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BY

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APPENDICES.

APPENDIX I.

STATISTICAL ACCOUNT OF THE DISTRICT OF PURI.

GEOGRAPHICAL.—Puri District forms the southernmost division of Orissa. It lies within the twentieth and twenty-first degrees of north latitude, and within the eighty-fifth and eighty-sixth of east longitude. It is bounded on the north by the Tributary States of Dompára, Bánki, and Khandpára; on the east by the District of Cattack; on the south by the Bay of Bengal; and on the west by the Tributary State of Ranpur and the Madras District of Ganjám. Its greatest length from Nandlá, on the south-east of the Chilká, along the coast to the mouth of the Kálof River, beyond Marichpur, is ninety miles. Its total area is 2504 square miles, and its population 540,995 souls.

A belt of sandy ridges, the home of the black antelope, stretches along the shore, and varies from four miles to a few hundred yards wide. The District may be divided into three tracts, west, middle, and east. The western extends from the right bank of the Dayá across the stone country of Dándimál and Khurdhá, till it rises into the hills of the Tributary States. The middle is the delta, watered by the Bhárgavi branch of the Mahánadí, and comprises the richest and most populous Fiscal Divisions of the District. The eastern portion runs from the left bank of the Kusbhadrá to the boundary of the Cattack District. It is less thickly peopled, and in the extreme east loses itself in the jungles around the mouths of the Deví River.

The western division contains the only mountains that are to be found in the District. A low range, beginning in Dompára and running south-east in an irregular line towards the Chilká Lake, forms a watershed between Puri District and the valley of the Mahánadí. Almost

all the peaks, sufficiently important to have names, are within the sub-division of Khurdhá. Most of them are covered with dense jungle. They are too steep for carriages, but except where the bare rock is exposed towards the summit they are accessible to ponies. Their slope may, therefore, be put down at seldom exceeding sixteen degrees. On the north of the Chilká they are bold and very varied in shape. They throw out spurs and promontories into the lake, forming island-studded bays, with fertile valleys running far inland between their ridges.

The middle and eastern divisions consist entirely of alluvial plains. They form the south-western part of the Mahánadí delta, and are watered by a network of channels, through which the most southerly branch of that river finds its way into the sea. This branch is called the Koyákhái, and the following scheme exhibits the river system into which it divides :—

Koyákhái	{	Kusbhadrá	{	Práchi	}	Kusbhadrá	}	Bay of Bengal.		
				Kusbhadrá		Bhárgavi		Bhárgavi	}	Chilká Lake.
		Bhárgavi		Nun		Dayá		Dayá		

The whole of these rivers are navigable by large boats during the rainy season. None of them are deep enough for boats of four tons burden throughout the whole year. Only one of them, the Kusbhadrá, enters the sea. It follows a very winding course, and is of little value for navigation. Its bed has silted up, and its floods devastate the surrounding country. The three rivers most important to the people of Puri are the Bhárgavi, the Dayá, and the Nun. These all enter the Chilká Lake after running widely diverse courses. In the rainy season they come down in tremendous floods which burst the banks and carry everything before them. In the dry weather they die away till nothing is left of them but a series of long shallow pools in the midst of vast expanses of sand. Their banks are generally abrupt, and in many parts are artificially raised and protected by strong dykes. The total length of Government embankments in the Puri District amounted, in 1866, to 316½ miles, with forty-three sluices, maintained at an annual cost of £7, 16s. per mile. The following table shows the capacity of the principal rivers in the rainy season, and the number of breaches which they made in their embankments in 1866 :—

PURI RIVERS AT A SECTION HALF-WAY BETWEEN CATTACK CITY
AND THE SEA.

Names of Rivers.	Fall per mile at point of section	Mean depth of section.	Calculated velocity by Etelwyn's formula.	Calculated discharge per second.	Number of breaches made in 1866.
	Feet.	Feet.	Feet.	Cubic Feet.	
Kusbhadrá, . .	1'70	10'64	5'40	9,855	8
Práchí, . . .	1'70	10'43	5'40	9,580	
Bhárgaví, . .	1'45	15'42	6'00	59,220	8
Dayá,	1'70	16'78	6'80	33,100	36 ¹
	Av. 1'64	Av. 13'31	Av. 5'90	111,755	52

¹ Including the smaller tributaries.

It will be seen, therefore, that of the 111,755 cubic feet per second poured down upon Purí, the Kusbhadrá, with its branch, the Práchí, obtains only 19,435 cubic feet with which to water the eastern part of the District. Of the remaining 92,320 cubic feet, about two-thirds is carried off by the Bhárgaví, and after watering the middle part of the District, finds its way, by a most tortuous course for many miles almost parallel to the sea, into the Chilká Lake. On its way it forms a series of marshes and backwaters; one of which, the Sar Lake, to the north-east of Purí Town, is four miles long from east to west, and two miles broad from north to south. It has no outlet to the sea, and is separated from it by desolate sandy ridges. It is utilized neither for navigation, nor to any extent for fisheries. The sandy desert that divides it from the Bay is destitute of population; and on the north, a few miserable hovels at wide intervals dot its shores. Its waters, however, are used for irrigation when the rainfall proves deficient.

The Dayá spreads its 33,000 cubic feet of water per second over the south-western part of Purí. It also receives a few small tributaries from the watershed which separates the district from the upper valley of the Mahánadí. During the rainy season boats of twenty tons burden carry on a traffic between Cattack and the Chilká Lake by means of its main stream. Towards the Chilká it divides into many channels, and the Fiscal Divisions of the lower part of its course are annually devastated by resistless floods. Full details will be found of one of these calamities in the latter part of chapter II. of my work on Orissa. I have also explained in that chapter the total cost to Government of inundations in Purí District; amounting, for two items alone, to £79,963 in fifteen years, or equivalent to a charge of ten per cent. on the total land revenue of the district. In addition to this large sum I have

shown that the single flood of 1866 destroyed standing crops to the value of £643,683 in Puri District alone, notwithstanding that 10,620 acres of fertile land are permanently left untilled for fear of inundation. The truth is, that the Mahánadi, in time of flood, pours double the quantity of water into the Puri rivers that they are capable of carrying down. The result is, that the surplus overflows in spite of embankments and protective works. The whole District lives in readiness for such calamities; and the deaths by drowning reported to the police, during the three years ending in 1870, averaged only 117 per annum. These figures, however, by no means represent the total loss of life from this cause. The excessive floods depreciate the productive powers of the soil; and in the localities most subject to inundations, the rents are brought down to one-fifth of the rates obtained for the same quality of land in parts of the district protected from the violence of the rivers. Of the twenty-four Fiscal Divisions of the District, twelve are still so completely at the mercy of the rivers that more than fifty per cent. of their area was flooded in 1866. In Sayyidábád and Domárkhand, two Fiscal Divisions of which less than twenty-five per cent. are liable to inundations, the average rate of two-crop land is 3s. 4d. per acre. In Chaubiskud and Sirái, two Fiscal Divisions of which more than fifty per cent. are liable to inundations, the average rent for the same quality of land is 1s. 9d. In Domárkhand the average rate of winter rice land is 4s. 9½d; in Chaubiskud and Sirái, it is 1s. 5¼d. If, instead of the average rent, the highest rates were taken in these Fiscal Divisions, the difference becomes still greater.

LAKES.—The only two lakes of importance in Puri are the Sar and the Chilká. The former I have briefly described as a backwater of the Bhárgaví. To the latter I have devoted chapter II. of my Orissa. The water supply of the District is used in a few of the Fiscal Divisions for irrigating the lands. The difficulty, however, is to keep it from flooding the crops, rather than in leading it on to the fields. Solar salt is extensively manufactured from the brackish water of the Chilká, and the process is fully described in chapter II. About one-fiftieth of the whole inhabitants live by fishing. No important fishing-towns have grown up, however; and the fish caught are consumed by the local population. The right of fishing is vested by Government in the landholders, and is included in the general settlement for the land revenue of their estates. The total sum paid into the Treasury under this head amounts to £157, 10s. a year.

FORESTS.—There are no revenue-paying forests, but the jungles in the hilly part of the district yield honey, beeswax, tasar silk, the dye called gundi, and various medicinal drugs. Tribes of Savars,

Kandhs, and Báuris live by trading in jungle products. The timbers of the district comprise sál, sísu, ebony (*kenú*), jack-wood, mango, piásál, kurma, and all the common varieties. Bamboo is plentiful. The rattan-cane abounds. The palms include the cocoa-nut, palmyra, and date. Oil is manufactured from the cocóá-nut and pulang among trees, and from rape and mustard among seeds.

THE ANIMAL KINGDOM.—In the open part of the country the larger wild beasts have been pretty nearly exterminated. Of the following list several are now becoming rare :—Tigers, leopards, bison, buffalo, wild cows, hyenas, bears, wild pigs, wild dogs, antelopes, sambar-deer, hog-deer, and kurangas (small deer). Alligators swarm in the lower parts of the rivers. The sum spent in keeping down tigers and leopards does not exceed £5 a year. The number of deaths from wild beasts and snakes formally reported to the police amounted to ninety-three in 1869. Snakes are very numerous. Among pythons are the ajagar and ahiráj. Among deadly snakes the black cobra (*keutá*), the tampa, the gokhurá, and the spotted slow-killing borá. Among water-snakes the dhemná and dhanrá, etc. The nág is the generic name for a variety of serpents. Among smaller wild beasts are jackals, foxes, hares, monkeys of many sorts, porcupines, and squirrels in immense numbers. Among land birds are the pea-fowl, jungle-fowl, partridge, golden plover, ortolan, dove, green pigeon (*párá*), owl, vulture, eagle, hawk, kite, crow, and jay, besides the ordinary kinds of smaller tree-birds. On the Chilká Lake are found the flamingo, wild goose, Bráhmaní duck, wild duck of various sorts, teal (*bálihansa*), snipe, pánikuá, crane, and gaganbhel. Of paddy birds the five following sorts are most common—The kantiyábag, the dhalá, the ráam, the kuji, and the tár.

Of fishes there is an endless variety. Among salt-water fish, the most important are the khaingá, dáhángí, ilsá, or as it is usually called by Europeans, hilsa; the khurántí, chandí, bhektí, patá, jhuranga, kantábalangí, phirkí, kokalí, and sahália. Among fresh-water fish are the rohí, bhákur, gágar saul, káu, torí, bamí, karandí, ratá, bálíá, guáchopí, and the chital. There are also turtles, tortoises, crabs, prawns, and oysters. There is no trade in wild-beast skins; nor are the *feræ*, with the exception of the fisheries, made to contribute in any way to the wealth of the District. The oysters are large and coarse, but palatable when cooked, and not unpleasant even in their raw state, after the eye has become accustomed to their size and colour. No attempt has been made to improve the oyster-beds, or to turn them into a subject of commerce.

