifying the sums to be expended, as the Commission have done, unless it is also clearly shown that these sums can be now laid out judiciously and economically, and that there will be no fruitless schemes nor waste, like the large expenditure some years back on the abortive breakwater at Madras, and upon the Red-hill railroad, or like that upon the roads under the civil engineers, which were never completed nor duly repaired. Of these works nothing remains at the present hour except enough to warn the Government not to pursue a similar course, nor to entertain similar crude projects.

Sections IX. and X.—*On providing Officers for the Public Works Department.*

80. The subject in Section IX. having been considered in paras. 15-21 of this minute, I confine myself to a brief remark on the statement in para. 529, which I think erroneous.

81. The civil engineer for each collectorate proposed by the Marquis of Tweeddale, was a well-qualified executive engineer, trained as a civil engineer in England or in America, in the practical part of the profession; and it is an error to assume, as the Commission would seem to do (para. 541, &c.), that his place could be supplied by a junior officer of the Engineer corps. This proposal of the Commission will not secure the permanent employment of an officer in one district. The civil district engineers, such as they propose, may be called away at any time to other duties, and the works of the district put into new hands, whilst the native subordinate agency will continually have new masters; nor can they be instructed or properly trained by an officer of engineers, himself without real practical skill and knowledge. This is not the view of the Marquis of Tweeddale, and the objects he deemed necessary will never be attained by the proposed arrangement. The same view is expressed by an experienced officer of engineers, quoted by the Commission, Appendix I., page XLIII. Major H. C. Cotton thus states the results of his experience.\*

82. This leads immediately to the consideration of the views of the Commission in paras. 569, &c., Section X, in which they pronounce against the introduction

\* Extract from Report, page XLIII. Appendix.

Then an efficient corps of European Civil Engineers, as a permanent arm of Government, should be established,† and the native portion, of which alone I intend to treat in this letter, would be formed into one of the most suitable and useful branches of the public service.

† Not a corps whose services are dependent upon the external relations of the country, as those of a military corps must be, but one exclusively set apart for works of civil engineering; a corps of covenanted servants educated before leaving England as civil engineers, and quite distinct from military corps. This corps might be formed at first by volunteers from the English corps, and a few practical and experienced civil engineers from England. There could not be a better time than the present for drafting officers from the engineer corps for the purpose, because nearly all the first lieutenants being brevet captains, it is evident that the younger branches who would be promoted to supply vacancies are fully qualified for it by time of service and experience, and the military corps would rather be improved than injured by it. It would not be necessary to set aside the service of the military engineer officers in the time of peace; employment would be found for them in the extended improvements for which peace would afford opportunity, and to which, during peace, the attention of Government would more especially be called.

duction of purely civil engineers, and advocate the strengthening of the existing corps, a military arm, as the most expedient course for improving the Public Works Department

83. Unless there is a political object in keeping up a large corps of military engineers, I should not agree with the Commission ; such a corps is necessarily formed of men who as youths may be good draughtsmen or mathematicians, and of superior scientific attainments, but they may all on entering the corps be entirely without practical knowledge of any art, and may never have the opportunity of acquiring it under competent instructors. This is of little consequence in a military engineer, but all-important in the purely civil engineer's duties in this country, where contractors and foremen well skilled in all details of execution are not to be found. The proposal of the Commission, if carried out, will exclude from the Government service the superior practical intelligent civil engineer, for he would be restricted to the lower grades, and placed under a junior military engineer ; consequently there would never be seen in the Department of Public Works in this country that class of engineers which has done more for Europe than any other class, the men who have raised themselves through all the grades of workman, foreman, mechanic, to the highest post of civil engineers. I should regret to see a system adopted in this country which would effectually shut out all such men, and all superior intelligence combined with practical skill and scientific acquirement, and keep the Department of Public Works as inefficient as at present in the requisite practical knowledge, as well as solely a seniority corps, as other military corps in this country.

84. How far this want of knowledge as civil engineers might be obviated in part by a college, like Roorkee, as the Commission propose, experience can only determine. I must be permitted to question if first-rate civil engineering skill will be attained, and retained in the Government service, unless the advantages of promotion and of rank are provided, so that the civil engineer shall not always be subordinate to military juniors. I should therefore, notwithstanding the institution of a college, advocate the introduction into the Public Works Department of men from all departments, or wherever they might be found with the requisite qualifications of civil engineers, and advance such men, as Lord Tweeddale proposes, to the higher posts and duties in the civil department.

#### Section XI.

85. The Commission in this section give an analysis of their Report, and sum up their recommendations. I propose to follow the same course, and to state in a few words upon each separate head, my agreement or disagreement with them.

#### Section II.—Present Condition and Defects of the Department of Public Works.

86. I agree with them entirely in considering the present system most defective, that the Revenue Board Department of Public Works, the controlling authority, is wholly unequal to the duties of the department, and that it should be abolished.

87. I agree also in the opinion that the civil engineers in the provinces are too few, and consequently unequal to the duties, and that their number should be increased, and the department generally strengthened also in all its subordinate branches ; but with this proviso, that the additional strength and efficiency will best be found in attaching well-trained civil engineers permanently to each collectorate, and not by appointing the junior officers of the engineer corps to the charge of a district.

#### Section III.—Trunk Road Department.

88. I dissent altogether from the views the Commission here set forth on the Road Department, whilst the records and facts disprove, in my opinion, their statement. I look upon their recommendation that the separate Trunk Road Department should be abolished, as calculated to be highly detrimental to the public interests, until all the trunk roads of the Presidency have been completed.



## Section IV.—The Military Board.

89. I consider the views of the Commission on this branch of their inquiry to be superficial, and that the root of the existing evils is left untouched, that their suggestions are in consequence of little practical value; the true and only remedy being the abolition of the Board and the transfer of their duties, in regard to public works, into the hands of officers with individual responsibility.

## Section V.—The New Board.

90. I differ wholly with the Commission in this recommendation, as it will perpetuate the existing evils—delay and imperfect supervision. A Board will, I think, be a cumbrous and expensive machinery, but is above all objectionable, as it excludes individual responsibility. In lieu of a new Board I would advocate the division of the Presidency into four divisions, each with a general superintendent, as far more effective, as he would have full personal knowledge, and exercise actual personal supervision over the officers and the department in his division, and be himself individually responsible.

## Sections VI. and VII.—Works of Irrigation and Communication.

91. I agree in the value and importance the Commission attach to the execution of such works, especially of roads, canals, and facilities for internal communication, so to create new markets, and to give increased value to the products of all industry. I should modify in part the views expressed by the Commission as to the vast additional revenue to be obtained from new works of irrigation, and consider it advisable, with the exception of the works on the Godavery and the Kistnah, that irrigation works should be carried out gradually; whilst I would push forward immediately to the utmost extent railroads, roads, canals, piers, improvement of the harbours, and all means for facilitating the external and internal commerce of the Presidency.

## Section VIII.—The Expenditure on Public Works and the Extent of the Agency.

92. I do not see the use of specifying any particular sums to be annually laid out on public works, and so far I differ from the Commission. But I most fully concur with them that a large expenditure, even if there is no surplus revenue and the funds must be borrowed, on roads and other works for internal communication, and on works of irrigation to a large extent, is most necessary and advisable. This expenditure to be incurred on the responsibility and at the discretion of the local Government.

## Sections IX. and X.—On the proper Means of enlarging the Establishment for Public Works and providing duly qualified Officers.

93. I should fully agree with the opinion given, that the Civil Engineer Department should be greatly enlarged in all its grades; but I should not agree in the opinion, that an addition exclusively to the corps of engineers, a military corps, is the best means of strengthening the department. I would introduce for civil engineer's duties, well-trained civil engineers, and raise them to high positions as the best, if not the only means of perfecting the department. I agree in considering a college similar to Roorkee as most desirable, but not in itself sufficient to place the department upon the most effective footing.

94. I may close these notes with the observation, that I think much credit to be due to the Commissioners for the ample and detailed review of all branches of the Department of Public Works, presented in their Report, and for the ability with which they have discussed the numerous important questions examined by them. I regret that the Report should have been drawn out to so great a length, and that it should be disfigured by an exaggeration not creditable to the members of the Commission, and by mis-statement and by a misrepresentation of the views and proceedings of Government. For they could scarcely be ignorant of the main causes which have compelled the local Government in past years to withhold expenditure from valuable improvements, the prohibition

prohibition by superior authority against all disbursements not absolutely necessary, and by the impossibility of finding agency to superintend important works. These facts were patent before them on the records, as will be seen in the Appendix (A.) annexed.

95. I trust, however, that large and extensive improvements will ere long be sanctioned, and that the Public Works Department of this Presidency will receive that attention from the controlling authorities which its great importance demands; and that there will be no prohibition, and no limit even prescribed by them to the largest expenditure upon well-considered projects, in all branches of the department. Unless experience shall show that the expenditure sanctioned by the local Government has afforded no adequate return, and has not been followed by a corresponding improvement of the finances, and of the general condition of the country.

23 August 1853.

*J. F. Thomas.*

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A P P E N D I X.

Appendix (A.)

1. HAVING referred in my minute of the 12th April last, to the letter to the Government of India from this Government, dated 3d January 1848, as in itself a complete refutation of the misrepresentations of the Commission, I deem it right to annex that letter in full, with a few of the passages from the Report to which I object. I consider it unnecessary to enter into particular cases; this has been sufficiently done in the Honourable Mr. Elliott's minute.

2. I also annex the following letters from the Government of India, of 1846, 1850, 1851, which will further demonstrate the error into which the Commission have fallen, in ascribing to this Government a systematic neglect of the Public Works. The course pursued by the Government of late years, it will be seen, has been forced upon them by the supreme authority, under the pressure of financial difficulties.

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LETTERS from the GOVERNMENT OF INDIA.

EXTRACT from a Letter from the Secretary to the Government of India, dated 30 October 1846.

5. THE special attention of the Most Noble the Governor in Council is requested to the observations contained in paras. 111 to 114 and para. 329 of the Honourable Court's despatch, in which the Court desire that no important measure, tending either to diminish the public resources or to augment the public expenditure, shall be carried out without their previous concurrence, except under circumstances of clear and urgent necessity, and that the Governments in India shall co-operate in strenuous efforts to effect every practicable improvement of the resources, and the reduction of every expense that can be effected without detriment to the public service.

18. Concurring in the views of the Honourable Court, that it is most incumbent on the Government of India to spare no exertion to bring the public expenses down to the level with the public income, the Honourable the President in Council would urge upon the Most Noble the Governor in Council the absolute necessity which exists for the adoption of the utmost economy in all branches of the administration. It may be that no effectual relief can be afforded but by a large diminution of military expenditure and the exercise of rigid economy in those branches of civil expenditure on which the well-being of the people and the general improvement of the country mainly depend, cannot be contemplated without pain and regret; yet still, it will be a duty to control expenditure of every kind till the time shall arrive when a more favourable posture of the Indian finances will enable the Government to indulge more liberally in those great measures of public utility which are so much required for the moral and physical advancement of India.

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No. 1740, dated 6th December 1850.

To the Secretary to the Government of Fort St. George.

Sir,

I AM directed by the Honourable the President in Council to transmit to you, for the information and guidance of the Right Honourable the Governor in Council, the annexed copies of paras. 3 and 4 of a despatch from the Honourable the Court of Directors, No. 39

of 1850, dated the 9th October; and, with reference to the instructions therein conveyed, to impress on you the absolute necessity of enforcing every possible economy in the management of the public resources.

I have, &c.  
(signed) *J. Dorin*,  
Secretary to the Government of India.

Fort William, 6 December 1850.

Letter from, dated  
7 November 1850,  
No. 7.

EXTRACT from a Despatch from the Honourable the Court of Directors, addressed to the Government of India in the Financial Department, No. 39 of 1850, dated the 9th October.

Forward Reports on the Tabular Statements of increase and decrease of charge on account of salaries and establishments submitted in the months of November and December 1848, and January and February 1849.

3. WHILE we are not unmindful of the fact that a portion of this augmentation represents additional establishments which have been required for the purpose of developing the receipts from opium, salt, and other branches of revenue, and that against that portion may therefore fairly be placed the increase gained by means thereof to the income of the State, yet, in the present position of your finances, we must remind you, not only of the importance of closely watching all augmentation of expenditure, but of the indispensable duty of adopting effectual measures for the equalisation of income and charge. To this most essential object we must, therefore, direct your immediate and unremitting attention, and it is very important that the same consideration should be impressed forcibly upon the attention of the subordinate governments.

4. You will not fail to give us information of the progress that is made from time to time in the reduction of your expenditure, and we hope to learn that the prospect may be confidently entertained of its equalisation with your revenues at no distant period.

(A true copy.)

(signed) *J. Dorin*,  
Secretary to the Government of India.

No. 50.—Home Department.

From *G. A. Bushby*, Esq., Secretary to the Government of India, to *J. F. Thomas*, Esq., Chief Secretary to the Government of Fort St. George, dated the 17th January 1846.

Sir,

I AM directed to acknowledge the receipt of your letter, No. 287, dated the 16th ultimo, submitting, with the recommendation of the Most Noble the Governor in Council in favour of the measure, a survey and sketch plan of a proposed canal, to connect the Ellatoor Backwater with the Calicut River, in the province of Malabar, a distance of six miles, at an estimated cost of *Rs. 16,202. 2. 6.*

2. In reply, I am desired to state, that the President in Council regrets being obliged to discourage useful works of this nature, but he is of opinion, that it will be advisable for the present to suspend any outlay for purposes, however advantageous, which can be postponed without detriment.

3. The original enclosures of your letter are returned.

I have, &c.  
(signed) *G. A. Bushby*,  
Secretary to the Government of India.

Fort William, 17 January 1846.

No. 367.

EXTRACT from the Proceedings of the Honourable the President of the Council of India in Council, in the Financial Department, under date the 14th March 1851.

READ a communication from the Home Department, No. 512, dated the 20th December last, forwarding for consideration and orders, a despatch from the Government of Fort St. George, No. 1150, dated the 7th idem, with enclosures, soliciting sanction to the expenditure of *Rs. 31,475. 15. 11.* for the construction of an annicut or dam across the Cheyaur River, and for the excavation of a channel, to supply water from it to certain tanks in the Trivatoor and Wandivash talooks of the district of North Arcot.

*Resolution.*—The President in Council is of opinion, that in the present position of the Indian finances, the consideration of the question of constructing works on the Cheyaur River had better be postponed.

\* \* \*  
Secretary to Government.

These letters are but a few of several of like character.

OBJECTIONABLE Statements of the Commission.

Para. 225. \* \* \* \* "Hitherto, indeed, though the ruling authorities have admitted, in general terms, the importance of promoting improvements, yet the view practically acted on has been, that all expenditure is an evil, and that it is the duty of the controlling authorities to check it, with but little reference to the valuable return to be obtained. But if this view is abandoned, and if it comes to be cordially recognised that such improvements are desirable, &c."

Para. 462. \* \* \* \* "The splendid instances which we have quoted are only exceptional; the general tone of feeling in the Government is still narrow; there is still the same confined view of the field of operations; still the same feeling clearly apparent, though not avowed, that every outlay is an evil, no matter what and how great is the benefit to be so secured; still there is the narrowest and strictest economy in refusing trifling outgoings from the Treasury, combined with the same practical disbelief as of old, in those general truths which point to the sure means of vastly augmenting the income."

Para. 713. "With respect to the value of the property which will be under the charge of the road establishments, if we take the money value of the works of communication now existing, it will be found to be extremely small; simply because the vast importance of roads has been hitherto so lamentably overlooked by our Government. But we earnestly trust that the time has at last come when their value is more justly appreciated."

These statements, it will be seen from the following letters, are wholly without foundation.

LETTER to the Government of India, 3d January 1848.

No. 3.

To *J. Dorin*, Esq., Secretary to the Government of India.

Sir,—Para. 1. Adverting to the observations of the Honourable Court on the military charges of this Presidency, referred to in paras. 12 and 13 of your letter, No. 1739, dated 30th October 1846, I am directed to forward copy of a letter\* on the subject from the military auditor-general, together with the statements which accompanied it; and also two statements prepared in the Military Department of the Government Secretariat.

\*Dated 10 May 1847.  
Abstract Memorandum.

2. From these statements it appears, that taking the whole military charges of this Presidency, including the commissariat, from 1836-37 to 1845-46, and deducting charges involving increased expenditure on account of augmentations ordered by the Honourable Court of Directors, or by the Government of India, as well as extra charges on account of the employment of Madras troops in the other Presidencies, over which the Madras Government have of course had no control whatever; there has been, during this period, an increase, originating with the Government of Fort St. George, amounting to Rs. 12,393. 8. 6. and a decrease, also originating with the Government of Fort St. George, amounting to Rs. 16,62,220. 9. 6.

Military charges.  
Ditto, ditto, Commissariat charges.

3. As far therefore as the Government of Fort St. George is properly responsible, the military accounts from 1836 to 1846 show a decrease of expenditure of very nearly 16½ lacks of rupees, instead of the large increase attributed to it in the Honourable Court's financial despatch of the 19th August, No. 22, of 1846.

4. The Government would also observe, with reference to the Court's observations (in paras. 217 to 220 of their despatch) upon the increase of expenditure in the Post Office Department, that it must be borne in mind, that there has been in recent years a very large increase of public and private correspondence, and that the usefulness of this department has been greatly extended.

Post Office.

5. It will be seen from the three memorandums accompanying, that the Post Office is now the instrument for distributing a correspondence, far greater in proportion to the expenditure than at any former period; and that, although from the absence of sufficient data, the actual proportion cannot be stated, there is no room to doubt that the State has derived more than a compensating advantage from the additional outlay.

6. The letters of all descriptions posted during the year 1845-46 are estimated as follows: sent

Through the General Post Office	-	-	-	11,10,985
Through the Provincial Post Offices	-	-	-	25,05,032
Through the Talook Tappals	-	-	-	6,26,567

7. Whereas, so recently as 1838-39, through the Talook Tappals none were sent.

Through the General Post Office, the actual number was	-	-	-	4,69,269
And through the Provincial Post Offices	-	-	-	9,42,662

TOTAL - - - 14,11,931

or 14 lacks, 11,000 in 1838-39; against a total of 42 lacks, 42,000 in 1845-46. An augmentation of treble the former extent of correspondence within a period of eight years, or less than one-half of that to which the Honourable Court's remarks apply.

8. It is not therefore, the Government believe, too much to say that whilst the charge of the Post Office Department, as shown by the Honourable Court, including in it the loss of surplus revenue, has not been doubled from 1823-24, the service rendered has been at the lowest estimate quadrupled. In other words, that in 1823-24, one fourth or but one fifth of the present amount of correspondence was then distributed, at a charge equal to one half of the existing expense. The Government will continue to watch over this item of charge and revenue, but it appears to them one that must be always viewed rather with reference to its general public advantage and its indirect benefits, than financially, as a source of direct revenue, and they regard the extension of its usefulness as a matter of much importance, such as to merit some slight sacrifice of revenue.

Land Revenue.

9. In the 223d, 224th, and 225th paragraphs of their despatch, the Honourable Court direct attention to the decline of the land revenue of this Presidency, and observe that in their despatch of 30th August 1837, they instructed this Government "to institute inquiries with a view of ascertaining the causes which operated to produce so serious a falling off in the receipts." Prior to the receipt of the communication from the Government of India forwarding the foregoing despatch from the Honourable Court, this Government which had in view the examination of the state of the land revenue in each province, had, at the requisition of the President, called upon the several collectors to furnish a statement of land revenue collections for the 30 years from 1815 to 1845. These returns have been received from all the districts but North Arcot.

10. It will be seen from them that it would be an error to assume, as the Honourable Court's remark\* would appear to imply, that the land revenue has been declining for a series of years throughout this Presidency, and that there was cause therefore for alarm, as regards this vital and all-important source of its financial prosperity.

11. Instead of a decline, there has been in the larger number, and those the most important districts of the Presidency, an advancing and in others a stationary land revenue within the last 30 years. This is apparent in the returns from the following districts:

Canara, Malabar, Madura, Tanjore, Tinnevelly, South Arcot, Vizagapatam.

These returns show an increasing land revenue, as seen in the annexed statement.

Fuslies.	Canara.			Malabar.			Tanjore.			Tinnevelly.			Madura.			South Arcot.			Vizagapatam.		
	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.
1225	15,95,350	3	9	15,51,499	2	4	33,51,552	2	10	Not given			14,93,948	11	3	18,39,492	12	-			
1226	15,99,649	14	7	17,12,346	13	5	33,33,047	4	7	14,42,028	10	6	14,35,848	15	9	18,38,883	15	4	11,81,297	5	-
1227	15,98,838	13	2	16,85,461	9	4	32,60,685	6	-	15,11,522	5	11	14,48,680	11	-	18,79,443	9	9	11,80,971	3	3
1228	15,43,895	12	7	16,81,928	10	6	31,02,204	4	5	14,47,685	12	3	14,69,802	-	9	18,68,120	15	5	11,79,220	9	3
1229	15,74,983	15	7	17,43,161	10	2	31,06,399	1	10	14,99,992	10	9	14,42,809	7	5	18,65,224	15	10	11,79,998	3	-
1230	15,87,489	12	11	16,79,732	4	-	31,71,171	4	2	15,97,457	2	5	14,26,022	7	10	18,68,623	7	7	11,81,014	-	-
1231	15,97,953	5	2	17,47,208	3	10	30,69,278	6	2	15,80,802	2	1	14,51,379	6	11	17,93,957	-	7	11,80,741	10	6
1232	16,10,301	11	3	16,38,817	9	1	32,95,158	7	11	17,41,925	11	5	15,77,915	12	7	20,43,835	13	3	11,80,923	3	6
1233	16,04,889	-	3	16,08,916	9	11	41,41,249	14	3	16,50,659	5	6	13,92,375	4	5	14,96,561	12	3	11,81,741	10	1
1234	16,07,483	4	7	17,43,539	-	6	49,68,109	6	8	16,08,753	2	10	16,02,831	5	4	18,36,111	1	8	11,81,933	10	9
1235	15,85,640	-	4	16,47,917	11	5	35,59,050	3	9	16,41,032	4	4	16,33,930	3	11	20,07,025	13	2	11,82,365	13	2
1236	15,60,219	10	10	15,88,820	12	8	30,04,392	11	5	15,47,624	2	4	16,75,494	15	7	20,78,085	3	11	11,81,960	9	2
1237	15,84,977	-	9	15,60,063	-	7	28,07,213	5	11	13,91,325	10	11	15,81,005	10	5	18,41,317	12	8	11,43,549	1	9
1238	15,83,141	12	2	15,91,505	9	7	36,88,329	12	1	14,91,952	9	1	15,18,918	10	8	17,85,555	7	3	11,23,152	-	8
1239	15,49,924	15	10	15,98,979	5	2	33,21,667	15	3	14,42,018	5	2	15,17,323	-	6	18,67,684	4	-	11,76,531	2	4
1240	13,55,431	4	6	13,56,562	14	8	33,85,862	13	4	14,03,158	2	4	15,81,910	10	9	18,88,962	5	2	11,68,434	15	2
1241	15,18,295	8	11	14,23,331	-	10	34,91,758	-	6	10,25,348	4	5	14,21,167	10	4	16,81,327	10	8	11,73,311	11	5
1242	15,16,882	3	2	17,77,060	15	6	37,76,763	3	-	13,65,161	13	9	15,36,964	2	4	13,03,957	9	2	11,61,795	15	3
1243	15,73,829	3	5	16,07,564	-	10	38,86,613	7	7	15,81,507	12	8	15,95,607	2	6	16,15,152	3	7	12,43,824	3	-
1244	15,56,278	4	8	16,16,310	1	4	36,26,853	3	4	16,29,690	11	5	16,28,661	12	7	19,79,617	10	6	12,34,204	7	11
1245	16,70,820	1	10	16,33,345	9	5	34,39,847	5	10	15,88,171	8	10	17,47,460	9	-	19,74,357	13	3	12,38,029	-	3
1246	16,83,336	13	6	16,11,322	9	10	36,57,972	13	11	16,38,008	10	-	14,60,652	10	8	18,88,376	-	2	11,98,250	-	7
1247	16,96,273	9	9	16,16,757	4	1	36,89,451	15	2	18,38,049	-	2	16,30,346	14	10	20,29,324	-	5	12,39,971	13	4
1248	17,01,623	5	8	16,34,134	2	5	37,88,353	14	3	18,05,289	2	-	17,33,993	-	2	21,35,894	15	10	11,67,664	-	9
1249	17,13,908	13	9	16,32,510	15	-	38,02,851	14	7	19,23,382	13	11	17,77,834	5	5	23,57,654	1	10	12,49,643	14	7
1250	17,25,789	14	-	16,37,004	7	7	36,15,399	10	5	17,37,373	15	3	17,37,822	6	-	23,13,609	8	5	12,12,107	3	10
1251	17,33,775	2	-	16,56,539	3	4	33,86,138	8	8	16,38,398	1	8	18,13,618	12	1	20,87,925	12	-	12,55,618	9	4
1252	17,37,038	12	1	16,40,301	6	9	36,06,231	-	2	15,94,595	10	10	17,91,259	7	7	18,56,340	13	10	12,35,526	3	7
1253	17,43,909	15	4	16,28,673	3	1	37,51,749	13	3	16,85,533	9	4	17,66,037	12	1	19,83,143	8	1	12,04,944	11	2
1254	17,48,672	12	4	16,40,080	14	3	38,07,717	6	-	17,79,430	1	7	17,11,756	8	1	19,45,981	10	8	11,61,033	9	8
1255	17,34,308	-	7	Not given			42,17,698	3	6	19,80,581	7	4	17,41,619	7	3	Not given			9,72,571	7	6

Years.	Rs.	a.	p.
1815 -	15,95,350	3	9
1820 -	15,58,982	12	11
1825 -	15,85,640	-	4
1830 -	13,55,431	4	6
1835 -	16,70,820	1	10
1840 -	17,25,789	14	-
1845 -	17,34,308	-	7

12. When the revenue in any particular year in these districts is much below the ordinary amount realised, and affects the Court's average, it will be found that it is owing entirely to extraneous causes, and not indicative of any decay of the sources of wealth. Thus the average of the series taken by the Honourable Court from 1829 to 1834 in Canara, is affected by the receipts of the year 1830-31 falling to 13 lacs. This was caused solely by the insurrection in the year 1830, and had nothing whatever to do with the capability of Canara, to afford its quota of revenue. Upon the whole, the revenue of Canara has been steadily advancing throughout the entire period examined

\* Para. 232. "We now come to the important heads of 'Land Revenue' at Madras, the declension in which for so long a period has occasioned us much anxiety."

Extract from a letter from the Honourable the Court of Directors addressed to the Government of India in the Financial Department, under date the 19th August, No. 22, of 1846.

examined by the Court, after deducting the revenue\* arising from the annexation of a portion of Coorg to the collectorate. \*About 70,000 rupees

13. In the following districts the revenue has been stationary, or nearly so.

FUSLIES.	SALEM.	COIMBATORE.	NELLORE.
	<i>Rs.</i> <i>a.</i> <i>p.</i>	<i>Rs.</i> <i>a.</i> <i>p.</i>	<i>Rs.</i> <i>a.</i> <i>p.</i>
1225 - - - -	18,05,633 15 10	20,62,609 11 8	13,50,697 10 6
1230 - - - -	17,49,225 4 2	21,28,110 1 8	12,76,924 2 10
1235 - - - -	17,86,814 3 7	22,99,054 7 6	11,98,647 1 10
1240 - - - -	17,11,348 10 5	22,55,355 2 7	12,81,531 - 3
1245 - - - -	16,38,957 7 5	20,76,305 1 1	13,11,991 - 2
1250 - - - -	17,61,621 10 1	20,20,757 10 3	12,51,951 13 8
1254 - - - -	17,15,238 15 10	22,17,962 10 9	12,91,523 11 2

14. It is, also to be borne in mind that subsequent to the date on which the Honourable Court have commenced their comparison,\* the rents in some districts have been reduced by the orders of Government, on the express ground that the revenue drawn, which forms the basis of the Court's first series of averages, was beyond the capabilities of the province, and was itself one cause, and an important one, of the following decline. \* viz 1815.

15. Thus in Bellary and Cuddapah the Government in 1821 reduced the land revenue 25 per cent. at once, on the recommendation of Sir Thomas Munro, upon the acknowledged ground that the land revenue taken was too high. This consideration greatly affects the conclusion to which the Honourable Court have arrived, and goes to show that no just inference could be drawn as respects these and other districts† similarly circumstanced, by commencing with the average in the Court's despatch.

16. The actual decrease of land revenue noticed by the Court will be found, therefore, this Government believe, greatly below the amount stated by the Honourable Court, viz., 40 lacs, and the positive diminution of revenue to have been caused chiefly and almost entirely by the severe droughts and famine, which afflicted part of the Northern Circars, and extended partially to other districts in 1831-32, 1832-33, and which involving in its consequence an enormous destruction of stock and agricultural capital, those districts could not rapidly recover. There was also a previous low state of prices, induced, it is probable, by the increase of lands under cultivation for ordinary grains.

17. The augmented collections and the more flourishing state of the revenue of later years, reducing, as the Honourable Court observe, the diminution from 40 to 8 lacs from the standard assumed of 1815-16, is to be ascribed almost entirely to more propitious seasons; and neither has the falling off nor the augmentation been, in the opinion of this Government, influenced in any great degree by any other cause. Prices of grain, at one time extremely low, have rallied, and if in addition to the relief afforded by the abolition of the transit duties the land is applied more largely to the raising of cotton, sugar, and other articles for a foreign market, they will not, it is expected, very greatly fall.‡

18. From these observations the Government of India will gather that this Government do not view the subject in the same light as the Honourable Court have done, and the detailed statements forwarded will, they trust, bear out the opinion they hold, that the financial resources of this Presidency are in as healthy and sound a condition, and perhaps more so, than they have been at any period in the 30 years reviewed by the Honourable Court.

19. The point to which this Government would desire to attract the attention of the Supreme Government is, that the returns submitted show an almost stationary or very slowly advancing land revenue during the last 30 years. This may be deemed unsatisfactory, considering the general security and the peace which has prevailed in Southern India

† Extract from Remarks of Acting Collector on Statement of Land Revenue in the District of Chingleput

"The defects inherent in both the renting and amany systems led to a decline in the revenues, which did not recover their former height, until the survey field assessment was finally introduced into all the Government villages in fuslies 1248 and 1249."

‡ Extract from a Letter from the Honourable the Court of Directors, addressed to the Government of India in the Financial Department, under date the 19th August, No. 22, of 1846.

"Para. 224. From the above view, it appears that the greatest decline occurred in the five years from 1829-30 to 1833-34, which was in the alarming rate of between 30 and 40 lacs per annum, as compared with the preceding 15 years. In the five years from 1834-35 to 1838-39, there was an amelioration of 13 lacs per annum, as compared with the five years immediately preceding; and in the last five years from 1839-40 to 1843-44, there was a further amelioration of 13 lacs per annum. The present deficiency is, therefore, reduced in amount to 8 lacs per annum, as compared with the sum realised from land 30 years ago."

India for years past. It is no doubt in a great measure to be ascribed to the peculiar circumstances of this Presidency, which labours under the disadvantage of the want of navigable rivers, and of roads, and means of interior communication. These deficiencies cramp and even preclude a development of its sources of prosperity, and forbid the increase of the revenue. They limit the products of the soil to the common grains and other articles for home consumption alone; and whatever natural capability there may be for raising cotton, sugar, &c., or other raw produce for the British market, this Presidency is in a great degree disabled by these disadvantages from competing with other countries in the markets of Europe.

20. The remedy is plain, and is in the hands of the controlling authorities themselves. They have only to sanction and provide efficiently for the early construction of good and permanent communications from the inland districts to the coasts, and throughout the country, and to encourage the influx of European skill and capital, applied to the improvement of the indigenous cotton or sugar cane, &c., or to the raising a foreign and better species, by judicious and well-considered leases, to *bonâ fide* capitalists on favourable terms, similar to that granted to Messrs. Arbuthnot & Co. in Vizagapatam, and to Mr. Hudson in Malabar, and by perfecting the works of irrigation on the Godavery, and constructing similar ones on the Kistnah, inducing at the same time the influx of British capital and its outlay in such projects as the Arcot Railway, which would indicate a desire on the part of the Government for improvement, and the Presidency will prosper. By these means, which would not require a very large annual outlay, for the progress of the works must be gradual, the country will at an early date advance steadily, if not rapidly, and it is not easy to understand why measures of this nature, involving comparatively so small an annual expenditure, should be postponed.

21. The Government of India, in closing their letter, state their concurrence in the views expressed by the Honourable Court, and urge upon this Government the duty "of sparing no exertion to bring the public expenses down to the level with the public income, and the absolute necessity which exists for the adoption of the utmost economy in all branches of the Administration."\*

22. The returns now submitted will, the Government hope, go far to remove the impression entertained, and it will be perhaps recognized that the views as quoted above have been founded upon an erroneous estimate of the expenditure and resources of this Presidency by the Government of India.

23. First, as regards the military expenditure. If from the excess of expenditure in the six years, 1837-38 to 1842-43, assumed by them at nearly 30 lacs per annum, the amount of military disbursement not properly chargeable on this Government, as shown in the return from the Military Auditor-General, and from the statements prepared in the Military Department of this office, be deducted, it will be manifest that instead of alleged increase there has been, so far as the Government of Fort St. George is concerned, a decrease in military charges of not less than 16½ lacs within the last 10 years, from 1836 to 1846, and that the *bonâ fide* military expenditure of this Presidency at this date, 1846-47, is not larger than in 1836.

24. Adverting to the facts, that the land revenue is still increasing rather than diminishing, and that a large saving has been lately made in the civil charges, by the abolition of the provincial courts, and of principal collectors, the Government of Fort St. George see no sufficient foundation for the further statement that Madras must be "dependent on external means for support." And whilst this Government would counsel a wise economy in all branches, it is of opinion that a considerable outlay of its revenues at this time on internal improvements, even if there were no surplus would prove in the end a more sound policy and more beneficial to the finances than any other course, and they would deprecate the view of its financial state taken by the Honourable Court and by the Government of India, chiefly from the apprehension that it might lead to restrictions greatly calculated to retard its general and its financial prosperity.†

25. The Board of Revenue have been called upon for information, and for a report on the subject reviewed in para. 246 of the Honourable Court's letter, and on its receipt it will be duly forwarded to the Government of India, but the Government have not thought it

\* Extract from a Letter from the Honourable the Court of Directors, addressed to the Government of India, in the Financial Department, under date the 19th August, No. 22, of 1846.

† Para. 265. It is impossible to regard the financial condition of Madras as at all satisfactory while it remains in this state; and as we do not apprehend that the resources, after deducting the transit duties, will average 480 lacs per annum prospectively, we consider that it should be the object of Government to keep the total charges, including interest, &c., within a standard of 430 lacs, an amount which was but little exceeded in the year 1837-38."

† Extract from a Letter from the Honourable the Court of Directors, addressed to the Government of India, in the Financial Department, under date the 19th August, No. 22, of 1846.

"Whenever the local surplus, therefore, falls below this sum, you may feel assured that Madras is dependent on external means for support."

it necessary to delay on that account, submitting the returns in the Military Department and the foregoing observations with the detailed returns of land revenue for the last 30 years.

Fort St. George, 3 January 1848.

(signed) J. F. Thomas,  
Chief Secretary.

Appendix (B.)

	DISTRICTS.	Wet Cultivation.		TOTAL
		Under Tanks and Nullahs.		CULTIVATION.
		Extent of Land in Acres.		Extent of Land in Acres
1	Guntoor - - - - -	21,408		7,19,004
2	Nellore - - - - -	99,522		3,79,462
3	Bellary - - - - -	90,690		18,95,717
4	Cuddapah - - - - -	87,006		12,89,073
5	North Arcot - - - - -	1,54,883		4,13,638
6	Chingleput - - - - -	1,73,022		2,41,914
7	South Arcot - - - - -	1,92,572		6,92,321
8	Salem - - - - -	51,384		7,11,886
9	Tanjore - - - - -	6,79,299		8,89,885
10	Trichinopoly - - - - -	1,26,831		4,26,235
11	Madura - - - - -	96,558		4,91,126
12	Tinnevelly - - - - -	1,66,565		7,63,987
13	Coimbatore - - - - -	67,761		14,23,429
14	Kurnool - - - - -	6,973		4,53,156
15	Ganjam - - - - -	68,203		*1,12,308
16	Vizagapatam - - - - -	12,044		*23,106
17	Rajahmundry - - - - -	1,31,024		4,15,232
18	Masulipatam - - - - -	38,562		*1,66,721
TOTAL - - -		22,64,307		1,15,08,200

\* These, and other districts with low figures, are in a great part of the zemindary where the ryots do not hold directly of the Government, and the only lands entered in this statement are those paying rents directly to the Government officers.

Appendix (C.)

No. 318.—P. W. D.

EXTRACT from the Minutes of Consultation, dated 8 December 1846.

READ the following Minute.

By the Most Noble the President.

(Here enter 25 August 1846, No. 266.)

Para. 1. The Government entirely concur in the views and in the opinions expressed by the Most Noble the President in the Minute recorded above, and think that the suggestions offered for increasing the efficiency of the Department of Public Works in all its branches are well calculated to insure the object contemplated.

2. The principal features of the arrangements comprehended in the Minute are the following:—

Firstly. That the Department of Public Works shall not form, as at present, a subordinate branch of the duties of the Revenue Board, but be constituted a distinct and separate department.

Secondly. That an engineer officer shall be selected, to be one of the two stipendiary members of the Military Board, and shall be nominated to a seat in, and become the working and responsible head of the Board of Public Works.

Thirdly. That the chief engineer will, nevertheless, continue to be an *ex-officio* member of the Board of Public Works, to assist in the discussion of all important questions.

Fourthly. That to each collectrate shall be attached an executive Maramut engineer, who should undertake, on behalf of the collector, and under his orders, all the outlays now made in the Department of Public Works.

No. 18.

No. 19.



9 at 150 Rs 1,350  
 10 at 100 „ 1,000  
 Per mensem 2,350  
 Per annum 28,200

3. The subsidiary arrangements do not require particular notice in this place; and if the general principles declared in the Minute of the President are approved by the Honourable Court, these arrangements can be carried out without difficulty. The only point for observation is the expense; and as it is proposed that the Maramut engineers shall receive in some districts 100, and in others 150 rupees each per mensem, the annual charge on this account will be but 28,200 rupees, besides tent allowance, and probably a small establishment for each.

4. Considering that the bulk of the public revenue, and the development of the resources of the country are greatly, if not wholly, dependent on the efficiency of the works of irrigation, and that the system in force for the control and management of this department, generally, is now very defective, as constantly noticed in the correspondence of the Board of Revenue in the Department of Public Works,\* the Government are of opinion that the additional expense is a secondary consideration, and agree with his Lordship that "it would be saved, not in the diminution of the outlay upon the Public Works, but in the threefold usefulness derived from them, and in the means of insuring that the large outlays annually made should not, as at present, be too often thrown away."

\*See Memorandum annexed.

5. With these observations, the Government resolve to submit the views of the Most Noble the President, and the arrangements proposed in his Lordship's Minute, for the favourable consideration and orders of the Honourable Court of Directors.

The following Minutes by the members of Council, written since the foregoing resolutions were prepared, are ordered to be recorded and brought to the notice of the Honourable Court of Directors.

Minute by the Honourable Mr. Chamier (here enter 26 October 1846, No. 337).

Minute by the Honourable Mr. Dickinson (here enter 6 November 1846, No. 338).

Minute by the Most Noble the President (here enter 21 November 1846, No. 339).

#### MEMORANDUM.

To the Court of Directors, R., No. 40, 26 September 1844	-	1. This is a correspondence with the Honourable Court of Directors on the inefficient working of the Board of Public Works.
Ditto, " " 46, 26 October " (p. 9)	-	
Ditto, P. W. 12, 16 December " -	-	
From Ditto, Rev. 12, 29 May 1845	-	
Public Works Cons., 3 December 1844, Nos. 11 & 12	- -	2. In these papers there are observations of Government on the defective system of the Board of Public Works.
Ditto, 3 " " 17 & 18	- -	
Ditto, 15 April 1845, " 1 & 2	- -	
Ditto, 5 September " 24 & 25	- -	
Ditto, 23 " " 5 & 6	- -	
Ditto, 6 January 1846, " 5 & 6	- -	
Ditto, 7 April " 13 & 14	- -	
Public Works Cons., 2 January 1844, Nos. 6 & 7	- -	3. In these papers are notices of delay, extra or unauthorised expenditure, works badly executed, or unsatisfactory explanation.
Ditto, 30 " " 4 & 5	- -	
Ditto, 13 February " 1 & 2	- -	
Ditto, 12 March " 1 to 5	- -	
Ditto, 12 April " 3 & 4	- -	
Ditto, 16 " " 1 to 3	- -	
Ditto, 7 May " 1 & 2	- -	
Ditto, 25 " " 1 to 4	- -	
Ditto, 25 " " 5 & 6	- -	
Ditto, 11 June " 7, 8, 15, 16	- -	
Ditto, 18 " " 1 to 6	- -	
Ditto, 30 July " 3 & 4	- -	
Ditto, 3 September " 15	- -	
Ditto, 17 " " 1 & 2	- -	
Ditto, 3 December " 19 & 20	- -	
Ditto, 7 February 1845, " 2 & 3	- -	
Ditto, 7 " " 17 & 18	- -	
Ditto, 25 " " 1 & 2	- -	
Ditto, 15 April " 12 & 13	- -	
Ditto, 6 May " 2 & 3	- -	
Ditto, 1 July " "	- -	
Ditto, 23 September " 5 & 6	- -	
Ditto, 7 October " "	- -	
Ditto, 11 November " 11 & 12	- -	
Ditto, 25 " " 10 & 11	- -	
Ditto, 10 March 1846, " 13 & 14	- -	
Ditto, 23 June " 3 & 4	- -	

Appendix (D.)

GENERAL REPORT of the Road Department, to the 1st May 1853.

1. THE nature of the country chosen for the several trunk roads has so frequently been remarked upon in the late Captain Best's reports to Government, that I purpose in speaking of each line in succession, commencing with the western trunk road, No. 1, to detail merely what works were in progress at the time of my assuming charge of the department, those for which estimates have since been sanctioned, the progress made in the same, noticing the large masonry works only, the extent of traffic, and adding some few particulars regarding the increased establishment, which has been found necessary as the operations of the department have been extended.

"No. 1. Trunk Road."

2. Lieutenant Forlong, of the 1st Regiment Native Infantry, the officer in charge of No. 1 trunk road, was engaged in superintending the annual repairs on an estimate of Rs. 39,178. 11. from the Presidency to Vaniembaddy in the 125th mile, and in order to avoid passing through the crowded bazaar street of that town in the alteration of the line on an estimate of Rs. 6,383. 14. from the 125th mile, to join the old road to Bangalore again beyond the Neycoondy river in the 129th mile.

3. Throughout the 125 miles, commencing from the Supreme Court limits, at the Female Asylum in the 4th mile from the Fort (measured from the Wallajah bridge) the average thickness of metal on the road in the month of March 1852 was  $3\frac{3}{4}$  inches, and the greatest thickness in any part of it, and that for a distance of 10 miles only, between the 73d and 83d miles, was  $5\frac{1}{2}$  inches, proving, as stated by Captain Best in his general Report to the 1st May 1851 (in which he observes, that in  $24\frac{3}{8}$  miles the crust was 6 inches thick, and more in  $7\frac{1}{4}$  miles), that the quantity of material worn off the road, exceeded the quantity replaced.

4. It was evident, therefore, that the annual allowance, which during the last five years had been increased from Rs. 15,610. 10. to Rs. 22,775. 12., and again to Rs. 39,178. 11. was still insufficient to keep the surface in repair in the then rapidly deteriorating state of the road; and I consequently took an early opportunity of submitting to Government an estimate of Rs. 1,16,543. 3., being a revision by Lieutenant Forlong, of one which had been prepared by Captain Best, for placing on it a thickness of six consolidated inches of metal throughout.

