



Government of Bombay

Report
on the
**Working of the Development
Directorate**

For the Year ending 31st March 1924

Price—Rs. 3

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APPENDIX A.

Copy of the report of the Chairman, Sanitary Committee, Bombay Development Directorate, on the sanitary condition of the Reclamation for the period from the 26th January 1923 to 31st March 1924.

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2. Under Government Resolution no. S.A. 62 of the 16th January 1923, the Committee was appointed "to act from the present time until the completion of the Reclamation works with a view to advise Government as to the sanitary precautions which should be taken from time to time in connection with these works".

3. The first meeting of the Committee was held on the 16th January 1923 under the Chairmanship of Lieutenant-Colonel R. M. Carter, C.B., F.R.C.S., D.T.M., I.M.S., when it was resolved to hold meetings in the Sanitary Institute Hall, Princess Street, with the permission of Dr. J. E. Sandilands, the Honorary Secretary of the Institute. At the same meeting Dr. K. B. Shroff was appointed Honorary Secretary to the Committee and he was given the help of a part-time clerk on Rs. 20 per mensem. Since then, ten meetings were held, and on four occasions the Committee met on the Reclamation works for inspection and discussion.

4. Lieutenant-Colonel R. M. Carter continued as Chairman up to the 13th April 1923, when he proceeded to England on leave. During his absence Lieutenant-Colonel F. P. Mackie, O.B.E., M.D., M.Sc., F.R.C.P., F.R.C.S., I.M.S., acted as Chairman.

5. The Committee at its subsequent meeting decided that a Medical Officer of experience in mosquito work should be appointed early, as there was a good deal of preliminary work to be done before the pumping operations were commenced.

6. As Colonel S. R. Christophers, C.I.E., O.B.E., I.M.S., happened to be in Bombay at that time it was decided that Captain B. S. Chalam, L.R.C.P. & S., D.T.M., I.M.S. (retired), who was in charge of a special malaria investigation on the Nalbari Sugar Estate, Assam, be recommended for appointment to this post as his excellent work in various capacities, was personally known both to Colonel Christophers and to Major Taylor, Director of the Bombay Bacteriological Laboratory.

7. Under Government Resolution no. S.A. 661 of 30th April 1923, Captain B. S. Chalam was appointed on a salary of Rs. 650—50—900 plus Rs. 150 conveyance allowance and free quarters. His duties were defined as under:—"He will be responsible for the control of anti-malarial operations as well as for the general sanitation of the Reclamation areas and for medical attendance provided for the workmen and such other duties as may be assigned to him".

8. An office and laboratory apparatus costing Rs. 2,000 were placed at his disposal and for out-door work he was supplied with staff consisting of one inspector on Rs. 200 one sub-inspector on Rs. 75, and 12 coolies on Rs. 25 each. Two Sub-Assistant Surgeons—one for the cooly camp in

Colaba and another for the camp in Marine Lines—and one sanitary overseer at the Colaba camp were also appointed.

9. In order to ascertain the natural conditions which would exist when pumping had commenced, it was decided in 1923 to lay out two plots of land near the reclamation measuring each about 100 square yards as an experimental measure—one filled in with a two feet layer of Back Bay dredgings and another with a similar layer of harbour material, the top of the filling being not more than a few inches above high water mark. The result of this experiment was thus described by the Medical and Sanitary Officer :—