THE POPULATION.—A census roughly taken by the police in 1854,

returned the population of Purí District at 700,000. In 1866, after the famine, the houses were counted by the police, and, allowing five inhabitants to each, the population was returned at 528,712. In 1869, the houses were again counted by the police, and returned at 108,199, which would give a population, counted as before, of 540,995.

IMMIGRANT RACES.—The native population consists of Uriyá speaking castes, but many little colonies from other parts of India have settled in the district. There is a considerable sprinkling of Bengalis among the official and landed classes. This element is steadily on the increase. It has already purchased many valuable estates, and monopolized almost all the offices of trust in the administration. Some of the richest Bengali landholders are absentees. They live in Calcutta, and seldom or never visit their estates. But a large number of Bengalis among the official classes and smaller proprietors have gradually settled down in Purí District, and consider themselves naturalized in it. Behar, and the Districts of the North-West Provinces, have sent many families of the Lálá Káyét (Káyasth) caste. They are pleaders in the courts, or petty officials, such as head-constables and clerks. A number of Telingás have come from the south, and settled along the coast, on the shores of the Chilká, and around the mouths of rivers. Almost the whole boat traffic of the District is in their hands. The Kumtis are immigrants from the adjoining District of Ganjám. Most of them reside in Purí Town, and live by wholesale and retail trade. They do not intermarry or eat with the people of the District, although many of them settle permanently in it. The trading classes contain families who have come from Bhojpur, Bándalkhand, and other Districts of north-western India. The Márwárs have also effected settlements. They are the leading cloth merchants, and buy up the surplus crops of the year for exportation. A scattered Marhattá population survives from the time when the country was in the hands of their race. They live chiefly by trade, or enjoy little grants of land, and form a very respectable, although not a numerous class. The Musalmáns, who also represent a once dominant race in Orissa, exhibit no such powers of adapting themselves to their altered circumstances. They are generally poor, proud, and discontented. They contain representatives of Afghán and Pathán families beyond the confines of northern India, but as a rule, they are the descendants of the common soldiery, camp-followers, and low caste Hindu converts. Their total number certainly does not amount to four thousand, and they may be safely put down at less than a half per cent. of the population of the District. In Purí City in 1869, there were 187 Musalmáns, out of a total of 19,825. In the rural parts their proportion is

much smaller. Among them there are only two landholders of any importance,—the Málud family on the Chilká Lake, and the Marichpur house, on the extreme north-east of the District. The Muhammadan religion never made any progress among the native population. There are also two hill tribes, the Kandhs and the Sávárs, or Sars. They live in leaf huts in the recesses of the forests, and earn a precarious livelihood by bringing jungle products, firewood, and bamboos to the markets on the plains. They cultivate cotton in small quantities, and various kinds of peas and pulse, such as mug, harar, but, and chaná. There are no predatory castes, properly so called, in the district. A gypsy-like class, the Kelás, wander about begging from village to village, singing and dancing for the amusement of the peasantry. They are skilful bird-catchers, and trade on the humanity of the Hindus by offering to release their prey for a trifle. They speak a curious patois of Uriyá and Bengali, mixed with the hill language.

The native population is nominally divided according to the ancient fourfold classification of Bráhmans, Kshattriyas, Vaisyas, and Súdras. In reality, it is divided into the Bráhmans, or priests; the Kshattriyas, or the royal and military class; and the Súdras, who embrace the residue of the population. In order, however, to maintain some show of keeping up the ancient fourfold division, several classes are admitted to hold a position half-way between the Súdras and the Kshattriyas. The most important of these are the Karans, whose position will be subsequently explained. The Bráhmans are divided into two great classes—the Vaidik and the Laukik. The former are said to be immigrants from Bengal, or Kanouj, and date their oldest settlements in Purí from about the twelfth century. The legend runs that they had been settled for some hundreds of years at Jájpur, the ancient capital of Orissa, and that the Rájá Anang Bhím Deo, the rebuilder of the Temple of Jagannáth, founded four hundred and fifty colonies of them in Purí District between 1175 and 1202 A.D. They are called the southern line of Orissa Bráhmans, and will be again referred to in the Statistical Account of Balasor. They are subdivided into two classes,—the Kulins, and the Srottriyas. The former are so highly esteemed, that a Srottríya Bráhman will give a large dower in order to get his daughter married to one of them. But the Kulin who thus intermarries with a Srottríya loses somewhat of his position among his own people. The pure Kulin rarely stoops below the Srottriyas, the class immediately next him, for a wife. The Laukik Bráhmans are supposed to represent the original Aryan settlements in the District. They now work with their hands, and are

excellent husbandmen; while the two upper classes of imported Bráhmans would lose caste by holding a plough. This subject is fully explained in my volume on Orissa.

The local subdivisions of the Bráhmans are innumerable. The most general in Purí District is that which divides the Vaidik Bráhmans into—(1) learned men (*Bhatta-misra* and *Sámanta*); (2) ordinary Vaidik Bráhmans; (3) a class between the two (*Madhyam*). But the best classification I have been able to obtain is one which separates them into three great classes, and eighteen families. The first class is the Kulin Bráhmans, and includes three families,—the *Bachhas*, *Nanda*, and *Gautríya*. These live on lands granted by former Rájás, or by teaching private students, or as spiritual guides, or, more seldom, as temple priests. They are few in number, for the most part in middle circumstances, often very poor, but always greatly esteemed. The second class is the Srotríya, and includes nine families,—the *Bhatta-misra*, *Upádhya*, *Misra*, *Rath*, *Old*, *Tidri*, *Dás*, *Pati*, and *Satpasi*. Of these, some live on lands granted to them by former Rájás, some by teaching private students, some on presents from rich men, some as pilgrim guides, and many as domestic chaplains, spiritual guides, and priests of the temple. They are numerous, some of them rich, but many poor, and are esteemed a little less than the Kulins. The third class is the Laukik Bráhmans, who are subdivided into six families,—the *Pandá*, *Sendpati*, *Párhí*, *Bastid*, *Páni*, and *Sáhu*. These live as husbandmen, holding their own ploughs, as traders, vegetable dealers, rice merchants, and lenders of rice or money on interest to the cultivators, and as pilgrim-guides. They are numerous, some of them rich, but most of them in middle circumstances, like the better class of husbandmen. They are less esteemed than either of the other two classes as Bráhmans, but are generally highly respected as well-born, well-to-do men. The Kshattriyas rank next to the Bráhmans. Strictly speaking, there is not a single Kshattriya of pure descent in Orissa, but, as explained in my general Work, the petty Rájás claim this pedigree; and in the case of the Mahárájá of Khurdhá, the claim is admitted by the Bráhman genealogists. The Rájás confer on their chief Kshattriya servants honorific titles, such as *Báhanpati*, *Pátjosi*, etc. The Kshattriyas are divided into three great classes, with seven subdivisions. The first class is the so-called Kshattriya proper, and includes the three following families,—*Deva*, *Lál*, and *Ráya*. They are Rájás, landed proprietors, or holders of dependent tenures, and some of them lend money and paddy on interest. They are few in number, generally rich, and much esteemed. The second class is the Khan-

dáits, consisting of two subdivisions,—the *Bhanja* and *Harichandan*. They hold dependent tenures or occupy lands, and claim for themselves the rank of Kshatriya, but are generally regarded as Súdras, and, indeed, rank below the Karans in popular estimation. They are few in number, some of them rich, but many poor. The Bhanja family of the Khandáits are great huntsmen, but also cultivate lands, and some of them make high pretensions to pure Kshatriya descent,—pretensions which are not admitted by the Bráhmaṇ genealogists. The Khandáits in Purí City, including Kshatriyas of every sort, amounted in 1869 to only 403, among a population of 19,825. The third of the Kshatriya classes is the Rájput, subdivided into *Sinha* and *Chanda*. These are generally employed as Jamádárs, doorkeepers, and messengers, or are petty landholders. They are not a numerous class, and are held in fair estimation.

THE INTERMEDIATE CLASSES between the Kshatriyas and the Súdras have been so fully described in my general Work that a bare statement of their local classification will suffice. It is admitted that no Vaisyas exist; but four classes of Súdras, the Karan, Dás, Sáhu, and Prushti, claim to represent the ancient Vaisyas. Of these the only one deserving of notice is the Karans, the highest of the Súdra castes. They are divided into three classes,—the Patnáik, Dás, and Máhánti. Many of them are landholders, or lend money and rice on interest; but a large proportion are clerks, accountants, and petty officials. They are numerous, generally in good circumstances, and some of them highly esteemed as rich men. The other intermediate classes, the Dás, Sáhu, and Prushti, occupy lands or follow trades. They are few in number, in middle circumstances, and less esteemed.

The Súdras nominally embrace the whole remaining population. In common use the name is generally applied to the husbandmen who cultivate holdings, as opposed to the shopkeepers and the landless low castes who go out as day-labourers. The following table shows the principal fifty-seven Súdra castes in Purí District, arranged, as far as possible, in their order of respectability. It is difficult to give each its proper place, but the classification is substantially correct in this respect. I give the spelling of the castes according to the local orthography, and the subdivisions of castes according to the local classifications. No two pandits have ever given me the same classification even of so well studied a caste as the Bráhmaṇs; and when we come to classifications of the lower orders, the differences are endless. In each case I have adopted the one which, after careful inquiry, seemed best.

CLASSIFICATION OF SUDRAS IN PURI DISTRICT.