5. This estimate received the sanction of Government on the 1st June 1852, and the work commenced by Lieutenant Forlong has since been most actively carried on under the superintendence of Lieutenant Chauncy of the 39th Regiment Native Infantry, who was appointed to succeed that officer on his being ordered to join his regiment on foreign service in Burmah. The expenditure up to the present time has been about 94,000 rupees; those portions of the road which have been completed are now in perfect order, and much attention having been given to the side slopes and drainage, the condition of the road generally is greatly improved.

6. Probably the best criterion of its improvement may be formed from the trifling extent of damage it sustained during the late very severe monsoon, compared with former years, as mentioned by Captain Best in his general report of the department, to the 1st October 1848. The gradual improvement may be dated from the monsoon of 1846, during which no fewer than 11 bridges were destroyed; these having been substantially rebuilt, all the smaller tunnels and culverts carefully strengthened, others added to admit of the passage of water where necessary, and proper attention, as before stated, having been paid to the side slopes and drainage, I feel sanguine, that with the additional metal now being laid on, the present annual allowance of Rs. 39,178. 11. will be found sufficient to keep the surface of the road in good order for some years to come.

7. On the 23d October 1852, an estimate of Rs. 45,009. 12. 6. was sanctioned for improvements from Vaniembaddy to the Mysore frontier beyond Oosoor in the 193d mile, which provides for bridging and tunnelling the numerous rivers and streams, in all 51, which cross the line in this distance, and, an effective establishment for superintendence having been organised the works are now progressing rapidly. The expenditure up to the present time has been about 21,000 rupees.

The principal bridges to be constructed on this portion of the line are:—

The Neycoondy of	-	-	-	-	-	4 arches of 8 yards span.
The Kullaur	-	-	-	-	-	1 „ of 16 ditto.
The Natrapilly	-	-	-	-	-	3 „ of 10 ditto.
The Burgoor Malapady	-	-	-	-	-	3 „ of 10 ditto.
The Condacoopum	-	-	-	-	-	3 „ of 5 ditto.
And Cooroobahully	-	-	-	-	-	3 „ of 16 ditto.

8. In addition to the above estimates, two of trifling amounts have been sanctioned, one of Rs. 959. 10. for improving the road over the Begunhully tank bund in the 193d mile, and another

another of Rs. 424. 9., for strengthening the Cooum river bank in the 5th mile; the former work has been completed under the superintendence of the Collector of Salem, and the latter is to be undertaken by the civil engineer of the 4th division.

9. A sum of 3,100 rupees was sanctioned on the 23d August 1852 for the formation of direct bandy tracks from 13 of the principal quarries to the main line, between the Presidency and Cauveripauk, which will be of much importance, as at present the road operations are not only frequently stopped during the rains, but the price of stone and gravel is materially increased, by the bandies having to follow long winding tracks to avoid crossing deep channels, or patches of cultivated land. The surveys of these quarry tracks have been completed, and the formation of them commenced.

10. The road now comprises six divisions, averaging  $31\frac{1}{2}$  miles in extent, each being under the charge of an assistant overseer. These divisions are again subdivided into districts of six miles, in which, in addition to the head coolies, are employed, according to the amount of work, pygusts and cart conicopolies, other conicopolies are placed in charge of the quarries, and the duties of the department maistries extend over a certain number of districts, to superintend, under the orders of the overseers, either the road or masonry works, or both, according to their qualifications.

11. As new estimates received sanction, Lieutenant Chauncy's charge became so extensive, comprising, as stated in my report for December 1852, 189 miles of trunk road, No. 1, 65 miles of No. 10; the number of masonry works to be constructed between Vaniembaddy and the Mysore frontier, the formation of quarry tracks, and the charge of the several quarries, which require frequent inspection, that I was induced to solicit the sanction of Government to my entertaining an intelligent assistant to travel about with, and relieve him from some portion of his work. For this purpose, Mr. Addis, who had gained considerable experience in road making in the Coimbatore district, and who was otherwise well qualified for the duties, was appointed to the department, and is now employed under the directions of Lieutenant Chauncy.

#### "No. 2 Trunk Road."

12. Overseer Graham of the sappers was engaged as now, in superintending the construction of the Feringypett bridge of one 15 yard arch, and the annual repairs from Fraserpett, *viâ* the Sumpajee ghaut to Mangalore, a distance of 105 miles, and reports great improvements to have been effected. The repairs of the branch road from Oopinungady to Pootoor,  $7\frac{1}{2}$  miles, have been superintended by the department of the Collector of Canara, and an allowance of 200 rupees for its annual repair was sanctioned on the 23d November 1852. The only additional estimate which has been sanctioned on this road is one of Rs. 1,455. 1. for a bridge over the Huntiaur nullah of one 6 yard arch.

#### "No. 3 Trunk Road."

13. The operations on this line, on an estimate of 1,150 rupees for maintenance, from the north-western frontier of Mysore, *viâ* the Munzerabad ghaut to Buntwall, a distance of 46 miles, as well as the construction of bridges in Canara, between the foot of the ghaut and Oopinungady, on an estimate of 9,827 rupees, have been conducted under the orders of the Board of Revenue in the Department of Public Works.

On the former estimate, bills have lately been submitted to Government, amounting to Rs. 1,317. 5., for the years 1849, 1850, 1851; and on the latter, an expenditure to the extent of 9,753 rupees is proposed to be debited to the road funds, as explained in my letter, No. 207, dated 4th May 1853.

The construction of the bridge of one arch of 49 feet span, at a new site over the Conchicar Cootle stream near Buntwall, is to be delayed until the completion of the Feringypett bridge, in which will be tested the value of laterite stones as a building material for arches.

14. The additional estimates which have been sanctioned are:

Rs. 2,506. 15. 4. for making a new line of road at Buntwall from Mangalore, between the 15th and 18th miles.

Rs. 798. 12. 6. for constructing a bridge of one arch of 8 yards' span across a jungle stream at Buntwall, and

Rs. 13,589. 13. 7. for the construction of bridges in the Canara District, the particulars of which have not been furnished to this office.

#### "No. 4 Trunk Road."

15. Lieutenant Francis, of the 12th Regiment Native Infantry, who was engaged in the construction of the road from the Mysore frontier, *viâ* the Periambaddy ghaut to Cannanore, a distance of 68 miles, was, on the works being nearly completed, removed to the southern trunk road, No. 8, leaving assistant overseer Church, of the sappers, in charge, to carry on the annual repairs on an estimate of 3,400 rupees sanctioned in Minutes of Consultation, No. 238, dated 2 December 1850.

16. The only additional estimate which has been sanctioned on this line, is one of Rs. 1,398. 5. for rebuilding the Oorettee Todu bridge, of three arches of eight yards' span, near the foot  
of

of the ghaut; the cause of the failure of the original structure was explained to Government in my letter, No. 576, dated 14th December 1852. The expenditure during the year has been—6,008 rupees, and the assistant overseer reports very favourably on the state of the ghaut and road generally.

“No. 5 Trunk Road.”

17. Lieutenant Chatney now in charge of the western roads, Nos. 1 and 10, was engaged in superintending the repairs between Waliaur and Ponany, 70 miles, in the annual repairs of the same. In the construction of the road from Coimbatore to Waliaur, 16 miles, in placing additional metal on the same. In improvements between Waliaur and Ponany, and in building the Nuragumpilly bridge of five arches, 13 yards' span, and Parlakadaw bridge of 10 arches of 15 yards' span, both of which have been completed, the former at a cost of Rs. 6,518. 4.; for the latter the bill has not yet been received.

18. The rebuilding of the bridge of 26 arches of 47½ feet span of the Cauvery river at Bowany, on an estimate of Rs. 48,789. 11. has been completed under the orders of the civil engineer of the fifth division, but no bills yet received by this department, and the repairs between Perindoray and Bowany, 12 miles, have been carried on by the civil engineer of the seventh division.

19. The additional estimates which have been sanctioned are:

Rs. 4,830. 14. for repairs between Coimbatore and Avamashy, 12 miles.

Rs. 5,204. 5. for additional metal and masonry works between the same.

Rs. 1,566. 3. for repairs from Coimbatore towards Carumthimputty, 4½ miles.

Rs. 1,370. 12. for annual repairs between Coimbatore and Waliaur, 16 miles.

Rs. 13,066. 10. 4. for construction of the road between Paulghaut and Menjara, 12½ miles.

Rs. 4,781. 10. 9. for building a bridge of three arches of 10 yards' span, over the Wotapollum stream, in lieu of an old timber one which had gone to decay, and

Rs. 2,218. 14. 9. for repairs to the Chinna Nowkurray bridge, and Muddakaray road dam.

20. These works are being conducted by the departments of the Collector of Coimbatore, and civil engineer of the seventh division; and in consequence of a representation made by the latter officer regarding the want of some assistance in superintendence from the road department, overseer Downes of the Sappers was ordered, in March last, to proceed to Coimbatore for employment on Trunk Road No. 5, in the limits of that district.

“No. 6 Trunk Road.”

21. The works in progress on this road from the Presidency to the Bengal frontier were, annual repairs between Itchapoor and the frontier, 54 miles; repairs between the same, and the construction of a bridge of nine arches of 10 yards' span, over the Bimlipatam river, which has nearly been completed under the superintendence of Lieutenant Rundall, of the Engineers.

The repairs between Goomidipoondy and Ulloor, 102 miles; annual repairs between the same, and construction of the road between Madaveram and Goomidipoondy, 19 miles, under that of Assistant-supervisor Arnold of the Sappers.

22. The additional estimates sanctioned are:

Rs. 703. 4. 2. for repairs between Senkaram and Aukapilly, 12 miles.

Rs. 1,408. 1. 3. for repairs between Senkaram and Soobarum, 12 miles.

Rs. 3,688. 3. 9. for building a bridge of three arches of 10 yards' span, at the approach to the Bimlipatam river bridge.

Rs. 3,413. 7. 7. for repairs between Yellamanchelly and Cassimcottah, 12 miles.

Rs. 23,171. --. 5. for repairs from Yellamanchelly to Toonee, 25½ miles.

Rs. 21,135. for the construction of two bridges, each of 10 arches of 10 yards' span, over the Aukapilly and Toonee rivers.

Rs. 3,600; salary of an officer, at 150 rupees per mensem, for two years.

Rs. 3,210 for annual repairs from Toonee to Soobarum, 53½ miles.

Rs. 781. --. 3. for repairs in the Guntoor district.

Rs. 952. 14. for construction of the road between Yerukenjairy and Madaveram, 3 miles.

Rs. 2,974 for annual repairs between Yerukenjairy and Goomidipoondy, 22 miles.

Rs. 59,268. 5. 9. for alterations and improvements between the 47th and 79th miles.

Rs. 6,310. 8. 8. for repairing the damage done in October 1852, from the fifth to the 28th miles, and

Rs. 28,753. 7. for repairing the damage done in November and December 1852, between Tada and Nellore.

In addition to the bridges before named, the following are to be constructed:

The Pamla Kalva - - - - of 5 arches of 10 yards' span.

Mamadi Kalva - - - - of 5 arches of 12 ditto.

Kalingee Nuddy - - - - of 7 arches of 10 ditto,

and two head sluices, one of one vent of two yards' span to the Ootoo Calva, a channel from the Kunlair river, and the other of six vents of 1½ yards' span in the bund of the Woojelly tank.

23. The first nine of these estimates were prepared by Lieutenant Rundall, and the works on them will be superintended by that officer, in communication with this department, assisted by Lieutenant Magrath, of the 21st Regiment Native Infantry, who arrived in the Vizagapatam district on the 23d April last; those on the last five estimates will be conducted by Ensign Marshall, of the 12th Regiment Native Infantry, who joined the department on the 10th October 1852. Assistant Supervisor Arnold, who has been in charge of the line as far as Nellore for the last five years, was obliged shortly after being relieved, to proceed to the Neilgherry Hills on medical certificate.

24. The inundations of the rivers Corteliaur, Ponairy, and Pennaur and their channels, with the overflowing and bursting of several of the large tanks to the west of the line, again caused a great amount of damage during the last two monsoons. Nor will repairs be of any avail until the river and tank embankments are carefully strengthened, and the supply of water to the river channels properly regulated by head sluices, as represented in my Report for January last.

25. From Yerukenjairy to the Corteliaur river, a distance of 12 miles, the road has been completed, its surface metalled, all the smaller streams crossing it tunnelled, and a bridge of five arches each of eight yards' span, built over the surplus channel from the Red-hill tank, a bridge of nine arches each, of 12 yards' span, is in course of construction across the Ponairy river, and a small one of three arches, of 12 yards' span, has nearly been completed in the 20th mile. By the end of the year, the metalling, excepting over those portions where the embankments were breached during the last monsoon, will be completed as far as Goomidipoondy, 22 miles.

“ No. 7 Trunk Road.”

26. On this road, which branches off to Hyderabad from No. 6, a little north of Ongole, no estimates for work have yet been submitted.

“ No. 8 Trunk Road.”

27. Captain Heathorn, of the 3d Regiment Native Infantry, who was in charge of the southern Trunk Road No. 8, from the Presidency to Trichinopoly, was obliged shortly after my joining the department, to proceed to sea on medical certificate. On the 26th April 1852, Lieutenant Tireman, of the 4th Regiment Native Infantry, was appointed to succeed him, and on the 29th October 1852, Lieutenant Francis was directed to take charge of the line from Vickravandy to the Oopaur river, near Semiaveram, a distance of 95 miles, Lieutenant Tireman's charge extending from Palaveram to Vickravandy, 80½ miles, and thence to the lower Coleroon anicut, 62½ miles on Trunk Road No. 9, on which latter, beyond the marking out and the preparation of materials for the Wallajah and Vuddavaur bridges, no work had been commenced.

28. On No. 8. The works in progress under Lieutenant Tireman's superintendence were :  
Completing the construction of the road from Chingleput to Vickravandy, 53 miles, and from Vickravandy to Oolundoorpett, 30 miles.

The annual repairs between Palaveram and Vickravandy, 80½ miles.

The construction of a causeway across the Oopaur river, near Semiaveram, which has been completed at a cost of Rs. 5,401. -. 7.; of a bridge of 5 arches, of 10 yards' span, over the Chinnaur river, of which the abutments and piers were built before the last monsoon; and the annual repairs and metalling of the road from Vickravandy to Oolundoorpett. These last three works have now been placed under Lieutenant Francis, and the Chinnaur bridge, which was nearly completed, having unfortunately been destroyed by an unexpected fresh in the month of March, before the centerings had been removed, has to be rebuilt.

29. The works under Major Lawford, civil engineer of the 6th division, were :

The construction of the road between the Coleroon and Cauvery rivers, 2½ miles, and from the Coleroon river to Semiaveram, 5½ miles.

The construction of a bridge of 32 arches of 15 yards' span, over the Cauvery river, near Trichinopoly.

Of a bridge of 38 arches of 20 yards' span, over the Coleroon river, near Trichinopoly.

And the annual repairs between Semiaveram and Trichinopoly, 8½ miles.

30. The estimates since sanctioned are :

Rs. 42,099. 5. 9. for the reconstruction of 22 arches of the Coleroon bridge.

Rs. 1,937 for annual repairs between Semiaveram and Trichinopoly, 8½ miles.

Rs. 378. 11. for embanking the Oopaur, near Semiaveram.

Rs. 47,667. -. 6. for the construction of the road between Oolundoorpett and the Vellaur river, 29 miles; and of

Rs. 57,263. 10. 4. from the Vellaur to Semiaveram, 36 miles.

Rs. 31,709. 12. for a causeway across the Paular river, near Chingleput, and

Rs. 25,000, for repairs between Moosree and the Salem boundary of these works; the three first have been conducted under the orders of Major Lawford; the two second are in progress under the superintendence of Lieutenant Francis, the sixth under that of Lieutenant Tireman, and the last is to be carried on under the directions of the civil engineer of the 5th division.

31. The rebuilding of the Coleroon bridge has been completed, but the bills not yet furnished to this department. The embankments and formation of the line generally from Oolundoorpett to the Oopaur river, are progressing rapidly under Lieutenant Francis, and by the end of the present year, the greater number of the smaller masonry works, with the abutments and piers of the larger bridges, will be completed. The principal bridges on this portion of the line are:

The Yeringee	-	-	-	-	-	8	arches	of 10 yards' span.
Chepaukum	-	-	-	-	-	7	"	of 10 ditto.
Oorungoor	-	-	-	-	-	1	"	of 7 ditto.
Vapoor	-	-	-	-	-	1	"	of 8 ditto.
Chinnaur	-	-	-	-	-	5	"	of 10 ditto.
Jungle stream	-	-	-	-	-	1	"	of 5 ditto.
Ditto	-	-	-	-	-	1	"	of 6 ditto.
Agarum	-	-	-	-	-	1	"	of 12 ditto.
Jungle stream	-	-	-	-	-	1	"	of 5 ditto.
Ditto	-	-	-	-	-	1	"	of 6 ditto.
Ootatoor	-	-	-	-	-	1	"	of 12 ditto.

and the Vickravandy bridge, of five arches of eight yards' span, particulars regarding the destruction of which, during the last monsoon, were submitted to Government in my letter, No. 189, dated 21 April 1853, has to be rebuilt.

"Trunk Road No. 9."

32. Which branches from No. 8 in the 94th mile, near Vickravandy, follows a direction nearly due south, and crossing over the Vellaur and Coleroon rivers at the sites of their anicuts, is continued on to Combaconum, a distance of  $75\frac{1}{2}$  miles, where it joins the high road from Trichinopoly, to the coast road from Negapatam to the Presidency.

33. The construction of a bridge of 19 arches of 31 feet span, over the Vellaur anicut, under the superintendence of Captain Heathorn, was completed previous to my joining the department, and Major Lawford is about to submit a plan, which, in connexion with other improvements to the Coleroon anicut, will provide for bridging it. Of the Vellaur Bridge, four of the arches at the north end fell in March last, the portion of the anicut under them having been destroyed during the floods in that month. Arrangements are being made for restoring the anicut, and if the work is completed sufficiently early in the season, I shall hope to get the piers rebuilt before the monsoon, leaving the arches to be turned next year.

34. The construction of the road from the Lower Coleroon anicut to Combaconum, 13 miles, of two ferry boats for crossing the Coleroon river, and of a head sluice to the North Rajah Voikal, to provide a roadway at a cost of 4,000 rupees to the department, have also been conducted under the orders of Major Lawford. An annual allowance of Rs. 300. 8. was sanctioned in Minutes of Consultation, No. 118, dated 27 March 1852, for the maintenance of the ferry boats, for which bills are furnished by the Collector of Tanjore.

35. The marking out of the line between Vickravandy and the Lower Coleroon anicut, a distance of  $62\frac{1}{2}$  miles, was completed on my joining the department, and the preparation of materials was in progress for the construction of a bridge, of one arch of 60 feet span, over the Vuddavaur channel, and of one of five arches of 10 yards' span over the surplus channel from the Wallajah tank.

36. The estimates since sanctioned are:

Rs. 3,240. for repairs between the Lower Coleroon anicut and Combaconum, 13 miles.

Rs. 49,150. 8. 6. for the construction of the road from the Geddalum river to the Lower Coleroon anicut, 43 miles; and of

Rs. 48,094. 12. 4, from Pauprumpett to the Geddalum river,  $19\frac{1}{2}$  miles.

The works on the first of these estimates are in progress under the superintendence of Major Lawford, and on the two latter of that of Lieutenant Tireman. The abutments of the Vuddavaur bridge, and abutments and piers of the Wallajah bridge, were completed before the last monsoon, and the turning of the arches, with the construction of all the smaller masonry works, as well as the embankments throughout, will be completed by the end of this season.

37. The principal bridges on the line, of which the abutments and piers only will be built before the monsoon, are the—

Pumby	-	-	-	-	-	of 2 arches	of 10 yards' span.
Aullungaul	-	-	-	-	-	4	" 3 ditto.
Mullataur	-	-	-	-	-	2	" 10 ditto.
Comaramungalum	-	-	-	-	-	1	" 5 ditto.
Poolavanoor	-	-	-	-	-	1	" 5 ditto.
Wallajah	-	-	-	-	-	5	" 10 ditto.
Old Vuddavaur	-	-	-	-	-	2	" 5 ditto.

The expenditure during the year has been Rs. 27,850. 11. 11.

## "Trunk Road No. 10."

38. Branches from No. 1 in the 71st mile, and crossing the Poinay River at Trivellum, continues on by Chittoor, the Moogly ghaut, and Palmanair, to the Mysore frontier, where it joins the high road from Nungly to Colar, a distance of 65 miles.

39. The construction of this road was conducted under the personal directions of Captain Best, the works on the death of that officer being carried on by Lieutenant Forlong, under whose superintendence the Palmanair bridge of five arches of 12 yards, the Eroowarum bridge near Chittoor of five arches of eight yards' span, since destroyed by the floods in March 1853, as reported in my letter No. 180, dated 18 April 1853, and the other masonry works were completed. On the departure of Lieutenant Forlong to Burmah the charge of the line was made over to Lieutenant Chauncy, who is now engaged in completing the works on the original estimates, amounting to Rs. 74,042. 5. 5., in superintending the annual repairs on an estimate of 6,813 rupees, and in rebuilding the Eroowarum Bridge.

40. From Arcot to Chittoor, 27 miles, bridges over the Poinay river at Trivellum and the Eroowarum near Chittoor, being the only two wanting on the whole line from the Presidency to Bangalore, the road is in excellent order; between Chittoor and the foot of the Moogly ghaut, 14 miles, some few portions require to be improved, for which funds are available, but the work has necessarily been postponed till the rains set in. The Moogly ghaut and road from its summit to the frontier, 24 miles, are also in very good order, and I have no doubt that by the end of the present year the whole line, with the exception of the two bridges before mentioned, will be perfectly completed.

## "No. 11 Trunk Road."

41. This trunk road, in the late superintendent's reports, has been spoken of as the one from Madras to Bellary, *via* Sholingurh, Damulcherro ghaut, Goorumconda, and Hundy. Anuntapoor; but the estimates and accounts for the Goolcherro ghaut, and improvements of the road from Baukrappett having been numbered the same, I have thought it better to define the road from Madras to Cuddapah as No. 11, more particularly as by the order of Government, contained in extract from Minutes of Consultation, No. 392, dated 6 December 1852, the construction of the line to Bellary is to remain for future consideration, in consequence of the projected railway to that station.

42. Eventually, on the railway being extended from Méuit to Trivellum, it may be considered advisable to continue the road from Damulcherroo as far as Chittoor only, to join No. 10, as proposed in my letter, No. 190, dated 22 April 1853, in which case No. 11 will be comprised between Chittoor and Cuddapah, its continuation being by No. 10 from Chittoor, to Raneepett, and thence by No. 1 to Madras.

On my assuming charge of the department, the only work in operation was the improvement of the Goolcherroo ghaut, under the superintendence of Lieutenant Hemery, of the Engineers, on an estimate of Rs. 14,592. 11., and the expenditure, up to the present time, has been Rs. 14,732. 8. 6.\*

43. The estimates since sanctioned are :

Rs. 600 for the annual repairs of the Goolcherroo Ghaut.

Rs. 11,881. 7. 10. for improvements between Damulcherroo and Kulloor, including the Ghaut; and,

Rs. 16,903. 1. for the construction of the road from Baukrappett to Cuddapah.

On the first of these the repairs were carried on up to March 1852, by Lieutenant Hemery, since which a small establishment has been kept up to attend to the side drains, avenue trees, and other trifling works, and Assistant-overseer Dameram, of the Road Department, has now been sent to Cuddapah, to construct the road from that town to Baukrappett, and to continue the repairs of the Ghaut.

44. On the improvements to Trunk Road No. 1, on the estimate of Rs. 1,16,543. 3. being completed, Mr. Addis's services will be available for carrying out the second of these estimates, and I shall hope in the course of next year to see the work well advanced. In addition to the above, a sum of 15,000 rupees was sanctioned on the 14th August 1852, for clearing jungle and removing impediments to the common cart traffic on the Chitwail Valley road to Cuddapah; the work to be superintended by the departments of the civil engineers of the second and fourth divisions.

45. In carrying on the several works of the Road Department much valuable assistance in superintendence has been received from the departments of the collectors of Canara, Coimbatore and Salem, and of the civil engineers of the 1st, 3d, 6th and 7th divisions, and I cannot speak too highly of the services of my assistants, Lieutenants Tireman, Chauncy, Francis and Marshall; my opinion of the abilities of Captain Heathorn and Lieutenant Forlong was made known to Government on those officers being withdrawn for a time from the department.

46. I have

\* The excess of Rs. 139. 13. 6 was received by the sale of unserviceable tools, and the expenditure received the sanction of Government in M. C. No. 311, dated 21 September 1852.

46. I have also every reason to be satisfied with the conduct generally of all the overseers, but more especially of Serjeant Arnold, Corporals Graham, Brown, Jolliffe, Church, Hopkins and Goodchap, Ordnance Artificer Dameram, and of Assistant Overseers Wakefield, Shopman and Ramanjoolo; Assistant Overseers Booth, Beveridge, McCarthy and Lawrence, who have lately joined the department from the artillery, also promise well.

47. Accompanying this report are maps of the several trunk roads, on a scale of four miles to an inch, showing the positions of all the towns, villages and large bridges, of which mention has been made, one map, on a scale of  $20\frac{3}{4}$  miles to an inch, showing the relative positions of the roads, statements of the estimates sanctioned, advances drawn, balances of estimates, bills sanctioned and ready for sanction, and of the outstanding balances, from the first formation of the department to the 1st May 1853, with a general summary of the same, a prospective statement of expenditure for the year 1853, 54, a statement of traffic, and one of the marches I have made from December 1851 to May 1853.

48. It will be observed, by comparing the general summary contained in statement No. 14 with that submitted to Government to the 1st May 1852, that the estimates sanctioned during the past official year amount to Rs. 5,38,980. 1. 8., the advances drawn to Rs. 4,13,468. 1., and the bills sanctioned to Rs. 4,54,115. 11. 8.; of the expenditure no exact account can be given until bills for the several works executed are received, but the advances may be taken as an approximate amount.

49. I have been endeavouring to procure correct returns of traffic on the several trunk lines, a comparison of which, with the periodical reports furnished to my office on the condition of each mile of road, will in the course of time enable me to judge correctly of the annual amount of outlay required for repairs. This at present I am unable to do, partly on account of the traffic returns hitherto furnished at irregular intervals being very incomplete, and partly from not having as yet received a sufficient number of reports from which to form an opinion as to whether the roads generally are properly maintained.

50. From January 1852 to May 1853 surveys on a scale of eight inches to one mile, extending over a distance of nearly 400 miles, have been completed, each mile occupying a separate sheet, according to the arrangement of the late superintendent, on which are shown an extract from the field book of the surveyor, and elevations of the several masonry works, large and small. A very intelligent maistry, by name Annasawmy, has been employed exclusively on this duty, and the surveys, carefully made, have been plotted by him with a great degree of neatness and exactness.

51. The establishment for European superintendence which, on my first joining the department, consisted of 1 superintendent, 3 assistants, 1 assistant supervisor, and 14 assistant overseers, in all 19; has now been increased to 1 superintendent, 5 assistants, 1 second assistant, 1 assistant supervisor, 2 overseers and 19 assistant overseers; in all 29.

C. C. Johnston, Captain,  
Superintendent of Roads.

Superintendent of Roads' Office, Camp,  
Aurumbauk, 28 June 1853.

#### Appendix (E.)

##### MINUTE

LETTER from the Commission on Public Works, 21st November 1851; Extract from the Proceedings of the Board of Revenue, reporting upon the same, 15th January 1852.

1. THE Commissioners propose, in the above communication, that the Government should at once abolish the separate Road Department, established under the orders of the Honourable Court, by their despatch of 23d September 1845, and revert to the former system, by again placing the whole of the Presidency roads under the charge of the Board of Revenue, Department of Public Works, and of the civil engineers of the districts.

2. I concur entirely in the opinion recorded by the Right Honourable the President and the Honourable Mr. Elliott, that the proposed change is open to the most serious objection in principle, and that it is not calculated to further the public interests. It is obvious to remark, that so long as the roads were under the charge of the Board of Revenue and of the civil engineers, little or no attention was paid to them, and, in fact, year after year passed, and nothing whatever permanent or effectual was done. The condition of the roads of this Presidency when the superintendent took charge of them is thus stated in the Honourable Mr. Chamier's minute of the 5th February 1845: "The state of the roads in the interior, with the exception of the Great Western Road, is discreditable to the Government, and detrimental to the best interests of the country; and the detention and difficulties to which troops marching are liable, are highly embarrassing to the public service."

3. Large sums of money had indeed at times been laid out by one civil engineer or another upon the roads, for instance, in the northern division; but whether through the neglect of the Board, or that one engineer did not take the same view of their importance,



or of the line selected, or of the mode of construction as his predecessor; the result was that, under the Board and the civil engineer, the money expended was wasted, and the Presidency was without a really good road.\* No systematic attempt indeed appears to have been ever made, through a series of years, to form great lines of good road, and I see no reason to suppose that it will be otherwise in future, if the control is vested again in the Board of Revenue, Department of Public Works, and the civil engineers.

4. The only line of trunk road made prior to 1845 was, as Mr. Chamier<sup>†</sup> noticed, the great western line, running to Bangalore; and this was done by taking this road out of the charge of the Board and of the civil engineers, and placing it under the exclusive control of officers responsible for it; at one time of the chief engineer, and afterwards of a separate officer (Captain Worster).

5. The Honourable Mr. Chamier also observed, and as it seems to me justly, in the same minute, para. 4., that there is nothing in the education of the officers of engineers "which particularly qualifies them for road-making;" there would not appear, therefore, to be any necessity for placing the roads under them, and it may be questioned whether practical experience in this particular department of work is not as necessary as mere scientific acquirements.

6. I can scarcely myself doubt, looking at the extent of the duties imposed upon a civil engineer, that if the great western road and the great southern line, two roads of primary importance, and both, for a long distance, within the same division, had depended for their execution upon the engineers of the division, they would not have been done at this hour; and if they are now to be left to be kept up by that officer, it will be at the cost of other important works; but if this be not the case, and his general duties are attended to, the Government will then constantly have, as heretofore, the just excuse offered for all omission and waste of funds, that it was not practicable for him to be responsible for those roads, as other works, which did not admit of delay, called him away at the moment when he should have been on the road, supervising the work going forward under his subordinates. Whilst the Board, it is certain, will deem that plea all-sufficient to exonerate the officer from responsibility; and the past irresponsible and defective system, if it can be called a system, would resume its full force.

7. Concurring also fully in the view taken by the late President (see Marquis of Tweeddale's minute, 21st January 1845, para. 4 †), of the duties of the superintendent, it is, I think, evident that if these duties are to be well and ably performed, it can only be by an officer who has this one separate and exclusive charge, and who will be content to take in hand at one time no more than he can thoroughly perform. These details never can be properly worked out, I believe, by the engineers of the divisions, who are not permanently attached to any one division, and whose hands are already more than full.

8. The very first instance adduced by the Board of Revenue, Department of Public Works, of improvements effected on the roads by the civil engineers of divisions, irrespective of the road department, viz., the Parumbaddy ghât, appears to me to disprove their view. This ghât was only made by withdrawing the officer entirely from his duties as a divisional officer, and by restricting him exclusively to the road department, showing, as I think, clearly that the divisional duties of an engineer are incompatible with the special duties required on large and important roads.

9. Again, in the case of the Coleroon bridge, also cited by the Board, it was only because the chief calls upon the civil engineer happened to lie in the immediate proximity of the site of the bridge, that he was enabled to undertake the charge. This exceptional case further demonstrates, therefore, that the civil engineer cannot ordinarily take the supervision of important road work and attend at the same time to his proper duties, and that the trunk roads must and ought, as a general rule, to be a separate charge.

10. I consider the Board to be in a great degree in error in their estimate of the work performed and the progress made by the late superintendent of roads. It was of course necessary, in the early stage of his duty, that he should prepare his way rather than undertake, with the limited number of subordinate officers in his department, at the same time, several lines of road in various parts of the country. His error was, in my view, in attempting too much in this way. But the rules prepared by Captain Best, drawn in part from his own experience, and in part from communications with the officers in charge of roads at the other Presidencies, and his numerous reports, show the mass of preparatory work performed; and much of this, it may be safely stated, the Board of Revenue had neither the time nor were in circumstances ever to accomplish; and I much question,  
looking

\* Salem is an exception; but here the roads were formed by the Collector and his assistants, and not by the civil engineer—nor under the Board's supervision,—but even, I take it, without their cognizance.

† "So that it may be seen nothing is proposed to be undertaken without every detail and particular connected with it having been ascertained. To secure this, the foundation of the proposed line must be examined; the levels taken; the quality of the material tested of which it is to be made; plans for the site and construction of bridges prepared; the best mode of under-drainage explained, and determined on; and every part connected with its formation, or the material to be used in its construction, should be specified in writing, accompanied by plans regularly executed in accordance with the specifications."

looking at Captain Johnstone's late report,\* whether there has not been fully as much done by the Road Department as could be expected, or was anticipated; for it will be seen, on reference to Lord Tweeddale's minute,† para. 20, that he limited the department, in the first instance, to three main roads.

\* Founded on Capt. Best's papers, &c.

† 21 January 1845.

11. It may be as well to notice here, that the Commissioners in assigning as the grounds of their proposal the altered character of the Road Department, "under recent orders," are but imperfectly acquainted with the subject on which they treat. They observe in para. 2 of their letter: "The great defect in the constitution of the Road Department was, that it was required to be not simply projecting and controlling, but executive also; and this with very inadequate agency; and thus there was laid on the superintendent an accumulation of duties, beyond the powers of any individual whatever to discharge in a satisfactory manner. The practical evils found to result from this system, led the present Government in October 1850, to direct Captain Best to confine his movements, and give his best attention to the three roads of limited extent, and comprised within a comparatively small compass, which roads it was considered, would occupy the full time and attention of himself and his assistants. These orders were reiterated in January 1851, with the addition, that Captain Best should confine himself to the execution and completion of such great lines of road only as he could personally and efficiently inspect; and that no portion of any of the trunk roads on which workmen were engaged, should be for any period beyond a few days left without a personal supervision of the superintendent of roads or one of his assistants, these assistants being only two in number." And the Commissioners add, para. 3; "These orders totally changed the character of the Road Department; it ceased entirely to be what was intended at its creation."

12. These statements appear to me inaccurate, and at variance with the records. In one of the earliest orders of Government, 2 April 1846, para. 1, it was remarked, when refusing the superintendent a large office establishment, "Independently of the heavy charge it would create, a large establishment of this nature is open to exception, as tending to take the superintendent from his more direct and immediate duties, the constant personal supervision of the works under his care; and to constitute him rather the head of a fixed office establishment, when he would be superintending the routine office duties of an establishment. This would not meet the views of Government, as it is the object of his Lordship in Council to keep the Road Department a practical working department, rendered efficient by undertaking no more at one period than can be readily and thoroughly superintended, and by securing for all works, the constant personal supervision of the European heads of the department; and he is of opinion, therefore, that the establishment should be such as can move without difficulty under the superintendent." I can see no difference between these early orders and the recent instructions of Government referred to by the Commission, who would appear not to have read the records.

13. On their further proposal that the Government should at once nominate an assistant to the Secretary to the Board of Revenue Department of Public Works, they have grounded it almost entirely upon the supposition that the superintendent of roads would, or could be immediately abolished by the Government without a reference to the Honourable Court. If this should not be the case, there are clearly no funds available for the salary of the assistant secretary, and the proposition of the Commissioners necessarily falls to the ground.

14. I should, however, under any circumstances, consider it better to await their full report on the department before any change is made; but as I have no doubt that the secretary is now overburdened, some aid might perhaps be given in attaching an efficient uncovenanted assistant to the department, and this may be even eventually a better course than the withdrawing a young officer of engineers from the active duties of his profession, at a time when the services of such officers are greatly needed in the provinces.

6 March 1852.

(signed) *J. F. Thomas.*

#### Appendix (F.)

The facts of the case, as stated by the Board, are as follow:

No. 570.

EXTRACT from the Proceedings of the Board of Revenue in the Department of Public Works; under date the 3d August 1848.

1. IN the first of the papers above recorded, the Board of Revenue are required to call upon Captains Ditmas, Bell, and Birdwood, the three officers engaged in planning and building the bridge over the Cavery at Bhowani, to submit such explanations as they may have to offer in reply to the statements made in Lieutenant-Colonel Lawe's report. These explanations the Board are further required to lay before Government, with their own opinion on the subject; and at the same time to furnish an estimate for rebuilding the bridge in the manner proposed by the chief engineer.

2. The explanations received from the three officers above mentioned are contained in the four papers next recorded. Captain Ditmas, who is represented when acting as civil engineer in the division "for a short time to have drawn out an incorrect section of the river, it having been measured in a loose and careless manner," states in his first letter, that though he considered the sections taken by him "to be nearly correct, he never should have permitted them to be made use of without being verified and tested previous to their adoption;" and again, that "he made them merely to enable him to judge somewhat regarding the cost of bridges, should they hereafter be proposed." These, however, were not the views of the Board, to whose instructions Captain Ditmas does not appear to have adverted in framing his reply. In the letter despatched from this office on the 18th April 1844, he was requested to prepare plans and estimates for the bridges, and to forward them to Captain Bell for transmission, and it was added, "that the difficulty of obtaining memoranda regarding the sections of rivers, and the practicability of bridging them made it very desirable that the data should be recorded with care." The Board not deeming the first explanation satisfactory, referred a second time to Captain Ditmas, who, however, did not consider it advisable to make any change in his original statement, and adduced additional reasons to show that his section could not be considered in any other light than the one in which he had described it.

From Capt. Bell to  
Capt. Best, 6 July  
1844.

3. Upon these sections, such as they were, Captain Bell prepared the plans and estimates of the two bridges. In his reply to the requisition of the Board now under consideration, he observes, "that in submitting them (*i. e.* the original plans and estimates) to the Board he distinctly stated that they had been prepared by him upon the sections and rough designs sent to him by Captain Ditmas;" and again, that he had "never had an opportunity of examining the (Cavery) river when accurate observations could be taken." He however did repair to Bhowani, and made such observations on the locale as circumstances permitted. The only point for determination between him and Captain Ditmas is, whether the sections and drawings transmitted by the latter officer were in such a state as to justify the preparation of working plans and estimates upon them without further surveys and measurements of the site, a point which can only be satisfactorily settled by professional men. Captain Ditmas' letter of 30 May 1844, certainly conveys the impression that his operations had been interrupted before he had been able to bring them to a satisfactory conclusion. Captain Bell, however, has observed that "the sections of both rivers" in Captain Ditmas' plans being "drawn on the same scale for heights and distances, the line of rock clearly traced, and the elevations of the bridges shown in pencil outline," he concluded that Captain Ditmas' remarks referred only to the incomplete condition of the drawings, not to the actual observations on the rivers, which he must have been aware could not have been repeated for a twelvemonth. It is due to Captain Bell to state that this Board appear to have viewed the matter in the same light, and with the concurrence of their late professional colleague, in whose sagacity, judgment and scientific knowledge long experience had taught them to place the highest value, to have submitted them to Government without a suspicion of their insufficiency. It may be added, that the bridge across the Bhowani was constructed on these very plans, and the success of the undertaking may be learned from the chief engineer's recent report to Government, in which it is stated "to have been finished, of a good height, and handsome appearance."

Para. 1.

4. The remarks of Colonel Lawe, as applicable to Captain Birdwood, refer,

1. To his having deviated from the sanctioned plan on his own responsibility.
2. To his having failed to report his proceedings regularly, so as to allow of their being checked and rectified in the progress of the work.
3. To his having adopted faulty expedients and erroneous methods of construction in the instances in which he departed from the approved plan.

To Governor in  
Council, 1 August  
1844.

5. With regard to the first point, it must be explained that the project was first submitted to Government exactly as received from Captain Bell, but the consideration of it was deferred pending the receipt of certain information regarding the general expenditure on public works which the Board have previously been desired to furnish. This plan, as approved by the Board, provided for the construction of 24 arches in the Cavery, and nine in the Bhowani bridge, the piers for all of which, it was supposed, would, with a single exception, rest on a rocky foundation. When, however, the subject was again brought forward after the interval of a twelvemonth, a second plan and estimate prepared in the Board's office for the Cavery bridge was likewise submitted, which, by allowing 11 arches of 62 feet, would, it was supposed, obviate the difficulty occasioned by the interruption in the supposed series of rocks to be employed as foundations. Both it was added were laid before the Governor in Council "in order that the design which hereafter might be found most easy of execution might be then adopted. In other respects it is not of much consequence which may be preferred, as there is no doubt that the large and small arches may be built with equal success under proper superintendence." Allowance was likewise made in the revised estimate for strengthening the piers of both bridges at the recommendation of the chief engineer, but the Board considered that discretion still remained with the civil engineer to act upon the suggestion or otherwise, according to circumstances. When Captain Birdwood came to carry the project into execution, he found that the bed of the river was not

To Governor in  
Council, 4 August  
1845.

not

not correctly represented in the plan, and that it was not only of greater breadth, but that there was no continuous line of rock to serve for foundations, the section, as explained by Captain Ditmas, not having apparently been carried across in a straight line. He therefore found himself compelled, as he has shown, to adopt one of the sanctioned plans, by some modifications to the altered circumstances of the case. These consisted in the addition of two arches to the original design, and of 18 inches to the span of each arch, the piers being left of the dimensions originally approved. The additional strength to the piers to correspond with this slight increase to the span of the arches would have been, according to Captain Birdwood's statement,  $2\frac{1}{8}$  inches, which being in his opinion quite insignificant, no allowance was made for it. He also made use of that description of structure which to his judgment appeared best calculated to afford a secure basis for the piers.

From Capt. Ditmas,  
19 April 1848.

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MINUTE by the Right Honourable Sir *H. Pottinger*, Bart., G.C.B., Governor  
and President in Council.

Section I.

1. THE Commission, of whose proceedings the ample volume on which I am about to remark forms the First Report, was constituted in February 1851, in conformity with instructions from the Honourable the Court of Directors.

2. The members nominated to it by the Madras Government, were Mr. Bourdillon, of the Civil Service, Collector of North Arcot; Brevet-major F. C. Cotton, of the Engineers, Civil Engineer of the 7th Division, and Brevet-major George Balfour of the Artillery, Stipendiary Member of the Military Board.

3. I think it proper to specify the names and stations of these officers, with reference to observations which I have made already, and shall have to make on their Report. They were directed to include in their inquiries, "The whole subject of the superintendence and execution of Public Works," and as they state that they began those inquiries in March 1851, and their Report was handed up to Government in December 1852, it is observable that they were occupied a year and three quarters in its compilation and arrangement, a fact which may possibly, in some small degree, account for what I am forced to pronounce its perplexing and inconvenient verbosity; and which I conceive might have been advantageously avoided by compressing all the matter that is really useful in the Report into, at the outside, one third of the space it occupies.

4. The Report has been divided by the Commissioners into sections and paragraphs, and I shall endeavour to follow a similar course, with the object of ensuring perspicuity, as well as easy reference, as far as relates to the limited criticisms I design to make upon it. I use the term limited, partly with advertence to the extremely elaborate form which the Commissioners have thought it expedient to adopt in their proceedings; and of which I have above expressed my opinion; but chiefly with due regard to the very able and careful examination of these proceedings, into which my honourable colleagues, the civil members of the Madras Government, have minutely entered, and whose minutes I have had the advantage and privilege of reading, whilst placing my own final sentiments on record.

5. It is almost superfluous for me to say that the perusal of those minutes has been both highly interesting as well as satisfactory to me. It has given me a share of the benefit of the great local experience and knowledge of the honourable writers of those documents, who have necessarily, in the course of their long service in the Madras Presidency, gradually acquired a matured measure of information on every question connected with the past and present administration of its affairs; to which, notwithstanding the most earnest and sedulous application of my time and energies, since I have been at the head of the Madras Government, I am sensible I cannot pretend. I gladly avail myself of this opportunity to avow the obligation I feel, in this respect, to my honourable colleagues; and although I have incidentally seen cause to dissent from their views, and shall doubtless find like occasion in the course of the present minute, I always have felt, and shall feel, that such differences are merely matters of wholesome diversity of official sentiments, which is well calculated to elicit a sound and decision on the points at issue.