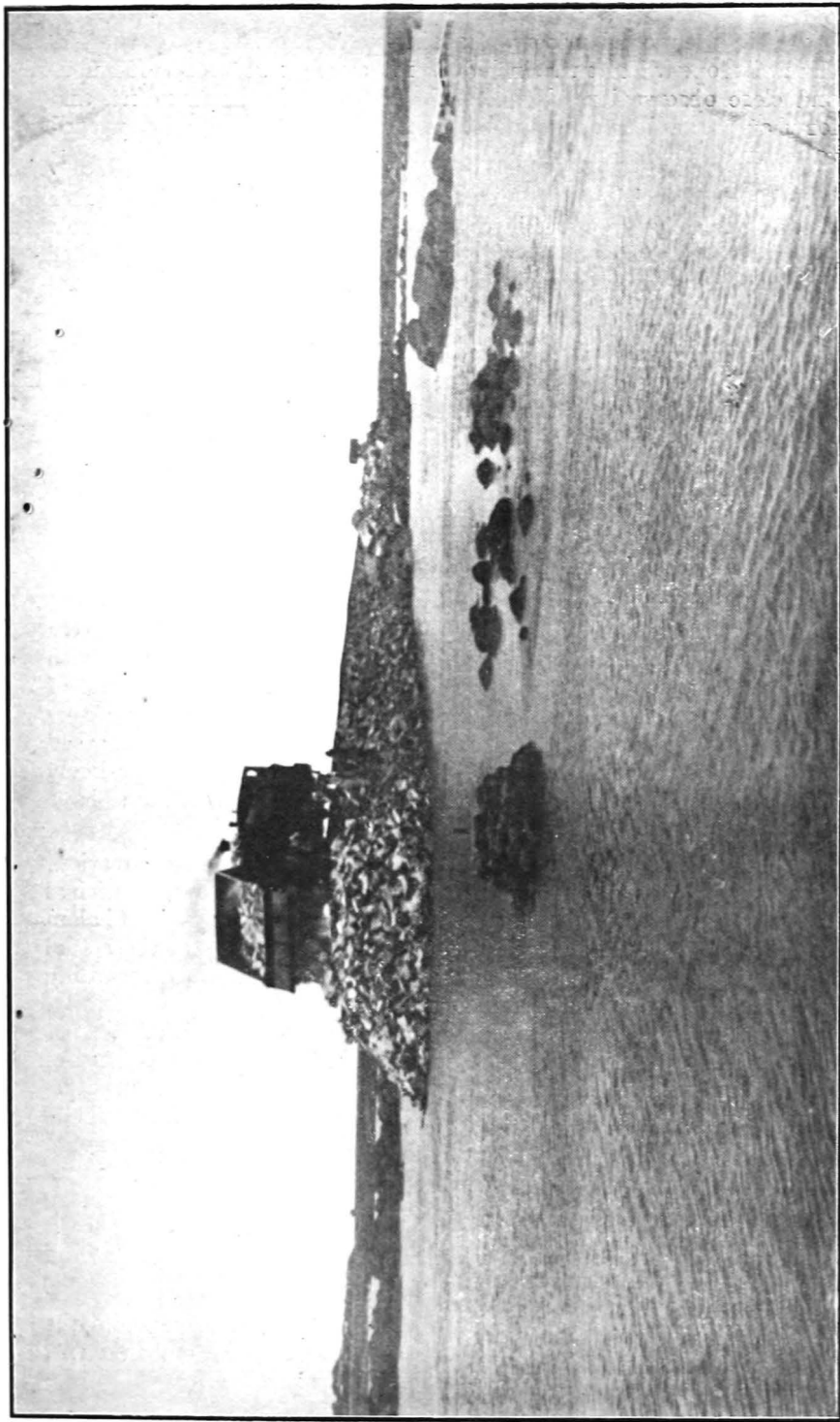
- (1) "The Back Bay dredging, if used, will be less likely to increase the Anophelines than the harbour dredgings."
- (2) "In the case of harbour dredgings, some contrivance will have to be evolved, whereby it will be possible to check in time the growth of Anopheline larvæ on this soil."
- (3) "Colonel Christophers considers that the railway embankment carrying the constructional line along the land margin is a sinister feature. These remarks are amply justified by my actual observations. The area between the embankment and the present land margin is irregular, rocky and full of depressions and hollows. I have found large number of larvæ of Anopheles breeding in this area. If this area can be filled up soon, it will considerably help anti-malarial work."