CASTES.	Occupations.	Numbers.	Whether rich or poor.	Whether esteemed or despised.
Pánikendu.	Village accountants, called Bhui.	Few.	Generally poor.	Little esteemed.
Sundará.	Pilgrim hunters.	do.	Middle circum- stances.	do.
Daitá.	do.	do.	do.	do.
Páik.	Till lands, and serve as peons.	Numerous.	Generally poor.	do.
Patrá.	Cloth dealers.	do.	Some rich and some poor.	do.
Guriá.	Makers and sellers of sweetmeats.	Few.	do.	do.
Putulibaniá.	Petty spice sellers.	do.	Poor.	Despised.
Orh Khan- dáits.	Till lands, and serve as peons.	Numerous.	Generally poor.	do.
Chásá.	Till lands.	do.	do.	do.
Muduli.	Pilgrim hunters.	Few.	Some rich and some poor.	do.
Gaur.	Milkmen, herdsmen, and palankeen-bearers.	Numerous.	Generally poor.	do.
Barhá.	Carpenters.	do.	do.	do.
Kamár.	Blacksmiths.	do.	do.	do.
Táml.	Betel shopkeepers.	do.	do.	do.
Bhandári.	Barbers and domestic servants.	do.	do.	do.
Chitrakar.	Painters.	Few.	do.	do.
Dásiputra.	Domestic servants, peons, etc.	Few.	do.	do.
Máli.	Gardeners.	Numerous.	Poor.	do.
Pathuriá.	Stone masons.	Few.	Generally poor.	do.
Kharará.	Workers in brass.	Numerous.	Some rich and some poor.	do.
Thatári.	do.	do.	do.	do.
Kansári.	do.	do.	do.	do.
Sankhári.	Makers of ornaments from shells.	Few.	Poor.	do.
Rasrá.	Lead and tin workers.	do.	do.	do.
Sunari Baniá.	Goldsmiths.	Numerous.	Rich.	do.
Ranganí.	Weavers.	do.	Generally poor.	do.
Tanti.	do.	do.	do.	do.
Jyautshik.	Astrologers.	Few.	Poor.	do.
Khitivansa.	Village-school teachers.	do.	do.	do.
Chunará.	Lime dealers.	do.	do.	do.
Káchrá.	Makers of glass ornaments.	do.	do.	do.
Jogí.	Beggars.	do.	Very poor.	do.
Bhá.	do.	Few.	do.	do.
Tulábhiná.	Cotton cleaners.	Numerous.	Poor.	do.
Thuriá.	Petty traders.	do.	Generally poor.	do.
Golá.	do.	do.	Some rich and some poor.	do.
Kumbhá.	Potters.	Few.	Generally poor.	do.
Teli.	Oil pressers.	Numerous.	Some rich and some poor.	do.
Kapásiá.	Tobacco-leaf sellers.	Few.	Poor.	do.
Keut.	Fishermen.	Numerous.	Generally poor.	do.

CASTES.	Occupations.	Numbers.	Whether rich or poor.	Whether esteemed or despised.
Málikatá.	Makers of wooden beads.	Few.	Very poor.	Despised.
Khatuá.	Fishermen.	do.	Generally poor.	Much despised.
Sundi (Suri).	Wine sellers.	do.	In middle circumstances.	do.
Sial.	do.	do.	Generally poor.	do.
Dhobá.	Washermen.	Numerous.	Poor.	do.
Tilakmátíá.	Sellers of a description of mud called Tilak.	Few.	do.	do.
Báuri.	Day labourers.	Numerous.	do.	do.
Chamá.	Sellers of palm leaves	Few.	do.	do.
Gokhá.	Fishermen.	do.	do.	do.
Dom.	Makers of bamboo mats.	do.	do.	do.
Mochi.	Shoemakers.	do.	do.	do.
Kandrá.	Village chowkidars and fishermen.	Numerous.	do.	do.
Pán.	Drummers.	Few.	do.	do.
Hári.	Sweepers.	do.	do.	do.
Kelá.	Beggars.	do.	Very poor.	do.
Charháimár.	Fowlers.	do.	do.	do.
Sabákhíá.	Beggars.	do.	do.	do.

RELIGIOUS DIVISION OF THE PEOPLE.—The Hindus form more than ninety-nine per cent. of the entire population. Their religion has been very fully discussed in chapters III. IV. and V. of the general volume. Besides a sprinkling of Musalmáns scattered over the District, there is a flourishing colony of native Christians at Pippli, under the care of the Baptist Mission. A Bráhma-Samáj was established by a Bengali Bráhman, who held the post of lower subordinate Civil Judge. The new sect made but little progress in this focus of Hindu orthodoxy, and ceased to exist on the death of its local founder three years ago.

DISTRIBUTION OF THE PEOPLE INTO TOWN AND COUNTRY.—Purí is the only town in the District. It lies on the coast, in lat. 19° 48' 17" N., long. 85° 51' 39" E., and is separated from the sea by sandy ridges. It covered 1871 acres in 1869, including the whole Kshetra, or sacred precincts of the town. In 1825, according to Stirling, it contained 5741 houses. In 1841 the houses numbered 6620, containing 23,766 souls. In 1868 the number was returned at 6363. In 1869 a very careful enumeration showed that the number had fallen to 5789, with a population of 19,875. The decrease is due to the famine of 1866-67, which did not immediately make its effects visible on the total number of houses. It should be noted, however, that the census of 1869 was confined to the strictly urban population. All the evi-

dence that I have collected, and it embraces the results of seven separate attempts at enumeration, tends to show that the average resident population of Puri and its suburbs during the half-century preceding 1866, has been from 23,000 to 25,000 souls, and I have adopted the latter number in the general Account of Orissa. The Collector estimates the depopulation owing to the famine at thirty-four per cent., and there seems every reason to believe that that calamity reduced the number of inhabited houses by seventeen per cent. During the great festivals of Jagannáth, this number is swollen sometimes by as many as 100,000 pilgrims. It is a city of lodging-houses, and is destitute alike of manufacture or commerce on any considerable scale. The streets are mean and narrow, with the exception of the principal avenue, which leads from the temple to the country-house of Jagannáth. The houses consist of wattle covered with clay, raised on platforms of hard mud, about four feet high, and many of them gaily painted with the Hindu gods, or with scenes from the Indian epics. The intervening sand-hills between the town and the beach intercept the drainage, and aggravate the diseases to which the over-crowding of the pilgrims gives rise. For remarks on its sanitary state, see chapter iv. of my Orissa. The Government offices lie upon the beach, with the sandy ridge between them and the town. The site is salubrious, but the dwellings of the English residents barely number six thatched cottages, much out of repair. The monsoon blows so fresh and cool from the sea, that in former days the officials from Cattaek used regularly to come to Puri for the hot weather. During the rains it is less healthy. For an account of its festivals and religious places, see chapters iii. and iv. of the work above referred to.

THE PORT of Puri is nothing but an undefended roadstead. It is open for import and export trade from the middle of September to the middle of March. During the other six months of the year the surf does not allow of ships being laden or unladen. The vessels that frequent it consist chiefly of country brigs, and occasionally a barque with an English master. They lie about half-a-mile from the shore in good weather. The trade consists almost entirely of shipments of rice to the Madras coast, and occasionally to the Mauritius. The statistics which I have obtained from the Harbour Office are so obviously imperfect as to render it useless to give them at length. In 1864-65 I find that twenty-nine ships entered the harbour, with a total tonnage of 3865 tons, the largest ship being given at 1028 tons. The value of the commodities exported in that year was £10,788; of the imports £1824. In 1866-67, the famine year, the total tonnage was 12,719 tons, the largest ship 1140 tons, the value of the rice imported being £114,811,

and the exports *nil*. In 1868-69 the total tonnage was 4140 tons, the number of ships that unloaded ten, the value of exports £8352, and imports £3937. During the first nine months of 1869-70 the total tonnage was 4946 tons, the number of ships that entered the harbour fifteen, the value of exports £6695, and imports £1375.

Horsburgh's Sailing Directions give the following instructions for making Purl Roadstead :—' The Jagannáth pagodas are three large circular buildings surrounded by several smaller ones. They are of conical form. The westernmost pagoda is the largest, and the easternmost the smallest of the three. They are nearly all in one bearing, W. by N. When brought to bear N.W., they begin to appear separated. When N.N.W. they are perceived to be distinct buildings. Lat. 19° 48' 21" N., long. 85° 54' E.' Mr. Raper gives lat. 19° 50' N., long. 85° 56' E. The latitude and longitude as corrected by the Surveyor-General of India are, lat. 19° 48' 17" N., long. 85° 51' 39" E.

The only other port in Purl District is Máchhgáon, near the mouth of the Deví River, on the borders of Cattack. A considerable export rice trade is done here, but the silting up of the channel renders the approach perilous to sea-going ships, and involves heavy expenses for lading and unlading by means of cargo-boats. The mouth of the Chilká Lake was once an excellent harbour, and would still be so but for this constant silting up. It is at present wholly impracticable. Besides Purl, the only other towns in the District requiring mention are Pippli on the Cattack road, twenty-five miles from Purl; and Bhuvaneshwar. The latter is a place of pilgrimage, and is sufficiently described in chapter v. of my general Account. Both are seats of a considerable trade in rice and cloth. Pippli has a flourishing society of native Christians.

RURAL POPULATION.—With the above exceptions the whole population is rural; Purl being a purely agricultural District without a single municipality. The people are poor, and appear even poorer than they are. They wear inferior clothes to men of the same class in other Districts. The well-to-do settlers from the south are distinguished by their earrings and necklaces of gold. A respectable shopkeeper's house is built of wattle or mud. The front verandah is of brick, and the roof of thatch, firmly fixed on a good bamboo or wooden frame. The dwelling of a prosperous merchant or landholder, worth about £100 a year, generally consists of a series of houses built round two courts, which lead one into the other, with the street in front of the outer court, and a garden behind the inner one. The outer court is lined with the chambers of the male members of the family, and the inner court with the women's apartments, the family storehouses, and the cook-room. The furniture of such a house would consist of a few low bedsteads, a press or two,

some wooden stools, a few broken chairs, and perhaps a single striped cotton carpet for the reception-room. The dwellings of the common people consist of sheds or thatched huts built round a single court. The outer apartments are used by the males and for the cattle. The inner are devoted to the females, to the cook-room, and the store-house. The food of a well-to-do shopkeeper comprises the following articles,—Rice, split-peas, vegetables; fish, milk, or clarified butter, curds, and occasionally goat's flesh. A husbandman in good circumstances, and able to spend sixteen shillings a month on a family of six persons, would consume the following food per diem,—Ten pounds of rice, fourpence; vegetables or split-peas and fish, three-farthings; and oil and spice, three-farthings.

There are very few rich families in the District. In 1870 the income tax returns estimated the total incomes of the District, above £50 per annum, at £106,500 sterling. The income of the richest landholder was estimated at £8000 a year, and the fourteen largest incomes amounted to £37,154, or an average of £2654 each.