6. But to drop this digression. On a copy of the Report of the Commissioners being first sent to me in a printed form, about Christmas 1832, I read it rapidly, though carefully through; making at the time marginal notes, some on points for inquiry, and some regarding points the inaccuracy of which obviously required refutation. Matters remained in this state till April last, when the Report was transmitted to the Home Authorities and the Government of India; and as up to that period I had been prevented, owing to unceasing and heavy calls of business on my time and attention, from even partially placing my individual sentiments in official shape, I deemed it advisable to explain, by a short minute, the circumstances which had led to the delay on my part, and likewise to state in a few words the general impressions which I had formed upon it. This minute will be found in Appendix (A.)

(A.)

7. I have now further to state that in a recent reperusal and careful examination of the Report, which I have just accomplished, I have not discovered the smallest reason to recall or modify those impressions. On the contrary, the more closely I have looked into and studied the tenor and bearing of the Report, the more convinced have I become that its tone is wholly unprecedented and unjustifiable; that it assumes on behalf of the members of the Commission, the unheard-of and unreasonable pretension of weighing and condemning "the actuating motives and real feelings of Government with regard to its measures for the improvement and amelioration of the country;" that that assumption is, in numerous instances, upheld by misrepresentations, as well as by the studied omission of matter that would have demonstrated them to be such; that even where facts are cited and admitted, they are disguised, as far as possible, in garbled and partial extracts and statements; that in no single instance that I can discern, are the arguments on both sides of the question fairly and candidly brought to bear on the topic immediately under discussion; that in what I conceive to be the preposterous tautology of many parts of the Report and its Appendix, the strictures and quotations which the Commissioners evidently fancied to be exclusively calculated to establish their views, besides throwing discredit on Government, are repeated to a tiresome and perfectly useless extent, whilst it cannot, I apprehend, fail to be evident to any one who may take the trouble to read the Report, that the observations and explanations of Government on the opposite side, are entirely eschewed and left out of sight. I therefore unqualifiedly subscribe to a remark, which I see has been made by the Honourable Mr. Thomas, that "it is difficult indeed to understand how, if the Records of Government had been fairly examined by them, the Commissioners could permit themselves to record these statements;" and to this remark I will add, from myself, my personal assurance that a great deal of the Report was devised and got up to serve particular purposes, and not at all framed for the information or enlightenment of Government, who are in various parts of it designated with a degree of contumely and undisguised contempt, for which I can trace no motive but to insult; which I also pronounce, after the experience of a very long public life, to be quite unique, and which I deem to be deserving of the strongest reprehension, and to require to be at once put down, as a baneful example in any public service.

## Section II.

8. I now turn to a consideration of the Report, on which for the reasons I have already stated, and because I see no use in swelling these papers by repetitions, my remarks will be as concise as is consistent with clearness.

9. The second section contains a summary history of the past and present state of the Department of Public Works under the Board of Revenue; and it is self-evident, from the ample details which are offered, that the department urgently demands speedy reform, as well as a very large increase to the officers of all grades and classes who are to be employed in it. I must, however, observe that it occurs to me, that whilst the Commissioners invariably depreciate everything that has been effected of late years, and captiously enlarge on deficiencies and defects, they not only fail to point out, in practical reasoning, how those deficiencies and defects could have been obviated, with the circumscribed means which this Government has had at its disposal, but actually are reduced to contradict their own favoured postulate, by admissions which they are constrained to make as to the very want of means, to which I allude.

10. Had

10. Had the Commissioners felt inclined to deal fairly with questions before them, they would, in the first place, have recollected that for some years past, the exigencies of the State rendered it expedient for the highest authorities to restrict the public expenditure to the narrowest scale; but this they not only have esteemed it befitting to overlook, but have taken on themselves to lay the whole blame on Government, whose bounden duty it was to obey the commands of their superiors; have stated in unequivocal language, that expenditure on the roads had almost always been an unwelcome subject with Government, who had discouraged the submission of projects of improvement; an assertion which, as well as that, that the Board of Revenue have frequently urged on Government, with very scanty success, the necessity for giving them more assistance in their office, I distinctly pronounce, so far as I am concerned, to be at variance with the truth.

(B.) and (C.)

11. A great many valuable and requisite hints, relative to the future formation of the establishment of the Mahramut Department of this Presidency, are to be found in the section of the Report on which I am treating. I am myself strongly in favour of a great extension of the European subordinates in that department, as being far more energetic, active, and trustworthy than natives. I am, of course, well aware that the service of Government cannot be carried on in this or any other department without the agency of the latter; but I fully coincide with the Commissioners, that men like the superintendents and maistries, who form a necessary ingredient in the general good management of the important, though minor, duties of the departments to which they are attached, should be better educated, better paid, and better cared for than they now appear to be.

12. I cannot, however, at all approve of the suggestion of the Commissioners, that the overseers ought to have the power of fixing the price of all articles, and providing the materials that are required for works going on under their superintendence. They will, of course, see that no inferior materials are used, and they will pay the people, or at least see that that is properly done, which will secure full and prompt payment to the workmen, and thereby effectually put a stop to the highly objectionable practice which is said to exist, of the civil engineer's retrenching the workmen's wages, even months after the work has been executed.

50.

13. I cannot pass over in total silence the inflated attempt which the Commissioners have got up, when speaking of the European overseers, to establish that they had been unfairly treated, and were therefore in a state of discontent and despondency. The members of the Commission seem to have thought this topic held out too inviting an opportunity to be missed of indulging in their usual invective; but it is to be noted that they must have known, full 18 months before they handed up their proceedings, that the Madras Government had obtained the sanction of the Supreme Government to what was thought to be a proper measure of promotion for the overseers at the time, and yet they allowed their mis-statement to stand in the text of their Report, accompanied by a footnote which rather aggravated their original comment. The fact is, as I have before asserted, they would appear to have began writing on one exclusive principle, that of vilifying Government, and eventually had not the good sense and right feeling to modify their errors, so that, in this case, what might have been assumed to be a mistake at first, became, in the result, a positive deviation from fact.

45.  
52 to 54.

14. I have no means of knowing to a certainty whether the European overseers and other subordinate classes of the Public Works Department, are, in Madras, worse off than similar grades under the Bengal and Bombay Presidencies; but, should it be so, I most unhesitatingly recommend that in the contemplated revision they should be placed on the same footing precisely. In saying this, I beg to add that I do not believe that any promises were ever made to the overseers by Government, who alone had power to either make or fulfil them.

52.

15. I agree with the Commissioners in all they say on the subject of compulsory labour, as well as the causes of it, on which I had occasion to express my strong opinion formerly, and the means of preventing it. I also fully concur in their views respecting the superintendents of Mahramut, the talook maistries, and the excellent plan of apprentices, which appears to have been successfully introduced

66 to 74.

76 to 90.

duced by Captain Horsley and the late Captain Best, and which ought most certainly to be persevered in until a more enlarged and comprehensive system can be fashioned, and introduced generally for the Madras Presidency. Such a system I trust will be shortly sanctioned by the authorities on whom it rests, in compliance with the urgent advice and solicitation of this Government, which have been long since submitted.

91 to 106.

16. I have given my best consideration to the observations of the Commissioners on the orders and rules promulgated by Government, under date the 31st of January 1851, together with the reply of the Board of Revenue, of the 10th of April following. The Commissioners, as the Honourable Mr. Elliott justly observes, "entirely overlook that those rules were proposed as a temporary provision, to make the most of the existing establishments, until the thorough reform of the Department of Public Works, which had been submitted for the consideration of the Government of India, should be authorised."

17. I will not needlessly swell this Minute by combating the somewhat intricate and very lengthened reasons assigned by the Commissioners for disapproving of those rules; I will content myself by saying, that if, as I am persuaded is correct, they were advisable at the time they were issued, they are still more applicable to the present conjuncture, and therefore I earnestly recommend that they be strictly enforced until a final and better arrangement can be introduced in their stead. It is almost superfluous to observe that this can only be effected by a large and universal augmentation to the existing establishments.

18. In the foregoing paragraphs of the Commissioners' Report, from para. 96 to the close of this section, there are instances, in my estimation, of the usual amplification and distortion of the motives and intentions of Government, conveyed in supercilious language; but as I differ altogether from the conclusion at which the members have arrived, I purposely refrain from offering any refutation of the assertions to which I advert.

Section III.—*Review of the Condition and Treatment of the Roads in former Times, and of the Working of the Road Department.*

107 to 124.

19. The paragraphs of this section numbered in the margin do not appear to demand any particular notice from me; they contain an epitome of the state of the roads in the countries comprehended within the limits of the Madras territory from an early period, and show the attempts that had from time to time been made to form and improve them, including a small experimental cattle railway or tramroad that was sanctioned, from Madras to the Red Hills, and which did not succeed.

20. In the year 1845, the Road Department was, for the first time, formally constituted under the sanction of the Honourable the Court of Directors, at the recommendation of the then Governor, the Marquis of Tweeddale. The sum of four lacs of rupees annually was set apart to be expended on trunk roads only by the Government of Madras, without reference to higher authority, and the orders and instructions which were then issued and laid down for the guidance of the able and excellent officer who was appointed to be the head of the department, were, I have grounds for knowing, through my personal intercourse with him, in a great measure framed at his own suggestions. The great error I saw in them when they first came under my consideration was, that they promised too much at their early introduction; but, with competent establishments and sufficient superintendence, I now hold that they are perfectly practical and the best that can be devised for the duty to be performed; it being my decided opinion, as I observe it is that of the Honourable Mr. Thomas, that the Road Department should be kept distinct from all others, under one officer, who shall have nothing else to think of or attend to.

131.

21. I note that the Commissioners speak of the incongruities which they have described, and assert that they have inevitably led to the total failure of the Road Department. I wholly repudiate this assertion as applicable to present circumstances. I did at one time myself freely admit that it had failed in the high hopes which were at first held out regarding it, but it has been subsequently admitted that the difficulties of introducing it had not been sufficiently foreseen and

and estimated, and that the very commendable willingness and zeal of Captain Best himself had chiefly led to that mistake, from his undertaking what has been demonstrated by experience to have been impracticable. I would likewise here remark that I entirely concur in the opinion offered by the Commissioners, that the employment of the civil engineers of divisions in executive duties on the roads has been a very great evil in every respect, and I am at a loss to understand how they came, with these views, to propose that the trunk roads should be replaced, even as a temporary measure, under those officers. *See Appendix (C.)*

163.

(C.)

22. The Road Department has now, I conceive, been placed in good working condition, and should on no account be disturbed or incorporated with any other; the only precaution that seems to be required is to afford the officer at the head of it, who has hitherto given the utmost satisfaction by his efficient proceedings and management, every available assistance he may ask for, whether in assistants or subordinates; and, that being done, I cannot myself perceive any reason to apprehend but that all the expectations that can be fairly indulged regarding it will be gradually and perfectly realised. I therefore am most strongly opposed to the idea of the abolition of the department, as advised by the Commission.

164.

23. I will only reiterate, in closing my remarks on this section, that, adverting to the statements in the last report of the superintendent of roads, of the 1st of May 1853, which, in my estimation, wholly refute the assertion that Government had never recognised the value of roads, and remembering how much has been done, in spite of the unforeseen difficulties and impediments that have occurred to impede the progress of the department, I am forced to denounce this portion of the Report of the Commissioners to be wilfully overstrained and hypercritical, and, consequently, greatly calculated to mislead.

107 to 168.

Section IV.—*Engineer Department under the Military Board, with Suggestions, &c.*

24. It is quite unnecessary for me to attempt to follow the Commission through the details of this section which may have their use for such as wish to make themselves acquainted with them; but, after the experience I have necessarily acquired, during the period I have been at the head of the Madras Government, of the working of the Military Board, I beg to state my unqualified opinion, an opinion, I may observe, which will be borne out by reference to innumerable condemnatory remarks which I have had to make on its proceedings, that it has been, and is, not simply inefficient for the duty assigned to it, but that it has invariably been, and is, a clog to public business, and ought accordingly to be forthwith and finally abolished.

169 to 205.

25. I was led to fancy, when I first came to Madras, that the chief objects of having such a Board were to expedite and promote the rapid performance of the duties of the officers who are subordinate to its authority, and further, to assist Government by its advice and judgment on every occasion when they might be required, more especially with respect to questions of outlay and expenditure in the Department of Military Works. Instead, however, of these objects being attained through the medium of the Board, I have experienced exactly the reverse; delay and ineffective supervision have been the marked feature of the Military Board's procedure in great as well as in small matters, and in some very important cases it has acted in such a mode as almost to lead me to believe that it was throwing impediments in the way of the orders of Government solely to force them to adopt its recommendations.

26. One very striking instance I think it worth while to note; it is connected with the long delayed and difficult subject of the drainage of Black Town. Government had issued, after years of anxious discussion, their final orders. The Military Board neglected to give effect to them, and when called on for explanation as to the delay, represented that they were about to submit a project which could not fail of success, and which would be far more effectual to the desired end than any other scheme that had been devised. Government waited patiently until the project was sent up by the Military Board, and I then looked into it most carefully, and recorded my opinion upon it. It has since remained in abeyance, and is, I perceive, quoted as a proof of the disinclination



(D.) of Government to sanction outlay. I need scarcely say that this is not correct. I showed my well-considered reasons for differing from the asserted feasibility of the project, as well as from the extraordinary views which the Military Board built upon it, but beyond that I did not oppose it. I am very glad to be able to conclude this topic by recording my sanguine hopes that the desideratum of the drainage of Black Town, so far as it is possible, is likely to be shortly accomplished, not under the auspices of the Military Board, but through the suggestions of the justices in session, aided by the judicious directions of their officiating assessor and civil engineer.

196. 27. My opinion is that the future duties of the Military Board, as it is now termed, should be confined to the Ordnance Department, under a field officer of artillery, with a secretary and an assistant secretary, should the work be found too much for one person. This I do not however imagine is likely to be the case. The detail of the chief engineer's duties will best be defined by the local Government when the proposed abolition of the Military Board is perfected. In the meantime I cannot help saying that the enumeration of that officer's tasks, in connexion with the Public Works Department, carries with it, in my eyes, an air of ridiculous exaggeration, and tempts me to inquire, if he be relieved from them all, what will be left for him to attend to.\*

#### Section V.—*Proposal of a New Board of Public Works.*

28. Before I had an opportunity of reading the Honourable Mr. Thomas's remarks on this section I had made up my mind to dissent personally to the new Board, which the Commissioners have recommended shall be established, and I was therefore gratified to find that my ideas corresponded with those of that gentleman.

29. I have witnessed so much unnecessary trouble and delay from the existence of Boards since I have been at Madras, as well as elsewhere previous to coming here, that I am strongly opposed to any such arrangement. Even had I been inclined to favour a Central Board to sit at the Presidency, I should certainly have voted against the contemplated third, or civil member, whose nomination to it I should have felt to be not simply useless, but actually pernicious, as introducing into the whole plan an element of constant opposition and strife, nor can I recognise one compensating motive for this proposal. The civil member cannot be expected, unless perchance in a few isolated cases, to have the intimate knowledge of the peculiarities of each district, which it is to be presumed will be possessed by the respective Collectors, and in the event of his not agreeing with the recommendations which they support, it follows that Government will have to be referred to, and in all likelihood will, after lengthened delay and much unsatisfactory correspondence, be constrained to decide in opposition to the views either of the local authorities, or those of the very officer whose special duty it would be to advise.

30. I am however, as I have said above, adverse to a Board in any shape, as striking at the root of that most essential point, personal responsibility; and after mature and deep reflection I cordially adopt the suggestion of the Honourable Mr. Thomas, that the Presidency should be divided into four convenient divisions, to each of which an engineer officer of rank and experience should be appointed under the appellation of general superintendent, who should constantly be on the move within his own range, consulting with the officers stationed in the different districts that compose it, and who, having satisfied himself by personal examination of the desirability and advantage of the works that may be pointed out and recommended to his notice by the local functionaries, should thereupon report his sentiments direct to Government, whose province it would then become to sanction their execution, or to call for any additional information or explanation that might seem to be requisite. In highly important projects,  
which

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\* Note.—Since this was written, I have observed in paras. 198 and 199, the proposed future duties of the chief engineer. I differ from the 1st, 2d and 3d clauses of para. 198, and from the 4th, 5th and 6th of para. 199. The 1st clause of the former para. strikes me to contain an unprecedented proposal, subverting all rule of authority.

which are certain to involve a very heavy outlay, and respecting which the Government should happen to entertain doubts, it has occurred to me that two, or even more, of the general superintendents might be directed to assemble in committee on the spot to confer together, and to report the result of their deliberations. This expedient should however, I conceive, only be had recourse to in suitable and peculiar instances.

31. Having unconditionally rejected the recommendations of the Commissioners, relative to a new Board of Public Works, it is perhaps supererogatory to notice the rules for its procedure which they have laid down. I nevertheless deem it worth while to direct attention to them, as exhibiting the extraordinary anomaly of the Government of a country being virtually placed out of sight in considering plans for its control and good management, if we except indeed the irksome duty prudently reserved to the Governor in Council by the 3d rule of the 231st para., of acting as mediator and moderator of the doubtless frequent dissensions and disputes of the members of the ill-digested Board and its co-ordinate partners in authority. It had not escaped my notice that something, very much to the same purpose, is advanced in a foregoing para., attended by the customary misstatement and sneer, in making which it has been entirely overlooked by the Commissioners that Government were the fittest judges of what was proper, and moreover, had sufficient reasons for withholding their ready assent to proposed outlay. Of those reasons one very cogent one will be found in a memorandum which I wrote on the 24th of May 1850, and to which I likewise add other instances. See Appendices (F.) (G.)

231, 232.

219.

(E.)  
(F.)  
(G.)

Section VI.—*The value of Irrigation to the Revenue, &c.*

32. I concur with my honourable colleagues that this section contains a great deal of matter of the highest importance, but at the same time I am bound to add that that matter has been spun out by a vast quantity of redundant quotations, some of which I conceive to emanate from loose and very questionable authority, interspersed with overstrained and, in many places, erroneous and even contradictory statements, to an extent that greatly deducts from its value, and is in no respect called for in a fair and honest examination. The Commissioners indeed seem to me to have set out, in the composition of this section of their Report, with a predetermination to concoct what might be technically termed a strong case, and this has, I think, led them into wearisome repetition and disquisitions on points on which I can trace no system of opposition to their views.

33. I cannot, for instance, suppose that there is any one who doubts the value, both to the Government and people, of works of irrigation in a country like Southern India, where local and sometimes very extended failures of the periodical rains are of frequent occurrence, attended with much wretchedness, and even dire famine; but whilst I willingly go hand in hand to this extent with the members of the Commission, I advisedly assert that I hold the inference which they try to establish to be altogether erroneous, inasmuch as I distinctly deny that there has been any, however minute, want of due encouragement on behalf of Government of late years towards works of irrigation, where the means of giving effect to well-considered plans were forthcoming, and the recommendations, whether from the Board of Revenue or the executive officers, came up with proper explanation and estimates, for the want of which latter I have, I allow, often personally withheld my support, because I did not choose to take the initiative in what I must always consider a highly objectionable mode of carrying on Public Works, by making advances for purposes on which Government had had no sufficient information. Besides this strong argument, it ought likewise to be borne in mind that throughout the whole period that I have been in my present office this Government had to obtain the sanction of superior authority to any expenditure exceeding a limited sum, and this fact necessitated that it should not merely be assured of the expediency of the proposed outlay, but that it should be enabled to assign reasons to satisfy others.

34. Great weight is very naturally and properly laid by the Commissioners on the admirable results of the improvement and extension of works of irrigation in Tanjore and elsewhere, and no one with common sense would, I should

(H.) say, venture to gainsay them. This Government has certainly of late evinced  
 (L.) its hearty conviction of their almost incalculable benefits, by its earnest recom-  
 (J.) mendation in favour of the construction of anicuts on the Kistnah and Palar  
 rivers, as well as by its unlimited encouragement of the "gigantic undertaking,"  
 now in progress on the Godavery river. With regard to this latter, whilst I  
 unfeignedly trust that it will more than realize all the best anticipations and  
 aspirations set forth by the Commissioners and its projectors, I should be acting  
 hypocritically did I not confess that I have always had my misgivings of its  
 permanent stability and consequent perfect success. I hold it to be an under-  
 taking absolutely without parallel in this or any other country on earth; and  
 when I recall the almost incredible violence which I have myself witnessed the  
 Godavery river exert when in high flood at points possibly a thousand miles  
 above where the anicut on it is built, and further reflect that that overwhelming  
 force is inevitably increased many many hundred fold before its action reaches  
 that magnificent structure, erected on an artificial foundation in a vast plain of  
 unstable alluvial soil and sand, my reasoning faculties compel me to doubt if any  
 combination of art and science will effectually and safely restrain the physical  
 power opposed to it. I however reiterate my very anxious and most sincere hope  
 that my apprehensions will prove groundless, though it is due to myself to add  
 that recent accounts of damage done by the last inundation in the river have  
 rather tended to strengthen them.

293. 35. The Commission have dwelt, in an enlarged form, on the effects of the  
 disastrous famine which occurred in 1833, which fell with peculiar severity on  
 the collectorate of Guntoor, and it is impossible to overrate its hapless effects;  
 but they seem to me to have been here introduced and expatiated on, with the  
 chief object of attempting to establish that it was a consideration of the profit  
 and loss of the cost of an anicut on the Kistnah river that influenced the views  
 of Government. Nothing was ever more distant from the truth, and the delay  
 (H.) which occurred in its commencement, after it was approved of by the Honourable  
 Court, was solely caused by the engineer officer at the head of the Godavery  
 anicut (Lieutenant-colonel Cotton), declining to spare any of the officers  
 employed under him. I stated expressly on this refusal coming before me, that  
 I would not attempt to withdraw any of those officers, which would, of course,  
 have been made a handle for complaint; but even with this delay, the work was  
 in full operation many months before the Commission stated, "with much pain,"  
 that it had been indefinitely postponed. I leave those who may peruse these  
 remarks to draw their own conclusion from them. It is unnecessary for me to  
 designate what it amounts to.

298 to 301. 36. So far as I am informed, I look on the prolix discussion in the paras.  
 noted in the margin, as to the fear of a want of a sufficiency of labour, to be quite  
 gratuitous, seeing that I had never heard of that fear until I saw it spoken of in  
 the Report. For the same reason, I dismiss, unnoticed, the remarks of the Com-  
 missioners as to the ryots coming forward to cultivate where irrigation is provided,  
 (J.) unless prevented by too high an assessment on the land, which I fancy is a truism  
 universally admitted; but as to the declaration that the civil engineer had  
 experimentally shown the ryots that cotton can be grown successfully on their  
 311. nunjah land, it would, if correct, be so gratifying a fact, that I am sorry to say  
 I believe it to be a mistake. Major Lawford did himself try certain experi-  
 ments in growing cotton by means of irrigation, but the specimens of the  
 produce which he sent to the Horticultural Society at Madras were pronounced  
 worthless, and I always understood the thing fell to the ground.

316 to 319. 37. I am at a loss to comprehend what the Commissioners had to do with the  
 financial questions touching the circulating medium, and the Accountant-  
 general's bills on the district treasuries, which in no way appertain, so far as  
 I can perceive, to the Department of Public Works; and are moreover, long  
 ago, and fully provided for. The sudden transition from those extraneous points  
 to the culture of rice, cotton and sugar, to the publication of information, and to  
 the opening of new roads, seems quite out of place here; and those topics are  
 again immediately followed by some dogmatical remarks on the mohiturpha tax.  
 321 and 322. These instances of forward assurance tend, in my estimation, to demonstrate,  
 323. what I have before had cause to observe, that a great deal has been purposely  
 put forward in this Report, foreign to the duty assigned to the Commission, and  
 introduced

introduced solely as the groundwork of tacit insinuations, that everything demanded their attention and reforming hand.

Section VII.—*Roads of the Presidency and Harbours.*

38. The Commissioners begin this section by assigning their reasons for the details which they propose to give on the subject of it; and whilst I am perfectly willing to admit that there is considerable force in many of the opinions and facts they have collected and brought to bear on the topic, I will only premise that the whole appear to me to be studiously exaggerated; and that assertions are made to uphold that exaggeration, which are not authorised by facts.

324 to 376.

39. I observe, for example, in the very first paragraph of this section, that it is declared that "an effort must be made to put the Madras Presidency more on a footing with the rest of the civilised world in this all-important particular." If this remark is intended to be applied to other portions of India, I deny its fitness, because I believe that at this hour there is as great a proportion of serviceable fair weather roads within the Madras territory, as in any one of the other Presidencies. In recording this belief, partly grounded on personal observation, and partly on information gleaned from inquiry and printed reports, I am far from meaning to dispute that there is a vast field for both extension and improvement on this score; but I must qualify even this admission, by coupling it with the same extenuatory explanation that I propounded in remarking on "Works of Irrigation;" namely, that as much has been of late years effected with regard to roads, as the means at the disposal of Government rendered feasible.

324.

40. In the matter of a road from Samulcottah\* to Cocanada, on the refusal to sanction which the Commissioners have largely expatiated, I conceive that Government were perfectly right, as well as respecting that proposed from Russelcondah and Aska. In the former case, the chief objection was the attention of Captain Orr being diverted from the all-important works under his supervision at the Godavery anicut; and in the latter a second-class road appeared to me to be all that was needed; as I take this opportunity, once for all, to assert, in plain contradiction to the opinion of the Commissioners, that trade does end, and has always ended, when the rainy season begins, not merely in the Madras territory, but in every quarter of India where the monsoon prevails.

336.

337.

41. The remarks on the roads of Chingleput seem to me to be penned in the worst taste. It happens that the collector does not come up to the desired mark of the Commission for total condemnation in his Report upon them; and therefore his sentiments are scouted, and occasion is seized to state, that cart drivers are fined if they pass along the gravelled road. When this was alleged, the Commissioners must have known that the road referred to leads to the coast road to Pondicherry and Cuddalore, which it had been decided to abandon, and which was actually superseded by the southern trunk road more inland, and that even admitting the asserted rule to be in force, which I do not, Government had nothing to say to it.

354.

42. It is to be noted, that the assertion made regarding water communication in Malabar is both distorted and incorrect. The civil engineer (the second member of the Commission), had grossly failed in the superintendence of a very important work entrusted to him, and which has not been completed to this day: and I accordingly declined to afford him a pretence for showing additional neglect on more important works. That which is here remarked upon has been since ordered to be carried out.

370.

43. The comparisons which the Commissioners strive to get up in this section, and in other parts of their Report, between the size and extent of districts under this.

\* Note.—In a Report just received from the Board of Revenue, it is notified that in consequence of adopting the bank of a canal lately cut, the road originally proposed between Cocanada and Samulcottah, will not now be required; so that if the estimate had been sanctioned when it was laid before Government, the expenditure would have been wholly thrown away. But the Commissioners' own words, as given in para. 275, page 110, of their Report, afford substantial reasons for the course pursued by Government, which in para. 336, page 134, they have inconsistently condemned.

383. this Presidency and the United Kingdom, with the object of drawing inferences from them, are so far fetched and inappropriate, that I hold them to be unworthy of comment; and with reference to the allegations which are so undisguisedly uttered in the 383d para., it seems only expedient I should here observe, that they betoken, in my conception, great meanness of mind, and absence of proper feeling.

44. The distorted and shortsighted arguments of the Commission relative to what they term the "Surplus Ferry Funds," much surprise me; they are described as a valuable means of local improvement, which Government has intercepted, and swept into the Treasury; and yet in no district, except Malabar, are they found to have been nearly equal to the expense incurred on ferries. It is, I see, admitted to be close on 40 years since the Honourable Court authorised the ferry funds to be set apart for building bridges, providing ferry boats, &c., but I look on it to be pretty evident that the outlay was meant to be limited to the receipts, and that the local Government have, consequently, during this long period, exercised a degree of liberality not contemplated by their superiors. At all events, all I can say is, that I now, for the first time, have learned the purport of the Honourable Court's orders.

394. 45. I have recently had cause to look carefully into the present state of Cochrane's Canal; and I heartily coincide in the measures which are in contemplation for its general improvement, as well as extension, though I dissent from some of the details that have been proposed, as will be seen in the Appendix. (K.) The improvements would have been begun upon, in real earnest, long ago, but for the want of a qualified officer to superintend them.

400 to 406. 46. The introduction by the Commissioners of their notions on the salt revenue seem to me to be of a piece with those relative to the circulating medium, Accountant-general's bills, &c., on which I have before animadverted, as being equally obtrusive and useless.

407 to 425. 47. I have no intention of attempting to follow the Commissioners through their very lengthened observations on roads. I have already declared my unqualified acquiescence in the advantages of, and necessity for, their great extension and improvement. I have likewise said that the trunk roads seem to me to be now progressing very favourably, and that I think they could not be under a better system of management. But with regard to the number, length, and description of roads proposed in the "outline of a general system of roads," I hold them to be beyond the bounds of reason, if not of possibility; and I also think that the deductions and calculations arrived at and formed upon them, embracing the dogmatism, that the present classification of roads must be abandoned, and the opinions of Messrs. Boothby and Wight, acted on, though opposed to sense and experience, as to the necessity for roads being rendered equally serviceable throughout the year, are mere idle declamation formed to deceive, and grounded on error and quibble, of which a notable proof is afforded when speaking of the traffic on the Palghat line, which is said to have fallen off in the rainy season, not from rain, but from the "muddy" state of the road, as if there ever had been a road in any part of India that did not become muddy from rain.

407.  
467.  
412.  
423.

#### *Harbours of the Presidency.*

431 and 432. 48. The assertion with which this portion of the seventh section opens, viz., that the harbours have been neglected, is doubtless true to a certain extent; and the reasons assigned for that neglect are, in my ideas, shown to have been the want of officers to afford practical information and supervision. It is also quite true that I objected to the trifling expenditure spoken of, as "indispensably necessary to keep the new passage open" at Cocanada, both because I was convinced, from the plan submitted to Government, that it could not have had that effect; and because Captain Orr, the civil engineer, had more duty of high urgency and importance than he could attend to at the Godavery anicut. (L.) A Minute which I append, will demonstrate, however, that the delay exclaimed against in this and other instances has been erroneously laid at the door of Government.

433 to 439. 49. I should be very happy could I join in the flattering anticipation which appears to be entertained, that the Godavery river will be found navigable, and capable of being adapted to purposes of trade, but that I cannot candidly do. I expressed

expressed my doubts, to the same purport, when a plan was two years ago agitated for exploring the river. Even then I declared that I considered the experiment worthy of public support, and proposed that it should be strongly recommended to the Government of India. This recommendation has been since acceded to; and has, in truth, been partly put to the test, but I lament to have to say, that nothing that has yet come before me, either privately or officially, has tended in the least degree to shake my original impression. I will only add, that I warmly trust I shall be proved, eventually, to be in error, though I do not expect such a satisfactory result, judging either from my former or more recent information on this highly interesting topic. The closing observations of the Commission in this paragraph I esteem to be mere superficial conjecture, without an iota of proof to uphold it.

439.

50. The ports of Masulipatam, Negapatam, Cuddalore, Porto Novo, and Cochin are next noticed by the Commission. The mismanagement evinced in the effort made to improve the former some years back, is slurred over very discreditably; and the eventual failure attributed to "subsequent neglect," while it is notorious that nothing was accomplished with the large sum expended; and neglect could not be exhibited towards nothing.

440 to 445.

440.

51. My opinions relative to the three ports on the Coromandel coast will be found in the annexed Appendices. I do not mean to adduce them as conclusive on either side of the question, but they will vouch for my habit of judging for myself, and that I do not hastily pass opinions. The Commission should have stated the probable expense of opening up the harbour of Cochin. I have visited that port twice in my life, and have never understood till now that such a scheme was thought possible; I must therefore be permitted to doubt it, notwithstanding Lieutenant Selby's favourable opinion. The bank, which is formed outside that port, seems to be an appendage of every river in India, that disembogues directly into the sea. That off the Indus now extends out of sight of land, though it is well known that vessels of war, as well as merchant ships, used, within the last century, to sail into the river; and several of the largest bunders, or sea ports, which were vast marts of commerce in former times, are now perfectly inaccessible even to boats of the smallest size, except in the very highest floods. Those who talk so glibly of restraining great and unexplained natural causes by dredging machines and other trifling human expedients, would do well to ponder on these facts.

Cuddalore (M)  
Negapatam (N)  
Porto Novo (O)  
441 to 445 (P.)  
446 (Q.)

52. With the record of my most cordial concurrence in the opinions of the Honourable Mr. Thomas, as to the desirability of both a pier and a breakwater at Madras, I take leave to say, that I deem the very notion of either one or the other being effected by private enterprise of the people of Madras to be an illusion. One of the earliest steps I took, on assuming charge of this Government, was to recommend and obtain an Act of the Legislative Government for a pier, and the instant it was promulgated, those who had been clamorous, and loud regarding the delays of Government, set about discovering some pretence for abandoning the scheme, which was accordingly done. I recommend that, should one or both be attempted again, only professional scientific men of tried talent, from Europe or America, be employed.

Section VIII.—*Proposed Scheme of Expenditure on Works of Irrigation and Communication.*

53. It seems to me that the Honourable Mr. Thomas is quite right in his view, that the Commissioners, in this section, only reiterate and enlarge on the views of the Madras Government, as enunciated in 1848; and as I cannot agree that those views are opposed to what has been practically acted on, I deny, at once, the axiom which is attempted to be established, that "there is the narrowest and strictest economy in refusing trifling outgoings from the Treasury, combined with the same practical disbelief, as of old, in those general truths which point to the sure means of vastly augmenting the income."

54. I have before expressed my sense of the necessity for, as well as benefit that must result from, a greatly increased expenditure on works of irrigation; and I have no objection to offer to the amount indicated by the Commission when "the means of superintendence likely to be available" are realised, and when thereby the money can be expended "under able and judicious direction;"

but I am very apprehensive that both these *desiderata* can only be looked for at a rather distant day. I therefore see no good at present attainable by fixing the amount to be annually laid out, which I think will be best considered and determined upon when "the superintendence likely to be available," and "the able and judicious direction" are forthcoming. I may here anticipate my further remarks on this section, by saying that I fully agree in the opinion, that the amount devoted to Public Works should be (henceforward) at the exclusive disposal of the local Government.

492.

464 and 465.

55. I neither agree with the Commission in their sentiments, as to the item of revenue which they term "The Tank Cess," nor in the forced deduction at which they arrive. It seems, from the explanation offered, to have been wisely abolished, and incorporated with the general land revenue; and were the colouring which is here striven to be given to the transaction correct, it is strange that it should have been lost sight of by successive Governments during a period exceeding half a century. For myself, I never even heard of it till now, and I opine, that it is some obsolete matter, ripped up to cavil upon, since it can scarcely be presumed that it could make any difference in the deliberations of Government at this day.

467 to 471.

56. In the preceding section I have stated my ideas of the overwhelming propositions of the Commission on the subject of roads, as well as on the extraordinary scope of their calculations. I have no intention of analyzing the details of the latter with regard to the "outlay and saving" to be incurred and effected; but I must observe, that the heedful examination which I have bestowed upon them has absolutely astonished me, as far outvieing anything that I have ever before seen or heard of. For the grounds of this one unqualified assertion, I confidently refer to the 471st paragraph, which talks of a yearly net saving of 960 lacs of rupees in the cost of carriage.

473 and 474.

57. There are one or two other points I may notice before I close this section. I do not approve of tolls, unless under very peculiar circumstances, such as on difficult ghauts, or on bridges, over broad rivers; and even there the greatest care must be taken, to prevent their being turned into sources of extortion. I consider the cart tax in Salem to be unobjectionable. I object to this Government attempting local railroads, which, if once allowed, would certainly clash with the general plan under consideration for all India. The opinions stated in para. 480 seem to me to be contradictory, as to the people willingly making village or cross roads. Besides being contradictory, those opinions seem to me to be upheld by arguments of absolute futility and childishness, betraying a total want of knowledge of the general native character and ideas. I am wholly opposed to loans being taken up for Public Works; they will progress, I conceive, quite as fast as is desirable, through the appropriation of the overplus or available revenue. I have doubts whether steam-boats are not prohibited on canals, as being destructive to the banks. This question ought to be carefully inquired into before plans are submitted, or even any theory is built on the use of steam-boats on canals, which, instead of being "the best and cheapest species of communication" would, I suspect, prove the worst and most costly. Their being used on rivers within the Madras territory, unless for very confined local purposes, such as ferries, I hold to be chimerical. I append three important Minutes which it has become my duty to record in connexion with this subject. I leave them without comment to speak for themselves.

475 to 477.

480.

482 to 487.

491.

(R.)  
(S.)  
(T.)

#### Section IX.—*Enlargement of the Public Works Establishment, &c.*

58. Having repeatedly and distinctly, in preceding passages of this Minute, expressed my hearty concurrence in the necessity for a large augmentation of expenditure on works of irrigation and roads, it follows, as a matter of course, that the establishments to give effect to that augmentation must be increased in the like proportion; and to this extent I cordially coincide in the views of the Commissioners.

494.

495 to 510.

59. I cannot, however, say that I have derived either information or edification from what I deem their tedious and intricate dissertation on "superintendence," and of which I am unable to guess the object, unless it be to swell the Report, as I cannot discover anything in it that the most superficial observer can fail to be acquainted with.

60. One or two observations have struck me as worthy of being cited: in para. 497, the Commission say, "the very limited scale of our professional establishments compels the employment of young and inexperienced officers" in the projection of works, who, as a necessary consequence, fail to see how the object aimed at may be most cheaply and most effectively attained. In short, our engineers are unavoidably put to actual work while they ought to be only under instruction; and they gradually acquire skill and experience by a succession of errors, of which the State bears the cost." And again, "the Civil Engineer Department is looked to as the means of improving and extending irrigation, and it has already effected not a little, considering the small means placed at its disposal; but everywhere we find statements made of the insufficient strength of the establishment; and as this has been admitted by all concerned, by the civil engineers, by the Board of Revenue, by the Government, under Lord Tweeddale, and by the Honourable Court itself, it would seem hardly necessary for us to write on the subject now; but when we see that what has been universally allowed as an essential want of greater or less extent for the last 15 years, has only been nominally supplied by an addition of six subalterns to the engineer corps, we must take up the subject once again, and treat it as if it had never been understood."

497.

513.

60. Reading the foregoing quotations, and referring to the remark in another paragraph to this effect: "There has been a determined stand made against every suggested increase; and when the want of engineers, or any subordinates of the Engineer Department, has come so prominently forward, that it could not be denied or refused, the addition has been made on a scale too low for thorough efficiency, under the impression that the money spent was to yield no direct return;" it seems to my comprehension, that the Commissioners' notions are a compound of facts and sophistry, which directly go to refute each other; although the very arguments which are adduced, with evident opposite intent, clearly demonstrate, that Government exercised a sound, and in fact, an unavoidable discretion in the measures that are impugned.

510.

61. Instead of the inspecting engineers proposed by the Commissioners, I have already stated in para. 30 of this Minute, that I approve of the Honourable Mr. Thomas's plan of having four general superintendents to an equal number of divisions of the whole Presidency, to be defined by Government, and who would likewise perform the duty of a central Board. To enable the general superintendents to fully carry out their important trusts, I would advise, that there should be a civil engineer and two assistant civil engineers, as soon as they can be provided, in each Collectorate. These three latter officers as well as the general superintendents would belong to the engineer corps, to be augmented accordingly, or at least to the regular military service, if qualified candidates for such employment can be selected from it, and which I see no reason to doubt will be the case.

62. In addition to them, I would further adopt the suggestion of the Marquis of Tweeddale, which I also perceive the Honourable Mr. Thomas supports, of having an executive civil engineer, who had received a practical scientific education in England or elsewhere, and who was perfectly fitted for all the duties comprised in his designation, attached permanently to each collectorate; I would place this latter class of valuable functionaries solely under the general superintendents and collectors; and would make them entirely independent of the civil engineers and their assistants, with respect to the execution and supervision of all works entrusted to their charge and guidance. The rules, to give full effect to these arrangements, would naturally emanate at the proper time from the Governor in Council, and I need therefore here say little further regarding them, except that I entirely dissent from the views of the Commission, that that authority which can only, in my estimation, properly appertain to Government, should be in any degree "reposed in the chief engineer and Board of Works." Such an idea seems to me to amount nearly to laying Government aside altogether; besides which, I have learned nothing during my five years' residence at Madras, that should induce me to favour a proposition, which I esteem to be equally anomalous and open to the very strongest objections.

545 and 546.

63. In paras. 34. 49 and 52 of this Minute, I have offered my views on some of the projects referred to by the Commission in the 537th para. of their Report;



(U.)  
(V.)

and I need not therefore repeat them here; but I beg again, to call particular attention to Appendix (D.), which distinctly and wholly refutes the unconditional assertion, that the questions, as to the sewerage of Madras, and the provision of a sufficient supply of good water for domestic use, "have recently been indefinitely postponed by Government after some inquiry, on the mere ground of expense." I desire, by soliciting special reference to that Appendix, to hold that assertion up to the reprehension it merits, as a glaring misrepresentation. It will be seen, that I took the greatest pains to examine most carefully the scheme to which it refers, and because I did not see cause to concur entirely in it, or in any measure in a quantity of appended extraneous nonsense, the Members of the Commission have forsooth forgotten what was due to honesty of report, and have indulged in the misstatement which I have quoted above, and which I hereby denounce in plain terms.

537.

64. The insinuated threat or warning with which the paragraph I am reviewing closes, strikes me to be the very acme of absurdity. I believe there exists neither "knowledge" nor "public feeling" on any such question amongst the population of Madras; and I further believe, that were it practicable, at this hour, to ask the 700,000 people of whom that population is said to be composed, their opinion, individually, on the project so "important to their health," and "in a measure to their lives," there would not be found five indifferent persons of all classes, who had either ever heard of, or thought of it; nor one man, whose interests are in any way concerned, by its meddling with his grounds, gardens, tanks or wells who would not earnestly vote against its adoption.

537.

65. As I have stated my opinion to be against the establishment of a central Board of Works; and have also pointed out the mode which I would propose for the discharge of the duty of civil assistant, civil and executive civil engineers in the provinces; and as the whole system to be hereafter introduced must necessarily, in a great measure, hinge on the decision that may be come to on those points, it would be quite fruitless for me to enter into any examination of the comprehensive plans of the Commission for subordinate establishments. I must however say, that they occur to me to be both extravagant in allowances, and excessive in number; and did it rest with me, I would strike out the whole of the newly proposed class of sub-engineers, and reduce the overseers and sub-overseers to 50 of each class, for the whole Presidency; paying them on the most liberal scale that may be granted to the same classes in Bengal, the North West Provinces, and Bombay.

(D)

66. I agree not simply with the Honourable Mr. Elliot, that it is not expedient that Government should continue wholly dependent on the corps of military engineers for the supply of officers required for civil engineering; but I go farther, and, as I have said in para. 61 of this Minute, I think that officers from the artillery and line should be employed, in all branches of the Public Work Departments, including irrigation, roads, &c., wherever they can be spared from their corps, and are found by actual practical tests, in contradistinction to theoretical chamber examinations, which I utterly decry, to be possessed of the necessary scientific qualifications. My sentiments on this much-mooted question will be learned from the annexed Appendices connected with my nomination in December 1852, of Captain Greenlaw, of the 46th Regiment, N. I., to be assistant secretary to the Board of Revenue Department of Public Works.

67. Those documents exhibit my conclusions upon the exclusive, and, as I conceive, short-sighted policy which that Board suddenly thought fit to adopt, at direct variance with their original application to Government; which only extended to procuring an uncovenanted assistant to their Secretary. I saw no reason, as the Minutes will explain, to change my views, to conform with those of the Board, and the appointment of Captain Greenlaw took place. The result was, that the officer at the head of the engineer corps (Lieutenant-Colonel Cotton), and several junior officers of that corps, avowedly acting under the instigation of their superior, had recourse to the unprecedented and indefensible step of addressing individual memorials to the Home Authorities, exclaiming against what was arrogantly set forth to be an invasion of their prescriptive rights. For the opinion which I formed, and hold still, on that presumptuous transaction, I request that reference may be made to the annexed Appendices.