10. On recommendation of the Committee, the services of Lieutenant-Colonel S. R. Christophers, C.I.E., O.B.E., I.M.S., were placed at the disposal of the Committee by the Government of India "as adviser on occasions whenever his services are required in Bombay for consideration and advice."

11. Colonel Christophers inspected the Back Bay area on 14th March 1923 and discussed the situation with the Committee at its meeting on 15th March 1923. A few extracts from his report are given below :—

"It being known that Anopheles may breed in brackish and even in salt water and Dr. Bentley and others having recorded the fact that *A. Stephensi* has been found breeding in brackish pools on the Colaba foreshore, some anxiety has been left regarding the probable effects of the large dredging operations to be carried out in connection with the Back Bay Scheme. The actual conditions relative to the breeding of anopheles likely to result on the surface of the dredged material in the course of various stages of solidification and settling extending to a duration of several years are, I think, impossible to predict. These will depend partly on the character and porosity of the material dredged. In large areas of sludge fissuring on an extensive scale may be expected."

"The suggestion to have certain experimental plots on the area is most valuable, as it may indicate precautions that will be necessary at an early stage in the operations and cannot fail to give information of importance."



End Tipping Rubble Mound at R. D. 5,500 (From outside).

“ Adequate provision to guard against possible evil effects of the Reclamation operations must include some arrangement for continuous and close observation of the whole area and its surroundings and for that purpose an officer with the necessary knowledge be engaged to commence and continue such observations.”

12. He again visited the Reclamation works on the 5th October 1923, while on his way from Singapore, and recommended that all pools on the foreshore should be frequently treated with a larvacide, whether they were breeding or not. In the report on his second visit, Colonel Christophers wrote :—

“ The firm porous material from Back Bay is to be preferred so far as liability to the breeding of *Anopheles* is concerned to the less pervious material from the harbour.”

“ Parts flooded by neap tides may be disregarded as sources of breeding, but the area between the limits of neap and spring tides is one everywhere of considerable potential danger.”

“ The most frequent situations for breeding are along the edge of the foreshore between the embankment and the land. This strip should be filled at an early stage of the operations.”

“ Up to recently the number of breeding places has been relatively small. Hitherto all breeding places detected have been dealt with without difficulty—mostly by regular oiling. In view, however, of the liability at certain seasons for *Anopheles* breeding places rather suddenly to undergo an increase, I would suggest that when a marked tendency towards increase is seen, regular oiling of all water likely to breed should be adopted independently of whether larvæ have been demonstrated by searchers.”

“ There is at present at Colaba, outside the area of the Reclamation, considerable activity in building. There are also some Municipal coolie lines. It would therefore be desirable for Captain Chalam to have the necessary power of entry within the limits of the actual peninsula of Colaba to enable him to keep himself informed regarding the breeding of *Anopheles* and to have the power to deal summarily, when necessary, with any breeding places that could be oiled.”
 “ I think the position of the Committee in regard to the control of malaria on the Reclamation area is sound. Under present arrangements, it is practically impossible that any serious increase in *Anopheles* could arise without this being at once fully appreciated, and should such increase occur, I see no reason to doubt that effective measures could be at once found to deal with it. As regards the ordinary progress of events, the presence of Captain Chalam and his staff should suffice to control breeding within the area making this freer from *Anopheles* than it has probably ever been in the past.”

13. The Chief Engineer was accordingly requested to expedite the filling in of the area between the Sisters' quarters, the embankment, the end of the yard and the maidan as early as possible.

14. It was subsequently resolved that the Medical Officer of the Development Department should attend to all breeding places in the area to the south of the Telegraph Office belonging to the military and the Bombay Municipality, with whatever help he could obtain from military and municipal authorities in their respective areas.

15. A conference of the following officers was held at the Bombay District Military Head Quarters on the 20th November 1923 to discuss the situation :—

- (1) The Assistant Director, Medical Services, Bombay District.
- (2) The Municipal Executive Health Officer, Bombay.
- (3) The Senior Medical Officer, Colaba.
- (4) The Senior Assistant Municipal Health Officer. Malaria.
- (5) The Deputy Assistant Director, Medical Services (Sanitary), Bombay District.
- (6) Captain B. S. Chalam, Medical and Sanitary Officer, Reclamation.