AGRICULTURAL.—No well tested statistics have been obtained, but the following remarks are taken from a number of returns which have from time to time been officially submitted to, and accepted by, Government. Puri is strictly a rice-growing district. Of rice crops, the following are the most important,—(1.) The *Biáli*, which is sown on high but moist land, in June or July, and reaped in October or November. Its principal varieties are the *Sáthiká*, the *Kuliá*, and the *Aswíná*. (2.) The *Sárad*, which is sown on middling high land in July, and is reaped in December. A hundred varieties are included under the generic name of *Sárad*. Of these, the ten following are the most important,—*Khaiará*, *Kalásur*, *Bánkoi*, *Matará*, *Rangiasina*, *Nripatihog*, *Gopálbhog*, *Básubati*, *Bandiri*, and *Narsinhbhog*. (3.) The *Dálua* rice, sown on low wet lands in November or December, and reaped in April. Its most important varieties are the *Piá* and *Kasundá*.

The *Sárad*, or winter rice crop, is generally transplanted by the more diligent husbandmen; and by this process a much larger return is obtained. If not transplanted, the following are the operations required for the winter crop:—(1) Ploughing, March or April; (2) sowing, May or June; (3) weeding, after first rain-fall; (4) harrowing and ploughing, July or August; (5) second weeding, August; (6) laying (arranging the crop for convenience of cutting), December; (7) reaping, December or January; (8) threshing, January or February; (9) scalding (a little water is poured upon the paddy, which is then placed over a fire until the water is evaporated, for the purpose of loosening the husks); (10) cleaning (husking). Unhusked rice is

called *dhán*; husked rice, *chául*; if broken in husking, *khául*, boiled rice, *bhát*; if broken, *jáu*; boiled rice kept in water cold, *pakhál*; rice liquor, *toráni*; besides sweetmeats, parched rice, miscellaneous preparations such as *khái, líá, ukhurá, churá, bhajáchurá, nurumba, chhúchi ukhurá, murhi*. See Account of Balasor.

The price of rice varies greatly. An ordinary rate for unhusked rice is a rupee for two hundred and ten pounds, or nine pounds for a penny. On the fields it is sold at cheaper rates to the grain merchants. Of the coarsest sort of husked rice, eighty-four pounds may be had for a rupee, or at the rate of a fraction over a farthing a pound. In February 1870, the best cleaned rice sold in Purf market at sixty-six pounds for the rupee; the coarsest at eighty-three. No improvements are known to have taken place in rice cultivation in the memory of man; nor have any new varieties, adapted either for the deeper marshes or the drier upland, been introduced.

Of the pulses, the most important are the following:—*Mug* (*Phaseolus Mungo*), including three varieties, *Kalá, Sábúli*, and *Dhalá*, sown in January or February, on Sárád rice lands, and gathered in March or April. *Birhi*, including the varieties called *Ná* and *Cháitá. Harar*, sown in July, and reaped in December or January. *Chaná* (*Cicer arietinum*), sown in December or January, and reaped in February or March. *Kolath* (*Dolichus biflorus*), sown in October or November, and reaped in February or March. *Barguri*, sown in December, and reaped in January or February.

Of fibres, the most important are jute, hemp, and flax. The two first are sown in July or August, and cut in September or October. Flax is sown and reaped in the same months, but rather later. Fibre crops are always put down on high land; that used for jute is a poor soil of little value; hemp is generally sown on dry fields close around the homestead.

Of oil seeds, the most important are castor-oil (*gab*), sown on low wet lands or river banks; *rásí* (*Sesamum orientale*), sown on high lands; mustard (*sorish*), and linseed (*tisi*, called in Uriyá *pesu*).

Among miscellaneous crops are tobacco, on low moist lands; cotton, sown early in the cold weather, and reaped in May or June on Sárád rice land; sugar-cane on fine high land, with abundant moisture, or with capabilities of irrigation; turmeric (*haldí*); *báigun* (*solanum melongena*), on homestead land; potatoes, red pepper, and *pán*.

The standard LAND MEASURE of the District is the *mán*, as nearly as possible equal to an English acre, being twenty rods square, each rod measuring ten feet five inches, and a fraction called a *jab*. A *jab*

is either a barleycorn, or the mark inside the last joint of the thumb. There are various smaller local *móns* in different parts of the district.

RENTS vary greatly throughout Puri. The highest rates for rice land scarcely anywhere exceed nine shillings and sixpence an acre. The average of twenty-three Fiscal Divisions shows that the good qualities of winter rice land yield a fraction less than six shillings per acre. The ordinary calculation is, that rice land should pay two shillings per *bharan*. Four *bharans* is a good yield from an acre of first-class land. Two *bharans* an acre is considered poor. The *bharan* consists of eighty baskets (*gaunis*) of grain; but, unfortunately, the baskets vary in size. Those used for weighing unhusked paddy contain five Cattack seers, or between 13 and 14 lbs. avoirdupois. A *bharan* for paddy, therefore, contains ten Cattack maunds, or about 9 cwt. The smaller basket contains only $3\frac{1}{4}$ Cattack seers, and is used for weighing husked rice. The yield per acre in Puri District is therefore from about 16 to 36 cwts. per acre of unhusked paddy, and from 8 to 16 cwts. of husked rice. The average from fair land may be put down at 10 cwt.

The following six descriptions of land will illustrate rents in Puri District:—(1.) Homestead land pays a peculiar rent for frontage (*chanda*); in some villages as high as a shilling for nine feet of frontage, but, with a few exceptions, seldom exceeding nine shillings an acre, and averaging about five. (2.) Rich land, yearly covered with river deposit, from six to ten shillings an acre. (3.) Two-crop land (one of the crops being winter *Sárad* rice), from six to eight shillings. (4.) Common one-crop winter rice land, from three to five shillings. (5.) Autumn rice land (*Bidli*), from six to eight shillings. (6.) Spring rice land (*Dálua*), from three to five shillings per acre. The following are the rates of rent, in each of the Fiscal Divisions of Puri, for the best qualities of two-crop, and of winter rice land. The rate for two-crop land stands first in each case. In Atháis, the rate is six shillings and threepence for two-crop (*dofasali*) land, and six shillings for winter rice land (*Sárad*). In Astarang, 7s. 6d. and 7s. 3d. respectively; in Antrodh, 6s. and 5s. $7\frac{1}{2}$ d.; in Bánchás, 9s. and 2s. 9d.; in Chau-biskud, 3s. and 3s. $1\frac{1}{2}$ d.; in Domárkhand, 6s. 3d. and 9s. $4\frac{1}{2}$ d.; in Kalijori, 4s. $11\frac{1}{2}$ d. and 3s. $3\frac{1}{2}$ d.; in Kanman, 5s. and 6s. 3d.; in Kurúlo, 7s. and 6s. $10\frac{1}{2}$ d.; in Kotdes, 8s. 2d. and 7s. $3\frac{1}{4}$ d.; in Kot Ráháng, 6s. and 5s. 6d.; in Kodhár, 7s. 6d. and 7s. 6d.; Khurdhá, 2s. 4d., 3s. 4d., and 2s.; Lembái, 1s. 3d. and 1s. 3d.; Mátkadpatná, 6s. and 7s.; in Mahal-masrud, 5s. 6d. and 4s. 6d.; in Oldhár, 5s. $4\frac{1}{2}$ d. and 6s. 3d.; in Paschimduái, 8s. 3d. and 6s. 3d.; Púrbduái, 6s. 6d. and 6s.; Ráháng, 7s. and 6s. 3d.; Sayyidábád, 5s. $4\frac{1}{2}$ d. and 3s. $1\frac{1}{2}$ d.; Sirái, 3s. $1\frac{1}{2}$ d. and 2s.; Sultánnagar, 6s. 3d. and 3s. 9d.

LAND is not yet so scarce in Purf as to cause an excessive subdivision of holdings. A husbandman who holds less than five acres is held to be ill off. Ten acres make him a prosperous peasant. Thirty acres are a large holding, and eighty acres an unusually large one. A husbandman with ten acres is supposed to be as well off as a small retail shopkeeper, or a servant earning about sixteen shillings a month. The husbandman dresses worse, but he has more to eat. The cultivators, as a class, are deep in debt to the landholders, who make advances of money and rice to them. A large proportion of them hold at fixed rates, and represent the *tháni rayats* of the settlement papers. Such husbandmen hold their land under leases, *kálipattás*, granted by the Settlement Officers in 1836-37, and remaining in force until the next settlement in 1897. The number returned as holding at fixed rates is 119,168. This is probably an exaggeration, as it would represent about 100,000 houses, and the whole number of dwellings in Purf District is returned at 108,199. But it may, without error, be taken as evidence to show that the larger proportion of husbandmen in the District hold at fixed rates. All other husbandmen are tenants at will, except in rare instances where leases have been given. Act x. of 1859, therefore, scarcely applies to Purf District. Rent suits of any sort are rare, and the twelve years' occupancy right is unknown. In 1861-62 there were 464 original suits under Act x. and laws based upon it; in 1862-63, 487; in 1866-67, 545; in 1868-69, 977. In 1866-67 there were also 356 miscellaneous applications; and in 1868-69, 630. It is simply a Rent Law in Purf.

THE DOMESTIC ANIMALS OF THE DISTRICT are,—cows, oxen, and buffaloes, kept by Gaurs and cultivators; sheep and goats, kept by castes below the Gaurs; pigs, kept by the low-caste Ghusuriás; pigeons, kept, but not eaten, by the respectable classes; fowls and ducks, kept only by Musalmáns and very low castes. A few under-sized ponies are kept by the richer classes for riding, but are never used for ploughing or draught. The following prices may be received as an approximation to the current rates:—A cow giving four pounds of milk daily fetches about £1, 5s., but in some parts may be got as low as 16s.; a pair of good plough bullocks, £3 sterling; a good cow buffalo, giving nine pounds of milk, £2; a pair of draught buffaloes, £4; a score of sheep, £2; goats about the same price; a score of full-grown pigs, £10. Ten acres are called a plough of land, but practically, six or seven acres are as much as a good pair of bullocks can manage. The implements required for ten acres are the following:—One plough, value 2s.; two mattocks (*koris*), 5s.; one spade (*kámk*), 2s.; one axe (*kurdli*), 1s. 6d.; three choppers for cutting wood (*káturi* and *dá*), 1s. 3d.; a clod

breaker (*maí*), 1s. ; a harrow (*bidá*), 6d. ; total, 13s. 3d., which, with £3 for the oxen, make £3, 13s. 3d. The husbandman would also have to borrow an occasional pair of oxen for a holding of this size. Few hired labourers are employed, but the Báuris; Savars, and Kandhs are practically labouring classes. The Kandhs cultivate lands in the hills, but only appear in the plains as hired labourers. Agricultural wages are generally paid in unhusked rice, at the rate of twelve pounds a day for a man, and six for a woman. Children tend cattle at a fraction over a farthing a day. The regular day-labourers of a prosperous husbandman are also allowed a couple of acres on which to grow vegetables or rice during their leisure hours. Money wages are officially returned at the following rate:—Unskilled labourers in Purí Town, fourpence a day ; in the rural parts, twopence half-penny ; their wages twelve years ago were about twopence half-penny in the town, and three half-pence in the country. Smiths and carpenters used to get threepence three-farthings in the town, and twopence in the country twelve years ago ; they now get sixpence a day in the town, and threepence three-farthings in the country. Bricklayers who used to get fourpence half-penny in the town twelve years ago, now get sevenpence half-penny. A description of the tenures and of the landholding classes will be found in the general Account of Orissa.