CONCLUSION.

Sections X. & XI.

68. A considerable portion of the X. and XI. Sections appears to me to be formed by repetitions of "thrice-told" exhausted topics; and in a good deal of the remainder, I cannot help thinking that the Members of the Commission have wholly gone beyond their proper field and sphere, by intermeddling with subjects with which they had no sort of concern; as well as by advancing opinions on momentous questions, which I hold to be for the special and exclusive consideration of the highest authorities alone; and those opinions, moreover, conveyed in numerous instances in offensive and presumptuous language.

69. I admit it to be true, that some useful hints may be gleaned from even these two sections, and so far they may, perhaps, be tolerated; but I confess I cannot forbear smiling when I see that the Commissioners assume to themselves the right to dictate what augmentation is to be made to the engineer branch of the Madras army: to criticise and correct the established course of education at the Military College at Addiscombe in England; to point out, and provide for the defects of the course of instruction of young officers, on their first arrival in India; and finally, to lay down rules and regulations for the establishment of an institution, on the principles of that at Roorkee in the North Western Provinces, in such terms as might, and certainly would, lead those who were not cognizant of the truth, to fancy that the Government of Madras had never before thought or heard of that institution; and assuredly, not to suspect that they have repeatedly, during the last three years, solicited authority to found a similar one under this Presidency. Indeed, it strikes me that it displays no little evidence of ingenuity in the art of subterfuge and evasion on the part of the Commission, that they should have been able to compose so many high sounding and prolix paragraphs on what they term the outline of a college; without the most distant allusion to the fact I state, and of which the members were perfectly conversant.

612 to 637.

70. I beg to conclude this subject by expressing my hope, that whenever such an institution shall be sanctioned at Madras, it may be placed under the guidance and direction of Major Maitland of the Artillery, now Superintendent of the Gun-carriage Manufactory, an officer eminently qualified for the charge; that he may be granted whatever subordinate assistance he may apply for, and that he may not be interfered with by the chief engineer as visitor, or under any other capacity or denomination; such interference being, in my judgment, certain to lead to continual and useless disputations.

71. I cordially adopt the following remark from the 84th para. of the Honourable, Mr. Thomas's minute: "I should therefore, notwithstanding the institution of a college, advocate the introduction into the Public Works Department of men from all departments, or wherever they might be found with the requisite qualifications of civil engineers, and advance such men, as Lord Tweeddale proposed, to the highest posts and duties in the Civil Department."

SUMMARY.

72. In section 11 the Commissioners briefly sum up their opinions on the different sections, and I will adopt the same course.

Section II.—*Condition and Wants of the Department of Public Works.*

73. I concur with the Commissioners that the Department of Public Works, in its present footing, is wholly unfit for and unequal to its duties; I therefore recommend that it should be at once set aside, and a large increase made to all branches of a new one, to be fashioned on a plan explained in a subsequent section.

Section III.—*Department of Trunk and other Roads.*

74. I am strongly and unqualifiedly opposed to the recommendation of the Commissioners, that the present Road Department shall be abolished. I have no objection to its being enlarged and strengthened; but beyond this, I must withhold my acquiescence, as to either the correctness or advantage of anything that is advanced by the Commission respecting the existing Road Department.

Section IV.—*The Military Board.*

75. The Military Board ought, in my ideas, to be at once abolished. I speak from my immediate personal observation and experience, as stated in the body of my minute, when I declare it to be worse than useless, and a mere cloak for official neglect, delay, and the avoidance of any shade of personal responsibility.

Section V.—*New Board of Public Works.*

76. A Board, such as the Commissioners advocate, would be, I conceive, merely prolonging the present evil system; I cannot therefore accede to it on any terms whatever. I recommend general superintendents to certain divisions of the country, which would, as I have explained, comprise personal inspection, individual responsibility, and vastly improved efficiency.

Sections VI. and VII.—*Value of Irrigation and of good Roads, Harbours, &c.*

77. I include these two sections under one head, because I have only to observe that I coincide generally with the Commission as to the value of the works to which they refer; but I neither agree in their highly exaggerated estimates for the future, nor in the erroneous deductions respecting the past. The former seem to me to depend almost solely on means that have yet to be created, and which have at no period existed within the Madras Presidency. My ideas as to harbours, rivers, canals, &c., will be fully gathered from the text and appendices, and I have nothing to add to those points.

Section VIII.—*Expenditure on Public Works of Irrigation and Communications.*

78. I can see no object to be gained, or use, in laying down at this time the amount to be expended on the works named at the head of this section. That, I think, will most conveniently and properly be left to be fixed by the local Government when proper supervision is forthcoming; I will only state that I am not myself inclined to recommend that money should be borrowed to carry on Public Works, unless in cases of evident emergency, such as are not likely to happen.

## Sections IX. and X.

79. I have nothing to add to the observations which I have offered in the body of my minute on these sections.

80. I am sorry to end this minute as I began it, by observing that I believe it to be an unexampled instance of individuals, in the station of the members of the Commission, failing to acquit themselves of a duty entrusted them, of reporting truthfully and impartially on important public matters referred for their consideration. That I cannot by any means allow they have done: in fact, I affirm that they have not only so failed, but that they have vitiated whatever may be really beneficial in their Report, by mixing it up with low contempt towards their superiors, combined with exaggerations and misstatements; so that in lieu of being perused and studied with that entire confidence which such official documents usually inspire, it will only be examined and read with distrust. I think this is much to be regretted in a public point of view. The Commission had an excellent opportunity of doing great good service, which I conceive they have signally thrown away. They may perhaps, however, gain by their procedure the applause of parties, both in Europe and India, whose standing maxims would appear to be that Government neither ever do that which is right, nor are actuated by wise and proper perceptions and motives. On the other hand, I am much mistaken if they do not lose the favourable opinion and respect of honourable and rightly-thinking men, who judge of others by that high standard that guides their own actions, whether of a public or private nature, through life.

Madras, 29 October 1853.

*Henry Pottinger.*

A P P E N D I X.

Appendix (A.)

MINUTE.

THE draft of the letter to the Government of India has just been returned to me, with certain remarks embodied in a minute of the 12th instant by my honourable colleague, Mr. Thomas.

I have not had time to devote to a complete and careful perusal of the First Report of the Commissioners on the system of Public Works, and therefore I passed the draft of the letter above denoted without comment; but as the Hon. Mr. Thomas has since briefly recorded his sentiments,\* and as they have just come back to me, and my silence might be interpreted into dissenting from his views, I beg most distinctly to say that I entirely coincide in them, and shall endeavour at some future period to show my reasons for the opinion I have formed, that this First Report of the Commissioners is one-sided; that it misrepresents the actuating motives and real feelings of Government with regard to its measures for the improvement and amelioration of the country; and therefore, that it is not entitled to that confidence, though some facts set forth in it may be well supported, which such a document should command to render it of any general practical use.

\* Minute dated  
12 April 1852.

(signed) *Henry Pottinger.*

13 April 1853.

Appendix (B.)

MEMORANDUM.

I CONCUR generally in all the remarks of the Hon. Mr. Thomas, which contain many valuable hints, and much information which will be very useful to me when the question comes finally before me.

I am still inclined to press the appointment of an efficient assistant secretary to the Revenue Board D. P. W. I do not see that it need be an engineer officer; one of any branch of the service who is qualified for the important duties that will devolve on him, even as an assistant in that department.

I know of no one myself at this moment, but I should hope some officer might be found. He would require a competent knowledge of engineering, &c., and above all, to be a good man at calculations and with his pen.

(signed) *Henry Pottinger.*

15 March 1852.

Appendix (C.)

MEMORANDUM.

LETTER from the Public Work Commissioners, No. 390, dated the 21st of November 1851; and Extract from the Proceedings of the Board of Revenue D. P. W., No. 20, dated the 15th of January 1852.

THE summary of the proposal of the Mahramut Commissioners, as contained in the first of the above documents, is so clearly given in the Hon. Mr. Elliott's memorandum of the 10th of December last, that I need not repeat it.

I observe that the Board of Revenue, D. P. W., recommend that proposal for adoption, and support their recommendation by quoting various instances in which the plan which it advocates, of placing the trunk roads in charge of the civil engineers of divisions, has worked well.

I am equally satisfied with the Mahramut Commissioners and the Board that a radical reform is urgently required in the Road Department, which I have before been unwillingly forced to declare has, as I conceive, totally failed in the high hopes that were formed of it when it was first organised on its present footing; but when I look to the unceasingly laborious and responsible duties with which the civil engineers are already charged, I cannot,

after much reflection, bring myself to think that it would be for the public good, or even fair towards those functionaries, to heap more duties on them.

Besides the above cogent reason, I see many objections to any change in a temporary form. Changes inevitably bring with them a certain degree of confusion and attendant references and delay; and as I trust we may now soon expect to receive the final report of the Committee which has been so long sitting on the Public Works Department, I strongly advise that that report be waited for, before any orders on the papers now before me are issued.

In the meantime, however, it is impossible not to see that the Secretary to the Board of Revenue D. P. W., has more work to do than he can possibly get through with every exertion; and should my honourable colleagues be of the same opinion, I am ready to apply to the Government of India for sanction to an assistant secretary being added to the Board of Public Works. The vast increase in that department of late years, and which is certain to progress, demonstrates, in my estimation, that something must be done to render it more efficient and equal to the work it has to perform; and whatever final arrangements may be decided upon, it is to me self-evident that the addition I now suggest will be one of the first steps to be taken.

(signed) *Henry Pottinger.*

27 February 1852.

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#### Appendix (D.)

##### MINUTE.

PRINTED LETTER from the Military Board, No. 723, dated the 20th of April 1853; with a Printed Collection of Documents regarding the Drainage, Waterage, and Sewerage of *Black Town*, and other parts of *Madras, &c., &c.*

THE above documents have been with me for some days past, and I had before looked into them, but it is only now that I have had leisure to read them through regularly, and put my sentiments in writing.

Whatever conclusion other persons may come to as to the varied projects which are therein developed, I am constrained to avow that I rise from a careful and unbiassed perusal of these papers under strong personal impressions that the plans they propound are all but impracticable. I conceive that the arguments brought forward in support of those plans are altogether one-sided and partial; that, whilst blinking all the difficulties and obstacles which are inseparable from an examination of this or any similar scheme, they display and extol its facilities and recommendations, and apparently assume, as a matter of course, that its objects and advantages are of certain and easy attainment.

Although, as I have just stated, I personally entertain very decided ideas of the non-practicability of the whole scheme, yet I am ready to admit that, could it be carried out, it would prove a vast boon to Madras. This admission, however, leads me to add, that I do not believe that, admitting there are no insuperable obstacles, and under the most favourable circumstances, so great an undertaking could be completed under a less cost than six, or possibly eight times the amount of the comparatively trifling sum spoken of in the chief engineer's memorandum; and therefore, before any step is taken in connexion with the matter, I deem it to be imperative that it should be submitted for the information and orders of the Honourable Court; and further, that should they be pleased to approve and authorise its consideration, the most minute surveys and estimates of every part of the work to be performed, be made and prepared by the officer who may be selected to superintend it; and who will accordingly, fully and perfectly understand, that he will be held personally responsible for their accuracy; and will not in the event of failure, whether complete or partial, be allowed to exculpate, or screen himself under the opinions and views of any other individuals.

It seems hardly necessary, with advertence to the foregoing observations, that I should enter into any details or analysis of the grounds of them, but to show that my views are not based on a mere superficial examination of the question, I will, as briefly as possible, state certain points that have occurred to me to be open to considerable doubt, and which will hereafter require to be minutely looked into.

1st. I believe that the area of the proposed tank, or reservoir, comprises a large portion of the lands of several villagers, who must be compensated for it, before it is appropriated.

2d. I have no sketch or plan of the locality to refer to, but my impression is, from having once or twice ridden over it on horseback, that the site of the intended reservoir lies on the southern and western side of the Adyar, or that at the best, that river runs along one edge of it, and I cannot at all comprehend how any bund or embankment can be formed in such a position, to overcome and resist the violence of what is frequently swelled to an irresistible and tumultuous flood.

3d. Supposing

3d. Supposing it, however, possible at a very heavy outlay to restrain the water within the area of the tank or reservoir, how is it to be raised to the top of the northern and eastern bank of the Adyar, which at the point opposite the tank, where I presume the mouth or inlet to the canal is to be fixed, cannot, I should roughly guess, be less than 100 to 150 feet high.

4th. No provision is made that I can see, for either a total or partial failure of the periodical rains, or even for what might be termed a very dry hot season, in which during the, comparatively speaking, few years I have been at Madras, both the rivers Adyar and Cooum have oftentimes ceased to flow in the least degree, and have been consequently formed into stagnant pools. In such cases, I would inquire what is to be done for water to supply the great reservoir and its appendages?

5th. Granting, however, that the difficulties which have appeared to me as above described shall be surmounted, excepting of course, those proceeding from natural causes, like the want of rain, I have the greatest misgivings as to the practical working of the chief canal; the detailed distribution of the water to the variety of purposes to which it is to be applied; the provision of ground in the thickly inhabited and populous quarters of Madras, for the beds of the multiplicity of minor channels, locks, sluices, reservoirs and cisterns; and I hold it to be quite certain, that the owners of the extensive lands, all of which are I fancy "Meerasee," and which are now kept in a permanent state of very high cultivation, by irrigation from the waters of the existing tanks, which the canal is to absorb, will never be contented to forego their immemorial rights and advantages, to meet the far-fetched and questionable project before me.

I have now stated my candid and unprejudiced sentiments, as to the proposition brought forward by Lieut.-Colonel Cotton, and here perhaps I might fitly decline any further remarks; but before closing this Minute, I feel it to be a duty I owe to the public and to Government to express my great surprise at the extraordinary course which the Military Board have seen fit to adopt, by mixing up the original subject of Lieut.-Colonel Cotton's plan with long, and I must add unmeaning, dissertations on the healthiness of Madras, as though the one chiefly depended on the consummation of the other.

In former remarks, which I have had occasion to offer on the general salubrity of Madras, when discussing the long mooted topic of the drainage of Black Town, I have said, that I consider it, looking to its extent, dense population, and natural position, the very healthiest town in India, if not in the world; and I perceive nothing in the dissertation with which we are favoured in this "printed collection," that tends to shake my confidence in that assumption.

I observe no reply from the chief magistrate, to the call made on him for his opinion on the multifarious schemes of the Military Board, in their letter to him of the 8th of November 1852; and I confess, I am inclined to applaud that first-rate public officer for his discrimination and good sense in not attempting to fathom those schemes, many of which appear to my mind to be based on downright theory, without an approach to the smallest practical reasoning.

The article under the head of "Sanitary Report on the 4th District of Madras," occurs to me to be absolutely contradictory. It sets out with stating, that "it is unquestionable that there are many circumstances in the peculiar character of Madras which are at all times predisposing to affect unfavourably the sanitary condition of its inhabitants;" and a little further on it observes, "I consider that the immunity from endemic and epidemic diseases which Madras generally enjoys, is attributable to the dry character of its climate, whereby the unhealthy influences enumerated above, are in some degree negated, but in the event of unusually humid seasons, or under that peculiar constitution\* of the general atmosphere which produces the invasion of epidemic cholera, or other disease, there can be no doubt that we possess an alarming degree of the elements likely to favour and to aggravate such visitation."

I ask any impartial person to explain what the above extracts mean. For myself, I not only differ "in toto" from the doctrine which either of them advances, but I unqualifiedly and cordially concur in the opinion laid down some time ago, by the Honourable Mr. Thomas, that there is something in the air, soil, and general features of Madras, peculiarly tending to the salubrity of its climate, and consequent healthiness of its redundant population; I will only add, with reference to a remark contained in the same paper, that I am wholly at a loss to comprehend what the clearing of the banks in the bed of the Adyar River, which flows through a quarter celebrated for its healthiness, has to do with the sanitary condition of the 4th Division. I read, with a certain portion of surprise and humiliation, the vapid attempts which are evinced in this printed collection of sensible and well-informed men, to countenance the schemes, which it has been my task to protest against.

(signed) *Henry Pottinger.*

16 May 1853.

Appendix (E.)

\* I should like to have this defined for universal information. I have met with no medical man who pretends to such occult knowledge.

(signed) *H. P.*

## Appendix (E.)

## MEMORANDUM.

THE neglect and total want of system, which have called for this Draft Minutes of Consultation, are so wholly at variance with anything that I have ever been accustomed to, that I am at a loss to express my surprise and reprobation of them. Can it be wondered at, that I hesitate to sanction new estimates and expenditure, when I find that those which have been already authorised are allowed to remain in so unsatisfactory and discreditable (to all concerned) a state? I desire, that the Accountant-general's letter and these papers may be sent to me on return from circulation, that I may consider the proper means of relieving myself personally from any further responsibility in such matters, and may suggest steps for forcing the different revenue and other officers to do their duty to the public.

(signed) *Henry Pottinger.*

24 May 1850.

## MEMORANDUM OF UNADJUSTED BALANCES.

	Rs.	a.	p.
Rajahmundry - - - - -	1,838	2	4
Masulipatam - - - - -	12,322	7	3
South Arcot - - - - -	20,942	2	9
Tanjore - - - - -	6,172	11	3
Vizagapatam - - - - -	1,344	13	1
Coimbatore - - - - -	9,098	5	4
Ganjam - - - - -	136	1	7
Madura - - - - -	20,299	15	8
Nellore - - - - -	73	8	-
Malabar - - - - -	12,646	2	5
	<u>84,874</u>	<u>5</u>	<u>8</u>

## Appendix (F.)

## MEMORANDUM.

I HAVE always declared, and I repeat that declaration, that there is only one mode of having such items settled, and if necessary, recovered. That is, by making a collector when he is first appointed to a district, immediately and personally responsible, and obliging him, as is done under the Bombay Presidency, to give a certificate to his predecessor that he has looked into and understood all the outstanding balances, and is prepared to account for them. Here we find items of charges lying over for 18 years, during which repeated changes have taken place in the Revenue Head of the Collectorate, and now Government are annoyed by lengthy references from which no possible good, that I can see, is to be expected. I recommend that the matter be dropped, or else the present collector be called upon at once to refund the disputed sums.

(signed) *Henry Pottinger.*

15 November 1852.

## Appendix (G.)

## MEMORANDUM.

I do not agree with the observation in the margin, by the chief secretary. A collector who is resolved to do his work, as it should be done, will always find time to call for, and examine, the balances; and the laxity which pervades this Presidency on the subject of accounts is to me quite surprising. In fact, were matters properly conducted, I do not see how these balances could possibly exist. In my notion, not only should the accounts of every collectorate be finally and perfectly closed at the expiration of each fusly (showing any unadjusted balances, even to a rupee—in a separate statement), but, that the accounts of each tihseedaree should be closed each month.

This

This is the only remedy to apply to these arrears. Where money is advanced to engineer, or other officers, for particular duties, it should be debited to them personally until completely accounted for. I shall probably have an opportunity of recording these sentiments more formally ere long; and in the meantime I propose that this useless correspondence be ended.

(signed) *Henry Pottinger.*

30 November 1852.

Appendix (H.)

MINUTE.

CAPTAIN *Lake's* Project for an Annicut across the Kistnah River, with former Proceedings and Report of the Committee appointed by Minutes of Consultation of the 5th of September 1848. ✓

ON first reading Captain *Lake's* Report, with those of the collectors of Guntoor and Masulipatam, which were submitted to Government with the proceedings of the Board of Revenue of the 7th of August 1848, the impression I imbibed (and of which I made a note at the time) was, that the estimate framed by the former officer was far below the probable expense. This impression has, I see, been fully corroborated by the Report of the Committee, which has calculated the outlay on the annicut alone at (in round numbers) seven and a half lacs of rupees, being, as nearly as possible, seven-eighths ( $\frac{7}{8}$ ) in excess of Captain *Lake's* first computation.

400,000  
750,000  

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Rs. 350,000

It was not, however, to the annicut alone that my apprehension of the inadequacy of Captain *Lake's* estimates extended. I fear he has under-rated the cost of all the subsequent improvements, intended to give the annicut "full effect." On reference to his Report, it will be observed, that he allows only 1,000 rupees a mile for making roads, which seems to me far below the mark; and after the charges which I have seen sanctioned for channels, sluices, embankments, &c., in other places, I can place but little confidence in the sums he has put down.

I am aware that the sums detailed in the para. which I have cited, point to ulterior measures; and I find that the Board of Revenue D. P. W., in their proceedings, handing up Captain *Lake's* Report, say, "probably not more than one lakh (independent of repairs) will be required for the actual distribution of the waters upon the lands, exclusive of the Delta, for some years. Thus the proposed present outlay will be,— Para. 30.

For Annicut - - - - -	402,639
Distribution of water - - - - -	100,000
	<hr/>
Rs.	502,639"

But this is avowedly only a conjecture, and moreover, does not include the Delta; of the extent of which (in comparison with what it does include) I am necessarily ignorant. With these uncertainties, I confess it appears to me to be impossible to pronounce with any degree of confidence, whether the annicut, when perfected, according to Captain *Lake's* most enlarged plan, will have cost 20 or 30 lakhs of rupees; and even to render it available, on the modified scale described by the Revenue Board, I do not think we can reckon on a less outlay than one moiety of the first-named sum, viz., 10 lakhs of rupees.

I trust it will not be imagined from the preceding remarks, that I am wishing, or meaning, to throw cold water on the project. On the contrary, no one can be more anxious for its completion, or more alive to the advantages and blessings which it is calculated to diffuse by its operations, than myself; but I feel that it is right not to allow my judgment to be biassed by my anxiety to see the project carried out, and therefore I have, after mature and lengthened reflection, candidly stated my opinions; to which I will only add, that laying aside the question of the undoubted benefit that must accrue, in due time, to the State by a great increase of revenue, I esteem it to be a positive duty which the British Government owe to the inhabitants of the districts which the annicut is meant to fertilise, to adopt a measure which, under God's blessing, will for ever avert the horrors of famine, under which they have before so deplorably suffered.

I have only to further state, that from a careful consideration of all that is recorded in the papers before me, I entertain no doubt of the feasibility of Captain *Lake's* plan; and that I am likewise satisfied, that the point which that officer has selected for the site of the annicut, is the proper (or perhaps I might say only) one. I accordingly recommend that the whole of the documents and plans which are now circulated be transmitted to the



Honourable Court, with the earnest recommendation of this Government in favour of the project; but at the same time accompanied by an intimation that, should it even be fully approved and sanctioned, no steps will be taken for commencing on the work until the Godavery annicut shall not only have been completed, but shall have stood the test of at least one season of floods and inundations.

(signed) *Henry Pottinger.*

18 June 1849.

Appendix (I.)

MINUTE.

LETTER from the Secretary to the Board of Revenue D. P. W., No. 632, dated the 12th of May 1853, with various Inclosures and Plans, submitting a project for an Annicut across the Palaur River near Arcot, at an expense of rupees 7,95,963. 13.

I HAVE read with great attention and interest the above letter and the correspondence with it, and have also minutely examined the map and plans to which they refer.

I consider the project of an annicut across the Palaur river at Arcot to be a very admirable one, and one of which the benefits can scarcely be over-rated.

It is impossible that I can follow the civil engineer of the 4th division through the calculations, plans, and estimates, nor does it appear at all necessary that I should attempt anything of the sort, but I may say, that they appear to me to have been prepared with the greatest care and skill, such as to entitle them to perfect confidence.

The eventual out-turn of this desirable project is shown to be likely to far more than repay the outlay as soon as the ryots shall have the means, and shall have acquired confidence, to avail themselves of the vast facilities which it will afford them to extend and improve their cultivation.

This is undoubtedly a very important object, and one which ought never to be lost sight of in schemes of this nature, but it occurs to me, that a still more momentous desideratum is sure to be attained by the Palaur annicut. I mean that of effectually protecting the districts which it is intended to fertilize from all possibility of scarcity or famine—so far as human means are available to effect that end.

I therefore cordially and unhesitatingly commend and concur in the design, and propose that it be immediately submitted to the Honourable Court, with the strongest recommendation of this Government that it may meet with their early sanction.

(signed) *Henry Pottinger.*

25 May 1853.

Appendix (J.)

MEMORANDUM.

MINUTE by the Honourable Mr. *Thomas*, dated the 25th of July 1853, on the project for an Annicut across the Palaur River.

I SUPPOSE the above Minute, though placed on record after the Draft Mins. of Cons. was prepared, will require to be forwarded with the rest of the papers on the matter to which it relates; and so far as it rests with me I entirely approve of that being done.

I consider the remarks made by the Honourable Mr. *Thomas* to be equally sound and well grounded; and it strikes me to be desirable that they should be looked into before the matter goes further.

The chief point to be ascertained appears to me to be the capability of the Palaur river to supply the tanks that are to be fed by means of the annicut with water, in seasons in which the north-east monsoon may wholly or partially fail; as it is self-evident, that such scanty seasons will be those in which the advantages and blessings anticipated from the work will be of the greatest value to the country and people.

I would therefore advise that the Board of revenue be called on to Report, in concert with the civil engineer of the 4th division, on this momentous question to the success of the whole plan.

The

The next point to which the Honourable Mr. Thomas refers is, the possible necessity for a revision of the assessment, so as to assist in retaining prices of grain, when the full effects of the annicut shall have brought a large additional extent of land under cultivation, at such rates as will prove remunerative; and I concur with my honourable colleague in proposing that this point be likewise referred for the mature consideration of the Revenue Board. At the same time I think it right to state, so far as I can judge from my comparatively short experience of the fluctuations of the seasons in this part of India, that I deem it probable that the superabundant produce in one district will often be needed to compensate for deficiency in others; and I also see abundant reason to hope that extension of cultivation under the different annicuts will in due time not be confined to rice and grain, but will embrace a vast increase of sugar, indigo, the manufacture of rum, and other articles adapted to the markets of England, and foreign Europe.

The improvement and extension of roads, to open up the districts to be fertilised by the annicuts, are of the highest moment, and ought to engage early attention. This seems to me to be particularly desirable in the districts through which the waters of the Palaur Annicut are to flow, as there are, I fancy, in them no means of forming canals, such as will partly answer the purpose of roads in Rajahmundry, Masulipatam, and the other northern districts where the face of the country is level, and the supply of water certain and superabundant.

2 August 1853.

(signed) H. P.

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Appendix (K.)

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MINUTE.

LETTER from the Secretary to the Board of Revenue, D. P. W., No. 917, dated the 18th of July 1853, submitting Estimates for a Lock and Calingula to be constructed at the north end of Cochrane's Canal, and for extending (a Branch of) the same Canal to the Railway Terminus near Clive's Battery, the former amounting to Rs.15,469. 4. 9, and the latter to Rs.35,734. 6.

On the 4th of March 1852, the Military Board handed up an estimate amounting to Rs.1,995. 13. 4. for removing the accumulation of mud and sand from the bed of the Cooum River, agreeable to custom, and in conformity with the sanction of the Honourable Court, who had authorised an annual outlay of 2,000 rupees for that purpose.

In sanctioning this estimate the Government expressed their doubts whether any permanent advantage was gained by this outlay, and directed\* the Military Board to obtain the opinion of the chief engineer as to the advisability of continuing it in future; as well as regarding the improvement of the Cooum River, to which the Military Board's particular attention had been previously directed.†

\* Mins. of Cons.,  
18 March 1852.

† Mins. of Cons.,  
23 April 1851.

On the 7th of June last the Military Board, in reply to the above, addressed a letter to Government, accompanied by a memorandum, drawn up by the chief engineer, proposing the construction of a lock at the northern or Ennore end of Cochrane's Canal, as the best means of retaining at all times a large volume of water in the canal, and likewise in the Cooum River, and thereby improving both.

After giving my best consideration to the letter from the Military Board and its enclosure, I stated my personal sentiments, grounded on actual observation, in two memorandums of dates as per margin,‡ and of which I here annex transcripts:—

‡ 24 June 1853.  
3 July 1853.

“*Memorandum (A.)*—I have no objection to an application being made to the Government of India for sanction to this expense (12,000 rupees), but must say, that I do not clearly see how the project is to answer the proposed purpose, even so far as keeping the bed of the Cooum River clear and free from noxious smells. I also strongly apprehend that a lock on the Cochrane's Canal at the point indicated (or in fact any other) will interfere most seriously with the free navigation. The passage up and down of boats appears to me, from recent observation, to be almost incessant; and if it is intended that they should all be kept in or outside the lock, till the tide suits for its being opened, I fear loud complaints will be justly made against such a system. I further apprehend that the observation that ‘only an insignificant body of water will escape when the lock is opened,’ will prove erroneous. The rush of water outwards will be tremendous, and the management of the lock will be, I suspect, attended with much difficulty.

“ 24 June 1853.”

(signed) “H. P.”

"*Memorandum (B.)*—I see no satisfactory explanation as to the fears I have expressed in my memorandum of the 24th ultimo, regarding the navigation being seriously impeded. If the lock is to be kept open at the fall of the tide, it seems to me that the whole of the water will run out. After heavy floods I believe the lock will be wholly useless.

"3 July 1853."

"H. P."

Whilst the matter was under discussion, his Excellency the Commander-in-chief left the Presidency, and the Honourable Mr. Thomas being also absent, the Members of Council present were reduced to two. The Honourable Mr. Elliott did not appear to share in my doubts, and as the only objection I felt to the scheme arose from my apprehension of its success, and I had fully given my reasons for dissenting, I did not deem it proper, on my single judgment, to oppose it further; and I accordingly concurred in the application made to the Government of India on the 6th of July, for sanction to the required amount (12,000 rupees).

\*Rs. 12,000.

The Board of Revenue D. P. W. have now submitted the two estimates, described at the head of this minute. That for the lock and calingula at the northern end of Cochrane's Canal, shows an increase of Rs. 3,469. 4. 0. on the original sum.\* The other, for a branch canal to run at right angles from the present one, and parallel to the railway, to Clive's Battery, amounts to Rs. 35,734. 6. 0.

The proposed augmented expense on the lock and calingula at the northern end of Cochrane's Canal is not apparently intended to cause any alteration with regard to those works, beyond the additional outlay; and as I have already stated distinctly my opinion on them, it is not necessary that I should repeat it here. As, however, the letter from the Board of Revenue D. P. W. may be assumed to have re-opened, as it were, the question, I feel it right to declare that my opinion continues unchanged, as will be seen by the annexed copy of a Memorandum (C.) which I made on the Revenue Board's letter when it first came to me:—

"*Memorandum (C.)*—I should wish this letter to be laid before Council; I have seen no reply to the remarks which I made on the letter from the Military Board of the 7th of June, and as I cannot approve of the proposed lock at the mouth of Cochrane's Canal, and am also doubtful of the efficacy of the extension of that canal proposed to Clive's Battery, I want the matter to be further considered before we apply for sanction.

"5 August 1853."

"H. P."

With regard to the contemplated branch to the present canal, to extend to Clive's Battery, I have given it my very best reflection, and have likewise looked at the ground through which it is to be dug. I cannot, I confess, see the object of digging a basin or canal that is to be close to and parallel to the railway, and which must be rendered passable to the public by the erection of not less than five or six bridges, even if that number will suffice. Should the traffic so increase hereafter as to call for additional basin room, the present canal might, I conceive, be advantageously widened and enlarged in close proximity to the bridge by which the railway is to cross "Cochrane's Canal," either above or below it, or on both sides; and an extensive and convenient wharf built along the eastern bank, for landing all goods from boats, with facilities for transferring them to a rail or tramway, instead of transporting them to the beach at Clive's Battery, down the proposed basin or canal, attended with the serious and obvious inconvenience and labour of the boats conveying them, being obliged to pass under half a dozen of bridges in a distance of somewhat less than half a mile.

In conclusion, judging from the local experience I have acquired during my residence at Madras, and also weighing the opinions of those whom I have consulted on the subject, I am bound to say, that I do not think that any expedient that can be hit upon will prevent the bar at the mouth of the Cooum River being naturally opened on each and every recurrence of a high flood from the interior; and on all such cases it is self-evident, that both the lock and calingula at the northern end of Cochrane's Canal, and the newly dug basin, will, for the time, cease to be of any use, however slight. This fact indeed seems to me to be admitted in all the papers; and though it is made as light of as possible, yet it strikes me to be a vital objection to the whole project.

Did I believe that the projects were feasible I should cordially support them, but as I do not think either will answer the desired purposes, owing to natural obstacles that cannot be overcome, I desire to place that opinion on record, and only hope I may prove to be mistaken.

I request that a copy of this minute may be sent with any application that may be decided on, and likewise transmitted to the Honourable Court.

(signed) Henry Pottinger.

29 August 1853.

Appendix (L.)

MINUTE.

LETTER from the Secretary to the Board of Revenue Department Public Works, No. 168, dated the 2d of June, submitting Plans and Estimates for the Improvement of the Ports of Coringa and Cocanada, with a Memorandum by the Chief Engineer.

I HAVE read the above letter, and the papers that are in circulation with it, very carefully.

As the works at Coringa and Cocanada appear to be quite separate, I suppose it is competent for this Government to sanction the aggregate amount\* asked for, and I have no objection to that being done; but to any further expenditure on "more extensive improvements," I wish it to be clearly understood that I will not grant my consent without the previous authority and approbation of the Honourable Court, to whom the estimates, &c. will therefore require to be sent.

\*Rs. 17,887. 13. 4.

Had the Board of Revenue D. P. W. not frequently before committed the same fault, I should have felt some surprise at their handing up, without offering any remarks on it, a paper so full of groundless assertions and errors as the memorandum by Lieutenant-colonel Cotton. That officer broadly asserts, that the River Godavery is navigable for 450 miles, and speaks of the success of Messrs. Palmer & Co.'s enterprises; whilst I happen to know, from my personal knowledge, that they were all utter failures, and abandoned in consequence years before that firm became bankrupt.

I consider a great portion of Lieutenant-colonel Cotton's memorandum to be highly improper and disrespectful in its tone and purport; it attempts to establish as a fact, that the delays of which he complains have been solely caused by the supineness of Government. He, as well as the Board of Revenue D. P. W., seem to have forgotten, that a report on the harbours of Cocanada and Coringa was called for above seven years ago, and that that call was repeated in 1848, a few months after I assumed charge of this government. He and the Board likewise overlook, that by the Minutes of Consultation of the 11th of January 1850, the Government declined to approve of Captain Orr's plans for improving the port of Cocanada, partly for the reason that that officer's time and thoughts were believed to be fully occupied with the Godavery Annexment, and partly because the plans specifications, and estimates, so long called for, had not then been submitted, nor have they, it is to be noted, been so till this hour.

With these truths staring them in the face, it does strike me to be rather inconsistent and absurd, the Board of Revenue D. P. W. writing in the following terms:—"This work is stated to be urgently required for the communication with the shipping, and the civil engineer hopes it will receive early sanction to admit of its being executed in time for the approaching freshes;" they add, "the works are in conformity with Colonel Cotton's recommendations, are approved by the collector, and appear to be indispensably necessary," whilst the present civil engineer begs "that these estimates may not be detained."

I see that Lieutenant-colonel Cotton expatiates in his memorandum on the manifold and inestimable benefits and advantages that might and would accrue to the country, to the people, and to Government, were the local engineers and authorities vested with the power of expending the public money *ad libitum* in carrying out their own projects without the interference of Government or necessity for its sanction. The Board of Revenue might have known, whatever Lieutenant-colonel Cotton's ignorance may amount to, that such a scheme was at variance with the rules of this or any other service, as well as opposed to the commands of the Honourable Court, who have even been pleased to set a limit to the sums to be expended by the different Governments of India without their previous sanction.

I have said more, perhaps, in reviewing these documents than they at first sight may appear to call for; but as I believe that some of them are written, not for the information of Government, but to serve particular purposes, I do not choose to allow them to pass without exposing their fallaciousness.

(signed) *Henry Pottinger.*

21 June 1853.

I DESIRE that a copy of this Minute may be sent to the Honourable Court, with the papers to which it relates.

(signed) *Henry Pottinger.*

21 June 1853.

## Appendix (M.)

## MINUTE.

LETTER from the Marine Board, No. 2,377, dated the 3d of November 1852, submitting Correspondence respecting the deteriorated state of the Ports of Cuddalore and Porto Novo.

21 December 1850.

I THINK it right to offer the brief remarks I have to make on the above letter in the form of a minute, because the Marine Board appear to me to have forgotten or overlooked what they wrote to Government two years ago respecting the port dues of Cuddalore, and now seem to wish to show that the falling off in those dues arose from other "elements tending to so unsatisfactory a result."

11 December 1850.

I am not sure that I fully understand what is intended to be conveyed by the remark I have cited; and I am free to confess that I place but slight reliance in any opinion offered by the then collector of South Arcot (Mr. Wroughton), who deceived me in all the communications, both verbal and written, that I had with him on the important question of cotton cultivation; but I do think the report\* of the superintendent of sea customs at Cuddalore bears reason and fair argument on the face of it, and that it ought not, therefore, to be hastily set aside to make room for any speculative schemes, such as I look upon those here submitted.

I can discover nothing in these documents to prove that either the port of Cuddalore or of Porto Novo has recently deteriorated. From the description given of them, they appear to partake of the universal feature of all the creeks or mouths of rivers along the eastern coast of the Peninsula, and, so far as I am aware, it yet remains to be tested whether that natural feature can be overcome by art. I have understood that it has been tried at Cocanada or Coringa, and been there a perfect failure. I have also known it to be tried in various native ports of the Gulf of Kutch, where they were open to the full influx and reflux of the sea; and, although they succeeded apparently for a short time, they speedily fell into utter disrepair, and had to be abandoned on account of the expense of keeping them in order, far outbalancing any gain that could be anticipated.

This is exactly the point which it strikes me this Government should keep before it in considering these propositions; and as that lately submitted regarding Negapatam is precisely, so far as I can form a judgment, of a like description, I am strongly disposed to think that nothing should be done at Cuddalore or Porto Novo until the result of the Negapatam projects is ascertained.

I have, however, no objection to the plans and estimates for one or both being called for; and, as I conclude the outlay will exceed what this Government can take on themselves to sanction, I recommend that the whole question be laid before the Honourable Court for their consideration and orders.

(signed) *Henry Pottinger.*

29 November 1852.

## Appendix (N.)

## MINUTE.

LETTER from the Secretary to the Board of Revenue D. P. W., No. 322, dated the 25th of April 1853, submitting Projects, accompanied by Plans and Estimates, for Improving the Harbours of Cuddalore and Porto Novo, in South Arcot.

I HAVE read the above letter and its accompaniments with great attention, and have studied and considered the plans most carefully, with a view to master them, which I think I have now done.

I must say that I have the strongest personal misgivings as to the practicability of permanently improving the harbour of Cuddalore at an expense of 15,000 rupees, by altering the current of the two rivers that meet at its mouth. I have had some experience of attempts of this nature, and I have seen how futile they have proved in projects which have promised, at least as favourably as those before me, in controlling adverse natural causes. I cannot, therefore, on my own judgment, support the civil engineer's project, even to the above extent; but, should it be thought worth the trial, I am prepared to join in an application to the Government of India for their sanction to the expenditure, no part of which should, in my idea, be charged to the surplus Chutrum Fund.

As to the second scheme for bringing the waters of the Vellaur River by a canal to the harbour of Cuddalore, it is, perhaps, feasible; but it seems to me that it should, under any circumstances,

circumstances, be delayed until the result of the project referred to in the preceding paragraph, should it be sanctioned, is demonstrated. I hold that to bring those waters, admitting its feasibility, whilst the success of the first project is doubtful, would be an ill-advised and premature outlay.

With regard to the third scheme, that of running a pier out into the Bay of Bengal to a distance of 400 yards, I most unqualifiedly record my opinion that would prove an absolute waste of public money. I do not believe that it ever could be effected on any part of the coast of Coromandel, without reference to the cost; and I must hold it to be a chimera which no human power or art could carry out.

I have deemed it right to state my sentiments in the form of a minute in case reference to the Honourable Court or the Government of India should be thought advisable.

(signed) *Henry Pottinger.*

14 May 1853.

Appendix (O.)

MINUTE.

I HAVE no objection to offer to what the Honourable Mr. Elliott proposes in this Minute. I merely should wish my Minute to go with any application that may be made to the Government of India. I have stated my reasons for doubting the success of the proposed plans.

(signed) *Henry Pottinger.*

23 May 1853.

Appendix (P.)

MEMORANDUM.

I RECOMMEND that the Board of Revenue Department of Public Works, and the civil engineer of the 6th division, be referred to the Minutes of Consultations of the 14th ultimo (not yet a month old), and informed that the question has been submitted for the sanction of the Government of India, whose orders this Government do not deem it proper to anticipate. I have frequently had occasion to remark, that when a matter is once referred to supreme authority, I deem it highly objectionable and disrespectful to go farther in it, pending a reply. Had the matter been submitted three months earlier, it might even have been settled one way or another.

(signed) *Henry Pottinger.*

12 July 1853.

Appendix (Q.)

MEMORANDUM (No. 1.)

AFTER the very large sums sanctioned in 1845, for the improvements of the Port of Negapatam, and which were reported by the Board of Revenue under date the 12th of April 1849, to have been attended with complete success, I am surprised at this application, and must decline sanctioning it.

(signed) *Henry Pottinger.*

18 July 1850.

(No. 2.)

I THINK it right to say that I greatly question the stability of the proposed pier, if, as appears to me from the sketch, it extends into the sea, and is wholly exposed to the surf and strong currents. I further think that Government should have some idea of the eventual total expenditure on the Negapatam Harbour, as well as a return of the import and export duties for the last five years. It may be very practicable to improve the harbour at a very heavy outlay. It is the duty of Government to see that it is worth while to incur such an outlay.

(signed) *Henry Pottinger.*

13 May 1853.

(No. 3.)

I SHALL not attempt further to withhold my concurrence to the proposed charge, but I must repeat my doubt of the success of the project. I conceive that any person of common sense and observation, is as capable, or nearly so, of judging of the probable success of such schemes

schemes as any engineer whatever. When a bridge is to be built, or any other work that simply requires science, I am free to coincide with the remarks of the Honourable Mr. Elliott; but when the physical powers of natural obstacles are to be overcome, then I consider my own judgment to be quite as sound as that of any other thinking man, and I am not prepared to put it aside.

With these observations, which I desire may be placed with the correspondence, I withdraw my objection to the outlay.

(signed). *Henry Pottinger.*

1 June 1853.

Appendix (R.)

MINUTE.

LETTER from the Secretary to the Board of Revenue, No. 393, dated the 21st of March 1853, regarding the Dowlaishwarum Foundry.

I STATED my opinion on this question in a Memorandum dated the 11th instant. The papers have again come round to me, with the remarks of my honourable civil colleagues, and having most fully reflected on the matter, I am obliged to adhere to my first view.

I know, of course, nothing of the practice at Roorkee, Casseepoor, or Calcutta, in this respect; but even should it be as the Honourable Mr. Elliott seems to suppose it is, it would not change my ideas; as I consider, with the Honourable Mr. Thomas, that the single result of such a Government establishment, would be that of impeding and interfering with private enterprises, and the outlay of private capital.

I recognise no authority whatever on the part of Government for the promise which is asserted to have been made to Mr. Falkener in favour of the firm which he represents; and the sentiments of the Board of Revenue D. P. W., as expressed in their secretary's letter, strike me to be altogether based on erroneous principles and arguments; inasmuch as they would seem to advance, that Government is bound to incur heavy expense and to keep up establishments to promote the objects, and to purchase, as it were, the interested (for it can be nothing else) advice and assistance of private persons and establishments.

I request that the Memorandum adverted to at the commencement of this Minute may be appended to it.

I have no objection to this question being referred to the Honourable Court, but beyond that I am unable conscientiously to go.

(signed) *Henry Pottinger.*

30 April 1853.

Appendix (S.)

MINUTE.—Dowlaishwarum Foundry.

THE opinions of the Members of Government regarding the Dowlaishwarum foundry being equal, it devolves on me to pronounce the casting vote.

I have again read and considered the whole of the correspondence with great care, and must adhere to the views I have already expressed.