The conference agreed that :—

(a) The military authorities should retain charge of all military land and buildings in Colaba including the Military Lands Scheme in Upper Colaba with the exception of any area of such lands or buildings used by the Directorate in connection with Reclamation work and certain other areas to be mutually decided upon.

(b) The Bombay Development Directorate should assume control of :—

- (1) Any land or buildings used or occupied in connection with Reclamation operations.
- (2) The whole foreshore up to the high water mark.
- (3) Certain civil areas normally under the control of the Municipality.
- (4) Roads belonging to the Municipality.
- (5) Certain other areas to be mutually decided upon including the Military Lands Scheme in Upper Colaba.

Thus in order to avoid triple control Captain Chalam was requested to undertake the supervision of all municipal areas in Colaba. The areas thus transferred are comparatively small in number and extent, and surrounded on every side by military or Reclamation zones.

The Municipal Commissioner and the Executive Health Officer, subject to the sanction of the Corporation, assented to the agreement under heads A and B above arrived at by the conference, subject to the following additional conditions, *viz.* :—

- (1) That the municipal officers and inspectors reserve the right to take any action independently or otherwise which they are authorised or required to take by the Municipality or the Municipal Commissioner, under the Municipal Act in the areas in question.



Placing 10-ton pre-cast blocks. No. 1 S. W. D. Date 27th November 1923.

- (2) That a sum of Rs. 100 per mensem be paid by the Municipality to the Medical Officer (Reclamation) to cover the wages of the two coolies engaged for work in the added areas and the cost of supervising their work through the Reclamation malaria inspectors.

16. The conclusions arrived at by the Medical and Sanitary Officer in August 1923 may be summarised as follows :—

- (1) Brackish water pools are as congenial to the breeding of Anopheline larvæ as collections of fresh water.
- (2) Four different species of Anopheline larvæ have been found breeding in both brackish and fresh water collections in the Reclamation area. Two of these, *viz.*, *A. Stephensi* and *A. Culicifacies* are proved carriers of malaria in nature.
- (3) A certain amount of malaria exists among the coolies housed in Reclamation area.
- (4) The prevalence of epidemic malaria is determined by two factors :—
 - (1) The presence of human carriers of malaria.
 - (2) The presence of malaria-carrying Anopheles.

Both these factors exist in Colaba to a mild degree and the anti-malarial work is being directed to prevent these factors increasing to a sufficient extent to become a menace.

So far no increase of malaria has occurred but rather the opposite, for on analysing the malarial incidence amongst the troops in Colaba for the last three years, it has been found that the incidence per 1,000 was 972·61 in 1921, 470·66 in 1922, whilst in 1923 it dropped to 169·28. It is probable that the improvement may be due, at any rate in part, to the anti-malarial operations.

There is evidence to show that apart from malaria the nuisance and discomfort of mosquito prevalence has also diminished since anti-mosquito remedies have been adopted. In addition to the work of anti-malarial nature conducted by the Medical Officer-in-charge, he is responsible for the general sanitation of the Reclamation area and for the health of the coolies employed on the work. There are two cooly camps, one at Charni Road, containing about 800 persons, and another at Colaba with about 1,300 persons. There is also a small camp at Woodhouse Bridge containing about 300 persons. The strength of these camps fluctuates very widely depending on the nature of the works being carried out. These camps are under the immediate supervision of the two whole-time Sub-Assistant Surgeons who are available at all times.

The coolies are partly recruited locally but mostly are brought in from outside. Malaria amongst these from fresh infection is practically negligible. From previous infection the malarial incidence amongst them works out to about 8 per cent.