MANURE consisting chiefly of cow-dung, eked out by the black mud from the bottom of tanks, and river deposits, is used to a large extent. It is called *khát*, from the Sanskrit *khát*, past participle of *khan*, to dig, meaning either pit refuse or what is dug in. It is measured by bullock-cart loads. Three loads are a fair allowance for an acre, and are valued from sixpence to a shilling per load. For very high cultivation, a husbandman calculates nine shillings for rent, and about two shillings for manure. The refuse of oil seeds and sugar-cane is also used.

IRRIGATION is less sparingly employed. Wells, tanks, rivers, and shallow pools supply the water. The fluid is raised by means of a mat scoop, swung by two men, or by the *tendá* apparatus of unglazed earthen pots fixed to weighted bamboo levers, or by the *jantá* apparatus of a hollowed cocoa-nut trunk, with the large end moved up and down the small arc of a circle by means of a heavily-weighted bamboo lever. Irrigation is seldom used except for the spring rice (*Dálua*) and the February pulse crops. If the water can be raised to the field by means of one throw-up of the mat scoop, irrigation costs about ninepence an acre for rice, and for sugar-cane a little more. Common wells are made by digging a wide deep hole till the water comes, and then piling short, broad earthenware pipes on the top of each other in the centre, and filling in the earth around. A double

tilled well of this sort, thirty feet deep, costs about forty shillings. In the towns and homesteads, the earthenware pipes are sunk from the top, the centre being hollowed out, and the excavators working downwards as the cylinders sink. Sometimes the interior of the wells are built round with solid brick. A double masonry well of this sort, forty-five feet deep, costs about £40.

ROTATION OF CROPS.—Land is nowhere left fallow except for sugar-cane. The following rotation of crops is known, but not very generally practised,—First year, sugar-cane; second year, a coarse grain, manduá (*Eleusine corveana*); third year, brown peas (*Dolichos biflorus*); fourth year, cotton; fifth year, sugar-cane; and so *de novo*. In rice cultivation the same sort of crop is taken year after year off the same land.

NATURAL CALAMITIES.—Locusts seldom do much damage. Only one flight is recorded within the past ten years, namely, in 1862, when one of the peasants asserted in court that he lost seven-eighths of his crop. The general loss to the District was in a much less degree. Black insects (*Kálimakshi*) breed on the wet ground after floods, and occasionally devour the young crops. Other minute insects (*Jhintikás*) attack the young crops when in the milk. Every year square miles of standing crops perish by floods. But drought is the great enemy of the District, and the failure of the rivers is even more dreaded than their overflow. This subject has been very fully discussed in my Orissa. As the District is almost entirely on one level, there is no compensating influence. If the rains hold off till the middle of July, a panic occurs, and rice rises to thirty pounds of the coarsest, and twenty-five of the finer sort for a rupee. The great famine of 1866 has elsewhere been described. Its effect on prices is still keenly felt in the District, but last year, 1869-70, fortunately proved a bumper season.

ADMINISTRATIVE HISTORY.—The District of Purí was annexed, with the rest of Orissa, in 1803. An account of the occupation will be found in my general Account of the Province. On the fall of Cattack Fort, Mr. J. Hunter was deputed to Purí to collect the revenue of that division of the province, and to superintend the temple. From 1818 to 1828 Purí and Khurdhá were under the charge of the Joint Magistrate and Deputy-Collector of Khurdhá, who, after a time, obtained the rank of Collector. In 1828, Orissa was divided into the Northern, Central, and Southern Divisions, the last of which is identical with the present District of Purí. About the same year, the headquarters were removed from Khurdhá to Purí Town. In 1829, the total income of the District was £89,776, and the total civil expenditure £12,357, or one-eighth of the revenue. In 1860-61, the total revenue, deducting transfer accounts, was £126,157, and the expenditure £16,722. In

1870-71, the budget estimate for the revenue is £124,666, and the expenditure £22,843. During the last forty years, therefore, the revenue has increased by one-third, and the cost of Government has nearly doubled. During the past ten years under the Crown the revenue has remained stationary, while the expenditure has increased from £16,722 to £22,843, or 36·06 per cent.

THE LAND TAX amounted to £44,707 in 1829-30; to £45,973 in 1850-51; and to £45,438 in 1870-71. The subdivision of properties has rapidly gone on under our rule. In 1828, there were only 194 separate estates, with 670 proprietors. In 1850, the number had risen to 272 estates, with 910 proprietors or coparceners. In 1870, the separate estates amounted to 425, with 1150 registered proprietors. The effects of this subdivision are visible in the average payments of each proprietor or coparcener. In 1828, the average of the large class of small proprietors who pay below £10 a year of Government rental, was £3, 9s. 6d.; in 1850, it had fallen to £2, 12s. 6d.; and in 1870 it was £1, 10s. 6d. In the next class of proprietors, who pay a yearly rental of between £10 and £100, the average payment of each proprietor in 1828 was £14, 4s.; in 1870 it was £10, 8s. In the large estates paying over £100 a year of Government rental, the average payment of each proprietor was £465 in 1828, and £369 in 1870. Taking the landholding body as a whole, each estate paid on an average £230 of Government rental in 1828, and £106 in 1870. Each proprietor or registered coparcener paid on an average £67 in 1828, and only £39 in 1870. The average size of estates has, therefore, diminished by one-half during the last forty years of British rule in Puri.

THE AMOUNT OF PROTECTION given to property and person has greatly increased. In 1828-29 there were only three courts, revenue and judicial, in the District; in 1850 there were seven; in 1862, nine; and in 1869-70, twelve. In 1828-29, there was only one covenanted officer in the District. There are now generally three, namely, (1) a Magistrate and Collector at Puri; (2) a Joint or Assistant-Magistrate and Deputy-Collector at Puri; (3) an Assistant-Magistrate and Deputy-Collector in charge of the subdivision of Khurdhá. In 1868, the regular police stood thus,—Three European officers, on an average salary of £375 a year; 83 native officers, on an average salary of £21, 15s.; and 447 foot police, on an average of £7, 4s. a year; total strength of police, 533. The estimated strength of the regular police to the area of the District, is one man to every 3·09 square miles, or one man to every 997 of the population. The cost of protection is £4, 3s. a square mile, or 3½d. per head of the population. In this calculation the police

department estimates the area of the District at 2083 square miles, and the population at 528,712. After recent transfers, the Surveyor-General gives me the present area at 2504 square miles. During the year 1868, the police made 1032 arrests, conducted 794 cases cognizable by the police, and in 539 cases obtained convictions. The total cost of the regular police is £8710, 10s. a year. The 530 native officers and men consist of 438 Uriyás, 64 Bengalis, 18 Telingás, and 10 Marhattás. Besides the regular district police, there is a town police, costing £540 a year, and numbering 83 men of all ranks. There is also a village watch, consisting of 2778 watchmen, who receive an estimated pay in money or lands of £2583 a year, or under £1 per man. This represents a cost of £1, 5s. a square mile of the district, or about 1d. per head of the population. Their average strength is one man to every 0·74 square miles, or to every 190 of the population. Each village watchman has on an average thirty houses under his charge. Including, therefore, the regular force, the town police and rural watch, there are 3393 police of all ranks in Purí District, maintained at a total cost of £11,833 a year. For police purposes, the District is divided into seven stations, with forty-five outposts, including salt outposts.

THE CRIMINAL CLASSES.—There is little crime in the District. The average number in jail, both in Purí and Khurdhá, in 1865, was 95, of whom only six were females, or about one criminal always in jail to every 6000 of the population, and one female to every 100,000. The entire number admitted in 1868 was 735 males and 54 females, or a total of 809. The constant rate of sickness was 3 per cent. of the number in jail, and the death rate was 2·10 per cent. During the ten years, from 1859 to 1868 inclusive, the total number of Musalmán prisoners was only 185; the Bráhmans numbered 802; the writer caste 533; the Chásá, or common agricultural classes, 3206; the low castes of all sorts, such as Páns and Báuris, 1722. During the same period, only two Christians found their way into Purí jail. As regards their actual occupations, there were 849 priests, 656 shopkeepers, 52 weavers, 2606 husbandmen, 1133 labourers, besides a few persons of miscellaneous trades, including 3 pilgrim-hunters and 15 beggars. Strictly speaking, there are no criminal classes in Purí District, that is to say, no classes who live by preying on society. Petty thefts, the result of extreme poverty, often, indeed, of the pangs of hunger, are the most common offence. Murders occur very seldom, and are nearly always traced to some complication about women or land. The Bráhmans supply a large proportion of the criminals. But here, as elsewhere, it is the miserably poor and hungry landless castes who fill the jails.

With regard to the administration of civil justice, Puri forms part of Cattaek District. The Civil and Sessions Judge proceeds on circuit from Cattaek, and holds his Court at Puri at stated periods of the year.

FISCAL DIVISIONS.—The number of villages or rural communes in Puri District in 1870, is returned at 2962, containing on an average two hundred inhabitants each. The number of Fiscal Divisions (*par-ganás*) has varied at different times. I have two statements of them, which present considerable discrepancies. The first is furnished by the Collector; the second by the Surveyor-General, and may be taken as the more correct. The first shows the number of estates in each Fiscal Division, the amount of Government land-rent, the area in acres, and the estimated population. The second exhibits each Fiscal Division divided into its cultivated and non-cultivated area. I subjoin both lists, partly for the value of the different subjects they deal with, and partly to illustrate the discrepancies which such lists show in almost every District. Such discrepancies arise from the circumstance, that not only does the total area of a District vary, owing to transfers to other Districts, but the boundaries of the Fiscal Divisions themselves are often badly defined. Sometimes, indeed, a Fiscal Division is so shattered and interspersed with fragments of others, that the surveyors have had to lump them together, while the Collectorate returns continue as before. Such mistakes creep into the different departments of Government, and are aggravated as time goes on. Thus, I have received five different returns of the area of Puri District, varying from 2080 to 2698 square miles. The present area is, as already stated, 2504 square miles.