6 September 1852.

30 April 1853:

I consider, that had the orders of Government been carried out as they should have been, ample time has been afforded to the private individuals who urge the foundry being retained, to have made other arrangements; and I have, in a recent Minute, explicitly explained why I am unable to subscribe to the arguments of the Revenue Board D. P. W., on that portion of the question.

In addition to my former remarks, I am now sorry to be compelled to say that I have reason to believe the foundry is, and has been, applied to objects which are unsanctioned by and unknown to Government; and which I conceive call for immediate and full investigation and report.

Not very long ago, a proposal was made through the Board of Revenue D. P. W., to establish a steam ferry on the Godavery River, and the sum of 9,000 rupees was asked for to build a steam ferry-boat. I opposed this scheme, which I looked upon to be altogether premature in a wild and thinly inhabited part of this Presidency, like Rajahmundry; but the proposal led to my making private particular inquiries, in the course of which I was informed, that there were no less than four steam-boats now ready at Dowlaishwarum, and a fifth in a forward

forward state of preparation, besides a very large flotilla of other boats and vessels, to the asserted extent of 1,000 or 1,200 tons.

About the same time I observed it set forth in a petition from the Madras Native Association to Parliament, that permission to survey and examine the Godavey river had been refused by the Madras Government to Lieutenant-colonel Cotton, who had built a steam-boat for the purpose at his own expense. I placed, of course, little or no confidence in this absurd assertion, but I here allude to it as corroborative of the alleged fact of steam-boats being at Dowlaishwarum, of which I had no previous personal knowledge from anything that had come officially before me.

I consider it probable, if my information be correct, that some of the steam-boats are employed on the works of the annicut, but I cannot recognise that as the slightest reason that their existence, as well as the cost, manner, and course of their being built, should have been kept a secret from Government.

The sum of 10,000 rupees have been lately applied for, and, at the recommendation of the Madras Government, sanctioned by the Government of India, to meet the expense of exploring the Godavery River, and I have all along supported the project, notwithstanding my personal apprehensions, from my former acquaintance with the failure of similar attempts, that this one will likewise end in disappointment. I however here specially allude to it, for the purpose of observing that should it be intended, as I have heard is the case, that some of the steam-boats above alluded to, are to be employed in the enterprise, I conceive that that fact should be made known to the Supreme Government, as it seems to me to be a pure deception to lead those high authorities to fancy that the expenditure is limited to what they have authorised.

The Military Board recommended, within these few months, that iron railways for the Esplanade, and other places in the vicinity of Madras, should be procured from the Government Foundry at Dowlaishwarum. I did not myself at first perceive the drift of the recommendation; but as soon as I discovered that it was meant to set Government up in opposition to all private capitalists in iron, I strongly opposed the plan. I have since been told, that it was one of the various contrivances for finding work for the foundry; or, in other words, supporting it at the expense of checking all private enterprise.

It will be understood, from the general tenor of this Minute, that my unqualified opinion is, that the Government Foundry at Dowlaishwarum is a useless, expensive establishment, calculated to do harm, and to repress the outlay and efforts of private capitalists. I therefore advise that its final abolition be proposed to the Honourable Court, and that, pending a reply, the public work done in it shall be confined to the smallest practicable amount, and that none on private account shall be permitted on any pretence.

This Minute, and the whole of the correspondence connected with it, should be sent to the Home authorities by an early opportunity.

(signed) *Henry Pottinger.*

30 May 1853.

#### Appendix (T.)

##### MINUTE.

#### CORRESPONDENCE regarding the Foundry at Dowlaishwarum, and the Steam and other Boats on the Godavery River.

I HAVE taken the pains to go regularly through the whole of the papers and correspondence, commencing at the close of the year 1846, and extending up to the present time, on the topics named at the head of this Minute.

Nothing that I have seen in these long and somewhat confused documents has tended to alter my views as to the inadvisability of establishing a steam ferry on the Godavery, or of keeping up a foundry at Dowlaishwarum to perform work for private persons as well as for the public; but as I have already assigned, in the Minute and Memorandum of dates noted in the margin, my detailed and fully considered reasons for the views I entertain, it would answer no good purpose to repeat them here.

11 April 1853.  
18 " "  
30 " "  
2 May "  
30 " "

The perusal of the papers referred to above has, however, confirmed the impression I had imbibed, from parts of the more recent correspondence, that neither the establishment of a foundry at Dowlaishwarum, nor the building and setting-up of steam-boats at that place, has ever been authorised.

Para. 1.

With respect to what is now designated the "foundry," I see that a "workshop" was sanctioned, and an officer appointed to the charge of it; but from the description of work which is enumerated as proposed to be done in it, it seems to me to be quite clear that nothing like a "foundry" was not only intended by Government, but, as I shall show presently, was expressly prohibited. If, therefore, the "workshop" is to be continued on any footing

Mins of Cons.,  
28 April 1846.



as a "foundry," I repeat the sentiments I have already recorded, that that should only be done with the approbation and permission of the Home authorities.

As regards steam-boats, there seems to me to be, if possible, still less grounds or justification for the proceedings of the local authorities.

Mins. of Cons.,  
31 July 1846.

It will be found that application was made by those authorities for permission to construct a steam-boat of five-horse power, as a tug, and that the proposal was disapproved on what I hold to be conclusive grounds; that, subsequently, a reference was made to Calcutta respecting an engine of the requisite power being procured there, and that, failing that, Government resolved, at the recommendation of the Board of Revenue D. P. W., to ask the Honourable Court to send one out from England.

Mins. of Cons.,  
20 November 1846.

24 December 1846.

Very shortly after this, a further reference was made to the Government of India relative to an iron steam-boat called the "Lotus," which was stated to be for sale for 6,000 rupees, and which Major Cotton had suggested, through the Board of Revenue D. P. W., should be bought. On this boat being, at the request of this and by orders of the Supreme Government, examined by the controller of Government steam-boats and the superintending engineer at Calcutta, those officers stated, that she was ascertained to be "so much out of order (the chimney and fire-bars entirely worn out, and the covering of the boilers also much worn) that it is impossible to get the steam up to try the engines without a considerable repair. The iron hull was also much corroded. Under these circumstances, and having learnt from those who have had opportunities of seeing her under steam, that the 'Lotus,' even if repaired, would not, from want of power, answer the purpose of Major Cotton, I could not recommend her being purchased by Government."

A copy of the letter of which the above is an extract was furnished to the Department of Public Works, on the 23d of March 1847, with an intimation that an application would be "immediately made to the Honourable Court for the supply of a steam-vessel of the dimensions and construction that had been recommended by Major Cotton" in the specifications forwarded by him, under such and such dates.

Why this intention was not carried out there is nothing in the papers before me to show; but I understand that Major Cotton left his station without leave about this time, and proceeded to Calcutta, where I am told he bought the "Lotus," in the face of the above report declaring her to be useless. I can discover neither any authority for this step, nor what the boat cost in price and repairs. I think, therefore, the Board of Revenue should, even at this late period, be required to explain the matter, and to show from what funds the whole expense was defrayed. I surmise that it was so from the amount afterwards sanctioned for the Godavery Annicut; but surely some record of such a transaction should have been kept, and Government made acquainted with it.

Mins. of Cons.,  
31 July 1846.

Touching the steam-boats now on the Godavery, I have said above, that they have not only been built without authority, but in direct disregard of the orders of Government. I cannot but consider that maintaining an establishment like the foundry at Dowlaishwarum, for such purposes, is altogether at variance with the public interests and the good of the service. Whatever specious reasons may now be advanced to the contrary, I cannot but hold, that all that has been and is being done in this respect is a mere cloak for indulging in personal schemes and predilections, in which the public money is unauthorisedly squandered; and I cannot for an instant doubt but that the Honourable Court and the Supreme Government will learn with surprise, that such extensive and expensive projects have been going on for a long period wholly unknown, so far as I am informed, to the Government of this Presidency. I have before stated, in other words, that I entirely concur in the following observation of the Madras Government: "His Lordship in Council doubts the expediency of Major Cotton engaging in the construction of a five-horse power steam-engine. The time and labour which must be given to this object by Major Cotton and the officers attached to him, may, he is disposed to think, take their attention from more important duties." When it is found that, in defiance of this prohibition, one steam-vessel of 20-horse power has been built, and that several others are completed, or nearly so; that Captain Hutchison, the officer appointed originally to the charge of the workshop, is stated to have been occupying his time and thoughts in constructing a steam-boat on his own behalf; and that Major Cotton, the civil engineer of the Godavery division, has been doing the same, I would calmly inquire, if this is becoming and proper in their positions towards the Government who pays them, as well as what the artificers and people employed on such work must suppose? Whatever colouring may be given to or plea urged for these admitted facts, I am compelled, from the experience I have acquired during a long public life in every part of the world, and especially in India, to think that they (the artificers and people) can have imbibed but one impression, and that the example which has been thus set is, both in theory and practice, most objectionable and improper.

7 July 1853.

I note that the Board of Revenue D. P. W., in one of their letters, speak of the large profits to be derived from building boats, as well as of the impetus which such a measure would give to trade. If the Board intend by this allusion to recommend that Government should build boats to hire out, and carry on the traffic of the country, I wholly differ from them. I conceive that all such arrangements can only emanate from private capital and speculation, at the present day, in the districts to which the Board's letter refers, and that  
the

the interference of Government would be premature, and is quite uncalled for. Besides these reasons, I can trace no connexion between such objects and the legitimate duties of the engineer's department in the Godavery and Kistnah Divisions. Should the course of events render it hereafter, at some future distant period, desirable for Government to take steps to promote the transport of commerce on the rivers of the Carnatic, as is now done in the Ganges and Indus, a separate establishment, under a responsible head, must be organised for the proposed end; by which means Government will not only be kept apprised of the proceedings of their servants, engaged in the work, but large sums will be saved which it is my conviction are now literally thrown away in the crude and ill considered designs of speculative and enthusiastic projectors, who are, moreover, irresponsible for their acts.

In conclusion, I hold that that undefined sort of "Imperium in Imperio," which seems always to have obtained in the Godavery Division since it was first formed, and unquestionably does so at the present moment to a great degree, is irreconcilable to proper authority and supervision. I believe, from careful reflection and consideration of all these papers, that Government are only made acquainted with what goes on there in every department, as far as it suits the local and executive officers to communicate their acts; and I hereby record my final and solemn opinion, that the only effectual course to remedy the evils attendant on the so called foundry at Dowlaishwarum, and the unauthorised large outlay to which it has led, and is hourly leading, is to suppress it at once, and, further, peremptorily to prohibit the formation of any more steam-boats, as well as any crews or establishments being longer kept in the public employ to work those that have been already built, contrary to orders.

(signed) *Henry Pottinger.*

4 August 1853.

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Appendix (U.)

MINUTE.

LETTER from the Secretary to the Revenue Board D. P. W., No. , dated the 23d of December 1852, regarding the nomination of Captain *Greenlaw*, of the 46th Regiment N. I., to be assistant to the Secretary to the Revenue Board, D. P. W., vice Lieut. *Foord*, going to Europe.

I see nothing in the above letter or its accompaniments that should alter my opinion as to the fitness of Captain *Greenlaw*, of the 46th Regiment N. I., to be assistant to the Secretary to the Revenue Board, D. P. W.

I believe Captain *Greenlaw* to be as well if not much better qualified for the duties which will devolve on him than any available engineer officer, and when I sent the Minute appointing him to the Chief Secretary to Government, to be put in circulation, I wrote a private note to Sir *Henry Montgomery* to point out that Captain *Greenlaw* had proved himself hardworking and zealous, and that I consider him quite equal to taking charge of the office in any temporary absence of the Secretary.

Had I not felt assured that Captain *Greenlaw* was qualified, I certainly should not have appointed him, and I shall as certainly not remove him until it is proved that he is unfit. On the contrary, I consider it highly desirable, that in the present state of the engineer corps of the Madras Presidency, experienced officers, if fully qualified, should be selected to assist in the important duties appertaining to that branch of the service; and that the exclusiveness which the letter before me appears to advocate, should, under present circumstances, be wholly laid aside.

(signed) *Henry Pottinger.*

29 December 1852.

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Appendix (V.)

MINUTE.

EXTRACT from the Proceedings of the Board of Revenue, D. P. W., No. 277, dated the 11th July 1853, reporting on Captain *Greenlaw*, &c.

1. As I have been informed that the Memorandum which I made \* on the above letter is not in that form that necessarily requires that its purport should be made known to the Board of Revenue D. P. W., or that that document should be submitted for the information of the Honourable Court, and as it is my wish that both should be done, I beg to place this minute on record, reiterating my conviction that Captain *Greenlaw* was much better qualified to fulfil the duties of the situation of assistant secretary to the Board of Revenue D. P. W., than one half of the engineer officers in this Presidency, and, decidedly so, than any one of

the young officers who have been discredibly instigated to address memorials to the Honourable Court connected with that appointment.

2. I say this advisedly, because none of them have had, I believe, one-fourth of his experience, and none of them would have brought to the situation, had they been named to it, that devotion and zeal for the service which Captain Greenlaw would have been glad to have displayed had he been given an opportunity of so doing.

\* Captain Greenlaw was appointed, at his own request, paymaster in the ceded Districts.

3. Had it not suited Captain Greenlaw's purpose to be removed\* from his late appointment, I should have assuredly required clearer proof of his unfitness for it than anything that is brought forward in this partial report, which I further look upon to be uncalled for and intrusive, after Captain Greenlaw had left the situation.

See Appendices (B) and (C.)

4. The strongest conclusion as to the accuracy of what I say with respect to Captain Greenlaw's qualifications, is to be found in the fact that the Board of Revenue Department Public Works cannot produce an officer to take his place; and though they now declare that they would rather have no assistant secretary at all than one who is not an engineer, and fully qualified, according to their newly formed and inflated standard, I do not forget that their original application for some assistance to their secretary was limited to an uncovenanted servant, and that it was my personal suggestion that it should be provided for by a commissioned officer being appointed.

Since Captain Greenlaw resigned, I have offered the situation of assistant secretary to the Revenue Board D. P. W., to Captain Reilly of the 10th Regiment N. I., now employed on the Jackattalla Barracks, but he has declined it; and I know of no other officer to whom I could confidently entrust the duty, else I would not hesitate an instant to appoint him.

I request that copies of the letter of the Board of Revenue D. P. W., and of this Minute, may be transmitted to the Honourable Court by the next mail, that they may clearly understand that Captain Greenlaw was not removed for any fault or inefficiency, notwithstanding the one-sided sentiments of those who have thought proper to intrude them on Government.

(signed) *Henry Pottinger.*

15 August 1853.

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#### Appendix (W.)

MINUTE regarding the Memorials by Junior Engineer Officers to the Honourable Court.

I ENTIRELY concur in the above sentiments of the Honourable Mr. Thomas. I only refrained from offering any remark on the letter proposed to be transmitted to the Honourable Court, from a feeling of delicacy and repugnance to again revive the question of Captain Greenlaw's nomination; but I must say that I felt most strongly that there was a total want of common respect towards their superiors, and an assumption of a right to appeal in the young lieutenants who had done so, and who, I had no doubt, would come under the marked displeasure of the Honourable Court.

I now request that these brief remarks may be sent to the Court with the memorials, should they be forwarded.

(signed) *Henry Pottinger.*

5 April 1853.

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#### Appendix (X).

##### MINUTE.

DRAFT of a Despatch to the Honourable Court, transmitting a Memorial from Lieutenant-Colonel Cotton, of the Engineers.

I HAD heard by common rumour of Lieutenant-colonel Cotton's proposed memorial, but had not seen it until it came to me two days ago, in circulation with the draft of the despatch which is to accompany it to the Home Authorities, and to which draft I have most readily affixed my initials in token of approval, as I conceive it contains all the explanation which the Honourable Court are likely to require on the topics to which it refers.

I will not condescend to follow Lieutenant-colonel Cotton through his long strain of self-complacency and approbation, contrasted with his depreciation of the merits and claims of others; but in the situation which I have the high honour to fill, I deem that I am called upon to record my well-weighed opinion, that this memorial is a most overbearing and impertinent production; that it is, so far as anything emanating from the author of it can be, a premeditated insult to the Government of which he is a servant; and that when coupled with other memorials which have been recently addressed to the Honourable Court by junior officers of the Engineers, it approaches, in my ideas, very closely to what might be designated

designated mutiny, and, to say the least of it, is a gross and unequivocal breach of subordination.

I must here beg that it may not for one instant be imagined that I offer these strong animadversions from any immediate personal sensitiveness or perception with reference to the memorial of which I am speaking. Had I never been at Madras, or seen or known a single individual named in that document, and had it been submitted to me as a stranger, I should have expressed precisely the same sentiments respecting it, and should have looked on it as a reproach to any officer holding a commission in any well-regulated army.

With respect to the insinuations in which Lieutenant-colonel Cotton has thought it right to indulge, as to the motives that led to the appointments which he has been pleased to denounce, I simply desire to distinctly say that those insinuations are false. In making these appointments I can most solemnly and conscientiously assert, that I exercised the trust reposed in me under a full conviction of their appropriateness, and nothing has to this hour come to my knowledge to cause me to doubt that I was right.

The nomination of Major Atkinson to the situation of superintending engineer of the Presidency Division, has been already explained to and approved by the Honourable Court.

That of Captain Johnston to be superintendent of roads, I need only declare was given to him entirely unsolicited, and I may here note, that I have never to my knowledge seen or exchanged one word with that officer up to the present hour. It is, however, due to him to add, that he has proved himself most efficient, and has given Government the very highest satisfaction as the head of the very important department which he now controls.

The appointment of assistant secretary to the Revenue Board Department of Public Works I offered (unsolicited) to Captain Greenlaw on Lieutenant Foord's departure, from my conviction of his fitness for it; and I here take occasion to state, that I believe him to possess much higher qualifications, as a hardworking, scientific, zealous public servant than any one (I make no exception) of those officers whose names I see are cited by Lieutenant-colonel Cotton, on whose individual judgment of true merit or estimable qualities I am unable to place the smallest reliance.

I must here explain, that I have for a length of time past looked upon Lieutenant-colonel Cotton to be a person who required to be carefully watched and restrained in his ebullitions. I conceive him to be led away by overweening egotistical vanity as to his own qualifications, deserts, and services, which vanity is, I doubt not, pampered by the ill-judged flattery of others. I esteem him to be ready at all times to enter into any new and ill-digested project which crosses his mind, or is suggested to him through the medium of books or men; that were he left to himself he would be absolutely reckless of the public interests on the score of expense, when placed in opposition to his own schemes; and I hold that his attempt, as exemplified in the memorial now before me, to set himself up as a controlling authority above all his compeers and colleagues, and even to throw the necessary and legitimate power of Government behind his back, is an undeniable proof of a want of proper feeling, as well as of how little he is deserving of the confidence he seems to expect.

In closing this Minute I must repeat my earnest request that no syllable of it may be ascribed to any emotion of fancied annoyance as excited by Lieutenant-colonel Cotton's memorial. I am incapable of any such emotion, particularly as regards an individual for whose judgment I feel no respect, and whose criticisms on my conduct, whether official or private, I regard with indifference. I have, in what I have said here, viewed the memorial solely as a point of duty, and stated my sentiments upon it out of respect to the Honourable Court, to whom I wish a copy of this Minute to be forwarded with the despatch.

(signed) *Henry Pottinger*

Guindy Park, 4 May 1853.

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GENERAL APPENDIX.

No. 120.

Public Works Department.

EXTRACT from the Minutes of Consultation under date 13 April 1853.

Read the following Report from the Commissioners appointed to inquire into and report upon Public Works.

(Here enter 23 December 1852.)

Ordered, that five copies of the First Report of the Commissioners upon the Department of Public Works be forwarded to the Government of India, with the following letter.

Ordered also, that the same number of copies be forwarded to the Honourable Court of Directors, with a copy of the letter addressed to the Government of India.

(A true extract.)

(signed) *H. C. Montgomery,*  
Chief Secretary.

No. 121.

Public Works Department.

To J. P. Grant, Esq., Secretary to the Government of India.

Sir,

1. IN obedience to the instructions conveyed in Officiating-Secretary Major Wylie's letter of the 21st December 1850, a committee was appointed at this Presidency to investigate and report on the system of Public Works.

2. The Commission was composed of Mr. Bourdillon, of the Civil Service (Collector of North Arcot), Major Fredk. Cotton, Civil Engineer of the 7th Division, and Major Balfour, of the Artillery, member of the Military Board.

3. These officers assembled at the Presidency, and commenced their labours on the 21st March 1851. Early in January 1853, they laid before the Government their first report, of which I am now directed to forward five printed copies for the use of the Government of India, and to intimate that a similar number has been forwarded by the mail of the 13th instant to the Honourable Court of Directors.

4. The Government of India will perceive, from this very voluminous report, extending to 725 paras., that the Commissioners have entered most minutely into the subject which they were appointed to investigate, and their very lengthened proceedings will in some measure account for the time these inquiries have occupied.

5. It was, I am instructed to state, the intention of the Government to submit the report, with a full view of its contents, but finding it so comprehensive that the review contemplated cannot be accomplished within any definite period, they deem it proper not to detain the report longer, but to forward it for the information of the Government of India and the Honourable Court of Directors respectively, transmitting separately the expression of the views of this Government as soon as the whole subject has undergone the necessary discussion.

6. The present report, it will be seen, is divided into 11 sections, the last of which, as intimated by the Commissioners, is a recapitulation of the contents of the preceding chapters.

7. The first four sections are devoted to the past history and present state of the department in all its branches, and to an exposure of the defects which the Commissioners conceive to exist in it.

8. The Commissioners in the subsequent chapter (V.) proceed to develop the changes which they consider necessary to make the departments thoroughly efficient in every respect.

9. The proposition of the Commissioners for withdrawing from the Revenue and Military Boards and the Superintendent of Roads,\* the control now exercised by them, and vesting the sole charge of Public Works in a new Board, composed of one revenue officer from the civil service and two engineer officers, with the chief engineer as an *ex officio* member, requires careful deliberation, and will meet with due consideration from the Government.

10. Passing on to the Executive Department, the Commissioners press on Government the urgent need of a large increase of the Engineer establishment.

11. They recommend that the corps of Engineers, which now consists of two battalions of 46 officers, exclusive of nine supernumeraries, shall be augmented to 112 officers, to be disposed in four battalions, one of which shall be added immediately, and the other gradually in the course of six years.

Vide Appendix DD—EE—FF.

Proposed Establishments.	Nos.	Charge.
Commissioned - - -	113	5,31,590
European Subordinate - -	204	3,85,201
Native - ditto - - -	725	2,35,560
Office Establishments - -	1,379	2,68,724
College - - - - -	-	50,000
		<b>Rs - 14,69,075</b>
		5,79,471—Present Establishment,
		vide Appendix H. H.
		8,89,604—Increase.

12. The subordinate European engineer and native professional departments are also proposed to be largely increased with office establishments of a suitable extent. Provision is also made for an Engineer College of Instruction. The recommendations of the Commissioners on the score of establishments thus involve an aggregate charge (in the proportions marginally shown) of Rs. 14,69,075, or Rs. 8,89,604 in excess of the present charge under that head.

13. The

\* Under date the 21st November 1851, the Commissioners had proposed that the Road Department should be placed under the existing Board of Revenue Department Public Works, and this proposition was considered by Government, and minutes recorded, copies of which are annexed, under date the 6th April 1852.

13. The Commissioners dwell on the alleged neglect of roads and irrigation works, and calculating the profitable returns, directly and indirectly, from expenditure on such undertakings, they propose that the future outlay on Public Works shall be about 48 lacs annually, or about 29 lacs in excess of the present expenditure; the whole to be at the unfettered disposal of the local Government.

	Present average. of 5 years.		Proposed.
Irrigation - - -	10,37,395	- -	22½
Roads, &c. - - -	4,20,762	- -	20
Buildings - - -	4,29,491	- -	4½
	About - - 19	Lacs	- 48

	Present.		Proposed.
Outlay . - -	- 19 lacs	} about {	48
Establishment . - -	- 6 "		15
	25	Lacs	- 63

14. The proposition of the Commissioners thus provide that the annual expenditure in the Public Works Department shall be raised from about 25 lacs to 63 lacs, being an increase of about 38 lacs per annum. P. 684.

15. The Right Honourable the Governor in Council will content himself with this brief summary of the suggestions of the Commissioners. The comprehensive nature of their report, the great changes advocated, and the importance of the questions discussed both financially and with regard to the improvement of the country and the welfare of the people, obviously call for careful and mature deliberation.

16. The Right Honourable the Governor in Council will not here notice the comments of the Commissioners on the alleged parsimonious policy of the Government of this Presidency and the Supreme Government in regard to Public Works, further than to observe that they appear to have overlooked the restrictions on expenditure necessarily imposed on Government by the financial condition of India during the late wars. The irrigation works of Tanjore, Trichinopoly, and Tinnevely, the fine ghauts and passes of Malabar and Canara, and the trunk roads leading west and south from Madras, and later, the magnificent works in progress on the Godavery, Kistnah, and Pennar rivers, evince the interest taken in the progress of improvement, and the manner the Government have made use of the means placed at their disposal.

17. I am directed to request the attention of the Government of India to the separate minutes herewith transmitted.

I have, &c.

(signed) *H. C. Montgomery,*  
Chief Secretary.

Ordered that the following minutes be recorded.

MINUTE.

DRAFT LETTER forwarding Report of P. W. Commission.

It is, I think, very desirable that this draft should point out distinctly the misrepresentation of the views of this Government, into which the Commissioners have been led by their ignorance of the records.

In various passages of their report they ascribe to this Government a practical indifference to, and even an unwillingness to sanction any expenditure on works for the improvement of the country, and the Government is represented throughout the report as opposed for a series of years to such outlay.. Such appears to me the general tone and character of its statements.

It will be seen from the following extract from a letter to the Government of India in 1848, how entirely this representation is at variance with facts. It was there observed, and proposed to the Government of India, that "whilst this Government would counsel a wise economy in all branches, it is of opinion that a considerable outlay of its revenues at this time on internal improvements, even if there were no surplus (revenue), would prove in the end a more sound policy, and more beneficial to the country."—See also para. 21 of the same letter to Government of India, Financial Department, 3 January 1848.

Like misconception and misrepresentation of the views of Government exist in the statements of the Commission on the Road Department; and as the Commissioners brought this subject under the notice of Government in their letter of the 21st November 1851, that letter, and the views of Government, with the minutes pointing out their error,\* should be adverted to in this review of their proceedings.

(signed) *J. F. Thomas.*

12 April 1853.

MINUTE.

\* Para. 11, Minute of 6th March 1852, on letter from the Board, 15th January 1852.

## MINUTE.

THE draft of the letter to the Government of India has just been returned to me with certain remarks embodied in a Minute of the 12th instant by my Honourable Colleague, Mr. Thomas.

I have not had time to devote to a complete and careful perusal of the first report of the Commissioners on the system of Public Works, and therefore I passed the draft of the letter above denoted without comment; but as the Honourable Mr. Thomas has since briefly recorded his sentiments,\* and as they have just come back to me, and my silence might be interpreted into dissenting from his views, I beg most distinctly to say that I entirely coincide in them, and shall endeavour at some future period to show my reasons for the opinion I have formed, that the first report of the Commissioners is one-sided, that it misrepresents the actuating motives and real feelings of Government with regard to its measures for the improvement and amelioration of the country, and therefore that it is not entitled to that confidence—though some facts set forth in it may be well supported—which such a document should command, to render it of any general practical use.

13 April 1853.

(signed) *Henry Pottinger.*

## MINUTE.

DRAFT of LETTER to the Government of India to be transmitted with the First Report of the Commission on Public Works.

SINCE this Report came to me I have been so engrossed with other important subjects, particularly the Reports of the Special Commissioner on Malabar, that I have not been able to give attention to it, I am therefore unprepared to make any comment upon it. Having now nearly disposed of the business which has so much occupied me, I hope to have leisure to study the Report deliberately, and I shall diligently apply all the time I can spare from the papers passing in circulation to a careful review and digest of it, in order that I may be able, as early as possible, to express my views upon the many important subjects of which it treats so largely and discursively.

13 April 1853.

(signed) *D. Elliott.*

No. 1 of 1853.

No. 122.

Public Works Department.

To *James Cosmo Melvill, Esq.*, Secretary at the India House.

Sir,

I AM directed by the Right Honourable the Governor in Council to forward, for the purpose of being laid before the Honourable Court of Directors, five printed copies of the first Report furnished by the Commissioners appointed to inquire into and report upon the Department of Public Works, together with a transcript of a letter addressed on the subject to the Government of India.

I have, &amp;c.

Fort St. George, 13 April 1853.

(signed) *H. C. Montgomery,*  
Chief Secretary.

\* Minute dated the 12th of April 1853.

EXTRACT Public Works Letter from Madras, dated 10 February 1854.

No. 1.

WE have the honour to forward two memorials to your address, from Lieutenant-colonel A. T. Cotton, Chief Engineer, dated 5 January last.

2. In the first of these this officer complains that the Government have printed a book, which has been extensively circulated in Madras, containing minutes of the members of Government on the report of the "Public Works" Commissioners, besides several minutes by the President, most severely reflecting on him, and one of which minutes is that which the President wrote on the memorial addressed by him to your Honourable Court in March 1853, and forwarded with our letter of the 3d June following, No. 4.

\* \* \* \* \*

4. As connected with the first of the memorials alluded to above, we forward copy of a letter from Lieutenant-colonel Cotton, dated 4 January, applying for permission to print certain public documents, in defence of charges brought against him (as he represents) in the proceedings of Government on the First Report of the Public Works Commission, and likewise take the opportunity of submitting copies of the papers recorded in the Consultations noted in the margin as having reference to the subject of the second memorial.

Rev. Cons.  
2 August 1853,  
No. 21, 22.  
Ditto, 23 August  
1853, No. 33 to 39.

5. The Right Honourable the President, and the honourable the members of Council having recorded their views at length upon the subject of each of the communications addressed by Lieutenant-colonel Cotton in minutes of the dates noted in the margin, copies of which also accompany, we do not consider it necessary to do more on the present occasion than to refer your Honourable Court to those documents.

Minutes by the  
Right Hon. the  
President, dated  
19th, 20th and 21st  
January 1854.  
Ditto, by the Hon.  
Mr. Elcott, 21  
January 1854.  
Ditto, by the Hon.  
Mr. Thomas, 24  
January 1854.

6. Your Honourable Court will observe from our resolution of this date that we have not considered it open to us to accord to Lieutenant-colonel Cotton the permission solicited by him to print certain documents, pending the orders of the Government of India and your Honourable Court, on the reports of the "Public Works" Commissioners.

7. We beg to acknowledge the receipt of your despatch in the Public Department, 9 November 1853, No. 48, relating to the appointment of Captain Greenlaw, of the 46th Regiment, N. I., to the office of assistant secretary to the Board of Revenue in the Department of Public Works, a subject to which we shall do ourselves the honour to reply separately.

EXTRACT Fort St. George Public Works Diary to Consultation of  
14 February 1854.

January 5, received the following letter :

No. 2.

From Lieutenant-colonel *A. T. Cotton*, Chief Engineer, to the Chief Secretary to Government.

Sir,

It is now a matter of common notoriety that in the book which has been printed, containing the minute of the Right Honourable the President and members of Council on the subject of the Public Works Report, several minutes by the Right Honourable the President are inserted, most severely reflecting on my conduct.

I most respectfully submit, that not having been one of the Public Works Commissioners, I am not connected with that matter, and my case is essentially different from theirs in two respects.



1st. No paper of mine has been published, and therefore in appealing to the public in my case the Government have brought forward only the charges against me, without any papers which could enable that public to form their own judgment in the case.

2d. I understand the two civil members who have recorded their views on the Public Works Report have not given any opinion either on the minutes animadverting on my conduct, or on their publication.

At present I am therefore brought before a tribunal without any opportunity being given me of making my own defence.

I speak of the minutes being made public, though nominally they have not been so, because they have in fact. They are printed; they have been placed in the hands of various individuals, both in the service and out of it, and have been seen and commented on by one, at least, of the editors of the Madras newspapers.

The Honourable the Court of Directors have my papers as well as the minutes before them; and had I been brought before a court-martial, I should of course have been allowed to produce any papers I thought necessary; but I am now brought before the public, both without defenders and without being allowed to make my own defence, as matters stand. I have therefore the honour respectfully to request that I may be permitted to print and circulate to those who have seen the charges brought against me such public documents as may appear to me necessary for my defence.

(signed) *A. T. Cotton*, Lieutenant-colonel,  
Chief Engineer's Office, Fort St. George, Chief Engineer.  
4 January 1854.

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MINUTE by the Right Honourable the President.

LETTER from the Chief Engineer, No. 7, dated the 4th of January 1854, asking for permission to print such documents as may appear necessary for the defence of certain charges, &c.

I HAVE not earlier had time to attend to the above letter, owing to other pressing important matters.

So far as I am personally concerned, I have no objection to the chief engineer's request being now acceded to, as nothing that that officer might point out can possibly affect me; but, viewed as a public question, I do not think that the orders which may be shortly expected, either from the Government of India or the Home authorities, should be anticipated, and I not only conceive that that would be done by granting the chief engineer the permission he applies for, but that a very objectionable precedent would be established.

I am not going to discuss the validity of the chief grounds on which the chief engineer places his application, but it is quite superfluous to remark that although that officer was not a member of the Commission of Public Works, he has been held up by that body as their great oracle and authority, and as such is quoted by the public press, both in India and England.

I repeat that I have personally, in my private capacity, no objection to permission to print what he likes being given to the chief engineer; but that, as the head of the Government, I doubt the propriety of acquiescence.

19 January 1854.

(signed) *Henry Poltinger*.

No. 4.

From Lieutenant-colonel *A. T. Cotton*, Chief Engineer, to the Chief Secretary to Government.

Sir,

I HAVE the honour to forward a memorial in triplicate addressed to the Honourable Court of Directors, and request that you will be so good as to submit the same to the Right Honourable the Governor in Council, with a view to its being forwarded.

(signed) *A. T. Cotton*, Lieutenant-colonel,  
Chief Engineer's Office, Fort St. George, Chief Engineer.  
5 January 1854.

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MINUTE by the Right Honourable the President.

LETTER from Lieutenant-colonel Cotton, Chief Engineer, No. 8, dated 5 January 1854, forwarding a memorial to the Honourable Court:

THE above memorial will of course be sent to the Honourable Court by the next mail.

The only part of it that appears to call for any reply from me, is to explicitly repudiate the idea that Government have made any appeal to the public; I can safely say that such an idea never entered the mind of my honourable colleagues or myself. Government could hardly be expected to sit silent under the load of misrepresentation that had been heaped on it by the First Report of the Commissioners of Public Works, and as that Report had been prematurely forced before the world to suit a particular object, it necessarily appeared to be requisite that the refutation should be equally extensively circulated, and on that account it was printed. It has not, however, been yet made public by authority, and at the last meeting of Council, it was, after due consideration, decided that that should not be done, pending orders from the Government of India or the Honourable Court.

20 January 1854. (signed) *Henry Pottinger*.

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No. 3.

From Lieutenant-colonel *A. T. Cotton*, Chief Engineer, to the Chief Secretary to Government.

Sir,

I HAVE the honour to forward a memorial, in triplicate, addressed to the Honourable the Court of Directors, and request that you will be so good as to submit the same to the Right Honourable the Governor in Council, with a view to its being forwarded.

(signed) *A. T. Cotton*, Lieutenant-colonel,  
Chief Engineer's Office, Fort St. George, Chief Engineer.  
5 January 1854.

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To the Honourable the Court of Directors of the East India Company.

The respectful Memorial of Lieutenant-colonel *Arthur Thomas Cotton*, of the Corps of Madras Engineers, holding the appointment of Chief Engineer at Fort St. George,

Humbly sheweth,

Para. 1. THAT in March last your memorialist considered it his duty to transmit a memorial to your Honourable Court, stating his views of the effect upon the corps of which he is in charge, of certain late appointments in it; that no answer to that memorial has yet been communicated to your memorialist; that the Right Honourable the Governor in Council has now printed a book, which

has been extensively circulated in Madras (so that the contents of it are in fact published), containing the minutes of the President and the two civil members of the Council on the Report of the Public Works Commissioners; that, besides the above minute, several minutes by the President have been printed in the same book, most severely reflecting on your memorialist, though not one of the Commissioners of Public Works, one of which minutes is that which the President wrote on the above memorial.

2. Your memorialist respectfully submits for the consideration of your Honourable Court the following objections to this proceeding :

1st. The matter of the above memorial is before your Honourable Court, and the virtual publication of one of the minutes written on that occasion (and that without the minute of the other members of Council, and other documents), before the decision of your Honourable Court is known, seems to be an appeal to the public, which the circumstances do not justify, so far as your memorialist is concerned.

2d. That not only has no decision yet been received from your Honourable Court, but it seems to your memorialist that he has a right to presume that your view of the case essentially differs from that shown in the President's minute referred to; for it is not to be supposed that the matter would have remained unnoticed for more than six months (it is now 10 months since it was sent in to Government), if your Honourable Court had concluded that it was so objectionable a document as is implied in the minute; it being usual, I believe, in such cases whenever there is even the least room for doubt as to which is in the right, the superior or subordinate, to give the superior the benefit of that doubt.

3d. In the matter of the Public Works Report, both the civil members of Council have recorded at length their views respecting that document; one of them defending it, while in the case of your memorialist, neither of these gentlemen have recorded their views either upon the subject of the minute, or upon the appeal to the public, by its publication in a book primarily on another subject. It is thus, certainly, to be presumed that neither of the civil members concur with the Right Honourable the President in this proceeding; though they have neither said anything in defence of your memorialist, nor protested against your memorialist being thus publicly accused, without an opportunity being given to your memorialist of defending himself by the publication of such documents as your memorialist may consider necessary for that end.

3. As so much time must elapse before your memorialist can hear from your Honourable Court, and the public here are already in possession of these papers, your memorialist has thought it necessary at once to address the Government here in a letter, a copy of which is here appended.

4. Your memorialist respectfully submits :

1st. That no step such as the present, being a public condemnation of a servant of Government on a point which is still in the hands of your Honourable Court by the local authorities, against whom your memorialist has appealed, is justifiable, whether as respects your memorialist on the authority of your Honourable Court; and

2d. That if an appeal to the public is made by the publication of a document condemnatory of any individual, that document ought to be accompanied by every other that that individual may think necessary for his defence.

And your memorialist, as in duty bound, &c.

(signed) *A. Cotton*, Lieutenant-colonel,  
Chief Engineer's Office, Fort St. George, Chief Engineer.  
5 January 1854.

No. 2.

From Lieutenant-colonel *A. T. Cotton*, Chief Engineer, to the Chief Secretary to Government.

Sir,

It is now a matter of common notoriety that in the book which has been printed, containing the minutes of the Right Honourable the President and Members of Council, on the subject of the Public Works Report, several minutes by the Right Honourable the President are inserted, most severely reflecting on my conduct.

I most respectfully submit, that not having been one of the Public Works Commissioners, I am not connected with that matter, and my case is essentially different from theirs in two respects.

1st. No paper of mine has been published, and therefore in appealing to the public in my case the Government have brought forward only the charges against me without any papers which could enable that public to form their own judgment in the case.

2d. I understand the two civil members who have recorded their views on the Public Works Report have not given any opinion either on the minutes animadverting on my conduct or on their publication.

At present I am therefore brought before a tribunal without any opportunity being given me of making my own defence.

I speak of the minutes being made public, though nominally they have not been so, because they have in part; they are printed; they have been placed in the hands of various individuals, both in the service and out of it, and have been seen and commented on by one at least of the editors of the Madras newspapers.

The Honourable Court of Directors have my papers as well as the minutes before them, and had I been brought before a court-martial I should of course have been allowed to produce any papers I thought necessary; but I am now brought before the public, both without defenders and without being allowed to make my own defence, as matters stand. I have therefore the honour respectfully to request that I may be permitted to print and circulate to those who have seen the charges brought against me such public documents as may appear to me necessary for my defence.

I have, &c.

(signed) *A. Cotton*, Lieutenant-colonel,

Chief Engineer's Office, Fort St. George,  
4 January 1854.

Chief Engineer.

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MINUTE by the Right Honourable the President.

LETTER from Lieutenant-colonel Cotton, Chief Engineer, No. 9, dated the 5th January, 1854, handing up a memorial to the Honourable Court, bringing to notice the proceedings of Government with respect to certain engineer officers who memorialised against being superseded by an officer of the native infantry.

The memorial above referred to will immediately be sent to the Honourable Court.

The Honourable Court having expressed their sentiments in a recent despatch on the alleged supersession of certain officers of engineers by an officer of infantry, of course the prohibition of the promotion of the former who memorialised to a higher grade is at an end.

The despatch from the Honourable Court of the 9th of November 1853 will be disposed of in the usual manner, and when it is replied to in due routine, and the draft comes to me, I shall place a minute on record to accompany the reply.

The Honourable Court's orders will necessarily be strictly obeyed, but as I conceive them to have been grounded on misstatement, and further, as I hold that circumstances have since shown that the view I took of the deficiency of qualified engineer officers was essentially correct, I shall point out the impressions I still retain on that question. I wholly deny the allegations made in the chief engineer's memorial as to its being a common right for officers to communicate with me personally as Governor. Lieutenant Scott had chosen to enter into the combination, and as I looked, and still do so, on such a combination to be equally subversive of proper authority and respect, I marked it by my personal displeasure. No individual at the head of this Government, or any other Government, has, I will venture to assert, ever made himself more accessible to all ranks and classes than I have done; but so far as for admitting it to be "a common right," I distinctly decline to do so. I have exercised, and shall continue to do so, my own pleasure on those points. Lieutenant Scott was told by my orders that I would not communicate with him in person, but that if he had anything to say he might inform my private secretary, or put what he wished to make known on paper. I think I was informed afterwards that he observed that he had come to apply to me to be removed to another station as he had quarrelled with his immediate commanding officer, which I deemed a conclusive proof of the total want of the usual respect which the example of Lieutenant-colonel Cotton has inculcated.

21 January 1854.

(signed) *Henry Pottinger.*

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MINUTE by the Honourable Mr. *Elliott.*

THE letters of Lieutenant-colonel Cotton, chief engineer, one, No. 7, dated the 4th instant, and two, Nos. 8 and 9, dated the 5th instant, containing memorials to the Honourable Court of Directors, have reached me on circulation this day.

In the first letter Colonel Cotton requests the permission of Government to print and circulate such public documents as may appear to him necessary for his defence against certain reflections contained in minutes of the Right Honourable the President appended to his minute on the First Report of the Commission on Public Works, printed with the proceedings of Government on that Report.

In the second letter, Colonel Cotton submits a memorial addressed to the Honourable Court of Directors, complaining of the publication of those minutes.

In both his letter to Government and in his memorial to the Court of Directors, Colonel Cotton assumes that the Government have appealed to the public in his case, and complains that they have brought forward only the charges against him, without any papers, which could enable that public to form their own judgment. He surmises that the Government printed the papers in question purposely as an appeal to the public, and complains of the civil members of Council not having protested against his being thus publicly accused without an opportunity being given to him of defending himself by the publication of such documents as he might consider necessary for that end.

I deny that an appeal to the public was intended by Government in printing the minutes. The Report of the Commission on Public Works was printed in the first instance for the sake of convenience, and for the same reason the minutes reviewing that Report were likewise printed. These minutes were intended for the consideration of the Government of India, and the Honourable the Court of Directors, and the copies of former minutes appended to some of them were annexed simply for more easy reference to documents already recorded in the proceedings of Government, to which the writers desired to call attention. The Government are not in any way bound to make known to officers, on whose conduct they have found it necessary to animadvert, in communications to the Court of Directors, the tenor of their comments, or to give them an opportunity to discuss them; still less to make known to them, or to give them an opportunity of discussing the opinions of the head, or individual members of the Govern-  
ment,

Letter No. 7.