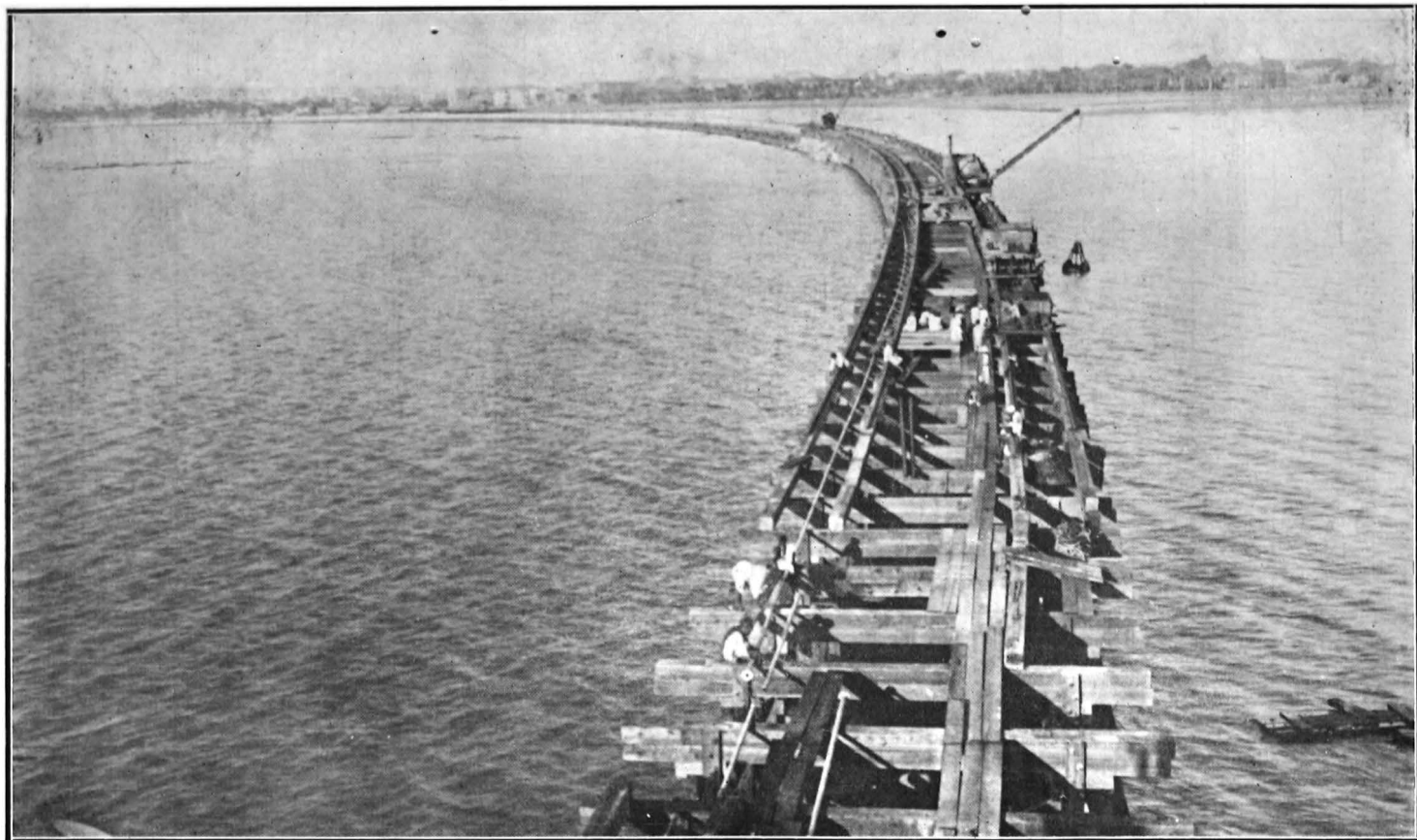
Necessary sanitary arrangements have been carried out in all the three camps, and the general health of the coolies during the period under report has been very good.

The pumping operations commenced on about the 15th December 1923 and the work is still in progress.