The following is the Statement of Fiscal Divisions as made up in the Collectorate:—

		Jagir.	Area, 7,959 Acres.	Pop. 1,500
1. Andhári, containing 1 Estate.		Jagir.		
2. Antrodh, „ 5 „	„	„ Paying £82 Land Revenue.	1,873 „	„ 19,991
3. Astarang, „ 1 „	„	151 „	5,477 „	„ 1,081
4. Atháis „ 13 „	„	838 „	33,605 „	„ 11,408
5. Bajrakot, „ 1 „	„	Jagir.	11,838 „	„ 2,000
6. Banchás, „ 36 „	„	813 „	15,922 „	„ 13,361
7. Chaubiskud, „ 14 „	„	2,428 „	54,658 „	„ 5,003
8. Domárkhand, „ 16 „	„	615 „	15,869 „	„ 7,680
9. Kalijori, „ 4 „	„	27 „	434 „	„ 4,457
10. Kanman, „ 2 „	„	185 „	4,699 „	„ 1,189
11. Khurdhá, „ 1 „	„	15,308 „	595,526 „	„ 165,390
12. Kodhár, „ 3 „	„	434 „	15,852 „	„ 6,798
13. Kotdes, „ 30 „	„	8,618 „	129,998 „	„ 90,016
14. Kotráháng, „ 66 „	„	2,883 „	29,445 „	„ 30,003

15. Kurúlo, containing 8 Estates.		£248 Land Revenue.	9,602 Acres.	Pop.	8,755
16. Lembái, „ 7 „	3,449 „	58,854 „	„	„	39,035
17. Málud, „ 1 „	Jagir. „	10,794 „	„	„	2,000
18. Mánikpatná, „ 1 „	... „	13,563 „	„	„	2,000
19. Marichpur, „ 1 „	332 „	33,983 „	„	„	8,000
20. Masrud, „ 2 „	64 „	1,739 „	„	„	840
21. Mátkadpatná, 4 „	107 „	6,367 „	„	„	1,548
22. Oldhár, „ 17 „	523 „	21,306 „	„	„	7,150
23. Pánchgarh, „ 1 „	1,547 „	22,135 „	„	„	19,856
24. Párikud Kíla, 1 „	Jagir. „	44,764 „	„	„	5,166
25. Paschim-duái, 94 „	1,246 „	12,378 „	„	„	15,466
26. Púrb-duái, „ 43 „	713 „	14,340 „	„	„	12,201
27. Ráháng, „ 22 „	3,006 „	71,559 „	„	„	64,506
28. Sayyidábád, „ 18 „	482 „	12,248 „	„	„	2,782
29. Sirái, „ 9 „	2,378 „	43,634 „	„	„	4,741
30. Sultánnagar, 3 „	159 „	3,178 „	„	„	892
31. Chulká Lake, ... „	... „	220,000 „	„	„	...

The Surveyor-General's Return is as follows :—

	Total Area in square miles.	Acres.	Cultivated.	Waste.
1. Andhári,	12'43	7,959	2,810	5,149
2. Antródh,	53'01	33,926	26,352	7,574
3. Astarang,	8'74	5,594	2,728	2,866
4. Atháis,	52'01	33,289	11,975	21,313
5. Bajrakot,	18'50	11,838	3,520	8,318
6. Bánchás,	30'20	19,329	14,294	5,034
7. Chaubiskud,	105'46	67,498	20,341	47,157
8. Domárkhand,	29'33	18,766	12,356	6,410
9. Kanman,	6'58	4,208	2,024	2,183
10. Khurdhá,	929'92	595,150	137,585	457,565
11. Kodhár,	27'19	17,405	11,663	5,741
12. Kotdes,	181'55	116,194	86,020	30,174
13. Kotráháng,	55'83	35,728	17,913	17,815
14. Kurúlo,	20'01	12,805	7,033	5,771
15. Lembái,	89'97	57,580	30,807	26,772
16. Málud,	16'86	10,794	2,880	7,914
17. Mánikpatná,	21'19	13,563	3,014	10,549
18. Marichpur,	53'10	33,983	7,040	26,943
19. Mátkadpatná,	10'80	6,914	2,202	4,712
20. Oldhár,	41'14	26,330	1,875	24,455
21. Pánchgarh,	42'57	27,312	14,424	12,888
22. Párikud,	69'94	44,764	18,560	26,204
23. Paschim-duái,	25'92	16,589	5,612	10,976
24. Púrb-duái,	32'50	20,802	4,283	16,518
25. Ráháng,	149'49	95,678	67,480	28,198
26. Sátpará,	8'14	5,211	5,000	211
27. Sirái,	67'67	43,307	23,355	19,952
28. Chulká Lake,	344'43	220,436

For a detailed account of the Physical Geography and fluvial characteristics of the separate Fiscal Divisions, see Appendices A to G to Superintendent of Embankments' Report, dated 6th June 1858.

Of the present area of the District, after recent transfers, 964 square miles were under cultivation in 1840, 54 cultivable, but not cultivated, and 1486 incapable of cultivation, total 2504 square miles. The cultivated area is now given at 741,197 acres, or 1158 square miles. This return, with the following classification of lands based upon it, is taken from an official report, but must be accepted rather as a piece of intelligent guess work, than as trustworthy statistics. Of the 741,197 acres under tillage,—243,230 are enjoyed by the landholders as *Jágir*, and pay no revenue to Government; 462,935 pay rent to Government as actually under crops; and 35,032 lie fallow. There are, therefore, according to this estimate, only 462,935 acres of cultivated land that actually pay rent to Government. As each acre would have to yield nearly a rupee of Government rent to make up the total actual land revenue of the District, I am inclined to think that the total return of tillage (741,197 acres) is below the mark, and that 800,000 acres would be nearer it. No trustworthy information exists as to the acreage under cotton and other crops, but it is believed, that of the 462,935 acres under cultivation, 446,014 are under rice; 5267 under cotton; 6029 under pulses; and 5625 under tobacco, sugar-cane, and miscellaneous crops. The total crop of rice is estimated at about five millions of hundredweights; the cotton at about 21,000 cwts.; and the pulse at about 25,000 cwts. It is estimated that about 60,000 cwts. of rice are annually exported; one-third by sea, and two-thirds by land and the *Chilká*. The above figures must be received with great caution, but they are the best I have to offer.

THE REVENUE SETTLEMENT, which practically still continues in force, is that of 1837. It was intended to hold good for thirty years only; and in 1866 an agitation took place with a view to extending the Permanent Settlement to Orissa. But the state of exhaustion in which the famine of that year left the province, precluded the possibility of doing so, and would have rendered the minute investigations necessary for a re-settlement, very distressing to the people. During the early part of 1867, much correspondence passed between the local authorities and the Governments of Bengal and of India on the subject. It was decided that the people should be spared all interference in their then reduced circumstances, and the ruling power made up its mind to renew the settlement at the low rates of 1837. The Government of India, in its letter, No. 2405, dated 22d January 1867, proposed to extend the previous settlement for twenty years. But afterwards it

was resolved to grant a thirty years' extension, without any enhancement of the rents (Act x. of 1867). The settlement of 1837 expired in September 1867, and the current one will, therefore, run to 1897. On the most moderate computation, the existing land revenue might have been raised by five per cent., or in round numbers, £2500 a year. Irrespective of interest, therefore, the famine of 1866 has cost £75,000, under the single item of non-enhancement of the rates, in Purl District alone.

MEDICAL ASPECTS OF PURL.—Average rainfall, 66·25; average temperature, 87·3. The prevailing diseases are Malarial fever, in all its varieties; Elephantiasis, chiefly of the lower extremities and scrotum; Dysentery and Cholera; Fevers, quotidian, tertian, and quartan, are common throughout the whole District; nor, indeed, can they be otherwise, when the mode of life among the people is considered. Many villages stand in the midst of marshes. Square miles of land lie under water during the rains; and the floods sometimes swamp the whole District. The drinking water, especially in the hot season, is charged with organic impurities, and holds in suspension a large quantity of insoluble sediment. The bathing water is generally a foetid tank. The meagre diet of the people does not enable them to resist the malaria which they breathe. Fatty food is wholly wanting; oil is very sparingly used; and the Civil Surgeon reports that salt is not consumed in sufficient quantities for the requirements of the human frame. Enlargements of the spleen and malarial cachexia follow such fevers, and the withered body, puffy face, and inability to support any strain, physical or mental, bear witness to the generally feeble tone of the inhabitants, and their powerlessness to throw off complaints. Elephantiasis is the most conspicuous endemic. It afflicts men and women alike, and does not spare even children. It is most prevalent in the town of Purl and its environs. In many cases it is associated with a continued fever of three days' duration, attended with inflammation of the lymphatics, and the lymphatic glands of the affected extremity. So far as the Civil Surgeon has observed, there is no relation between the fever associated with Elephantiasis and ordinary intermittent fever. The local affection often precedes the constitutional disturbance, and the recurrence of the fever is irregular, sometimes once, and sometimes twice a month. After each attack, the extremity enlarges by gradual increments. Dysentery chiefly occurs at the beginning and at the end of the rains. It arises from exposure, from insufficient clothing, from bad food, from impure water, and from similar causes, operating on subjects predisposed by malarial dyscrasia. Cholera may be added to the list of endemics, as there is scarcely a month in which it is

wholly wanting. Puri City is a hot-bed of the disease. It only requires the annually recurring conditions of over-crowding, of filth, of great heat, of dampness, and sudden atmospheric changes, to turn the pilgrim city into a pest-house. But cholera is best considered as an epidemic occurring in February or March, and again in June or July, at the Dol-Játrá and the Car Festival. Sometimes it attacks all classes; but the destitute, ill-fed, ill-housed pilgrims generally supply the great proportion of the victims. The richer inhabitants suffer little. Its chief force is concentrated on the town, from whence, however, it often spreads into the District, especially in the villages along the pilgrim high road. It attains its maximum intensity at the Car Festival rather than at the Dol-Játrá. Last season the mortality from cholera was ascertained to be 1089, from January to July. The reported cases, however, probably represent but a small proportion of the actual deaths. The only other epidemic of importance is the small-pox, which generally makes its appearance in January, February, or March. It has not, however, committed any serious ravages since the famine year, 1866-67. The natives persist in resorting to inoculation, and the epidemic has several times been traced to the practice. They look on vaccination with suspicion, and sparingly adopt it. Until compulsory vaccination is introduced, or at any rate, until inoculation is rendered a punishable offence, there is no hope of small-pox being stamped out in the District. Measles and a modified form of small-pox prevailed in Puri City in November and December 1868, but occasioned very little mortality. Epidemic fevers are unknown in the District. Epizootics, in two forms, occurred in 1867-68. Guti, or cattle small-pox, appears in its most formidable shape. Phátuá, or hoof disease, is equally infectious, but less fatal. The first kills in a few days, and from 50 to 80 per cent. of the cattle attacked die. The rate of mortality sometimes rises to 90 per cent. Phátuá is simply a chronic foot-rot, and wears out the animal by pain and exhaustion. It is often communicated to the mouth by licking, rendering mastication impossible. For further particulars, *vide* Stat. Account of Balasor.