Memorial enclosed  
in No. 8.

ment, which have not been adopted by the majority. It is quite contrary to all precedent to do so, pending the judgment of the Court in the representation made to them. It would be detrimental to the public service to admit such discussion. I do not see that there is reason to distinguish between this case and others, merely on the ground that the minutes having been printed, have got into the hands of persons who would not have had an opportunity of seeing them if they had been, as usual, confined to manuscript. This was not authorised nor contemplated by Government, and it has been stated to the Governor-General in Council, that the Government do not feel themselves at liberty to publish the papers that have been printed, while they are under the consideration of that authority and the Court of Directors. Colonel Cotton does not specify what papers he desires to print and circulate, and I have no idea that they are beyond those that have been sent to the Court. I presume that all the papers to which the appended minutes relate will be before the Court, when his memorial to that authority, which is the subject of one of them, is disposed of. His appeal to that only legitimate tribunal will therefore have all the support that the papers in the records of Government can afford, and the opinions that have been expressed regarding his conduct will be weighed by that standard, his proposed appeal to the public I think is inadmissible.

The Honourable Court will judge of the propriety of the memorial which Colonel Cotton has addressed to them on the subject, and I trust that the opportunity will be taken to lay down some rule as to the latitude which is to be allowed to officers in criticising the proceedings of Government in the shape of memorials, as well as upon the right asserted by Colonel Cotton, which of course he does not claim as a peculiar privilege, to vindicate himself from censures, which he understands to have been passed upon him in the course of discussions at the Council table, by appeal to the public, knowing that those censures, and the grounds of them, have been submitted to the judgment of the Honourable Court.

In his third letter, Colonel Cotton has submitted a memorial, addressed by him to the Honourable Court of Directors, not on account of any grievance of his own, but as the champion of certain officers of the corps of engineers under his command, on account of a grievance which he considers them to have suffered. I question the pretension of Colonel Cotton to set himself up as the champion and advocate of these officers; and I cannot but remark that the time was ill chosen for doing so, when a despatch had actually been received from the Honourable Court of Directors, containing their decision, pending which, only the resolution complained of was to have effect. The despatch was received on the 1st January, and Colonel Cotton's memorial is dated the 5th. I do not object to the memorial being transmitted to the Honourable Court, for though it appears to me exceptionable, yet it is for the Court to determine on the correctness of the principle on which it is based. I do not enter into the merits of the case, further than to say that I did not approve of the promotion of the officers in question being suspended because of their having addressed memorials to the Honourable Court.

Minute, dated 15th and 23d August 1853.

While I oppose the claim of Colonel Cotton to be allowed to print and circulate public documents by way of appeal to the public, from censures upon which we may expect a judgment to be pronounced by the Honourable Court of Directors, on a full consideration of his conduct, as manifested in the papers before them, which it would seem must be the papers he desires to publish, I yet would guard myself from being supposed to concur in the censures to which he objects, particularly those expressed in the minute of the Right Honourable the President, dated 4th May 1852, on the draft of the despatch with which Colonel Cotton's memorial was transmitted to the Honourable Court.

\* I subscribe to the despatch, but not to the minute.

21 January 1854.

(signed) D. Elliott.

MINUTE by the Honourable Mr. Thomas.

LETTER from Lieutenant-colonel Cotton, 4 January 1854, requesting papers with a view to publication

Letters dated 5 January, with two memorials from the same officer, with minutes by the Right Honourable the President and by the Honourable Mr. Elliott, dated 21st instant.

These papers have reached me this day (24th), and I have little to add to the remarks recorded in the Honourable Mr. Elliott's minute, in which I fully concur.

It should, I think, be pointed out to Lieutenant-colonel Cotton that he is in error in designating the minute, or views of one of the members, as the proceedings of the Government. This error is the more marked in this case, as in the instance to which he especially refers, the minute of the President of the 4th May last, there was but one of the civil members of Government then present. I was not even aware of the existence of his memorial, and of the minute upon it, till long after both had been despatched to England, being then absent on the Neilgherries. So little ground is there for his remarks in the alleged omission to protest against the view taken of his conduct by the President.

As he has now brought this memorial again under notice, I deem it right to state my opinion that I consider that document unjustifiable, as wholly wanting in the respect due to the head of the Government, and subversive of all authority.

Colonel Cotton had no personal grievance of which to complain; and his assumption of a right to comment upon, and pass in review the acts of the head of the Government under the guise of a memorial to the Honourable Court I must entirely condemn, whether in his case or in the more recent one of the Rev. Mr. Taylor, unless the Honourable Court see cause expressly to sanction such appeals to them.

I look upon the memorial now sent in by Lieutenant-colonel Cotton, in which that officer represents the cases of certain junior engineer officers, as open to similar exceptions, particularly as noticed by the Honourable Mr. Elliott, at this date, when the Court's late despatch has removed the ground of complaint.

With reference to Lieutenant-colonel Cotton's application for papers "for the purpose of publication," though I should deprecate the concession in this and similar cases where personal feelings and interests come under discussion, I should be glad to see a discretion given to this Government to publish its proceedings and papers, upon great general questions in which the whole community are interested. Such, for example, as the Minutes and Proceedings of Government and of the Revenue Board on the recent apprehended famine, on the Mohiturfas, the salt and other general questions; I cannot myself doubt but that this course would be found highly beneficial, and far better calculated than the existing system to uphold the character of the Government, and to lead to a sound, healthful, and useful public opinion. It is upon this ground that I now advocate the publication of the minutes and the orders of Government on the Report of the Public Works Commissioners.

24 January 1854.

(signed) *J. F. Thomas.*

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No. 62.

RESOLVED, that Lieutenant-colonel Cotton's memorials, enclosed in his letters of the 5th January 1854, Nos. 3 & 4, be forwarded to the Honourable Court of Directors, together with his letter of the 4th January, No. 2, and the Minutes of the Members recorded above, as well as the Papers recorded in the Consultation, noted in the margin, having reference to the application of the Board of Revenue in the Department of Public Works for the promotion of certain engineer officers who had previously memorialized the Honourable Court.

2. Resolved also, that Lieutenant-colonel Cotton be informed with reference to his letter of the 4th January, that pending the orders of the Government of India and the Honourable Court of Directors on the Reports of the Public Works Commissioners,

Commissioners, the Government do not consider that it is open to them to accord to him for the purpose stated the permission he solicits to print certain public documents.

(signed) *H. C. Montgomery,*  
 Fort St. George, 10 February 1854. Chief Secretary.

MEMORIAL from the Commissioners of Public Works at *Madras*.

EXTRACT Fort St George Public Works Consultation of 22 November 1853.

Read the following Papers :

From the Commissioners for inquiring into and reporting upon the system of Public Works, to Sir *H. C. Montgomery*, Bart., Chief Secretary to Government, Fort St. George.

Sir,

WE have the honour to forward a memorial in triplicate, addressed to the Honourable the Court of Directors of the East India Company. We beg to request that you will be good enough to lay it before the Right Honourable the Governor in Council, with a view to its being transmitted to the Honourable Court.

(signed) *J. D. Bourdillon,*  
*G. Balfour*, Major,  
 Public Works Commissioners.

Public Works Commissioners' Office,  
 Fort St. George, 8 November 1853.

Respectful Memorial from *J. D. Bourdillon*, Esq., of the Madras Civil Service, and Major *George Balfour*, Commissioners for inquiring into and reporting on the system of superintending and executing Public Works in the Madras Presidency, to the Honourable the Court of Directors of the East India Company.

YOUR memorialists beg to submit the following circumstances for the consideration of your Honourable Court, and for such orders as you may deem fitting,

In pursuance of your Honourable Court's despatch of the 30th of January 1850, para. 65, your memorialists were on the 18th February 1851 appointed Commissioners, jointly with Major F. Cotton, of the Madras Engineers, for the purposes of inquiring into and reporting on the superintendence and execution of Public Works under this Presidency, and on the 23d December 1852, the Commissioners submitted the first Report on the very complicated and extensive subject committed to them. Your memorialists then proceeded with their inquiries, being deprived of the co-operation of Major Cotton, who was withdrawn for other important duty in the provinces; and on the 1st instant they reported to Government that their second and final Report was completed, with the exception of a small part of the Appendix. On the 8th instant (this day) your memorialists waited on his Excellency the Governor at the public breakfast officially notified, for the purpose of presenting that Report to him in person, and of officially paying their respects to him as the head of the Government on the breaking up of the Commission. Your memorialists put down their names in the proper book in the usual way, for an interview for this purpose; but after breakfast, and before the reception began, the senior aide-de-camp, Captain Hay, delivered to them a message from the Governor to the effect that his Excellency could not grant them an interview, and that it was owing to his (Captain Hay's) mistake that their names had been put down at all, as he had previously received his Excellency's orders that their names should not be on the Government House list.



Your memorialists beg to represent that according to social usages in this country, removal from the lists of those admitted to Government House carries with it various social and public inconveniences and disabilities; and that as applied to gentlemen holding important and responsible offices under Government, such a measure is altogether unprecedented. They feel compelled to ascribe this sentence of exclusion now notified to them, to displeasure felt and recorded by his Excellency at some passages, or at the general tenor of their first Report. They have thus incurred this exclusion solely, as they believe, by their discharge of an important and arduous duty committed to them in pursuance of the orders of your Honourable Court, and which duty they zealously and laboriously endeavoured to perform in an honest and complete manner, in accordance with their duty to your Honourable Court, and to advance the well-being of this country. Your memorialists therefore address your Honourable Court in the confident hope that you will be pleased to grant them redress, and replace them in that position socially and officially, which as men of honour and integrity, and zeal in your service, they have a right to claim.

And your memorialists respectfully subscribe themselves,

(signed) *J. D. Bourdillon,*  
*G. Balfour, Major,*  
Public Works Commissioners.

Fort St. George, 8 November 1853.

MINUTE by the Right Honourable the President.

I BEG to propose that the memorial which accompanies this letter be transmitted to the Honourable Court by the first opportunity. The statement therein contained is quite correct, with the addition that I desired my aide-de-camp to say that I declined to have any personal intercourse with any of the members of the Commission. As the head of this Government I feel that I was quite justified in the step I took, equally to protect myself from being intruded upon by persons who had so totally forgotten what was due to me in that position, and also in my private capacity to mark the sense I entertained of their conduct.

(signed) *Henry Pottinger.*

Guindy Park, 10 November 1853.

No. 418.

ORDERED, that the memorial received with the above letter be forwarded to the Honourable the Court of Directors, together with the minute recorded by the Right Honourable the President.

(signed) *H. C. Montgomery,*  
Chief Secretary.

Fort St. George, 22 November 1853.

Public Department, 22 March (No. 13) 1854.

Our Governor in Council at Fort St. George.

LETTER (Public Works Department), dated 23 November (No. 10) 1853.

Para. 1. IN this letter you have transmitted to us a memorial from Mr. J. D. Bourdillon and Major G. Balfour, members of the Commission on Public Works, complaining of the manner in which they had been treated by the Governor of your Presidency.

2. These gentlemen state that having waited upon Sir Henry Pottinger at the public breakfast, and having put down their names for an interview in order to present

present their second Report, and officially to pay their respects to him as the head of the Government on the breaking up of the Commission, they were informed by the senior aide-de-camp that the Governor could not grant them an interview, and that he had given orders "that their names should not be on the Government House lists."

3. The memorialists state that they feel compelled to ascribe the treatment of which they complain to displeasure felt at some passages, or at the general tenor of their first Report; and this impression is verified by Sir Henry Pottinger in a minute which accompanies the memorial, and in which he states, "As the head of the Government I feel that I was quite justified in the step I took, equally to protect myself from being intruded upon by persons who had so totally forgotten what was due to me in that position, and also in my private capacity, to mark the sense I entertained of their conduct."

4. The blame imputed to the Commissioners in the above minute is stated at greater length and in far stronger terms in the minute recorded by Sir Henry Pottinger, on the first Report of the Commissioners; and on the same occasion the other members of your Government took exception to the tone of the Commissioners' remarks on the Government of your Presidency, with reference to Public Works in past years. Several instances are pointed out by Mr. Eliott, in which their statements, impugning the conduct of your Government, are contradicted by facts; and both he and Mr. Thomas impute to those gentlemen misstatements in cases where they could scarcely be ignorant of circumstances which ought to have modified their conclusions.

5. We shall not be in a position till we have received the second Report of the Commissioners, and been put in possession of the views of the Government of India on the subject, to go into a full consideration of the substance of the Report already received, and of the minutes recorded by your Government in connexion with it; but we have, nevertheless, thought it right to enter on such an examination of it as would enable us to decide how far the Commissioners may have laid themselves open to these observations on the tone and spirit of their Report, as far as it regards the conduct of your Government.

6. The result is, that whilst we are entirely of opinion that it was the bounden duty of the Commissioners to bring fully before the Government of India all the facts connected with the subject of their inquiry, and the deficiencies which, in their opinion, existed in any part of the service of the Department of Public Works, we think they are liable to animadversion for the tone of several parts of their Report, with reference to the conduct which on different occasions your Government thought it right to pursue. Such a course could not be necessary for a perfect elucidation of the truth, and could not but tend to produce feelings little calculated to promote the important object of a good and harmonious understanding amongst gentlemen employed in the same public service.

7. On the other hand, we cannot but regret the mode which Sir Henry Pottinger thought proper to adopt for expressing his disapprobation of the conduct of the Commissioners when they came, according to the accustomed practice, to seek an interview for the purpose of presenting their second Report, and also the communication made to them by his orders, which we think casts unmerited discredit on public officers of high character and reputation.

8. With regard to the charge of wilful misstatement and misrepresentation, which seems to be implied by Mr. Thomas, we shall reserve our opinion until the Commissioners have had the opportunity of offering an explanation.

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(True extracts.)

East India House,  
2 May 1854.

T. L. Peacock,  
Examiner of India Correspondence.

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**PUBLIC WORKS (INDIA).**

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COPIES of REPORTS of the COMMISSION OF PUBLIC WORKS at *Bombay*; of SECOND REPORT of COMMISSIONERS ON PUBLIC WORKS at *Madras*, with MINUTES OF REPORTS of the Governor and Members of Council at *Madras* to the Governor-General or Court of Directors respecting the same; of MINUTES OF REPORTS of the Governor-General in Answer to those Reports; of MEMORIALS from the Commissioners on Public Works at *Madras* respecting those Reports; and of the ANSWERS of the Court of Directors thereto.

6

(*Mr. Hume.*)

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*Ordered, by The House of Commons, to be Printed,  
4 May 1854.*

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[*Price 1 s. 6 d.*]

# EDUCATION (INDIA).

RETURN to an Order of the Honourable The House of Commons,  
dated 18 July 1854;—for,

A COPY "of a DESPATCH to the GOVERNMENT of *India*, on the Subject  
of GENERAL EDUCATION in *India*."

India Board, }  
19 July 1854. }

WM. LEACH.

COPY of a DESPATCH from the Court of Directors of the *East India* Company  
to the Governor-general of India in Council, dated July 19th, 1854, No. 49.

1. It appears to us that the present time, when by an Act of the Imperial Legislature the responsible trust of the Government of India has again been placed in our hands, is peculiarly suitable for the review of the progress which has already been made, the supply of existing deficiencies, and the adoption of such improvements as may be best calculated to secure the ultimate benefit of the people committed to our charge.

2. Among many subjects of importance, none can have a stronger claim to our attention than that of Education. It is one of our most sacred duties to be the means, as far as in us lies, of conferring upon the natives of India those vast moral and material blessings which flow from the general diffusion of useful knowledge, and which India may, under Providence, derive from her connexion with England. For, although British influence has already, in many remarkable instances, been applied with great energy and success to uproot demoralising practices, and even crimes of a deeper dye, which for ages had prevailed among the natives of India, the good results of those efforts must, in order to be permanent, possess the further sanction of a general sympathy in the native mind, which the advance of education alone can secure.

3. We have, moreover, always looked upon the encouragement of education, as peculiarly important, because calculated "not only to produce a higher degree of intellectual fitness, but to raise the moral character of those who partake of its advantages, and so to supply you with servants to whose probity you may with increased confidence commit offices of trust" in India, where the well-being of the people is so intimately connected with the truthfulness and ability of officers of every grade in all departments of the State.

Public letter to  
Bengal, 5 Sept.  
1827.

4. Nor, while the character of England is deeply concerned in the success of our efforts for the promotion of education, are her material interests altogether unaffected by the advance of European knowledge in India: this knowledge will teach the natives of India the marvellous results of the employment of labour and capital, rouse them to emulate us in the development of the vast resources of their country, guide them in their efforts, and gradually, but certainly, confer upon them all the advantages which accompany the healthy increase of wealth and commerce; and, at the same time, secure to us a larger and more certain supply of many articles necessary for our manufactures and extensively consumed by all classes of our population, as well as an almost inexhaustible demand for the produce of British labour.

5. We have from time to time given careful attention and encouragement to the efforts which have hitherto been made for the spread of education, and we have watched with deep interest the practical results of the various systems by which those efforts have been directed. The periodical reports of the different

Councils and Boards of Education, together with other official communications upon the same subject, have put us in possession of full information as to those educational establishments which are under the direct control of Government; while the evidence taken before the Committees of both Houses of Parliament upon Indian affairs has given us the advantage of similar information with respect to exertions made for this purpose by persons unconnected with Government, and has also enabled us to profit by a knowledge of the views of those who are best able to arrive at sound conclusions upon the question of education generally.

6. Aided, therefore, by ample experience of the past, and the most competent advice for the future, we are now in a position to decide upon the mode in which the assistance of Government should be afforded to the more extended and systematic promotion of general education in India, and on the measures which should at once be adopted to that end.

7. Before proceeding further, we must emphatically declare that the education which we desire to see extended in India is that which has for its object the diffusion of the improved arts, science, philosophy, and literature of Europe; in short, of European knowledge.

8. The systems of science and philosophy which form the learning of the East abound with grave errors, and Eastern literature is at best very deficient as regards all modern discovery and improvements; Asiatic learning, therefore, however widely diffused, would but little advance our object. We do not wish to diminish the opportunities which are now afforded, in special institutions, for the study of Sanskrit, Arabic, and Persian literature, or for the cultivation of those languages, which may be called the classical languages of India. An acquaintance with the works contained in them is valuable for historical and antiquarian purposes, and a knowledge of the languages themselves is required in the study of Hindoo and Mahomedan law, and is also of great importance for the critical cultivation and improvement of the vernacular languages of India.

9. We are not unaware of the success of many distinguished Oriental scholars in their praiseworthy endeavours to ingraft upon portions of Hindoo philosophy the germs of sounder morals and of more advanced science; and we are far from underrating the good effect which has thus been produced upon the learned classes of India, who pay hereditary veneration to those ancient languages, and whose assistance in the spread of education is so valuable, from the honourable and influential position which they occupy among their fellow-countrymen. But such attempts, although they may usefully co-operate, can only be considered as auxiliaries, and would be a very inadequate foundation for any general scheme of Indian education.

10. We have also received most satisfactory evidence of the high attainments in English literature and European science which have been acquired of late years by some of the natives of India. But this success has been confined to but a small number of persons; and we are desirous of extending far more widely the means of acquiring general European knowledge, of a less high order, but of such a character as may be practically useful to the people of India in their different spheres of life. To attain this end it is necessary, for the reasons which we have given above, that they should be made familiar with the works of European authors, and with the results of the thought and labour of Europeans on the subjects of every description upon which knowledge is to be imparted to them; and to extend the means of imparting this knowledge must be the object of any general system of education.

11. We have next to consider the manner in which<sup>1</sup> our object is to be effected; and this leads us to the question of the medium through which knowledge is to be conveyed to the people of India. It has hitherto been necessary, owing to the want of translations or adaptations of European works in the vernacular languages of India, and to the very imperfect shape in which European knowledge is to be found in any works in the learned languages of the East, for those who desired to obtain a liberal education, to begin by the mastery of the English language as a key to the literature of Europe; and a knowledge of English will always be essential to those natives of India who aspire to a high order of education.

12. In

12. In some parts of India, more especially in the immediate vicinity of the Presidency towns, where persons who possess a knowledge of English are preferred to others in many employments, public as well as private, a very moderate proficiency in the English language is often looked upon by those who attend school instruction, as the end and object of their education, rather than as a necessary step to the improvement of their general knowledge. We do not deny the value in many respects of the mere faculty of speaking and writing English, but we fear that a tendency has been created in these districts unduly to neglect the study of the vernacular languages.

13. It is neither our aim nor desire to substitute the English language for the vernacular dialects of the country. We have always been most sensible of the importance of the use of the languages which alone are understood by the great mass of the population. These languages, and not English, have been put by us in the place of Persian in the administration of justice, and in the intercourse between the officers of Government and the people. It is indispensable, therefore, that in any general system of education the study of them should be assiduously attended to. And any acquaintance with improved European knowledge which is to be communicated to the great mass of the people—whose circumstances prevent them from acquiring a high order of education, and who cannot be expected to overcome the difficulties of a foreign language—can only be conveyed to them through one or other of these vernacular languages.

14. In any general system of education, the English language should be taught where there is a demand for it; but such instruction should always be combined with a careful attention to the study of the vernacular language of the district, and with such general instruction as can be conveyed through that language. And while the English language continues to be made use of, as by far the most perfect medium for the education of those persons who have acquired a sufficient knowledge of it to receive general instruction through it, the vernacular languages must be employed to teach the far larger class who are ignorant of, or imperfectly acquainted with, English. This can only be done effectually through the instrumentality of masters and professors, who may, by themselves knowing English, and thus having full access to the latest improvements in knowledge of every kind, impart to their fellow-countrymen, through the medium of their mother tongue, the information which they have thus obtained. At the same time, and as the importance of the vernacular languages becomes more appreciated, the vernacular literatures of India will be gradually enriched by translations of European books, or by the original compositions of men whose minds have been imbued with the spirit of European advancement, so that European knowledge may gradually be placed in this manner within the reach of all classes of the people. We look, therefore, to the English language and to the vernacular languages of India together, as the media for the diffusion of European knowledge, and it is our desire to see them cultivated together in all schools in India of a sufficiently high class to maintain a schoolmaster possessing the requisite qualifications.

15. We proceed now to the machinery which we propose to establish for the superintendence and direction of education. This has hitherto been exercised, in our Presidencies of Bengal, Madras, and Bombay, by Boards and Councils of Education, composed of European and Native gentlemen, who have devoted themselves to this duty with no other remuneration than the consciousness of assisting the progress of learning and civilisation; and, at the same time, with an earnestness and ability which must command the gratitude of the people of India, and which will entitle some honoured names amongst them to a high place among the benefactors of India and of the human race.

16. The Lieutenant-governor of Agra has, since the separation of the educational institutions of the North-Western Provinces from those of Bengal, taken upon himself the task of their management; and we cannot allow this opportunity to pass without the observation that, in this, as in all other branches of his administration, Mr. Thomason displayed that accurate knowledge of the condition and requirements of the people under his charge, and that clear and ready perception of the practical measures best suited for their welfare, which make his death a loss to India, which we deplore the more

deeply as we fear that his unremitting exertions tended to shorten his career of usefulness.

17. We desire to express to the present Boards and Councils of Education our sincere thanks for the manner in which they have exercised their functions, and we still hope to have the assistance of the gentlemen composing them in furtherance of a most important part of our present plan; but, having determined upon a very considerable extension of the general scope of our efforts, involving the simultaneous employment of different agencies, some of which are now wholly neglected, and others but imperfectly taken advantage of by Government, we are of opinion that it is advisable to place the superintendence and direction of education upon a more systematic footing, and we have therefore determined to create an Educational Department, as a portion of the machinery of our Governments in the several Presidencies of India. We accordingly propose that an officer shall be appointed for each Presidency and Lieutenant-governorship, who shall be specially charged with the management of the business connected with education, and be immediately responsible to Government for its conduct.

18. An adequate system of inspection will also, for the future, become an essential part of our educational system; and we desire that a sufficient number of qualified inspectors be appointed, who will periodically report upon the state of those colleges and schools which are now supported and managed by Government, as well as of such as will hereafter be brought under Government inspection, by the measures that we propose to adopt. They will conduct, or assist at, the examination of the scholars at these institutions, and generally, by their advice, aid the managers and schoolmasters in conducting colleges and schools of every description throughout the country. They will necessarily be of different classes, and may possess different degrees of acquirement, according to the higher or lower character of the institutions which they will be employed to visit; but we need hardly say that, even for the proper inspection of the lower schools, and with a view to their effectual improvement, the greatest care will be necessary to select persons of high character and fitting judgment for such employment. A proper staff of clerks and other officers will, moreover, be required for the educational departments.

19. Reports of the proceedings of the inspectors should be made periodically, and these again should be embodied in the annual reports of the heads of the educational departments, which should be transmitted to us, together with statistical returns (to be drawn up in similar forms in all parts of India), and other information of a special character relating to education.

20. We shall send copies of this despatch to the Governments of Fort St. George and of Bombay, and direct them at once to make provisional arrangements for the superintendence and inspection of education in their respective Presidencies. Such arrangements as they may make will be reported to you for sanction. You will take similar measures in communication with the Lieutenant-governors of Bengal and of Agra, and you will also provide in such manner as may seem advisable for the wants of the non-regulation Provinces in this respect. We desire that your proceedings in this matter may be reported to us with as little delay as possible; and we are prepared to approve of such an expenditure as you may deem necessary for this purpose.

21. In the selection of the heads of the educational departments, the inspectors, and other officers, it will be of the greatest importance to secure the services of persons who are not only best able, from their character, position, and acquirements, to carry our objects into effect, but who may command the confidence of the natives of India. It may perhaps be advisable that the first heads of the educational departments, as well as some of the inspectors, should be members of our civil service; as such appointments in the first instance would tend to raise the estimation in which these offices will be held, and to show the importance we attach to the subject of education, and also as amongst them you will probably find the persons best qualified for the performance of the duty. But we desire that neither these offices, nor any others connected with education, shall be considered as necessarily to be filled by members of that

that service, to the exclusion of others, Europeans or Natives, who may be better fitted for them ; and that, in any case, the scale of their remuneration shall be so fixed as publicly to recognise the important duties they will have to perform.

22. We now proceed to sketch out the general scheme of the measures which we propose to adopt. We have endeavoured to avail ourselves of the knowledge which has been gained from the various experiments which have been made in different parts of India for the encouragement of education ; and we hope, by the more general adoption of those plans which have been carried into successful execution in particular districts, as well as by the introduction of other measures which appear to be wanting, to establish such a system as will prove generally applicable throughout India, and thus to impart to the educational efforts of our different Presidencies a greater degree of uniformity and method than at present exists.

23. We are fully aware that no general scheme would be applicable in all its details to the present condition of all portions of our Indian territories, differing, so widely as they do, one from another, in many important particulars. It is difficult, moreover, for those who do not possess a recent and practical acquaintance with particular districts to appreciate the importance which should be attached to the feelings and influences which prevail in each ; and we have, therefore, preferred confining ourselves to describing generally what we wish to see done, leaving it to you, in communication with the several local Governments, to modify particular measures so far as may be required, in order to adapt them to the different parts of India.

24. Some years ago, we declined to accede to a proposal made by the Council of Education, and transmitted to us, with the recommendation of your Government, for the institution of an university in Calcutta. The rapid spread of a liberal education among the natives of India since that time, the high attainments shown by the native candidates for Government scholarships, and by native students in private institutions, the success of the medical colleges, and the requirements of an increasing European and Anglo-Indian population, have led us to the conclusion that the time has now arrived for the establishment of universities in India, which may encourage a regular and liberal course of education, by conferring academical degrees as evidences of attainment in the different branches of art and science, and by adding marks of honour for those who may desire to compete for honorary distinction.

25. The Council of Education, in the proposal to which we have alluded, took the London University as their model ; and we agree with them, that the form, government, and functions of that university (copies of whose charters and regulations we enclose for your reference) are the best adapted to the wants of India, and may be followed with advantage, although some variation will be necessary in points of detail.

26. The universities in India will accordingly consist of a chancellor, vice-chancellor, and fellows, who will constitute a senate. The senates will have the management of the funds of the universities, and frame regulations for your approval, under which periodical examinations may be held in the different branches of art and science, by examiners selected from their own body, or nominated by them.

27. The function of the universities will be to confer degrees upon such persons as, having been entered as candidates according to the rules which may be fixed in this respect, and having produced, from any of the "affiliated institutions," which will be enumerated on the foundation of the universities, or be from time to time added to them by Government, certificates of conduct, and of having pursued a regular course of study for a given time, shall have also passed at the universities such an examination as may be required of them. It may be advisable to dispense with the attendance required at the London University for the matriculation examination, and to substitute some mode of entrance examination which may secure a certain amount of knowledge in the candidates for degrees, without making their attendance at the universities necessary, previous to the final examination.



28. The examinations for degrees will not include any subjects connected with religious belief; and the affiliated institutions will be under the management of persons of every variety of religious persuasion. As in England, various institutions in immediate connexion with the Church of England, the Presbyterian College at Caermarthen, the Roman-catholic College at Oscott, the Wesleyan College at Sheffield, the Baptist College at Bristol, and the Countess of Huntingdon's College at Cheshunt, are among the institutions from which the London University is empowered to receive certificates for degrees. So in India, institutions conducted by all denominations of Christians, Hindoos, Mahomedans, Parsees, Sikhs, Bhuddists, Jains, or any other religious persuasions, may be affiliated to the universities, if they are found to afford the requisite course of study, and can be depended upon for the certificates of conduct which will be required.

29. The detailed regulations for the examinations for degrees should be framed with a due regard for all classes of the affiliated institutions; and we will only observe upon this subject, that the standard for common degrees will require to be fixed with very great judgment. There are many persons who well deserve the distinction of an academical degree, as the recognition of a liberal education, who could not hope to obtain it, if the examination was as difficult as that for the senior Government scholarships; and the standard required should be such as to command respect, without discouraging the efforts of deserving students, which would be a great obstacle to the success of the universities. In the competitions for honours, which, as in the London University, will follow the examinations for degrees, care should be taken to maintain such a standard as will afford a guarantee for high ability and valuable attainments; the subjects for examination being so selected as to include the best portions of the different schemes of study pursued at the affiliated institutions.

30. It will be advisable to institute, in connexion with the universities, professorships for the purpose of the delivery of lectures in various branches of learning, for the acquisition of which, at any rate, in an advanced degree, facilities do not now exist in other institutions in India. Law is the most important of these subjects; and it will be for you to consider whether, as was proposed in the plan of the Council of Education to which we have before referred, the attendance upon certain lectures, and the attainment of a degree in law, may not, for the future, be made a qualification for vakeels and moon-siffs, instead of, or in addition to, the present system of examination, which must, however, be continued in places not within easy reach of an university.

31. Civil engineering is another subject of importance, the advantages of which, as a profession, are gradually becoming known to the natives of India; and while we are inclined to believe that instruction of a practical nature, such as is given at the Thomason College of Civil Engineering at Roorkee, is far more useful than any lectures could possibly be, professorships of civil engineering might perhaps be attached to the universities, and degrees in civil engineering be included in their general scheme.

32. Other branches of useful learning may suggest themselves to you, in which it might be advisable that lectures should be read, and special degrees given; and it would greatly encourage the cultivation of the vernacular languages of India that professorships should be founded for those languages, and, perhaps, also for Sanskrit, Arabic, and Persian. A knowledge of the Sanskrit language, the root of the vernaculars of the greater part of India, is more especially necessary to those who are engaged in the work of composition in those languages; while Arabic, through Persian, is one of the component parts of the Urdu language, which extends over so large a part of Hindostan, and is, we are informed, capable of considerable development. The grammar of these languages, and their application to the improvement of the spoken languages of the country, are the points to which the attention of these professors should be mainly directed; and there will be an ample field for their labours unconnected with any instruction in the tenets of the Hindoo or Mahomedan religions. We should refuse to sanction any such teaching, as directly opposed to the principle of religious neutrality to which we have always adhered.

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33. We desire that you take into your consideration the institution of universities at Calcutta and Bombay, upon the general principles which we have now explained to you, and report to us upon the best method of procedure, with a view to their incorporation by Acts of the Legislative Council of India. The offices of Chancellor and Vice-Chancellor will naturally be filled by persons of high station, who have shown an interest in the cause of education, and it is in connexion with the universities that we propose to avail ourselves of the services of the existing Council of Education at Calcutta, and Board of Education at Bombay. We wish to place these gentlemen in a position which will not only mark our sense of the exertions which they have made in furtherance of education, but will give it the benefit of their past experience of the subject. We propose, therefore, that the Council of Education at Calcutta, and the Board of Education at Bombay, with some additional members to be named by the Government, shall constitute the Senate of the University at each of those Presidencies.

34. The additional members should be so selected as to give to all those who represent the different systems of education which will be carried on in the affiliated institutions—including natives of India, of all religious persuasions, who possess the confidence of the native communities—a fair voice in the Senates. We are led to make these remarks, as we observe that the plan of the Council of Education, in 1845, for the constitution of the Senate of the proposed Calcutta University, was not sufficiently comprehensive.

35. We shall be ready to sanction the creation of an university at Madras, or in any other part of India, where a sufficient number of institutions exist from which properly qualified candidates for degrees could be supplied; it being in our opinion advisable that the great centres of European government and civilisation in India should possess universities similar in character to those which will now be founded, as soon as the extension of a liberal education shows that their establishment would be of advantage to the native communities.

36. Having provided for the general superintendence of education, and for the institution of universities, not so much to be in themselves places of instruction, as to test the value of the education obtained elsewhere, we proceed to consider, first, the different classes of colleges, and schools, which should be maintained in simultaneous operation, in order to place within the reach of all classes of the natives of India the means of obtaining improved knowledge suited to their several conditions of life; and, secondly, the manner in which the most effectual aid may be rendered by Government to each class of educational institutions.

37. The candidates for university degrees will, as we have already explained, be supplied by colleges affiliated to the universities. These will comprise all such institutions as are capable of supplying a sufficiently high order of instruction in the different branches of art and science, in which university degrees will be accorded. The Hindoo, Hooghly, Dacca, Kishnagur, and Berhampore Government Anglo-vernacular Colleges, the Sanskrit College, the Mahomedan Madrissas, and the Medical College, in Bengal; the Elphinstone Institution, the Poonah College, and the Grant Medical College, in Bombay; the Delhi, Agra, Benares, Bareilly, and Thomason Colleges, in the North-Western Provinces; seminaries, such as the Oriental Seminary in Calcutta, which have been established by highly educated natives, a class of places of instruction which we are glad to learn is daily increasing in numbers and efficiency; those which, like the Parental Academy, are conducted by East Indians; Bishop's College, the General Assembly's Institution, Dr. Duff's College, the Baptist College at Serampore, and other institutions under the superintendence of different religious bodies and missionary societies; will, at once, supply a considerable number of educational establishments, worthy of being affiliated to the universities, and of occupying the highest place in the scale of general instruction.

38. The affiliated institutions will be periodically visited by Government inspectors; and a spirit of honourable rivalry, tending to preserve their efficiency, will be promoted by this, as well as by the competition of their most distinguished students for university honours. Scholarships should be

attached to them, to be held by the best students of lower schools; and their scheme of education should provide, in the Anglo-vernacular colleges, for a careful cultivation of the vernacular languages; and, in the Oriental colleges, for sufficient instruction in the English and vernacular languages, so as to render the studies of each most available for that general diffusion of European knowledge which is the main object of education in India.

39. It is to this class of institutions that the attention of Government has hitherto been principally directed, and they absorb the greater part of the public funds which are now applied to educational purposes. The wise abandonment of the early views with respect to native education, which erroneously pointed to the classical languages of the East as the media for imparting European knowledge, together with the small amount of pecuniary aid which, in the then financial condition of India, was at your command, has led, we think, to too exclusive a direction of the efforts of Government towards providing the means of acquiring a very high degree of education for a small number of natives of India, drawn, for the most part, from what we should here call the higher classes.

40. It is well that every opportunity should have been given to those classes for the acquisition of a liberal European education, the effects of which may be expected slowly to pervade the rest of their fellow-countrymen, and to raise, in the end, the educational tone of the whole country. We are, therefore, far from underrating the importance, or the success, of the efforts which have been made in this direction; but the higher classes are both able and willing, in many cases, to bear a considerable part at least of the cost of their education; and it is abundantly evident that in some parts of India no artificial stimulus is any longer required in order to create a demand for such an education as is conveyed in the Government Anglo-vernacular colleges. We have, by the establishment and support of these colleges, pointed out the manner in which a liberal education is to be obtained, and assisted them to a very considerable extent from the public funds. In addition to this, we are now prepared to give, by sanctioning the establishment of universities, full development to the highest course of education to which the natives of India, or of any other country, can aspire; and besides, by the division of university degrees and distinctions into different branches, the exertions of highly educated men will be directed to the studies which are necessary to success in the various active professions of life. We shall, therefore, have done as much as a Government can do to place the benefits of education plainly and practically before the higher classes in India.

41. Our attention should now be directed to a consideration, if possible, still more important, and one which has been hitherto, we are bound to admit, too much neglected; namely, how useful and practical knowledge, suited to every station in life, may be best conveyed to the great mass of the people, who are utterly incapable of obtaining any education worthy of the name by their own unaided efforts; and we desire to see the active measures of Government more especially directed, for the future, to this object, for the attainment of which we are ready to sanction a considerable increase of expenditure.

42. Schools—whose object should be, not to train highly a few youths, but to provide more opportunities than now exist for the acquisition of such an improved education as will make those who possess it more useful members of society in every condition of life—should exist in every district in India. These schools should be subject to constant and careful inspection; and their pupils might be encouraged by scholarships being instituted at other institutions which would be tenable as rewards for merit by the best of their number.

43. We include in this class of institutions those which, like the Zillah schools of Bengal, the district Government Anglo-vernacular schools of Bombay, and such as have been established by the Raja of Burdwan and other native gentlemen in different parts of India, use the English language as the chief medium of instruction; as well as others of an inferior order, such as the Tahsili schools in the North-Western Provinces, and the Government vernacular schools in the Bombay Presidency, whose object is, however imperfectly it has been as yet carried out, to convey the highest class of  
instruction

instruction which can now be taught through the medium of the vernacular languages.

44. We include these Anglo-vernacular and vernacular schools in the same class, because we are unwilling to maintain the broad line of separation which at present exists between schools in which the media for imparting instruction differ. The knowledge conveyed is, no doubt, at the present time, much higher in the Anglo-vernacular than in the vernacular schools; but the difference will become less marked, and the latter more efficient, as the gradual enrichment of the vernacular languages in works of education allows their schemes of study to be enlarged, and as a more numerous class of schoolmasters is raised up able to impart a superior education.

45. It is indispensable, in order fully and efficiently to carry out our views as to these schools, that their masters should possess a knowledge of English in order to acquire, and of the vernaculars so as readily to convey, useful knowledge to their pupils; but we are aware that it is impossible to obtain at present the services of a sufficient number of persons so qualified, and that such a class must be gradually collected, and trained in the manner to which we shall hereafter allude. In the meantime you must make the best use which is possible of such instruments as are now at your command.

46. Lastly, what have been termed indigenous schools, should by wise encouragement, such as has been given under the system organised by Mr. Thomason in the North-Western Provinces, and which has been carried out in eight districts under the able direction of Mr. H. S. Reid in an eminently practical manner, and with great promise of satisfactory results, be made capable of imparting correct elementary knowledge to the great mass of the people. The most promising pupils of these schools might be rewarded by scholarships in places of education of a superior order.

47. Such a system as this, placed in all its degrees under efficient inspection; beginning with the humblest elementary instruction, and ending with the university test of a liberal education; the best students in each class of schools being encouraged by the aid afforded them towards obtaining a superior education as the reward of merit, by means of such a system of scholarships as we shall have to describe, would, we firmly believe, impart life and energy to education in India, and lead to a gradual, but steady, extension of its benefits to all classes of the people.

48. When we consider the vast population of British India, and the sums which are now expended upon educational efforts, which, however successful in themselves, have reached but an insignificant number of those who are of a proper age to receive school instruction, we cannot but be impressed with the almost insuperable difficulties which would attend such an extension of the present system of education by means of colleges and schools entirely supported at the cost of Government, as might be hoped to supply, in any reasonable time, so gigantic a deficiency, and to provide adequate means for setting on foot such a system as we have described, and desire to see established.

49. Nor is it necessary that we should depend entirely upon the direct efforts of Government. We are glad to recognise an increased desire on the part of the native population, not only in the neighbourhood of the great centres of European civilisation, but also in remoter districts, for the means of obtaining a better education; and we have evidence in many instances of their readiness to give a practical proof of their anxiety in this respect by coming forward with liberal pecuniary contributions. Throughout all ages, learned Hindoos and Mahomedans have devoted themselves to teaching, with little other remuneration than a bare subsistence; and munificent bequests have not unfrequently been made for the permanent endowment of educational institutions.

50. At the same time, in so far as the noble exertions of societies of Christians of all denominations to guide the natives of India in the way of religious truth, and to instruct uncivilised races, such as those found in Assam, in the Cossya, Garrow, and Rajmehal hills, and in various districts of Central and Southern India

(who are in the lowest condition of ignorance, and are either wholly without a religion, or are the slaves of a degrading and barbarous superstition), have been accompanied, in their educational establishments, by the diffusion of improved knowledge, they have largely contributed to the spread of that education which it is our object to promote.

51. The consideration of the impossibility of Government alone doing all that must be done in order to provide adequate means for the education of the natives of India, and of the ready assistance which may be derived from efforts which have hitherto received but little encouragement from the State, has led us to the natural conclusion that the most effectual method of providing for the wants of India in this respect will be to combine with the agency of the Government the aid which may be derived from the exertions and liberality of the educated and wealthy natives of India, and of other benevolent persons.

52. We have, therefore, resolved to adopt in India the system of grants in aid, which has been carried out in this country with very great success; and we confidently anticipate, by thus drawing support from local resources, in addition to contributions from the State, a far more rapid progress of education than would follow a mere increase of expenditure by the Government; while it possesses the additional advantage of fostering a spirit of reliance upon local exertions and combination for local purposes, which is of itself of no mean importance to the well-being of a nation.

53. The system of grants in aid which we propose to establish in India, will be based on an entire abstinence from interference with the religious instruction conveyed in the schools assisted. Aid will be given (so far as the requirements of each particular district, as compared with others, and the funds at the disposal of Government may render it possible) to all schools which impart a good secular education, provided that they are under adequate local management (by the term "local management," we understand one or more persons, such as private patrons, voluntary subscribers, or the trustees of endowments, who will undertake the general superintendence of the school, and be answerable for its permanence for some given time); and provided also that their managers consent that the schools shall be subject to Government inspection, and agree to any conditions which may be laid down for the regulation of such grants.

54. It has been found by experience, in this and in other countries, that not only is an entirely gratuitous education valued far less by those who receive it than one for which some payment, however small, is made, but that the payment induces a more regular attendance, and greater exertion, on the part of the pupils; and, for this reason, as well as because school fees themselves, insignificant as they may be in each individual instance, will, in the aggregate, when applied to the support of a better class of masters, become of very considerable importance, we desire that grants in aid shall, as a general principle, be made to such schools only (with the exception of normal schools) as require some fee, however small, from their scholars.

55. Careful consideration will be required in framing rules for the administration of the grants; and the same course should be adopted in India which has been pursued with obvious advantage by the Committee of Council here, namely, to appropriate the grants to specific objects, and not (except, perhaps, in the case of normal schools) to apply them in the form of simple contributions in aid of the general expenses of a school. The augmentation of the salaries of the head teachers, and the supply of junior teachers, will probably be found in India, as with us, to be the most important objects to which the grants can ordinarily be appropriated. The foundation or assistance in the foundation, of scholarships for candidates from lower schools, will also be a proper object for the application of grants in aid. In some cases, assistance towards erecting, or repairing, a school, or the provision of an adequate supply of school books, may be required; but the appropriation of the grant in each particular instance should be regulated by the peculiar circumstances of each school and district.

56. The amount, and continuance, of the assistance given will depend upon the periodical reports of inspectors, who will be selected with special reference

to their possessing the confidence of the native communities. In their periodical inspections, no notice whatsoever should be taken by them of the religious doctrines which may be taught in any school; and their duty should be strictly confined to ascertaining whether the secular knowledge conveyed is such as to entitle it to consideration in the distribution of the sum which will be applied to grants in aid. They should also assist in the establishment of schools, by their advice, wherever they may have opportunities of doing so.