The Committee paid three visits after the commencement of the pumping and were satisfied that there was no odour and no nuisance, and that the precautions taken to prevent the breeding of mosquitoes were adequate and effective.

The Colaba end of the Reclamation area is being filled up and the material is dredged from the harbour across the peninsula through a series of pipes. An absolutely odourless, highly impermeable material in the form of solid balls of clay and sand is what constitutes the new reclaimed land.

The dredged material dries up quickly enough in twenty-four hours and presents no difficulty for the anti-malarial gang to walk upon the surface either for the search of the breeding places or the use of larvacides. As the sludge is deposited, a large proportion of the water coming with it is drained off and runs again into the sea. The new land constitutes a very uneven surface with innumerable depressions and the soil being highly impermeable, these surface depressions should require constant attention during the rainy season.



Storm water drain No. 6 R. D. 6,005. Foundation shutters being placed in position.
Date 22nd December 1923.

APPENDIX B.

Members of the Advisory Committees for Bombay City and Suburbs for 1923-24.

BOMBAY.

Name of Member.	Constituency.
1. Dr. Nadirshaw H. E. Sukhia, L.M. & S., L.V.Sc. (Spl.), F.R.S.I. (London).	Bombay Municipality.
2. Fazal Ibrahim Rahimtulla, Esquire, B.A.	Do.
3. E. G. Tuner*, Esquire, I.C.S. ..	City of Bombay Improvement Trust.
4. F. A. H. East, Esquire ..	Bombay Chamber of Commerce.
5. Jehangir Bomanji Petit, Esquire ..	Bombay Millowners' Association.
6. Lalji Naranji, Esquire ..	Indian Merchants' Chamber.
7. F. W. Petch, † Esquire ..	Bombay Presidency Trades' Association.
8. S. K. Bole, Esquire, M.L.C. ..	Working Classes.
BOMBAY SUBURBAN REVENUE DIVISION.	
1. F. A. C. Rebello, Esquire, B.A. ..	Bandra Municipality.
2. J. S. Pereira, Esquire ..	Kurla Municipality.
3. P. J. Vakil, Esquire, B.A., LL.B. ..	Ghatkopar-Kirol Municipality.
4. Moreshwar Vishwanath Pradhan, Esquire, B.A., LL.B.	Notified Area Committees.

*During the absence of Mr. E. G. Turner, I.C.S., on leave preparatory to retirement from January 1924, Mr. R. H. A. Delves worked on the Committee.

†During the absence of Mr. F. W. Petch from the 15th May to the 22nd November 1923, the Bombay Presidency Trades Association elected Mr. G. W. Wardle to act on the Committee.

APPENDIX C.

DEVELOPMENT DIRECTORATE.

Designation.	Name.
1. Director of Development ..	Sir Lawless Hepper, Kt., J.P.
2. Deputy Director of Development, Secretary to Government, Development Department, and Commissioner, Bombay Suburban Division.	J. R. Martin, C.I.E., I.C.S., J.P.
3. Deputy Secretary to Government, Development Department, Secretary to the Development Directorate and Assistant Commissioner, Bombay Suburban Division.	H. St. C. Smith, J.P.
4. Assistant Secretary to Government, Development Department.	R. B. Vachha, M.A., J.P.
<i>Reclamation Branch.</i>	
5. Chief Engineer, Reclamation Branch.	Ll. W. Lewis, C.I.E., M.I.C.E., J.P.
6. Senior Deputy Chief Engineer, Quarry Section, Kandivli.	G. M. O'Rorke, C.I.E., M.B.E., B.A.I., A.M. I.C.E. (on leave). C. G. Croudace (acting).
7. Junior Deputy Chief Engineer, Marine Lines Section.	H. A. Elgee, M.I.C.E.
8. Junior Deputy Chief Engineer, Colaba Section.	P. Billinton.
9. Deputy Chief Engineer, Dredging Section.	C. R. Brims.
10. Personal Assistant to the Chief Engineer, Reclamation Branch.	<i>Vacant.</i>
11. Executive Engineer, Projects ..	W. H. Thomas, A.C.G.I., A.M.I.C.E.
12. Executive Engineer, Reclamation Branch.	W. F. Anderson, A.M.I.C.F.
13. Marine Surveyor ..	G. D. Kundaji, M.R.San.I. (Lond.).
14. Assistant Engineer ..	C. G. Croudace (on deputation).