FAIRS AND RELIGIOUS GATHERINGS are the great predisposing causes of epidemics. This subject has been fully treated of in my general Account of Orissa. The Car Festival annually slays its thousands. It occurs at the most unfavourable and inclement season of the year. Before its close the rains are pretty well advanced, the roads are cut up, the rivers are full, the roadside lodging-houses are close and steamy, and often the sole shelter for the travellers is under trees dripping with rain, and charged with malarial influences. The

Dol-Játrá in the spring time does less damage. The Panchak Festival in October or November often ends in a sharp epidemic of cholera. The whole religious character of the District centres in Purí City, and the local rural gatherings are unimportant. So far as I can learn, epidemics have never been traced to them.

INDIGENOUS MEDICINES.—The following are the principal vegetable drugs in the district :—Pitá-kro, the bark of *Wrightia Antidysenterica* ; Indrajab, seed of ditto ; Bel, fruit of *Egle Marmelos* ; Sunt, the root of the *Zingiberis officinalis* ; Pánmauri, Aniseed ; Sof, Anethum ; Muthá, the tuber of the *Cyperus pertenuis* ; Benácher, the root of the *Andropagan Muriaticum* ; Dhaniá, *Coriandrum Sativum* ; Methi, *Fenu-greek* ; Amblá, *Emblica officinalis* ; Bans-lochan, *Tabasheer* ; Khayer, *Catechu* ; Dhuná, resin ; Kuchlá, *Nux Vomica* ; Chindi-nai, in Bengali *Ananta-múl*, *Hemidesmus* ; Dálim, pomegranate. Mineral drugs are not so frequently used as vegetables. *Rasakarpur*, the mixed oxide, and *Shingraf*, the red oxide of Mercury, are given in pills, and occasionally smoked in a tobacco-pipe. *Litharge* is made up into an ointment. Gold is a great favourite in the pharmacopœia of the *Uriyá* practitioners as a stimulant, mixed with musk. The native system of treatment consists chiefly in administering specifics against bile, heat, and excessive humours.

SUBDIVISION OF KHURDHA.—For administrative purposes the north-west part of Purí is placed under a separate officer, subject to the Collector of the District. The subdivision is bounded on the south-east by the Chilká Lake ; on the east by the Dayá River, which, roughly speaking, separates it from Purí District ; on the north-east and north by the Cattack District ; on the north-west, west, and south-west by the Tributary States of Bánki, Khandpára, Ranpur, South Ghumsar, Athgarh, and Ganjám District. Khurdhá was the hereditary seat of the last of the Orissa dynasties, and the royal house retained much of its independence until its rebellion against the British Government in 1817. In 1818 Khurdhá became the headquarters of the English District, and continued so till about 1828. It is now (1870) under an Assistant-Magistrate. In 1836 it is described by Mr. Wilkin-son as extending from within six miles of Cattack to the pass of Chhatra-garh, seventy-six miles in length, by from five to twenty in breadth. The Police return the total number of houses at 45,827 ; which, allowing an average of five persons to each, would give a population of 229,135.

Along the Dayá River the country is flat and alluvial. But with this exception Khurdhá is covered with long ranges rising to over 1000 feet high. They run an irregular course from north-east to south-west,

breaking up the country into small valleys intersected by petty streams, and well cultivated. The villages are situated on the higher lands, and belted round by picturesque groves of trees. The hills have mostly been stripped of their wood, and bear nothing but a mean scrub. But towards the south, where the ranges run down to the Chilká, they are covered with bamboo and dense jungle. The scenery in some parts where the hills rise, range after range, towards Central India is very beautiful.

The most conspicuous mountains in Khurdhá are the Solári, in Bánpur; the Bhelári, on the south-west boundary; Baithá and Baruní, one mile to the south-west of Khurdhá Town. None of them exceed 1800 feet. They are inaccessible to wheeled conveyances, and can with difficulty be ascended by cattle. Solári is a group of peaks rising one above another from the flat land near the Chilká. The other three are saddle-backed mountains rising into bare, and often inaccessible, precipices. The natural caves in the Baruní and Solári Hills have been hermitages and places of pilgrimages from time immemorial. That on the Baruní has a few inscriptions. A splendid tank, the work of pre-historic builders, stands on the Solári Hill. Khurdhá has no navigable rivers, and all are fordable except on occasions of flood. Fifty-five cases of drowning were brought to the notice of the police in 1869.

There are no towns in Khurdhá exclusively occupied by fishermen, though all round the shores of the Chilká fishing forms the principal occupation, and it is estimated that on the west side of the lake some 5000 or 6000 persons live by it. A natural watershed crosses Khurdhá, and separates the Chilká from the Mahánadí Valley. In the western part of the subdivision the waters run into the Mahánadí, by means of its tributary, the Kusumí. The north of the subdivision is drained by the Rann and other small streams. In the east and south the waters find their way into the Chilká Lake.

Good building materials abound. A very cellular laterite is easy to quarry, and hardens by exposure. A coarse kind of freestone, veined with spar, is also common; and in many places lime underlies the laterite. At Garh Atir there is a hot-spring, the waters of which are impregnated with sulphur, in the middle of a highly cultivated valley, where a large fair is held in January, lasting for eight or ten days, and attended by merchants from all parts of the country. There is a small picturesque pass at Sinheswar, on the Ganjám road, and another at Kurárhmal, about five miles south of the subdivisional town; but the destruction of the bamboos and large trees has greatly spoil their beauty. The jungle still covers a large part of Khurdhá. Here and there small patches are brought under cultivation, and are

assessed at from 7d. to 9d. an acre. With this exception, no revenue is derived from the forests. The timber and bamboos are wastefully destroyed. Trees, such as *Sál*, *Piásál*, and *Sisu*, would grow to a large size, and prove of great value, were they not ignorantly cut down.

The wild animals and game found in the subdivision are the same as those in Purí District. The deaths from snake bites reported during the year 1869-70 amounted to thirty-three; from wild beasts, seven. Quantities of wild beast skins are collected from the Khurdhá hunters by traders belonging to other districts. There is a large flesh-eating population, which mainly depends upon its guns for food.

For administrative purposes Khurdhá is divided into three police stations, namely,—(1) Khurdhá, comprising the station itself and eight outposts. It contains 641 villages and 33,374 houses. (2) Tángi, comprising the station and two outposts. It contains 5511 houses. (3) Bánpur, comprising the station and five outposts. It contains 6942 houses.

Fiscally, the subdivision consists of two great Government estates (*Khás Mahals*), namely, Khurdhá and Pánchgarh. The former, Khurdhá, comprises the following Fiscal Divisions, called *Kilas*, or forts:—(1) Khurdhá; (2) Dándimál; (3) Tapang; (4) Kus-pálá; (5) Kuhuri; (6) Haldiá; (7) Balabhadrapur; (8) Mánikgorá; (9) Bánpur; and (10) Mughabhandí. The first or Das-Sálá settlement for this estate was made in 1819 for £5240. The present assessment is for £17,760, and is current till 1880. The revenue of the Pánchgarh estate was settled at £1546 in 1837, and this assessment is still current. In both these estates the settlement is made direct with the cultivators. The following towns in the subdivisions are estimated to contain over 2000 inhabitants,—Bánpur, estimated at about 5000; Darutheng, about 3600; Bolgarh, about 2500; and Mánikgorá, about 2000.

The number of rent suits under Act x. of 1859 was 236 in 1866-67, and 389 in 1868-69. The number of miscellaneous applications in the same years were 257 and 431 respectively.

APPENDIX II.

STATISTICAL ACCOUNT OF THE DISTRICT OF BALASOR.

BALASOR, a corrupted form of Báleswara, the Young Lord (Krishna), is bounded on the north by the District of Midnapur; on the south by the Baitarani River; on the west by the Tributary States of Keunjhar, Nilgiri, and Morbhanj; and on the east by the Bay of Bengal, which here curves up from the mouth of the Bráhmañ River, to the Subanrekhá. It lies in the 20th and 21st degrees of north latitude, and in the 86th and 87th degrees of east longitude. Its area, after recent transfers, is 2041 square miles, and its population 485,113 souls.

THE JURISDICTION of Balasor has undergone many changes. Captain Morgan, the first British officer of the District in 1804, exercised authority between the sea and the hill states, as at present; but all the Fiscal Divisions beyond Nángaleswar and Sátmalang, to the north, were under Midnapur. To the south his limits were ill-defined, and it is uncertain whether Bhadrakh was within his jurisdiction. At that time the country was so unsettled, that large discretion had to be allowed to the officers. For example, the Kaniká Rájá frequently gave trouble, and was sometimes coerced from the Cattack District, and sometimes from Balasor, as was found most convenient. Mr. R. Ker was appointed, with the title of Collector, in 1804, and exercised jurisdiction as far south as the Bráhmañ River. From the 18th July 1805 to the 3d August 1821, Balasor was managed from Cattack, and had no separate revenue officer. From 1821 to 1827 a joint magistrate administered the district as the Deputy of the Collector of Cattack. In 1827, Balasor was erected into an independent collectorate under Mr. H. Ricketts; and in 1828, Jájpur and Bhadrakh were attached to it. Jájpur was subsequently transferred to Cattack. On the north, a perplexing series of transfers and re-transfers of fiscal divisions has gone on between Balasor and Midnapur, particularly in 1837, 1858, 1865,

and 1868. Some have been transferred backwards and forwards as many as three times; and the Collector reports that 'constant shifting of jurisdiction has made these fiscal divisions very lawless and difficult to manage.'