57. We confide the practical adaptation of the general principles we have laid down as to grants in aid to your discretion, aided by the educational departments of the different Presidencies. In carrying into effect our views, which apply alike to all schools and institutions, whether male or female, Anglo-vernacular or vernacular, it is of the greatest importance that the conditions under which schools will be assisted should be clearly and publicly placed before the natives of India. For this purpose Government notifications should be drawn up, and promulgated, in the different vernacular languages. It may be advisable distinctly to assert in them the principle of perfect religious neutrality on which the grants will be awarded; and care should be taken to avoid holding out expectations which, from any cause, may be liable to disappointment.

58. There will be little difficulty in the application of this system of grants in aid to the higher order of places of instruction in India in which English is at present the medium of education.

59. Grants in aid will also at once give assistance to all such Anglo-vernacular and vernacular schools as impart a good elementary education; but we fear that the number of this class of schools is at present inconsiderable, and that such as are in existence require great improvement.

60. A more minute and constant local supervision than would accompany the general system of grants in aid will be necessary in order to raise the character of the "indigenous schools," which are, at present, not only very inefficient in quality, but of exceedingly precarious duration, as is amply shown by the statistics collected by Mr. Adam in Bengal and Behar, and from the very important information we have received of late years from the North-Western Provinces. In organising such a system, we cannot do better than to refer you to the manner in which the operations of Mr Reid have been conducted in the North-Western Provinces, and to the instructions given by him to the zillah and pergunnah visitors, and contained in the Appendix to his First Report.

61. We desire to see local management under Government inspection, and assisted by grants in aid, taken advantage of wherever it is possible to do so, and that no Government colleges or schools shall be founded, for the future, in any district where a sufficient number of institutions exist, capable, with assistance from the State, of supplying the local demand for education. But, in order fully to carry out the views we have expressed with regard to the adequate provision of schools throughout the country, it will probably be necessary, for some years, to supply the wants of particular parts of India by the establishment, temporary support, and management of places of education of every class in districts where there is little or no prospect of adequate local efforts being made for this purpose, but where, nevertheless, they are urgently required.

62. We look forward to the time when any general system of education entirely provided by Government may be discontinued, with the gradual advance of the system of grants in aid, and when many of the existing Government institutions, especially those of the higher order, may be safely closed, or transferred to the management of local bodies under the control of, and aided by, the State. But it is far from our wish to check the spread of education in the slightest degree by the abandonment of a single school to probable decay; and we, therefore, entirely confide in your discretion, and in that of the different local authorities, while keeping this object steadily in view, to act with caution, and to be guided by special reference to the particular circumstances which affect the demand for education in different parts of India.

Minute, 24 Nov.  
1839, paras. 32  
and 33.

63. The system of free and stipendiary scholarships, to which we have already more than once referred as a connecting link between the different grades of educational institutions, will require some revision and extension in carrying out our enlarged educational plan. We wish to see the object proposed by Lord Auckland, in 1839, "of connecting the zillah schools with the central colleges, by attaching to the latter scholarships to which the best scholars of the former might be eligible," more fully carried out; and also, as the measures we now propose assume an organised form, that the same system may be adopted with regard to schools of a lower description, and that the best pupils of the inferior schools shall be provided for by means of scholarships in schools of a higher order, so that superior talent in every class may receive that encouragement and development which it deserves. The amount of the stipendiary scholarships should be fixed at such a sum as may be considered sufficient for the maintenance of the holders of them at the colleges or schools to which they are attached, and which may often be at a distance from the home of the students. We think it desirable that this system of scholarships should be carried out, not only in connexion with those places of education which are under the immediate superintendence of the State, but in all educational institutions which will now be brought into our general system.

64. We are, at the same time, of opinion that the expenditure upon existing Government scholarships, other than those to which we have referred, which amounts to a considerable sum, should be gradually reduced, with the requisite regard for the claims of the present holders of them. The encouragement of young men of ability, but of slender means, to pursue their studies, is no doubt both useful and benevolent, and we have no wish to interfere with the private endowments which have been devoted to so laudable an object, or to withdraw the additions which may have been made by us to any such endowments. But the funds at the disposal of Government are limited, and we doubt the expediency of applying them to the encouragement of the acquisition of learning, by means of stipends which not only far exceed the cost of the maintenance of the student, but in many cases are above what he could reasonably expect to gain on entering the public service, or any of the active professions of life.

65. We shall, however, offer encouragements to education which will tend to more practical results than those scholarships. By giving to persons who possess an aptness for teaching, as well as the requisite standard of acquirements, and who are willing to devote themselves to the profession of schoolmaster, moderate monthly allowances for their support during the time which it may be requisite for them to pass in normal schools, or classes, in order to acquire the necessary training, we shall assist many deserving students to qualify themselves for a career of practical usefulness, and one which will secure them an honourable competence through life. We are also of opinion, that admission to places of instruction, which, like the medical and engineering colleges, are maintained by the State, for the purpose of educating persons for special employments under Government, might be made the rewards of industry and ability, and thus supply a practical encouragement to general education, similar to that which will be afforded by the educational service.

66. The establishment of universities will offer considerable further inducements for the attainment of high proficiency, and thus supply the place of the present senior scholarships, with this additional advantage, that a greater number of subjects in which distinction can be gained will be offered to the choice of students than can be comprised in one uniform examination for a scholarship. and that their studies will thus be practically directed into channels which will aid them in the different professions of life which they may afterwards adopt.

67. In England, when systematic attempts began to be made for the improvement of education, one of the chief defects was found to be the insufficient number of qualified schoolmasters, and the imperfect method of teaching which prevailed. This led to the foundation of normal and model schools for the training of masters, and the exemplification of the best methods for the organisation, discipline, and instruction of elementary schools. This deficiency has been the more palpably felt in India, as the difficulty of finding persons properly educated for the work of tuition is greater; and we desire to see the establishment,

ment, with as little delay as possible, of training schools, and classes, for masters, in each Presidency in India. It will probably be found that some of the existing institutions may be adapted, wholly or partially, to this purpose, with less difficulty than would attend the establishment of entirely new schools.

68. We cannot do better than refer you to the plan which has been adopted in Great Britain for this object, and which appears to us to be capable of easy adaptation to India. It mainly consists, as you will perceive on reference to the Minutes of the Committee of Council, copies of which we enclose, in the selection and stipend of pupil teachers (awarding a small payment to the masters of the schools in which they are employed, for their instruction out of school hours); their ultimate removal, if they prove worthy, to normal schools; the issue to them of certificates, on the completion of their training in those normal schools; and in securing to them a sufficient salary when they are afterwards employed as schoolmasters. This system should be carried out in India, both in the Government colleges and schools, and, by means of grants in aid, in all institutions which are brought under Government inspection. The amount of the stipends to pupil teachers and students at normal schools should be fixed with great care. The former should receive moderate allowances rather above the sum which they would earn if they left school, and the stipends to the latter should be regulated by the same principle which we have laid down with respect to scholarships.

69. You will be called upon, in carrying these measures into effect, to take into consideration the position and prospects of the numerous class of natives of India who are ready to undertake the important duty of educating their fellow-countrymen. The late extension of the pension regulations of 1831 to the educational service may require to be adapted to the revised regulations in this respect; and our wish is that the profession of schoolmaster may, for the future, afford inducements to the natives of India such as are held out in other branches of the public service. The provision of such a class of schoolmasters as we wish to see must be a work of time; and, in encouraging the "indigenous schools," our present aim should be to improve the teachers whom we find in possession, and to take care not to provoke the hostility of this class of persons, whose influence is so great over the minds of the lower classes, by superseding them where it is possible to avoid it. They should, moreover, be encouraged to attend the normal schools and classes which may hereafter be instituted for this class of teachers.

70. Equal in importance to the training of schoolmasters is the provision of vernacular school books, which shall provide European information to be the object of study in the lower classes of schools. Something has, no doubt, been done, of late years, towards this end, but more still remains to be done; and we believe that deficiencies might be readily and speedily supplied by the adoption of a course recommended by Mr. M. Elphinstone in 1825, namely, "That the best translations of particular books, or the best elementary treatises in specified languages, should be advertised for, and liberally rewarded."

71. The aim should be, in compilations, and original compositions, (to quote from one of Mr. Adam's valuable reports upon the state of education in Bengal,) "Not to translate European works into the words and idioms of the native languages, but so to combine the substance of European knowledge with native forms of thought and sentiment as to render the school books useful and attractive." We also refer with pleasure upon this point to some valuable observations by Mr. Reid, in his report which we have quoted before, more especially as regards instruction in geography. It is obvious that the local peculiarities of different parts of India render it necessary that the class-books in each should be specially adapted to the feelings, sympathies, and history of the people; and we will only further remark upon this subject, that the Oriental colleges, besides generally tending, as we have before observed, to the enrichment of the vernacular languages, may, we think, be made of great use in the translation of scientific works into those languages, as has already been done to some extent in the Delhi, Benares, and Poonah colleges.

Report, 1850-1,  
paras. 298-308.

72. We have always been of opinion that the spread of education in India will produce a greater efficiency in all branches of administration, by enabling



you to obtain the services of intelligent and trustworthy persons in every department of Government ; and, on the other hand, we believe that the numerous vacancies of different kinds which have constantly to be filled up, may afford a great stimulus to education. The first object must be to select persons properly qualified to fill these situations ; secondary to this is the consideration how far they may be so distributed as to encourage popular education.

73. The resolutions of our Governor-general in Council of the 10th of October 1844, gave a general preference to well-educated over uneducated men in the admissions to the public service. We perceive, with much satisfaction, both from returns which we have recently received of the persons appointed since that year in the Revenue Department of Bengal, as well as from the educational reports from different parts of India, that a very considerable number of educated men have been employed under Government of late years ; and we understand that it is often not so much the want of Government employment as the want of properly qualified persons to be employed by Government, which is felt, at the present time, in many parts of India.

74. We shall not enter upon the causes which, as we foresaw, have led to the failure of that part of the resolutions which provided for the annual submission to Government of lists of meritorious students. It is sufficient for our present purpose to observe that no more than 46 persons have been gazetted in Bengal up to this time, all of whom were students in the Government colleges. In the last year for which we have returns (1852), only two persons were so distinguished ; and we can readily believe, with the Secretary to the Board of Revenue in Bengal, that young men who have passed a difficult examination in the highest branches of philosophy and mathematics, are naturally disinclined to accept such employment as persons who intend to make the public service their profession must necessarily commence with.

Letter of 6 April  
1852, with Returns  
in Revenue Department,  
Bengal.

75. The necessity for any such lists will be done away with by the establishment of universities, as the acquisition of a degree, and still more the attainment of university distinctions, will bring highly educated young men under the notice of Government. The resolutions in question will, therefore, require revision so as to adapt them practically to carry out our views upon this subject. What we desire is, that, where the other qualifications of the candidates for appointments under Government are equal, a person who has received a good education, irrespective of the place or manner in which it may have been acquired, should be preferred to one who has not ; and that, even in lower situations, a man who can read and write be preferred to one who cannot, if he is equally eligible in other respects.

76. We also approve of the institution of examinations where practicable, to be simply and entirely tests of the fitness of candidates for the special duties of the various departments in which they are seeking employment, as has been the case in the Bombay Presidency. We confidently commit the encouragement of educated in preference to uneducated men to the different officers who are responsible for their selection ; and we cannot interfere by any further regulations to fetter their free choice in a matter of which they bear the sole responsibility.

77. We are sanguine enough to believe that some effect has already been produced by the improved education of the public service of India. The ability and integrity of a large and increasing number of the native judges, to whom the greater part of the civil jurisdiction in India is now committed, and the high estimation in which many among them are held by their fellow-countrymen, is, in our opinion, much to be attributed to the progress of education among these officers, and to their adoption along with it of that high moral tone which pervades the general literature of Europe. Nor is it among the higher officers alone that we have direct evidence of the advantage which the public derives from the employment of educated men. We quote from the last Report of the Dacca College with particular satisfaction, as we are aware that much of the happiness of the people of India depends upon the honesty of the officers of police :—“The best possible evidence has been furnished,” say the local committee, “that some of the ex-students of the college of Dacca have completely succeeded in the arduous office of darogha. Krishna Chunder Dutt,

Report on Public  
Instruction, Bengal,  
1851-2, page 72.

Dutt, employed as a darogha under the magistrate of Howrah, in particular, is recommended for promotion, as having gained the respect and applause of all classes, who, though they may not practise, yet know how to admire, real honesty and integrity of purpose."

78. But, however large the number of appointments under Government may be, the views of the natives of India should be directed to the far wider and more important sphere of usefulness and advantage which a liberal education lays open to them; and such practical benefits arising from improved knowledge should be constantly impressed upon them by those who know their feelings, and have influence or authority to advise or direct their efforts. We refer, as an example in this respect, with mingled pleasure and regret, to the eloquent addresses delivered by the late Mr. Bethune, when President of the Council of Education, to the students of the Kishnagur and Dacca Colleges.

79. There are some other points connected with the general subject of education in India upon which we will now briefly remark. We have always regarded with special interest those educational institutions which have been directed towards training up the natives of India to particular professions, both with a view to their useful employment in the public service, and to enable them to pursue active and profitable occupations in life. The medical colleges in different parts of India have proved that, in despite of difficulties which appeared at first sight to be insurmountable, the highest attainments in medicine and surgery are within the reach of educated natives of India: we shall be ready to aid in the establishment and support of such places of instruction as the medical colleges of Calcutta and Bombay, in other parts of India. We have already alluded to the manner in which students should be supplied to these colleges, as well as to those for the training of civil engineers.

80. The success of the Thomason College of Civil Engineering at Roorkee has shown that, for the purpose of training up persons capable of carrying out the great works which are in progress under Government throughout India, and to qualify the natives of India for the exercise of a profession which, now that the system of railways and public works is being rapidly extended, will afford an opening for a very large number of persons, it is expedient that similar places for practical instruction in civil engineering should be established in other parts of India, and especially in the Presidency of Madras, where works of irrigation are so essential, not only to the prosperity of the country, but to the very existence of the people in times of drought and scarcity. The subject has been prominently brought under your notice in the recent reports of the Public Works Commissioners for the different Presidencies; and we trust that immediate measures will be taken to supply a deficiency which is, at present, but too apparent.

81. We may notice, in connexion with these two classes of institutions of an essentially practical character, the schools of industry and design, which have been set on foot from time to time in different parts of India. We have lately received a very encouraging report of that established by Dr. Hunter in Madras; and we have also been informed that Sir Jamsetjee Jejeebhoy, with his accustomed munificence, has offered to lay out a very considerable sum upon a like school in Bombay. Such institutions as these will, in the end, be self-supporting; but we are ready to assist in their establishment by grants in aid for the supply of models, and other assistance which they may advantageously derive from the increased attention which has been paid of late years to such subjects in this country. We enclose you the copy of a report which we have received from Mr. Redgrave upon the progress of the Madras school, which may prove of great value in guiding the efforts of the promoters of any similar institutions which may hereafter be established in India. We have also perceived with satisfaction, that the attention of the Council of Education in Calcutta has been lately directed to the subject of attaching to each zillah school the means of teaching practical agriculture; for there is, as Dr. Mouat most truly observes, "no single advantage that could be afforded to the vast rural population of India that would equal the introduction of an improved system of agriculture."

Report on Public Instruction, Bengal, 1851-2, Appendix, page clxxi.

82. The increasing desire of the Mahomedan population to acquire European knowledge has given us much satisfaction. We perceive that the Council

of Education of Bengal has this subject under consideration, and we shall receive with favour any proposition which may appear to you to be likely to supply the wants of so large a portion of the natives of India.

83. The importance of female education in India cannot be overrated; and we have observed with pleasure the evidence which is now afforded of an increased desire on the part of many of the natives of India to give a good education to their daughters. By this means a far greater proportional impulse is imparted to the educational and moral tone of the people than by the education of men. We have already observed that schools for females are included among those to which grants in aid may be given; and we cannot refrain from expressing our cordial sympathy with the efforts which are being made in this direction. Our Governor-general in Council has declared, in a communication to the Government of Bengal, that the Government ought to give to native female education in India its frank and cordial support; in this we heartily concur, and we especially approve of the bestowal of marks of honour upon such native gentlemen as Rao Bahádur Magaubháí Karramchand, who devoted 20,000 rupees to the foundation of two native female schools in Ahmedabad, as by such means our desire for the extension of female education becomes generally known.

Report on Public  
Instruction, Bengal,  
1849-50, page 2.

84. Considerable misapprehension appears to exist as to our views with respect to religious instruction in the Government institutions. Those institutions were founded for the benefit of the whole population of India; and, in order to effect their object, it was, and is, indispensable that the education conveyed in them should be exclusively secular. The Bible is, we understand, placed in the libraries of the colleges and schools, and the pupils are able freely to consult it. This is as it should be; and, moreover, we have no desire to prevent, or to discourage, any explanations which the pupils may, of their own free will, ask from their masters upon the subject of the Christian religion, provided that such information be given out of school hours. Such instruction being entirely voluntary on both sides, it is necessary, in order to prevent the slightest suspicion of an intention on our part to make use of the influence of Government for the purpose of proselytism, that no notice shall be taken of it by the inspectors in their periodical visits.

85. Having now finished the sketch that we proposed to give of the scheme for the encouragement of education in India, which we desire to see gradually brought into operation, we proceed to make some observations upon the state of education in the several Presidencies, and to point out the parts of our general plan which are most deficient in each.

86. In Bengal, education through the medium of the English language has arrived at a higher point than in any other part of India. We are glad to receive constant evidence of an increasing demand for such an education, and of the readiness of the natives of different districts to exert themselves for the sake of obtaining it. There are now five Government Anglo-vernacular colleges; and zillah schools have been established in nearly every district. We confidently expect that the introduction of the system of grants in aid will very largely increase the number of schools of a superior order; and we hope that, before long, sufficient provision may be found to exist in many parts of the country for the education of the middle and higher classes, independent of the Government institutions, which may then be closed, as has been already the case in Burdwan, in consequence of the enlightened conduct of the Raja of Burdwan, or they may be transferred to local management.

87. Very little has, however, been hitherto done in Bengal for the education of the mass of the people, especially for their instruction through the medium of the vernacular languages. A few vernacular schools were founded by Government in 1844, of which only 33 now remain, with 1,400 pupils, and, upon their transfer, in April 1852, from the charge of the Board of Revenue to that of the Council of Education, it appeared that "they were in a languishing state, and had not fulfilled the expectations formed on their establishment."

88. We have perused, with considerable interest, the report of Mr. Robinson, Inspector of the Assam schools, of which there appear to be 74, with upwards of 3,000 pupils. Mr. Robinson's suggestions for the improvement of the

the system under which they are now managed appear to us to be worthy of consideration, and to approach very nearly to the principles upon which vernacular education has been encouraged in the North-Western Provinces. We shall be prepared to sanction such measures as you may approve of, to carry out Mr. Robinson's views.

89. But the attention of the Government of Bengal should be seriously directed to the consideration of some plan for the encouragement of indigenous schools, and for the education of the lower classes, which, like that of Mr. Thomason in the North-Western Provinces, may bring the benefits of education practically before them, and assist and direct their efforts. We are aware that the object held out by the Government of Agra to induce the agricultural classes to improve their education does not exist in Bengal; but we cannot doubt that there may be found other similar solid advantages attending elementary knowledge, which can be plainly and practically made apparent to the understandings and interests of the lower classes of Bengal.

90. We perceive that the scheme of study pursued in the Oriental colleges of Bengal is under the consideration of the Council of Education, and it appears that they are in an unsatisfactory condition. We have already sufficiently indicated our views as to those colleges, and we should be glad to see them placed upon such a footing as may make them of greater practical utility. The points which you have referred to us, in your letter of the 5th of May, relative to the establishment of a Presidency College at Calcutta, will form the subject of a separate communication.

91. In the North-Western Provinces the demand for education is so limited by circumstances fully detailed by the Lieutenant-Governor in one of his early reports, that it will probably be long before private efforts will become energetic enough to supply the place of the establishment, support, and management, by Government, of places of instruction of the highest grade, where there may be a sufficient reason for their institution.

92. At the same time, the system for the promotion of general education throughout the country, by means of the inspection and encouragement of indigenous schools, has laid the foundation of a great advancement in the education of the lower classes. Mr. Thomason ascertained, from statistical information, the lamentable state of ignorance in which the people were sunk, while the registration of land, which is necessary under the revenue settlement of the North-Western Provinces, appeared to him to offer the stimulus of a direct interest for the acquisition of so much knowledge, at least of reading and writing, of the simple rules of arithmetic, and of land measurement, as would enable each man to look after his own rights.

93. He therefore organised a system of encouragement of indigenous schools, by means of a constant inspection by zillah and pergunnah visitors, under the superintendence of a visitor-general; while, at the head-quarters of each tahsildar, a school was established for the purpose of teaching "reading and writing the vernacular languages, both Urdu and Hindi accounts, and the mensuration of land." A school-house is provided by Government, and the masters of the Tahsili schools receive a small salary, and are further entitled to the tuition fees paid by the pupils, of whom none are educated gratuitously, except "on recommendations given by village schoolmasters who may be on the visitor's list." A certain sum is annually allotted to each zillah for the reward of deserving teachers and scholars; and the attention of the visitor-general was expressly directed to the preparation of elementary school-books in the vernacular languages, which are sold through the agency of the zillah and the pergunnah visitors. We shall be prepared to sanction the gradual extension of some such system as this to the other districts of the Agra Presidency, and we have already referred to it as the model by which the efforts of other Presidencies for the same object should be guided.

94. In the Presidency of Bombay the character of the education conveyed in the Anglo-vernacular colleges is almost, if not quite, equal to that in Bengal; and the Elphinstone Institution is an instance of a college conducted in the main upon the principle of grant in aid, which we desire to see more extensively

carried out. Considerable attention has also been paid in Bombay to education, through the medium of the vernacular languages. It appears that 216 vernacular schools are under the management of the Board of Education, and that the number of pupils attending them is more than 12,000. There are three inspectors of the district schools, one of whom (Máhádeo Govind Shastri) is a native of India. The schools are reported to be improving, and masters trained in the Government colleges have been recently appointed to some of them with the happiest effects. These results are very creditable to the Presidency of Bombay; and we trust that each Government school will now be made a centre from which the indigenous schools of the adjacent districts may be inspected and encouraged.

95. As the new revenue settlement is extended in the Bombay Presidency, there will, we apprehend, be found an inducement precisely similar to that which has been taken advantage of by Mr. Thomason, to make it the interest of the agricultural classes to acquire so much knowledge as will enable them to check the returns of the village accountants. We have learnt with satisfaction that the subject of gradually making some educational qualification necessary to the confirmation of these hereditary officers is under the consideration of the Government of Bombay, and that a practical educational test is now insisted upon for persons employed in many offices under Government.

96. In Madras, where little has yet been done by Government to promote the education of the mass of the people, we can only remark with satisfaction that the educational efforts of Christian missionaries have been more successful among the Tamul population than in any other part of India; and that the Presidency of Madras offers a fair field for the adoption of our scheme of education in its integrity, by founding Government Anglo-vernacular institutions only where no such places of instruction at present exist, which might, by grants in aid and other assistance, adequately supply the educational wants of the people. We also perceive with satisfaction that Mr. Daniel Elliott, in a recent and most able minute upon the subject of education, has stated that Mr. Thomason's plan for the encouragement of indigenous schools might readily be introduced into the Madras Presidency, where the Ryotwari settlement offers a similar practical inducement to the people for the acquisition of elementary knowledge.

97. We have now concluded the observations which we think it is necessary to address to you upon the subject of the education of the natives of India. We have declared that our object is to extend European knowledge throughout all classes of the people. We have shown that this object must be effected by means of the English language in the higher branches of instruction, and by that of the vernacular languages of India to the great mass of the people. We have directed such a system of general superintendence and inspection by Government to be established, as will, if properly carried out, give efficiency and uniformity to your efforts. We propose by the institution of universities to provide the highest test and encouragement of a liberal education. By sanctioning grants in aid of private efforts, we hope to call to the assistance of Government private exertions and private liberality. The higher classes will now be gradually called upon to depend more upon themselves; and your attention has been more especially directed to the education of the middle and lower classes, both by the establishment of fitting schools for this purpose, and by means of a careful encouragement of the native schools which exist, and have existed from time immemorial, in every village, and none of which perhaps cannot in some degree be made available to the end we have in view. We have noticed some particular points connected with education, and we have reviewed the condition of the different Presidencies in this respect, with a desire to point out what should be imitated, and what is wanting, in each.

98. We have only to add, in conclusion, that we commit this subject to you with a sincere belief that you will cordially co-operate with us in endeavouring to effect the great object we have in hand, and that we desire it should be authoritatively communicated to the principal officers of every district in India, that henceforth they are to consider it to be an important part of their duty, not only in that social intercourse with the natives of India, which we always learn

learn with pleasure that they maintain, but also with all the influence of their high position, to aid in the extension of education, and to support the inspectors of schools by every means in their power.

99. We believe that the measures we have determined upon are calculated to extend the benefits of education throughout India ; but, at the same time, we must add that we are not sanguine enough to expect any sudden, or even speedy, results to follow from their adoption. To imbue a vast, and ignorant, population with a general desire for knowledge, and to take advantage of that desire when excited to improve the means for diffusing education amongst them, must be a work of many years ; which, by the blessing of Divine Providence, may largely conduce to the moral and intellectual improvement of the natives of India.

100. As a Government, we can do no more than direct the efforts of the people, and aid them wherever they appear to require most assistance. The result depends more upon them than upon us ; and although we are fully aware that the measures we have now adopted will involve in the end a much larger expenditure upon education from the revenues of India, or, in other words, from the taxation of the people of India, than is at present so applied, we are convinced, with Sir Thomas Munro, in words used many years since, that any expense which may be incurred for this object, "will be amply repaid by the improvement of the country ; for the general diffusion of knowledge is inseparably followed by more orderly habits, by increasing industry, by a taste for the comforts of life, by exertion to acquire them, and by the growing prosperity of the people."

We are, &c.

(signed)	J. OLIPHANT.	W. J. EASTWICK.
	E. MACNAGHTEN.	R. D. MANGLES.
	C. MILLS.	J. P. WILLOUGHBY.
	R. ELLICE.	J. H. ASTELL.
	J. W. HOGG.	F. CURRIE.

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**EDUCATION (INDIA).**

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**COPY of a DESPATCH to the GOVERNMENT of  
*India*, on the Subject of GENERAL EDUCATION  
in *India*.**



*(Sir Erskine Perry)*

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*Ordered, by The House of Commons, to be Printed,  
20 July 1854.*

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EAST INDIA.

RETURN to an Order of the Honourable The House of Commons,  
dated 4 March 1856;—for,

A RETURN “ enumerating the several TERRITORIES which have been ANNEXED, or have been PROPOSED to be ANNEXED, to the *British* Dominions, by the Governor-General of *India* since the Close of the *Punjab* War, stating the Grounds of Annexation, or Proposed Annexation, with the Cases in which the Assent of the Court of Directors has been withheld, and stating the Area, Population, Gross and Net Revenues of such Territories, so far as the same have been estimated or ascertained :”

“ And, like RETURN giving an Abstract, of the REVENUES and CHARGES of *India*, including the Charges disbursed in *England*, for the Years comprised in the First Return, and showing the Surplus or Deficit in each Year, so far as the same has been estimated or ascertained.”

East India House, }  
2 April 1856. }

JAMES C. MELVILL,  
Secretary.

(*Sir Erskine Perry.*)

Ordered, by The House of Commons, to be Printed,  
3 April 1856.



RETURN enumerating the several TERRITORIES which have been ANNEXED or have been Proposed to be Annexed, to the *British Dominions* by the Governor-General of *India*, since the Close of the *Punjab War*, stating the Grounds of Annexation, or proposed Annexation, with the Cases in which the Assent of the Court of Directors has been withheld, and stating the Area, Population, Gross and Net Revenues of such Territories, so far as the same have been estimated or ascertained.

	Date of Annexation	Reasons.	Area.	Population.	Gross Revenue.	Net Revenue.	REMARKS.
Jeypore (Bundelcund)	1849	Failure of Heirs -	165 square miles.	16,000	Rupees 64,130	Rupees. not known.	
Sumbulpore (South West Frontier, Bengal).	"	- " - -	4,693	2,74,000	73,000	"	
Bughat (Cis-Sutlej Hill States).	1850	- " - -	30	3,420	7,000	"	- - The Court of Directors having left it to the discretion of the Government of India to annex Bughat, or to grant the Estate to a cousin of the Chief, that Government decided on the former course. (See Parliamentary Paper, No. 188 of Session 1854.)
Part of Sikkim (North Eastern India).	"	- - Insult to the British Government in seizing the person of its representative.	1,670	61,766	32,037	"	
Oodeypore (South West Frontier of Bengal)	1852	Failure of Heirs -	2,306	1,33,000	16,480	"	
Pegu - - -	"	- - Conquered from the Burmese during the last war.	20,000	10,00,000	not known	"	
Territory resumed from Meer Ali Morad, one of the Ameers of Sind.	"	- - Forgery of a Treaty whereby he acquired certain districts which belonged to the British Government.	5,412	not known	4,83,658	2,61,043	- - See Parliamentary Paper, No. 73 of Session 1852.
County of Tularam Sonaputtee in Northern Cachar.	1853	- - Misconduct and breach of engagements with the British Government.	2,160	5,015	1,208	1,017	- -
Nagpore Territory -	1854	Failure of Heirs -	80,000	40,00,000	40,00,000	not known	- - See Parliamentary Paper, No. 416 of Session 1854.
Jhansi (Bundelcund) -	"	- " - -	2,532	2,00,000	6,13,889	"	- - See Parliamentary Paper, No. 431 of Session 1845.
Bordawul (Candeish) -	1855	- " - -	- -	910	2,727	"	

CASES in which ANNEXATION has been Proposed by the Government in *India*.

		Area.	Population.	Revenues.	REMARKS.
Kerowlee (Rajpootana)	1852	1,800 square miles -	- - -	Rupees. 5,11,402	- - On the Rajah's death without heirs, the Government of India recommended that this Estate should be held to have lapsed; but the Court of Directors decided on its continuance under a Native Ruler, and permitted an adoption. The Government of India subsequently withdrew their recommendation. See Parliamentary Paper, No. 455 of Session 1855.
Adjyghur (Bundelcund)	1855	340 "	45,000	1,75,000	- - The Government of India proposed to annex Adjyghur on failure of heirs, but the Court have directed that the subject should be reconsidered.
Inchulkurunjee (Colapore).	1856	800 "	43,547	15,000	- - The Chief of Inchulkurunjee, a feudatory of the Colapore State, having died, leaving no heir, and the territory having, therefore, lapsed to Colapore, it is proposed that Colapore shall cede the Estate in payment of a debt due to the British Government. The subject is under consideration.
Tanjore, Fort and Ground adjacent.	1856	- - -	- - -	- - -	- - Under the Treaty of 1799 the Rajah was left in possession of the Fort as a place of residence, but yielding no revenue. The Rajah having died, leaving no heir, the Government of India considers the fort to have lapsed. The decision of the Court of Directors has not yet been communicated to that Government.

AN ABSTRACT STATEMENT of the REVENUES and CHARGES of *India*, including the Charges Disbursed in *England*, for the Years 1849-50 to 1854-55, (the last Year partly estimated), showing the Surplus or Deficit in each Year, converted into Sterling Money at the established rate of 2 s. the Sicca Rupee.

	Gross Revenues.	Allowances and Assignments Payable out of the Revenues, in accordance with Treaties or other Engagements.	Net Revenues.	Charges of Collection, and other Revenue Charges.	Civil, Judicial, Military, and Marine Charges, including Interest on Debt.	Total Charges in India.	Charges Disbursed in England.	Total Charges, including Charges in England.	SURPLUS.	DEFICIT.
	£.	£.	£.	£.	£.	£.	£.	£.	£.	£.
1849-50 - - -	25,698,046	2,309,207	23,388,839	3,242,236	17,041,329	20,283,565	2,750,937	23,034,502	354,337	—
1850-51 - - -	25,833,150	2,532,083	23,301,067	3,360,015	16,808,000	20,168,015	2,717,186	22,885,201	415,866	—
1851-52 - - -	26,092,718	2,447,565	23,645,153	3,817,657	16,789,854	20,607,511	2,506,377	23,113,888	531,265	—
1852-53 - - -	26,821,038	2,365,603	24,455,435	4,104,156	17,229,534	21,333,690	2,697,488	24,031,178	424,257	—
1853-54 - - -	26,375,197	2,426,131	23,949,066	4,243,986	18,486,908	22,730,894	3,262,289	25,993,183	- - -	2,044,117
1854-55 - - - (Partly estimated.)	26,654,071	2,412,593	24,241,478	4,507,466	19,258,875	23,766,341	3,018,847	26,785,188	- - -	2,543,710

East India House, }  
2 April 1856. }

James C. Melvill,  
Secretary.

**E A S T I N D I A.**

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**RETURN**, showing the **TERRITORIES** which have been Annexed, or Proposed to be Annexed, to the *British* Dominions by the Governor-General of *India*, since the close of the Punjab War; and **ABSTRACT** of the **REVENUES** and **CHARGES** of *India*, including the Charges Disbursed in *England*, in the same Period.

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(*Sir Erskine Perry.*)

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*Ordered, by The House of Commons, to be Printed,  
3 April 1856.*

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## EAST INDIA (TENURES OF LAND).

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RETURN to an Order of the Honourable The House of Commons,  
dated 9 June 1857;—for,

A RETURN “showing under what TENURES, and subject to what Land Tax,  
LANDS are held under the several Presidencies of *India*.”

East India House, }  
18 June 1857. }

JAMES C. MELVILL.

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RETURN showing under what TENURES, and subject to what Land Tax,  
LANDS are held under the several Presidencies of *India*.

It is presumed that the Order of the Honourable House is intended to apply only to those tenures which are held directly under the Government, and not to those sub-tenures which may be created at the pleasure of landowners.

Land throughout India is generally private property, subject to the payment of revenue, the mode and system of assessment differing materially in various parts.

Considerable tracts however are exempted from the payment of any revenue, such as Jaghire, Lakhiraj, Maaffee, Enam, and other similar lands, mostly under grants made by the native governments which preceded us, and which have been subsequently confirmed by the British authorities. Others, such as estates held on Mocurreree or Istimreree titles, are subject to a fixed annual payment, not liable under any circumstances to be increased.

### BENGAL.

In the Lower Provinces of the Bengal Presidency, the land is held by zemindars, on payment of an annual sum, fixed in perpetuity, the estates being liable to be sold in default of payment, under the provisions of Act I. of 1845. The only land at the disposal of Government consists of estates which have been thus sold, and purchased on the public account. The rate of land tax cannot be given, but it is believed to amount, on the average, to about half the rental.

### NORTH-WEST PROVINCES.

The system pursued in the North-West Provinces is briefly described in the following extract from the “Directions for Revenue Officers,” promulgated under the authority of the late Lieutenant-governor, Mr. Thomason.

First. All the inhabited part of the country is divided into portions with fixed boundaries, called mehals or estates; on each mehal a sum is assessed for the term of 20 or 30 years, calculated so as to leave a fair surplus profit over and above the net produce of the land; and for the punctual payment of that sum the land is held to be perpetually hypothecated to the Government.

Secondly. It is determined who are the person or persons entitled to receive this surplus profit. The right thus determined is declared to be heritable and transferable, and the persons entitled to it are considered the proprietors of the land, from whom the engagements for the annual payment of the sum assessed by the Government on the mehal are taken.

\* Thirdly. All the proprietors of a mehal are, severally and jointly, responsible in their persons and property for the payment of the sum assessed by the Government on the mehal. When there are more proprietors than one, it is determined according to what rule they shall share the profits, or make good the losses on the estate. If the proprietors are numerous, engagements are only taken from a few of the body, who on their own parts, and as representatives of the rest, undertake to manage the mehal, and to pay the sum assessed upon it.

The rate of assessment was in the first instance limited to two-thirds of the net produce\* of each mehal or estate, but, on the revision which is about to take place on the expiration of the 30 years which formed the first term of settlement, it has been determined to restrict the demand of the State to one-half of the average net assets.

In some districts, such as Goruckpore, the Deyrah Dhoon, and Kumaon, there are large tracts of land in which no private rights exist, and which are consequently at the absolute disposal of the Government. These are granted to applicants on favourable terms, such as those mentioned in the following notification, which was issued in September 1855:

1. Grants of land for the tea cultivation in the Kumaon and Ghurwal districts of the Kumaon province, will be made on the following conditions, on application to the Senior Assistant Commissioner of the district.

2. Each grant will be of not less than 200 or more than 2,000 acres; more than one grant may be taken by one person or company, on the applicants satisfying the local authorities, acting under the usual control in the Revenue department, of their possessing sufficient means and capital to undertake an extended cultivation and manufacture of tea.

3. One-fourth of the land in the grant will be given free from assessment in perpetuity, on fulfilment of the conditions below stated.

4. The term of first lease will be for 20 years; for the first four years the grant will be rent free; in the fifth year, one anna per acre will be charged on three-fourths or the assessable portion of the grant; two annas per acre in the sixth year; three annas in the seventh year, and so on, one more anna being added in each year, till, in the last year, the maximum rate is reached of one rupee per acre. The full assessment on a grant of 2,000 acres will thus not exceed 1,500 rupees per annum.

5. The following are the prescribed conditions of clearance:

At the close of the fifth year from the date of grant, a twentieth part of the assessable area; at the close of the fifteenth year, half of the assessable area; and at the close of the last year three-fourths of the assessable area is to be cleared and well stocked with tea plants.

6. In the 21st year, on the fulfilment of the above conditions, the proprietary right in the grant and the right of engagement with Government shall vest in the grantee, his heirs, executors or assignees, under the conditions generally applicable to the owners of estates in Kumaon; and the rate of assessment on the lands in the grant, in whatever manner cultivated, shall never exceed the average rate on grain crop lands in the same locality.

7. On failure of payment of the prescribed assessment in any year, or of any of the above conditions (the fact of which failure shall after local inquiry, conducted by the Senior Assistant Commissioner, be finally determined by the Sudder Board of Revenue), the entire grant shall be liable to resumption at the discretion of the Government, with exception to the portion of the assessable area which may be *bona fide* under tea cultivation, and to a further portion of land which shall be allowed in perpetuity free of assessment to the extent of one-fourth of such cultivated area. The portions so exempted will remain in the possession of the grantee, subject to the usual rates and rules of assessment in the district.

8. Grantees

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\* By net produce is meant the surplus which the estate may yield after deducting the expenses of cultivation, including the profits of stock and wages of labour.

8. Grantees shall be bound to erect boundary pillars at convenient points round the circuit of a grant within six months from its date, failing which, such pillars will be put up by the Government officers, and the cost thereof shall be recoverable from the grantee in the same manner as the regulated rate of assessment.

9. No claim to the right and interest in the grant on any transfer by the original grantee, will be recognised as valid unless on registry of the name of the transferee in the office of the Senior Assistant Commissioner.

10. So long as Government establishments for the experimental growth and manufacture of tea shall be maintained in the Provinces, supplies of seeds and plants will be given gratis to grantees, on application to the Superintendent Botanical Gardens, North-Western Provinces, as far as may be in his power.

### MADRAS.

The tenures of land under the Madras Presidency are thus described in a report recently received from that Government.

The revenue systems in force in the Madras Presidency are the zemindary, village joint rents, ryotwar, oolungoo.

The zemindary system is also termed the Mootahdary, the former designation being usually applied to old ancestral estates, and the latter to those created under the Regulations of 1802.

Under this system estates, of greater or less extent according to circumstances, are held by the proprietors direct from the Government, on payment of a fixed annual sum or "peishcuish." This payment was fixed on the creation of the estate by a calculation of its actual proceeds at the time, and for some years previously, a deduction, generally of from 33 to 15 per cent., being made therefrom to cover the expenses of management, and to constitute (with the future revenue of the whole of the culturable lands then waste), the emoluments of the zemindar or proprietor.

The prominent defects of this system consist in the entire alienation of the waste lands from the State, and the degree of dependence in which all classes are practically placed under the zemindar. The powerful influence of the latter is also injuriously experienced in matters of police.

The zemindary tenure prevails chiefly in the Northern Circars, though there are large proprietary estates in other districts, as Madura, Nellore, North Arcot, &c.

In the village-renting system the villagers stand in the zemindar's position, and jointly hold from the Government. The village is rented to the whole body, or a section of them, for a term of years, and they make their payments direct to Government, managing their affairs independently, and allotting the lands for cultivation among themselves.

Under this system the middle-man between Government and the people is dispensed with, but there still remain the serious defect of joint responsibility, and the want of clearly defined individual property in the land.

Under the ryotwar system every registered holder of land is recognised as its proprietor, and pays direct to Government. He is at liberty to sub-let his property, or to transfer it by gift, sale, or mortgage. He cannot be ejected by Government so long as he pays the fixed assessment, and has the option annually of increasing or diminishing his holding, or of entirely abandoning it. In unfavourable seasons remissions of assessment are granted for entire or partial loss of produce. The assessment is fixed in money, and does not vary from year to year, except in those cases where water is drawn from a Government source of irrigation to convert dry land into wet, or one into two-crop land, when an extra rent is paid to Government for the water so appropriated; nor is any addition made to the assessment for improvements effected at the ryot's own expense. The ryot, under this system, is virtually a proprietor on a simple and perfect title, and has all the benefits of a perpetual lease without its responsibilities, inasmuch as he can at any time throw up his lands, but cannot be ejected so long as he pays his dues; he receives assistance in difficult seasons, and is irresponsible for the payment of his neighbours.

The assessment is fixed on each field, and the mode in which this was done is as follows : a certain portion of the produce was first set aside from the gross produce as a joint contribution of the ryot and Government for the pay of village officers, and the remainder divided in certain proportions, the share allotted to Government being commuted into money at the average value of the produce for a period of years antecedent to the settlement.

Unfortunately the share of Government was generally fixed too high, and the result of this over-assessment, increased as its pressure has been by the fall in the value of produce since the settlement was made, has never allowed the system a fair trial. Various restrictive rules also led to much interference with the ryots, though they were far from being a necessary consequence of the system. These restrictions are now being removed, and the reductions recently made or in progress, and the correct survey, classification, and re-assessment of the land now in progress, will do away with these disadvantages, and it may be expected that the superiority of a system which encourages industry and enterprise by being based on individual proprietorship will be more clearly evinced.

The "Annual Settlements" under ryotwary are often misunderstood, and it is necessary to explain that they are rendered necessary by the right accorded to the ryot of diminishing or extending his cultivation from year to year. Their object is to determine how much of the assessment due on his holding the ryot shall pay, and not to re-assess the land. In those cases where no change occurs in the ryot's holding, a fresh puttah or lease is not issued, and such parties are in no way affected by the annual settlement, which they are also not required to attend.

The greater portion of the Presidency is under ryotwary, and a correct understanding of its principles, when properly carried out, is therefore particularly desirable. To revert from ryotwar to the zemindary tenure would be to place a middle-man between Government and the people, to strike off from 15 to 33 per cent. of the existing revenue, and to alienate the waste lands which now afford Government the means of lightening the heavy assessments now prevailing. To have recourse to village rents would be to annul individual property in the land, and to make the community responsible for every member's shortcomings.

The ryotwary system essentially prevails universally, for the zemindar and village renter, equally deal with their tenants on this principle, and every system, be its name what it may, must, in the end, resolve itself into ryotwar.

The oolungoo-renting system prevails only in Tanjore and Tinnevely, and is not general in either ; its peculiarity consists in the Government demand being dependant on the current price of grain. On the introduction of the system, a standard grain assessment was fixed on each village, and also a standard rate, according to which the grain demand was to be commuted into money ; but it was, at the same time, arranged, that if current prices in any year rose more than 10 per cent. above the standard commutation rate, or fell more than 5 per cent. below it, the Government and not the ryot was to receive the profit and to bear the loss. The profit up to 10 per cent. remains with the land-owners, who also bear all loss by fall of price as far as 5 per cent. The advantages of the system are that the Government participates with the ryot in the benefit of high prices, while the latter is relieved from loss when prices are much depressed ; its disadvantage consists in the difficulty that is experienced in obtaining accurate and fair returns of the current prices which are taken throughout the year.