Designation.	Name.
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Reclamation Branch—continued.

15. Assistant Engineer	..	S. M. Abdulla.
16. Do.	..	A. N. Seal, B.Sc. (Lond.).
17. Do.	..	Badrinath Sadanand.
18. Do. Dredging Section	..	F. M. Surveyor.
19. Quarry Master	..	E. O. Roberts.
20. Mechanical Engineer, Quarry	..	A. Bellefontaine.
21. Dredging Master	..	W. S. Speirs.
22. Sanitary and Medical Officer, Back Bay Reclamation Scheme.	..	B. S. Chalam.

No. 1 Project Division.

23. Superintending Engineer, No. 1 Project Division.	1	T. Harvey, M.Sc., M.I.C.E., J.P. (is also working as Superintending Engineer, No. 4 Project Division, in addition to his own duty).
24. Executive Engineer, Bombay Housing District No. I.		M. A. Dhoria, B.A., B.E. (acting).
25. Executive Engineer, Bombay Housing District No. II.		A. <i>Hamid</i> , F.Sc. (on leave). Mahomed Hashim, B.E., M.R.San.I., A.M.I.E. (acting).
26. Executive Engineer, Bombay Housing Sanitary District.		Rao Saheb P. S. Krishnaswami Ayyar.
27. Assistant Engineer, Bombay Housing District No. I.		S. P. Raju Iyer, B.E. (Mysore).
28. Do. do.	..	M. A. Dhoria, B.A., B.E. (on deputation).
29. Do. do.	..	S. S. Rajadhyaksha, B.A., B.E.
30. Assistant Engineer, Bombay Housing District No. I.		Sirdar Kala Singh.
31. Do. Bombay Housing District No. II.		Mahomed Hashim, B.E., M.R.San.I., A.M.I.E. (on deputation).
32. Do. do.	..	S. G. Naravane, E.M. (Columbia University, New York).

Designation.	Name.
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No. 1 Project Division—continued.

33. Assistant Engineer, Bombay Housing Sanitary District.	M. R. Bedy.
34. Do. do. ..	J. D. Daruwala.

No. 2 Suburban Division.

35. Superintending Engineer, No. 2 Suburban Division.	A. F. Macdonald Clark, M.A., B.Sc., M.I.C.E., J.P.
36. Executive Engineer, Andheri District.	D. K. Bhawe, L.C.E., M.A., B.Sc., A.M.Inst.C.E., A.M.I.Mech. E.
37. Executive Engineer, Suburban Sanitary District.	T. S. Soorma, B.E.
38. Executive Engineer, Kurla, Trombay District.	G. W. T. Squires.
39. Electrical and Mechanical Engineer	A. Lennox Stanton, M.I.E. (India), M. Ams.M.E., A.M.I.M.E., A.M.I.E.E.
40. Executive Engineer, Central Salsette Railway.	T. A. Pereira.
41. Executive Engineer, Water Works Scheme, Badlapur.	J. N. Setna, L.C.E., B.Sc (on leave).
42. Assistant Engineer ..	B. M. Flores, B.E.
43. Do. ..	Rao Saheb K. C. Advani, L.C.E.
44. Engineer-in-charge, Ambarnath Development Scheme, Ambarnath.	H. K. Vacha, B.A., B.E.
45. Assistant Engineer-in-charge, Water Works Scheme, Badlapur.	F. J. Campos, B.E.
46. Assistant Engineer ..	Ramlal Suri.
47. Do. ..	R. S. Borker.
48. Do. ..	T. V. Sunderasan, B.A., B.E. (on leave).
49. Do. ..	Vacant.