#### BOMBAY.

Under the Bombay Presidency, "the revenue management" may be described in general terms as "ryotwaree," implying that, as a general rule, the occupants of Government lands settle for their land revenue, or rent, with the Government officers direct, and not through a middle man. It should be understood, however, that throughout the Presidency, instances not unfrequently occur in which the Government revenues of entire villages are settled for by individual superior holders, under various denominations, or by a co-partnery of superior holders ; as instances of the former, the Khotee villages of the Konkan, and the talookdaree

Talookdarée estates of Guzerat may be adduced, while the latter are exemplified in the Bhagdaree and Neerwadaree tenure of the Broach and Kaira Collectorates.

In Sind, not many years ago, the revenue throughout was collected in grain by actual division of the crop; the grain was then sold by reserved auction, at artificially high, and sometimes even at famine, prices by the Government, as the great grain dealers of the country. The natural condition of the market, thus directly interfered with by the Government, was yet further forced by the circumstance of the Commissariat drawing the grain required for the troops at *nominal* prices from the Government grain stores. Great progress has been made in superseding this objectionable system by cash assessments, which have been already introduced into several districts of the Province. In the Shikarpoor Collectorate generally, but in Larkhana particularly, the advantages of a light and fairly distributed cash assessment have been most marked and beneficial. The tax payers are contented, and the Government demand is readily responded to.

A revision of assessment is now in progress throughout the Presidency, by which the amount payable on each field is determined according to its quality, and the amount so fixed is not liable to alteration for a term of 30 years.

### PUNJAB.

In the Punjab one and the same man is usually absolute proprietor and generally the sole cultivator, though he may occasionally lease out a few fields to tenants. He is saddled with no rent. He has to provide for the cost of cultivation and for the Government demand; the rest of the produce he may devote to the maintenance of his family and the accumulation of his capital. But these men, while maintaining their individuality, do yet belong to village communities. A village is not inhabited by a certain number of ryots, each unconnected with the other, but by a number of persons of common descent, forming one large cousinhood, having their own headmen, accustomed to joint action and mutual support.

The British Government has from the first decided on levying the tax by money payments assessed for a term of years. The peasant proprietors compound with the State for a fixed period, such assessment and compounding being technically termed a Settlement. But the proprietors do not engage *individually* with the Government, but by *villages*. The brotherhood, through its headmen or representatives, undertakes to pay so much for so many years; and then, having done this, they divide the amount among themselves, assigning to each man his quota. Primarily each man cultivates and pays for himself, but ultimately he is responsible for his co-parceners and they for him; and they are bound together by a joint liability. The Punjab system, therefore, is not ryotwaree, nor zumeendaree; but the *village system*. In the Hills, and occasionally elsewhere, the zumeendaree system, and near Mooltan, something approaching to the ryotwaree system, may be found. But the village system is the prevalent one, especially in the most important districts.

The average rate of assessment per acre, per annum, in the Cis-Sutlej States, is 1 r. 2 a. 4 p., or 2 s. 3 ½ d.; in the Trans-Sutlej States, 1 r. 15 a. 7 p., or 3 s. 11 ¾ d.; in the Upper Baree and Rechna Doabs, 1 r. 6 a. 5 p., or 2 s. 9 ¾ d.; in the Upper Chuch Doab, 1 r. 2 a. 7 p., or 2 s. 3 ¾ d. It will be observed that the rate diminishes as the settlement progresses westward, the country being poorer; the same result will occur in the southern districts. It is estimated that a peasant proprietor cultivates, on an average, eight acres, and, at a mean rate of assessment (say 1 r. 4 a. per acre), would pay 12 rs. or 1 l. 4 s. per annum to the State. From this point of view, the amount would not seem heavy. Again, from searching and accurate inquiry in the Settlement Department, showing the exact yield and value per acre of every kind of crop, it has been ascertained that the Government demand does not exceed one-fifth of the gross value of the produce in rich tracts, and one-sixth, or one-eighth, or even less, in poor tracts.



More complete information as to the system of revenue administration pursued in the North-west Provinces and in Bombay, will be found in the papers printed by order of the Honourable House on the 20th August 1853 (No. 999). Papers on the subject of the revision of the assessment of the Madras Presidency have also been printed as No. 51 of the present Session.

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East India House, }  
June 1857. }

*J. S. Mill,*  
Examiner of India Correspondence.

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EAST INDIA (TENURES OF LAND).

RETURN showing under what TENURES, and subject to what Land Tax, LANDS are held under the several Presidencies of India.

(*Mr. William Ewart.*)

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*Ordered, by The House of Commons, to be Printed,*  
*22 June 1857.*

112—Sess. 2.

*Under 1 oz.*

9

EAST INDIA (EUROPEAN TROOPS).

RETURN to an Order of the Honourable The House of Commons,  
dated 20 July 1857:—for,

A COPY or EXTRACTS “of the CORRESPONDENCE which has passed,  
since the 1st day of April 1856, between the Court of Directors of the  
East India Company and the Commissioners for the Affairs of India, and  
between the Court and the Governor-General in Council, relating to the  
Number of EUROPEAN TROOPS in *India*.”

India Board, }  
20 July 1857. }

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HENRY DANBY SEYMOUR.

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(*Mr. Seymour.*)

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Ordered, by The House of Commons, to be Printed,  
20 July 1857.

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COPY of EXTRACTS of the CORRESPONDENCE which has passed since the 1st of April 1856, between the Court of Directors of the East India Company and the Commissioners for the Affairs of India, and between the Court and the Governor-General in Council, relating to the Number of EUROPEAN TROOPS in *India*.

The Governor-General of India in Council to the Court of Directors of the East India Company.

(Extract.)

Fort William, 5 April 1856.

THE pressure for officers for detached employment has become so great, that we feel ourselves constrained to solicit that your Honourable Court will take the earliest practicable measures to supply the existing vacancies of ensigns in the fixed establishment of regiments, and that you will appoint supernumerary cadets of infantry to the Bengal establishment to the extent of two for each regiment, or for the three European regiments 12, and for the 74 native infantry regiments 148; making in all 160 supernumerary cadets.

The accompanying figured statement will show your Honourable Court that in 49 regiments of infantry there are seven (and some of these more than seven) officers per regiment on staff and detached employ. The recent formation of the Oude Irregular Force has in part led to the lately increased demand upon regiments for officers in excess of the regulated number for detached employ; but your Honourable Court will observe that in October 1855 the late Governor-general recorded a Minute, in consequence of the strong representations of the late Commander-in-chief as to the paucity of officers for the demands of the public service. Of that Minute the 13th and 14th paragraphs are transcribed here:—

Para. 13. "As a further palliative, I recommend that the Government should authorise, as a temporary measure, that field-officers should not be counted among the number of six absentees allowed: this will only be a return to former practice."

Para 14. "If even this palliative should be found insufficient, it will be necessary to use the discretion which the Court has allowed to the Government, and to sanction the withdrawal of a seventh officer from all corps until some permanent relief can be afforded for the present state of things."

Both these measures have been in some cases resorted to, but only to such extent as seemed unavoidable. We now, however, find it necessary to request your Honourable Court to accord your sanction at once to the omission of the field-officers of regiments, in computing the number of absentees on staff and detached employ, and to the establishing of seven instead of six as the allowed number of such absentees, retaining the present limitation of three captains to be taken from any one regiment. These measures appear to us to be the least objectionable of any by which the present pressure can be met, especially in the event of your Honourable Court's acceding to our requisition for supernumerary cadets of infantry submitted in this letter.

(No. 143, in the Military Department.)

The Court of Directors of the East India Company to the Governor-General of India in Council.

London, 10 September 1856.

Reply to letter dated 5 April 1856,  
No. 127.

Urgent representation of the paucity of European officers, and recommendation for the appointment of supernumerary cadets for the Bengal infantry.

Para 1. THE difficulties which our several Governments, and especially those of Bengal and Bombay, have experienced in providing officers for staff and other detached employments, and at the same time in maintaining regimental efficiency, have, as you are aware, been long a source of anxiety to us. We informed you in February last that we awaited only the receipt of an intimation from the Governor-general in Council as to the extent of the deficiency of officers, and the best means of supplying it, when our immediate attention would be given to that important subject.

2. We have attentively considered the Minute recorded by the Marquis of Dalhousie, just before his Lordship's departure for Europe, on the augmentation of European officers required for the Indian army, in connexion with several other Minutes on the organisation of that army. You have promised to furnish us with your views on the several important subjects discussed in these Minutes. Meanwhile, you have earnestly pressed on our attention the necessity of furnishing you with a number of supernumerary cadets, leaving for future consideration the question as to the grades of rank in which the augmentation should be made.

3. When the cadets now on their passage or preparing for examination have arrived, the existing vacancies will be filled up.

4. As an immediate measure of relief, it is our intention to send cadets, supernumerary to the present establishment, to the extent of one to each regiment of native infantry and cavalry, and two to each European regiment at the three Presidencies.

5. But we need hardly say the mere appointment of one or more officers to the rank of ensign in addition to those at present on the establishment of a regiment of native infantry, would not be the remedy required to meet effectually the present exigencies of the Indian army. From their youth and inexperience, and want of rank, such additional officers would form no adequate substitute for the older and experienced officers who have been withdrawn from regimental duty. Sir Charles Napier, in a letter dated the 29th July 1846, addressed to the Governor-general of India, observed that "The Court of Directors may rest assured that neither the native officers nor the Sepoys look with either respect or affection upon a set of young European officers, who, as far as I can observe, scarcely speak to, much less mix with and study the character of the native officers."

6. The most influential, and therefore most useful, officers in native regiments are the field officers, captains, and senior subalterns, who have obtained mature experience of the native character, also the native officers when not superannuated. It would not be prudent to confine ourselves now to a measure which, in its immediate operation, would add no strength to these classes. It must be our aim to augment the ranks upon which calls for detached employment are most frequently made, so that ultimately those calls may be met without risking the discipline of our regular regiments.

7. That the want is pressing we fully admit. It has been necessarily occasioned by the requisitions for staff and civil services, and for local and irregular corps, which could only be effectually met by transferring to them officers of the very class and description who are most urgently required for regimental duties, and who are best qualified to command the respect and to conciliate the affections of every class of the native soldiery.

8. These considerations would have induced us to determine to allow two additional captains to every regular native regiment in our service; but in the actual condition of the finances we must confine ourselves to sanctioning your appointment of one additional captain and one additional lieutenant to every  
regiment

regiment of Native infantry and cavalry of the regular formation in the three Presidencies, and of two additional captains and two additional lieutenants to each European regiment; to have effect from the expiration of one month from the date of your receipt of this despatch. The senior lieutenants generally are, we are persuaded, well qualified to inspire their men with confidence and pride in our military system, and to conduct with efficiency the important duties which will devolve upon them on being promoted to the higher grade.

9. We take this opportunity of expressing our opinion that the native regiments of the line should always have present with them for regimental duty in time of peace:

One for command.

Ten eligible for command of companies.

Two eligible for regimental staff, besides the young ensigns who are training for these duties; and that in time of war every available officer detached from the regiment for staff employment, should forthwith re-join it.

10. We are very sensible of the unprecedented deficiency of officers of artillery to meet your urgent demands in that branch of the service. The subject is one of great importance, and we propose to inform you of our intention respecting it when we have received your expected despatch on the state of the army.

11. Extension of territory may require some extension of the army, though with reference to the existing position of the British Government in India, it ought not, under a rule just and circumspect, to require any great increase. But whatever may be necessary ought to be supplied by the formation of additional regiments, and these should be of that description which, whilst inexpensive, is found to be efficient. These are two kinds, first, "local corps," not only raised, but recruited from among the people in newly acquired territory; secondly, "irregulars" in either case, with a complement of three, or at most four officers, selected solely on account of their perfect qualifications for a peculiar, but very effective service.

12. Regiments called "irregular" have been increased in number of late years. We rely on their value for all purposes, and as regards the irregular cavalry for a political and most important object, that of opening a sphere of attractive employment in the British service for the native yeomanry and the native gentry.

13. It may be advisable that our local Governments should inquire to what extent, in certain provinces of India, the presence of troops can with safety be dispensed with altogether, and in other localities how far "local" and "irregular corps" with few European officers, may be effective for duties now devolving on regiments of the line.

14. Habit in India may connect the idea of insecurity with the despatch of treasure, by any other means than under an escort of regular troops. We consider that this practice is not creditable to our administration. When it is necessary to remit treasure, the ordinary police guards, or guards of irregulars, ought to suffice for protecting British treasure on roads through British territory.

15. By these and other methods, to which we hope you will turn your attention, the number of men necessary for service might be diminished.

16. You have found it necessary to recommend that the existing limitation of the number of officers to be withdrawn from each regiment of native infantry may be modified, so as to exclude regimental field officers from the computation, and to establish seven instead of six as the allowed number of absentees on staff and detached employment, of whom three may be captains. This modification of the existing Regulation has our sanction.

17. We have observed with satisfaction, that our desire to see the supply for staff and detached employment equalised as much as possible at the three Presidencies, has been attended to by the withdrawal of additional numbers from the

Madras army for appointments which are open to officers of the three Presidencies. This object you will keep constantly in view, as it is important that the existing system of uniform regimental establishments at the several Presidencies should be steadily maintained.

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The Military Secretary of the General Commanding-in-Chief to the Secretary of the India Board.

Sir,

15 September 1856.

Two regiments of infantry having been withdrawn from India, without relief, at the end of the year 1854, the General Commanding-in-Chief concludes that it would be desirable that they should be replaced in the early part of next year, and I am therefore directed by his Royal Highness to request that you will inform the Commissioners for the Affairs of India, that two regiments will be held in readiness for that purpose. There are also two regiments, the 10th and 29th, which embarked for India in April 1842, and which should therefore be relieved next year. Two regiments in this country will accordingly be prepared for this relief, and I am directed by his Royal Highness to request that he may be informed at what time it would be convenient that the four regiments should be embarked for India.

I am to add, that it is desirable that his Royal Highness should receive this information as early as possible, as some arrangements in reference to reductions in the army are contingent upon it; and the Commander-in-Chief in India has also expressed a wish to be informed what may be proposed in respect to sending regiments to India next year, that he may be prepared accordingly.

I have, &c.

*C. Yorke.*

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The Secretary of the East India Company to the Secretary of the India Board.

Sir,

25 September 1856.

1. I HAVE had the honour to receive and to lay before the Court of Directors, Sir George Clerk's letter of the 18th instant, with its enclosed copy of a letter from Major-general Sir Charles Yorke, dated the 15th instant on the subject of replacing next year the two regiments of infantry which were withdrawn without relief in the year 1854, and of relieving two regiments which embarked for India in April 1842.

2. I have received the Court's commands to acquaint you in reply for submission to the Board of Commissioners, that the Court recommend that the regiments to proceed to Bengal, two to relieve the 10th and 29th Regiments, and one to replace the 89th Regiment, which was withdrawn without relief, be embarked in the month of June next if they are to proceed to Calcutta; and that the regiment to replace the 25th Regiment, which was withdrawn from Madras without relief, be embarked for that Presidency in August or September, so as that all may arrive at the most favourable season of the year.

3. As there is time for a reference to India before arrangements are adopted for obtaining tonnage, the Court would propose that a communication be immediately made to the Government of India, to ascertain whether it is desired that one or more of the regiments should proceed *via* Kurrachee.

I have, &c.

*J. D. Dickinson.*

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(No. 168, in the Military Department.)

The Court of Directors of the East India Company to the Governor-General of India in Council.

15 October 1856.

WE forward a copy of a letter from Major-general Sir Charles Yorke, K. C. B., dated the 15th ultimo, and of our letter to the Secretary of the India Board in reply,

reply, relating to the time at which four regiments of Her Majesty's Infantry should be embarked for India next year, two in restoration of the regiments withdrawn without relief in the year 1854, and two to relieve the 10th and 29th Regiments, you will inform us at your early convenience, whether it is desirable that one or more of these regiments should proceed *via* Kurrachee.

We are, &c..

*W. H. Sykes.*

*R. D. Mangles.*

(No. 48, in the Military Department.)

The Governor-general of India in Council to the Court of Directors.

7 February 1857.

THE circumstances and nature of the service in Persia rendering it, in our opinion, indispensably necessary that a large proportion of the troops there employed should be Europeans, we have the honour to solicit the earliest attention of your Honourable Court to the Minutes herewith transmitted, in which are fully detailed the reasons which have induced us to make the requisition which we now beg to submit for your consideration, for additional regiments from England to the extent stated in the Minute by the Governor-general.

EUROPEAN TROOPS FOR PERSIA.

(Extract.)

MINUTE by the Governor-general.

7 February 1857.

In a few days the last regiments of the second division of the Army of Persia will have left Bombay; this will place at the disposal of Lieutenant-general Outram a force amounting to something less than 12,000\* men of all arms, of which about one-third will be Europeans. The proportion of cavalry will be about 2,600.

This force has been judged sufficient for any operations which Major-general Outram can undertake before the hot season. It is probably quite as large as can be supplied with transport and forage under such arrangements as the Commissariat officers on the spot here have as yet had time to make, and any considerable increase of it before the summer is not possible or desirable.

It is certain that very large reinforcements will be needed before a second campaign, commencing with the autumn of 1857, can be entered upon.

In supplying this force, the European infantry will be the chief difficulty. All information that reaches us points to the necessity of a much larger proportion of European troops than is usually given to an army in the field in British India.

I am satisfied that, having regard to the composition of the two divisions already sent to the Persian Gulf, the third division ought to include not less than six European regiments of infantry and one of cavalry.

Whence are those regiments to be drawn, and what reserve will remain available for further drafts after they have been taken?

Bombay can give no more; four European regiments only are left to that Presidency and its outpost at Aden.

Madras

\* First Division (under Major-general Stalker).—5,820 of all arms, of which 2,270 are European non-commissioned officers and rank and file.

Second Division (under Brigadier-general Havelock).—5,340 of all arms, of which about 1,770 are Europeans. Add, 800 cavalry (200 regular and 600 irregular), about to be sent as a reinforcement of the First Division.

5,820

5,340

800

11,960



Madras can give none; the entire occupation of Pegu is in course of being transferred to the Madras army, and one Queen's regiment is still wanting to its ordinary European strength. One wing of the regiment of Queen's cavalry (12th Lancers), lately arrived in that Presidency, has already been taken from it, and the other will be available when wanted, but nothing more.

The whole force, therefore, must be supplied from Bengal; and this may be said with almost equal truth of native troops and of European.

The European strength of the Indian army, reduced by the withholding of two regiments of Queen's infantry on account of the exigencies of the Russian war, has not been made good. For all Indian purposes its strength will be equally reduced, whether the regiments be sent to Persia or to the Crimea. Peace has been restored in Europe, it is true, and with its return the disquietude which even a distant war had raised in the minds of the native population in some parts of India has passed away. In the course of the last eight years three vast provinces have been brought under the Government of India: the Punjab, Pegu, and Oude, peopled with hardy, and, in the case of two of the three, warlike races. In the same time the European strength of the army in India has been increased by three regiments of the Company's service; nothing has been added to the regular native army, and two regiments of Queen's infantry have been withdrawn, and will not be replaced before the Bengal division of the Persian army is despatched. Local corps have indeed been raised in the Punjaub and in Oude, and have already proved themselves most efficient and trustworthy, but they will not supply the place of English troops. The army of India is not established upon a scale calculated to meet the drain of a war carried on at a distance of 2,000 miles from its shores; least of all as regards its European force, which does not admit of ready increase. And, considering the wide area over which the Bengal army is spread, that wherever our frontier is exposed to insult it is in the keeping of this army, and that the province in which our rule is newest is also under its charge, I am of opinion that the largest amount of European infantry which can be spared from Bengal is three regiments; nor can I consent to increase the number in consideration that the full complement of 16 Queen's regiments, which is due to this Presidency, will be made good to it by the arrival, in next autumn, of the regiment which has been withheld since 1854. Indeed, in saying that three may be withdrawn, I feel that I have gone to the utmost bounds of prudence.

There will still be wanting three regiments to make up the six, which, as a maximum, the Bengal division must comprise; and, to supply two of these, I propose that the Secret Committee of the Court be requested to obtain the sanction of Her Majesty's Government to the retention by the Government of India of the 10th and 29th Regiments, which would otherwise return to England in the autumn of this year. The remaining one must be supplied from England; as also the force which will be needed as a reserve. The lowest amount at which I can estimate this is two regiments; and this assumes that a division from Bengal of 12,000 men will suffice.

The request then to be made to Her Majesty's Government will stand thus:

That the four regiments already announced for embarkation in the summer of 1857 be despatched. It will now be desirable that three of these should be sent to Bombay and one to Madras; not two to Madras and two to Kurrachee, as had been desired by his Excellency the Commander-in-Chief, in a letter to the Horse Guards of the 10th of December. It will also be necessary that their arrival should not be postponed beyond the usual time in September.

That three more regiments be sent out also to Bombay. The arrival of these may conveniently be fixed two months later.

That the 10th and 29th Regiments be retained by the Government of India.

In regard to cavalry, I do not propose that any addition to the Queen's army be asked. I see no objection to sending one of the two regiments of dragoons which are in Bengal (probably the 9th Lancers), and the wing of the 12th, now in Madras, may be spared without any difficulty.

It will probably be understood between Her Majesty's Government and the Court, that upon the cessation of hostilities the supernumerary regiments will return at once to England. There may otherwise be much difficulty in providing them with suitable barracks in India.

*Canning.*

I CONCUR entirely as to the expediency of demanding large reinforcements of European troops from England. I am aware from my own knowledge that the Marquis of Dalhousie was of opinion he had reduced the European force in India to the lowest possible limit justified by ordinary prudence; yet since then we have acquired additional territory (Oude) in which the presence of at least one European regiment is for the moment indispensable. It is true that the European force in Pegu is unnecessarily large, considering the peaceable disposition of the court of Ava; but this is a contingency on which no great reliance can be placed, and which would be jeopardised at once by the mere fact of over security.

On the whole, I conceive that the demand for European troops proposed by the Governor-general is the lowest that is consistent with a reasonable prosecution of the war with Persia, and the safety of India during the continuance of hostile operations against that country.

*J. Dorin.*

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EUROPEAN TROOPS REQUIRED FOR THE WAR IN PERSIA.

MINUTE by Major-General *J. Low*, C. B.

8 February 1857.

THE Governor-general's Minute on this important subject, although dated yesterday, only reached me at one o'clock this morning, along with various other papers connected with that subject; and as I know that his Lordship wishes to have copies of all those papers despatched by the packet, which is to be closed to-morrow forenoon, I shall not lose time by entering into any details, but content myself with recording my entire concurrence with his Lordship in regard to the necessity of our being aided by Her Majesty's Government to the full extent stated in his Lordship's Minute; indeed, I am so deeply impressed with the belief of that necessity, that I take this opportunity of suggesting that two additional regiments of infantry from England may be solicited by the next mail, if it is too late now to alter the requisition in time for the present mail. I consider that if we had them, we might possibly spare some more European cavalry from India than the number proposed for the Persian expedition by the Governor-general; but that we cannot with prudence detach to such a distance as Persia a single company of European infantry, in addition to the regiments already sent, and now about to be sent to that country.

*J. Low.*

I agree with the above remarks.

*J. P. Grant.*

I concur in the opinion expressed by the Governor-general.

*B. Peacock.*

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The Chairman and Deputy Chairman of the East India Company to the President of the Board of Commissioners for the Affairs of India.

Sir,

East India House, 29 April 1857.

REFERRING to the correspondence which has passed on the subject of the regiments of infantry to be sent to India this year, the Court of Directors request us to state, that as the 82d and 90th regiments, which it was proposed to send to India in the present season to replace the two regiments which were withdrawn during the late war, have been despatched to China, it will be desirable that two other regiments should be embarked for India in their stead.

One of these regiments is due to Bengal, the other to Madras.

The number of Her Majesty's regiments of European infantry on the establishment of India will then be restored to 24, the number which has been maintained there, except for a brief interval, since the year 1842.

The Court are also desirous that, if the course of events in China shall not permit the regiments destined to relieve the 10th and 29th regiments proceeding to India for that purpose, authority may be given to the Governor-general in Council to detain those regiments in India until relieved.

We have, &c.

*Ross D. Mangles.*  
*Frederick Currie.*

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The President of the Board of Commissioners for the Affairs of India to the Chairman and Deputy Chairman of the East India Company.

Gentlemen,

India Board, 5 May 1857.

WITH reference to your letter of the 29th ultimo, I have the honour to inform you, that in consideration of the present uncertainty as to the duration of hostilities in China, Her Majesty's Government have deemed it expedient to recommend the despatch of four regiments to India without delay; and his Royal Highness the General Commanding-in-Chief will forthwith take Her Majesty's pleasure as to the regiments to be selected for this service.

I have, &c.

*R. Vernon Smith.*

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The Chairman and Deputy Chairman of the East India Company to the President of the Board of Commissioners for the Affairs of India.

Sir,

East India House, 6 May 1857.

WE have had the honour to receive your letter of yesterday's date, announcing with reference to our letter of the 29th ultimo, that in consideration of the present uncertainty as to the duration of the hostilities in China, Her Majesty's Government have deemed it expedient to recommend the despatch of four regiments of infantry to India without delay.

In reply we are requested by the Court of Directors to state, that upon the understanding that two of these regiments are to be in substitution for two other regiments which had been intended as a relief to Her Majesty's 10th and 29th Regiments, but are required for service in China, and that Her Majesty's 10th and 29th Regiments will, in consequence, return to this country in the next ensuing winter, the Court will take immediate measures for obtaining tonnage for the conveyance of three regiments to Bengal, viz., one to supply the place of a regiment withdrawn without relief, during the war with Russia, and two to replace the regiments above specified, which are on the Bengal establishment. The fourth regiment of infantry is due to Madras. The proper period of embarkation for that Presidency is the month of August next, and arrangements will be made accordingly.

We have, &c.

*Ross D. Mangles.*  
*F. Currie.*

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The Secretary of the India Board to the Secretary of the East India Company.

Sir,

India Board, 6 May 1857.

WITH reference to the letter which the President of the Board of Commissioners for the Affairs of India yesterday addressed to the Chairman and the Deputy Chairman of the East India Company, I am desired by the Board to request that you will lay before the Court the enclosed copy of two letters from the Horse Guards and the War Department, dated respectively the 4th and the 5th instant, as to the four regiments of infantry which are about to be despatched from this country to India.

I am, &c.

*George Clerk.*

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The Military Secretary of the General Commanding-in-Chief to the Secretary of the India Board.

Sir,

Horse Guards, 4 May 1857.

I HAVE the honour, by direction of His Royal Highness the General Commanding-in-Chief, to acquaint you, for the information of the Commissioners for the Affairs of India, that Her Majesty has been pleased to approve of four regiments proceeding to India at an early period, independently of those composing the expedition to China, and I am therefore to request that the necessary orders may be given for tonnage to be provided for this service. The names, strength, and destination of these corps will be communicated to you in a few days.

I have, &c.

C. Yorke.

The Under Secretary, War Department, to the Secretary of the India Board.

(Extract.)

5 May 1857.

I AM to acquaint you that His Royal Highness has informed Lord Panmure that the 7th Fusileers, 88th Regiment, and 3d Battalion Rifle Brigade, have been placed under orders for India, and that a fourth regiment will be selected for the same service in the course of a few days. I am to request that you will inform me as to which of the Presidencies these regiments should be sent, and also of the ports at which it will be most convenient that they should be landed.

I am to add, that upon the arrival of these regiments, the 10th and 29th will return home.

The Secretary of the East India Company to the Secretary of the India Board.

Sir,

East India House, 14 May 1857.

I HAVE laid before the Court of Directors Sir George Clerk's letter, dated the 6th instant, forwarding letters from the Horse Guards and War Department, dated respectively 4th and 5th instant, on the subject of the four regiments of infantry about to be despatched from this country to India.

In reply to the inquiry contained in Sir Benjamin Hawes's letter, dated 5th instant, I have the Court's instructions to state that, as pointed out in the letter from the Chairman and Deputy Chairman to the President of the India Board, of the 6th instant, the Court would recommend that three of these regiments should be sent to Bengal, two being embarked for Calcutta as a relief for the 10th and 29th regiments, to return home on their arrival; and that one regiment should be embarked for Kurrachee, for service in the Upper Provinces of Bengal, to replace the regiment withdrawn from India without relief in 1854. Also that the 4th regiment should be sent to Madras, to replace the regiment likewise withdrawn from that Presidency in the year 1854.

As respects the 2d and 3d regiments of Dragoons, also under orders for India this year, the Court would propose that one of these regiments should proceed to Calcutta as a relief for the 9th Lancers, and one to Bombay as a relief for the 14th Dragoons.

A draft of paragraphs to the Government of India, communicating these arrangements, is submitted for the Board's approval.

As soon as the Court are apprised of the establishments of which these respective regiments will consist, they will invite tenders for the requisite tonnage. It is proposed that the regiments for Calcutta should embark between the 25th June and 25th July, the regiment for Kurrachee between the 7th and 21st July, and

the regiments for Madras and Bombay in August, so that all may arrive in India at the most favourable season of the year, with reference to the climates of their respective places of destination.

I have, &c.

*James C. Melvill.*

The Assistant Secretary of the India Board to the Secretary of the East India Company.

Sir,

India Board, 22 May 1857.

IN reference to your letter of the 14th instant, respecting the destination and other arrangements proposed for Her Majesty's regiments now under orders for India, and transmitting a draft despatch to the Supreme Government for the Board's sanction, I am directed by the Commissioners for the Affairs of India to enclose to you copy of a letter which has been received from the War Department, referring to the above subject, which I am desired you will move the Court to take into their immediate consideration, in order that the proposed despatch may go by the next mail.

I am, &c.

*Wm. Leach.*

The Under Secretary of the War Department to the Secretary of the India Board.

Sir,

War Office, 21 May 1857.

I HAVE laid before Lord Panmure your letter of the 18th instant, enclosing a copy of one from the Court of Directors of the East India Company, respecting the destination of and engagement of tonnage for the six regiments of Her Majesty's service now under orders for India; and I am to request that you will acquaint the Commissioners for the Affairs of India that his Lordship approves of the arrangements therein submitted, except in so far as regards the departure of the regiments, which, he is of opinion, ought not, under the present circumstances of India, to be postponed to the periods fixed in Sir J. Melvill's letter. His Lordship considers that they ought not to be despatched later than the 20th June, and he has requested the General Commanding-in-chief to take steps accordingly.

He has likewise desired the immediate embarkation of the drafts from Chatham, required to complete the regiments in India to their establishments.

I have, &c.

*B. Hawes.*

The Secretary of the East India Company to the Secretary of the India Board.

Sir,

East India House, 26 May 1857.

HAVING laid Mr. Leach's letter of the 22d instant, and its enclosure, before the Court of Directors, I have received their commands to acquaint you that advertisements were issued last Wednesday for tenders for the requisite tonnage to convey to India one regiment of dragoons,\* three regiments of infantry,† and recruits for Her Majesty's regiments, the said tenders to be delivered this day or on Wednesday, the 3d proximo, and to provide for the embarkation of the troops between the 1st and 25th July. The desire now expressed by the Secretary of State for War that the troops should be despatched by the 20th June, I am directed to state, cannot possibly be acted upon, as the time required to enable shipowners

\* 2d Dragoon Guards, from Gravesend to Calcutta.

† 7th and 88th, from Portsmouth to Calcutta, and 3d Battalion Rifle Brigade from Portsmouth to Kurrachee.

shipowners to make their tenders, to allow of the requisite survey of the ships, and for the due examination of the provisions for the voyage, and in the case of the regiments to embark from Portsmouth, to allow time for the ships to get round to that port, preclude an earlier embarkation than that which the Court have specified. Her Majesty's Government may rest assured that no avoidable delay will be allowed in the dispatch of these troops.

I have, &c.

*James C. Melvill.*

The Assistant Secretary of the India Board to the Secretary of the East India Company.

Sir,

India Board, 8 June 1857.

IN reference to your letter of the 26th ultimo, I am directed by the Commissioners for the Affairs of India to transmit to you a copy of a letter which has been received from the War Department, containing Lord Panmure's definitive instructions as to the dispatch of Her Majesty's regiments now under orders for India.

Adverting to your letter of the 14th ultimo, enclosing a proposed draft despatch announcing to the Government the arrangement proposed on this subject, I am desired to return to you this draft, in order that it may be amended with reference to the correspondence which has since taken place.

I have, &c.

*Wm. Leach.*

The Under Secretary of the War Department to the Assistant Secretary of the India Board.

Sir,

War Office, 4 June 1857.

I HAVE laid before Lord Panmure your letter of the 27th ultimo, enclosing the copy of one from the Court of Directors of the East India Company, relating to the engagement of tonnage, and the time of embarkation of Her Majesty's regiments under orders for India.

I am to request that you will acquaint the Commissioners for the Affairs of India that Lord Panmure is desirous that every effort should be made to dispatch these regiments as soon after the 20th of June as may be practicable.

I am, &c.

*B. Hawes.*

The Chairman and Deputy Chairman of the East India Company to the President of the Board of Commissioners for the Affairs of India.

Sir,

East India House, 29 June 1857.

THE Court of Directors of the East India Company having had under their consideration the despatches which have been received relating to the position of British interests in India, as affected by the mutiny of several native regiments in the Bengal army, request to state their decided opinion that the Government of India should be supplied as soon as possible with an additional military force beyond that which has been ordered to proceed this season.

The Court accordingly request that four additional regiments of infantry, of the full strength of one thousand (1,000) men each, may be directed to embark for India as soon as tonnage can be obtained for that purpose. These regiments will provide a relief for an equal number of corps now in India whenever the Government may be enabled to dispense with their services.

Having reference to the movement which has taken place of several regiments of European infantry from Bombay and Madras to Calcutta, the Court of Directors propose to make an engagement with owners of ships to be now engaged to call at Ceylon or Madras for orders, and to convey the regiments to Calcutta or Bombay, or to land them at Madras, as may be arranged by the Government of India.

The Court have thought it their duty to make this requisition, notwithstanding that they have not yet received any intimation from the Government of India of the extent to which the addition should be carried. There cannot, however, be any doubt that four regiments, at least, will be required. If upon the receipt of official communication from India, further augmentation should be found necessary, the Court will lose no time in making another requisition.

We are, &c.  
*Ross D. Mangles.*  
*F. Currie.*

The President of the Board of Commissioners for the Affairs of India to the  
 Chairman and Deputy Chairman of the East India Company.

Gentlemen,

India Board, 1 July 1857.

IN reply to your letter of the 29th ultimo, requesting that the Government of India may be supplied, as soon as possible, with a military force from this country, in addition to that which has been ordered to embark, I have the honour to inform you that the Queen has been pleased to authorise the following regiments being raised to the Indian establishment, and held in readiness for immediate embarkation: 1st Foot, 1st Battalion; 19th, 38th, and 79th Foot.

Instructions have also been issued that the drafts in this country of the 9th and 14th Dragoons, and the 10th and 29th Infantry, which regiments it was intended to bring home this year, shall join their head-quarters in India.

I have, &c.  
*R. Vernon Smith.*

The Assistant Secretary of the India Board to the Secretary of the  
 East India Company.

Sir,

India Board, 1 July 1857.

I AM directed by the Commissioners for the Affairs of India to transmit to you copy of a letter which has been received from the Admiralty, intimating that the Lords Commissioners have instructed the senior officer of Her Majesty's ships at the Cape of Good Hope to be in readiness to convey a regiment of infantry from that colony to Calcutta, if so required.

I am, &c.  
*Wm. Leach.*

The Secretary of the Admiralty to the Secretary of the India Board.

Sir,

Admiralty, 29 June 1857.

I AM commanded by my Lords Commissioners of the Admiralty to acquaint you, for the information of the Commissioners for managing the Affairs of India, that instructions have been sent to the senior officer of Her Majesty's ships at the Cape of Good Hope to take immediate measures for conveying a regiment of infantry from that colony to Calcutta, if required. The commanding officer of the "Megæra," which steam troop ship will be employed on this service, will receive directions, in the event of the ship under his command not being required for a time at the Cape of Good Hope, to comply with any request the Governor-general of India may make to him to convey troops from one part of India to another, and to return to the Cape of Good Hope upon the completion of the service.

I am, &c.  
*W. G. Romaine.*

(No. 112.)

The Court of Directors of the East India Company to the Governor-General of India in Council.

London, 8 July 1857.

REFERRING to our letter dated the 15th of October 1856, No. 168, we have to apprise you that the following arrangements will take place this season with respect to Her Majesty's regiments.

Four Regiments of infantry will proceed, as follows :

Two regiments to Calcutta between the 1st and 25th of July.

One regiment to Kurrachee, for service in Upper Provinces, between the 14th and 21st of July.

One regiment to Madras in August.

Two of these regiments will form the relief for Her Majesty's 10th and 29th Regiments, which are to return home on their arrival, and two will replace the regiments withdrawn from Bengal and Madras without relief in 1854.

Her Majesty's 2d and 3d Regiments of Dragoon Guards will likewise proceed to India this season, as a relief for the 9th Lancers in Bengal, and the 14th Dragoons in Bombay. The regiment for Bengal will embark on or about the 25th of July.

We shall shortly inform you of the establishments of which the respective regiments will consist.

The Court of Directors of the East India Company to the Governor-General of India in Council.

(Extract.)

London, 8 July 1857.

IMMEDIATELY on the receipt of the despatches by the last mail relating to the position of British interest in India, as affected by the mutiny of several native regiments of the Bengal army, we expressed to Her Majesty's Government our decided opinion that your Government should be supplied, as soon as possible, with an additional military force beyond that which had been ordered to proceed this season; and we requested that four additional regiments of infantry of the full strength of 1,000 men each, might be directed to embark for India as soon as tonnage could be obtained for that purpose.

3. Her Majesty's Government were pleased to comply with this requisition, and the following regiments have in consequence been warned to be held in readiness for immediate embarkation, viz. :—

1st Foot, one Battalion  
19th Foot.  
38th Foot.  
79th Foot.

4. Instructions have also been issued for the drafts in this country of the 9th and 14th Dragoons, and the 10th and 29th Regiments of Infantry, which it was intended should return this year to join the head-quarters of their corps in India.

5. Having reference to the movement which has taken place of several regiments of European infantry from Bombay and Madras to Calcutta, we intend to make arrangements with the owners of steamers, and other ships to be engaged for the passage of the regiments now warned for embarkation, to call at Ceylon or Madras for orders, and to convey the regiments to Calcutta or Bombay, or to land them at Madras, as may be arranged by your Government. You will accordingly cause the Governments of Ceylon and Madras to be informed of the instructions they are to give to the commanders of these vessels.

6. The regiments now proceeding are to provide a relief for an equal number of corps now in India, whenever you may be enabled to dispense with their services.

7. If upon the receipt of communications from your Government, a further augmentation of the European force shall be found necessary, we shall lose no time in making another requisition to Her Majesty's Government.



\* Dated 1 July  
1857.

8. We transmit to you a copy of a letter from the India Board,\* with its enclosure from the Admiralty, intimating that the Lords Commissioners of the Admiralty have instructed the senior officer of Her Majesty's ships at the Cape of Good Hope to be in readiness to convey a regiment of infantry from that colony to Calcutta, if so required. We have made a requisition for the services of this regiment, which will be accordingly dispatched to you as soon as arrangements can be made for that purpose.

9. Considering it to be of great importance to secure the services of officers with their corps under the present emergency, we have ordered all the officers of our army below the rank of regimental colonel now on private affairs in this country, and all those below that rank whose absence from India on sick certificate has exceeded 12 months, to return to their duty forthwith.

We are, &c.

*R. D. Mangles.*  
*F. Currie, &c.*

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The Secretary of the East India Company to the Secretary of the  
India Board.

Sir,

East India House, 9 July 1857.

I HAVE laid before the Court of Directors Mr. Leach's letter, dated the 1st instant, transmitting copy of a letter intimating that the Lords Commissioners of the Admiralty have instructed the senior officer of Her Majesty's ships at the Cape of Good Hope, to be in readiness to convey a regiment of infantry from that colony to Calcutta, if so required.

In reply, I am instructed to request that you will express to the Lords Commissioners of the Admiralty the thanks of the Court of Directors, for the directions they have issued to Her Majesty's naval officers.

Being of opinion that the embarkation of a regiment of infantry from the Cape of Good Hope to Calcutta is urgently required under the present circumstances, in addition to the regiments already warned for service in India, the Court instruct me to request that Her Majesty's Government will give immediate orders to this effect to the authorities at the Cape of Good Hope.

I have, &c.

*James C. Melvill.*

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The Secretary of the India Board to the Secretary of the East India  
Company.

Sir,

India Board, 9 July 1857.

I AM directed by the Commissioners for the Affairs of India to state, for the information of the Court of Directors of the East India Company, that Her Majesty's Consul at Marseilles, in obedience to instructions sent to him from the Foreign Office by telegraph, on the 27th ultimo, forwarded to the Governor-general of India, and to the Governor of Bombay, by the vessel which conveyed the mail from England of the 26th, intelligence that reinforcements of European troops would be immediately dispatched to India.

I am, &c.

*George Clerk.*

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The Chairman and Deputy-Chairman of the East India Company to the  
President of the Board of Commissioners for the Affairs of India.

Sir,

East India House, 14 July 1857.

WITH reference to the serious intelligence which the last mail has brought from India, and more especially to the increased number of Sepoys of the Bengal army who had mutinied or deserted, and to the necessity of further strengthening the

the hands of the Governor-general in Council, to enable him to deal confidently and vigorously with every disaffected or suspected corps, after armed resistance shall have been put down, we have the honour, at the request of the Court of Directors, to intimate to you their opinion that an additional force of six regiments of infantry should be immediately dispatched to India by the most speedy means of conveyance which may be found to be available for that purpose.

The Court of Directors are also of opinion, that under the present emergency, it is desirable to strengthen the artillery force of the several governments by the temporary addition to it of four companies of the Royal Regiment of Artillery for Calcutta, two for Madras and two for Bombay. The Court would accordingly request that the services of eight companies may be made available for immediate embarkation for India. The material for these companies will be supplied from the arsenals in India.

In order to guard against a probable deficiency in the supply of horses for the cavalry and artillery, the Court request us to state that they think it very desirable that Her Majesty's Government should authorise and direct the Governor and Commander-in-chief of the Cape of Good Hope to purchase geldings and mares suited for both the purposes above-mentioned, to such extent, not exceeding 1,000 in number, as may be procurable, provided tonnage can be obtained for their conveyance to India. Should this proposal meet the views of Her Majesty's Government, the Court would propose to notify to the shipping interest in the United Kingdom, that freight of this description may probably be in demand at the Cape.

We have, &c.

*Ross D. Mangles.*  
*F. Currie.*

The Secretary of the India Board to the Secretary of the East India Company.

Sir,

India Board, 17 July 1857.

I AM directed by the Commissioners for the Affairs of India to transmit to you a copy of a letter received from the Horse Guards, dated the 16th instant, naming the regiments which, with Her Majesty's approbation, are held in readiness for immediate embarkation for India.

I am, &c.

*George Clerk.*

The Military Secretary of the General Commanding-in-Chief to the Secretary of the India Board.

Sir,

Horse Guards, 16 July 1857.

WITH reference to the application made by the Court of Directors of the East India Company to Her Majesty's Government for a further reinforcement of troops for India, I have the honour, by direction of the General Commanding-in-chief, to acquaint you, for the information of the Commissioners for the Affairs of India, that His Royal Highness has submitted to the Queen, and Her Majesty has been pleased to approve of, the following regiments, viz, 42d, 20th, 54th, 34th, and 97th Foot, and 2d Battalion Rifle Brigade, together with two troops of Horse Artillery and six companies of Royal Artillery, being held in readiness for immediate embarkation for that country accordingly.

I have, &c.

*C. Yorke.*

EAST INDIA (EUROPEAN TROOPS).

COPY OF EXTRACTS OF THE CORRESPONDENCE  
which has passed, since the 1st of April 1856;  
between the Court of Directors of the East  
India Company and the Commissioners for  
the Affairs of India, and between the Court  
and the Governor-General in Council, relating  
to the Number of EUROPEAN TROOPS in  
*India.*

(*Mr. Seymour.*)

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*Ordered, by The House of Commons, to be Printed,  
20 July 1857.*

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