**No. 4 Project Division.*

50. *Superintending Engineer, No. 4 Project Division.	E. F. Sykes, M.I.C.E. (on leave).
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* The appointment has since been abolished and the Division has been amalgamated with No. 1 Project Division.

Designation.	Name.
<i>No. 4 Project Division—continued.</i>	
51. Executive Engineer, Mechanical District.	W. K. Caldwell.
52. Executive Engineer, Materials District.	J. R. Colabawalla, M.Soc.E. (Lond.), A.M.I.E. (India), A.Am.I.E.E.
53. Assistant Engineer	Lala Kanhiyalal.
54. Do.	Nand Kishor Agrawal.
<i>Suburban Survey.</i>	
55. Superintendent, Bombay Suburban Survey.	W. J. Newland, J.P.
<i>Land Acquisition, Bombay.</i>	
56. Land Acquisition Officer for the City of Bombay.	G. C. Rowe, F.S.I., J.P.
57. Assistant Land Acquisition Officer for the City of Bombay.	<i>Vacant.</i>
58. Personal Assistant to the Land Acquisition Officer for the City of Bombay.	S. D. Nariman, B.A.
<i>Land Manager, Development Directorate.</i>	
59. Land Manager, Development Directorate.	E. M. Gilbert-Lodge, F.S.I., F.I.A., F.A.I., J.P.
60. Personal Assistant to the Land Manager, Development Directorate.	K. R. Doctor, L.C.F.
61. Special Assistant Land Manager, Development Directorate.	D. G. Sowani, B.Sc., B.E.
<i>Salsette Development.</i>	
62. Collector, Bombay Suburban District, and Salsette Development Officer.	G. E. L. Carter, I.C.S.
63. Deputy Collector and Personal Assistant to the Salsette Development Officer and Assistant Development Officer, Bandra.	D. S. Modak, M.A.

Designation.	Name.
<i>Salsette Development</i> – continued.	
64. Assistant Development Officer, Kurla.	D. M. Ranadive, B.A.
65. Assistant Development Officer, Ambernath, and 2nd Personal Assistant to the Salsette Development Officer.	P. H. Diwan, B.A.
66. Assistant Development Officer, Trombay.	A. K. Nulkar.
67. Additional Assistant Development Officer, Trombay.	J. D. Nanavati, B.A.
68. Special Assistant to the Collector, Bombay Suburban District.	E. de B. Jewell.
<i>Audit and Finance.</i>	
69. Financial Adviser to Government ..	J. C. Nixon, I.C.S.
70. Deputy Financial Adviser to Government and Audit Officer, Bombay Development Scheme.	S. M. L. Bean.
71. Assistant Audit Officer, Bombay Development Scheme.	R. Hogan (on leave). M. V. Telang (acting).
<i>Military Lands Scheme.</i>	
72. Secretary, Board of Control and Chief Engineer.	Colonel R. St. J. Gillespie, C.I.E., O.B.E., J.P.
73. Deputy Chief Engineer ..	Major A. H. C. Trench, C.I.E., R.E., M.I.E.E.
74. Executive Engineer ..	F. Walker.
75. Assistant Engineer ..	I. C. Dare, F.R.S.A., F.S.I., A.M.I.C.E., M.I.S.E.
76. Do. ..	G. B. Fritchley, A.R.I., B.A.
77. Do. ..	Capt. W. Murray Macdonald, M.C.
78. Do. ..	K. J. Mhatre, B.A. (Hons.), (Bombay and Cantab.).
79. Architect ..	J. Fernandez.
80. Financial Adviser to the Board of Control, Military Lands Scheme.	S. M. L. Bean.
<i>Consulting Town Planner.</i>	
81. Consulting Town Planner ..	W. R. Davidge, F.R.I., B.A., F.S.I., A.M.Inst.C.E.