GENERAL DESCRIPTION OF DISTRICT.—Balasor District is simply a strip of alluvial land between the hills and the sea, varying from about nine to thirty-four miles in breadth. Generally speaking, the hill country rises from the western boundary line. The district naturally divides itself into three well-defined tracts: (1) the Salt Tract along the coast; (2) the Arable Tract, or rice country; and (3) the Submontane Tract, or jungle lands. The Salt Tract runs the whole way down the coast, and forms a desolate strip a few miles broad. Towards the beach it rises into sandy ridges, from fifty to eighty feet high, sloping inland, and covered with a vegetation of low scrub jungle, seldom or never rising above the height of a man. Sluggish brackish streams creep along between banks of fetid black mud. The sandhills on the verge of the ocean are carpeted with the fleshy leaves of creepers and the wild convolvulus which the antelope loves. Inland it spreads out into prairies of coarse long grass and scrub jungle, which harbour wild animals in great plenty; but throughout this vast region there is scarcely a hamlet, and only a patch of rice cultivation at long intervals. From any part of the Salt Tract one may see the boundary of the inner arable part of the district, fringed with long lines of trees, from which every morning the villagers drive their herds of cattle out into the saliferous plains to graze. The Salt Tract is purely alluvial, and appears to be of recent date. Towards the coast the soil has a distinctly saline taste. Solar salt-making has been minutely described in my chapter on the Chilká Lake. In Balasor artificial evaporation is preferred, and the process is as follows: At the beginning of December, the contractor selects his locality, about a quarter to half a mile from the sea, and engages a class of men called *chuliyás*, or heads of salt gangs. These men receive one shilling a hundredweight for whatever amount of salt they turn out. They, in their turn, engage working parties of *malangis*, who are paid at the rate of 3d. to 5d. a day. The ground is first marked out by a shallow trench, and the grasses and bushes are carefully dug up and removed. A deep ditch is next dug from the sea, by means of which, twice a month, the spring tides overflow the salt field, and fill a number of reservoirs, four feet in diameter, and two or three feet deep. A mound of earth is then piled up to the height of two feet, and from three to four in diameter. It is next hollowed out into the shape of a bowl, plastered inside with clay, and furnished with a hole at the bottom, covered with a layer of grass six inches thick. The salt-

makers fill this bowl with saline earth, scraped off the adjacent land, and pour the sea-water on it from the top. By the end of six hours the water has drained through into a pit at the bottom, and runs down a thatched trench towards a reservoir, whence it is transferred to the evaporators. The latter consist of a hundred and sixty to two hundred little unglazed earthenware pots, fastened together by stiff tenacious mud, and holding two quarts each. The neighbouring plains supply grasses for the fuel. Six hours' boiling completes the process. The brine, which consisted, in the first place, of sea-water charged to its maximum power of solution by percolating through the bowls of salt earth, subsides into dirty crystals at the bottom of the pots. It is then ladled out in spoons made of half cocoa nuts. The whole process is as rude and careless as can well be imagined. The total cost of manufacture is estimated at 2s. 1d. a hundredweight, which, with the Government duty of 8s. 8d., makes a total cost of 10s. 9d. From chapter II. of my Orissa it will be found that the cost of salt-making by solar evaporation in Purf District, amounts to only 8d. a hundredweight.

THE ARABLE TRACT lies beyond the salt lands, and embraces the chief part of the district. It is a long dead level of rice fields, with a soil lighter in colour than that of Bengal or Behar; much more friable, and apt to split up into small cubes with a rectangular cleavage. Where water has lain long on fallow lands, the surface throws up curious little mounds, which are speedily covered with grass, and look like a number of men's heads protruding from the earth. Another feature of the Arable Tract is the *Páts*, literally the Cups, or depressed lands near the river banks. They were probably marshes that have partially silted up by the yearly overflow of the streams. These Cup-lands bear the finest crops. As a whole, the Arable Tract is a treeless region, except around the villages, which are encircled by fine mango, pipal, banyan, and tamarind trees, and intersected with green shady lanes of bamboo. A few palmyras, date palms, and screw pines (a sort of aloe whose leaves are armed with formidable triple rows of hook-shaped thorns) dot the expanse, or run in straight lines between the fields.

THE SUBMONTANE TRACT is an undulating country with a red soil, much broken up into ravines along the foot of the hills. Masses of laterite, buried in hard ferruginous clay, crop up as rocks or slabs. At Kopári, in Kila Ambohatá, about two square miles are almost paved with such slabs, dark red in colour, perfectly flat, and polished like plates of iron. A thousand mountain torrents have scooped out for themselves picturesque ravines clothed with an ever fresh verdure of prickly thorns, stunted gnarled shrubs, and here and there a noble

forest tree. Large tracts are covered with Sál jungle, which nowhere, however, attains to any great height.

WATER SUPPLY.—Balasor District is watered by six distinct river systems. (1.) The Subanrekhá, properly written Suvarna-rekhá, the Streak of Gold, enters the district in the Fiscal Division of Fathábád, and forms the boundary between Balasor and Midnapur, flowing in a tortuous southern course, with gigantic bends from east to west, till it reaches the sea in lat. $21^{\circ} 35'$ north, and long. $87^{\circ} 23'$ east. It is navigable by country craft as high as Kálikápur, about sixteen miles from the mouth, to which point the tide also runs. Rice boats of two tons burden can make their way up to the end of the Balasor District, and during the rains, far into Morbhanj. The river banks are, as in most delta rivers, high and steep on the outer curve of the bends, against which the water cuts, and flat and sandy on the inner. The stream nowhere expands into lakes. It has no tributaries within the district, and although studded by islands, as old as our oldest maps, has long ceased any operations of diluvion or alluvion on a large scale. The country around the banks is cultivated to within a few miles of the sea, where it becomes jungly. The Subanrekhá is nowhere fordable within Balasor District during the rainy months. (2.) The intermediate country, on the south of the Subanrekhá and the north of the Burábalang, forms a great line of drainage down from Morbhanj. It is watered by a number of small streams, of which the principal are the Jamirá, Báns, and Bhairingl. They unite, bifurcate, and re-unite in the wildest confusion, and at length enter the sea, as the Páncpára, in lat. $21^{\circ} 31'$ north, and long. $87^{\circ} 10'$ east. The tide runs up only ten miles, and although their interlacings constantly spread out into shallow swamps, yet one of them, the Báns, is deep enough at certain parts of its course for boats of four tons burden all the year round. (3.) South of this network of rivers is the Burábalang, literally the Old Twister. It rises among the Morbhanj Hills in lat. $21^{\circ} 24'$, and long. $86^{\circ} 36'$, and after receiving two small tributaries, the Gangáhar and Suná, wriggles into the sea in lat. $21^{\circ} 28'$, and long. $87^{\circ} 5'$. The tide runs up twenty-three miles. In the upper parts of its course the banks are sandy, steep, and cultivated; in the lower part they are of firm mud, covered to high-water mark with black slime, and surrounded by jungle or open grassy plains. Brigs, sloops, and sea-going steamers can navigate as far as the town of Balasor, about sixteen miles up its twisting course, but the sand-bar across the mouth of the river renders the entrance difficult. (4.) On the south of the Burábalang, a network of rivers known as the Jámká, find their way down the line of drainage from the Nílgiiri Hills, and enter the sea by many channels along the

coast of Dasmalang Fiscal Division. There is little or no navigation, as their mouths are very difficult to enter, nor are there any towns with a maritime traffic on their banks. (5.) The Kánsbáns, originally Kainsbáns, so called from the jungle of kains-grass and bamboos amid which it rises in Kila Ambohatá. It runs in a south-easterly direction, at first almost parallel with the Nílgeri Hills, and receives from them a number of nameless drainage streams on its northern bank. At Bír-pará it bifurcates, the northern branch retaining its original name, and entering the sea in lat. $21^{\circ} 12' 25''$, long. $86^{\circ} 52' 10''$. The southern branch receives the name of Gammáf, and falls into the sea six miles south of the Kánsbáns. This river is navigable only a few miles up, but it is celebrated for its sudden floods and the vast extent of country which it submerges in the rainy season. (6.) The Baitaraní, identified by the Bráhmans as the Styx of Hindu mythology, but possibly a corruption of Avitaraní, meaning difficult to cross, enters the district at the village Bahpur, and flows for about forty-five miles in a south-westerly direction till it joins the Dhámrá, five miles from its mouth. The united stream enters the sea, under the name of the Dhámrá, in lat. $20^{\circ} 47'$, long. 87° . The Dhámrá is a fine navigable stream, but like all the Orissa rivers, it is rendered perilous by a bar across its mouth. The Baitaraní forms the boundary between Balasor and Cattack. It is nowhere fordable during the rains, but everywhere fordable in the dry weather above Olok, about fifteen miles from its mouth. At Olok it ceases to be navigable, and the tide does not run above this place. It receives two fine tributaries on its Balasor side, the Sálandí and the Mataf. The former, properly called Sálnadí, takes its name from the Sál forests which it traverses. It rises on the southern slope of the Meghásaní mountain, literally the Seat of Clouds, in Morbhanj, and throughout its upper course is a black-water river with high banks and a bottom of muddy sand. In January it scarcely anywhere exceeds three feet deep. Luxuriant vegetation clothes its banks, which at times rise almost to the dignity of cliffs, and for miles the river runs through one continuous grove of mangoes, palms, and bamboos. It forms no islands or lakes, and has no tide, but it is navigable for country boats as high as six miles from its junction with the Baitaraní. Its lower course bifurcates into a network of streams which are interlaced with those of the Mataf. The Mataf brings down the drainage of the country between the Kánsbáns and the Sálandí, and after a tortuous course over a muddy bed, and between densely wooded banks, enters the Dhámrá River near its mouth. A canal, the only old one in Balasor District, unites the Mataf with the Gammáf; but an embankment has been built right across its mouth, and it has ceased to be used for

traffic. The average loss of life by drowning, reported by the police during the last five years, amounts to seventy per annum, which is, however, much below the real figure.

USES TO WHICH THE WATER IS PUT.—Notwithstanding the abundant water supply, there is no great river traffic in Balasor. What little sea-going trade exists is carried on by natives of the Madras coast, and Musalmáns from Calcutta and Eastern Bengal. Non-navigable rivers are nowhere used as a motive power, nor are they anywhere applied to irrigation, except on a very small scale along the Sálandí for patches of tobacco, and vegetable gardens near villages. Nor are there any fishing towns or villages properly so called. The Kaibarta and Gokhá castes fish in rivers, tanks, or ditches all over the district. No statistics exist on this head; but a well-informed native official estimates the value of the fish at £1500 a year. This is probably below the mark; but only the lowest classes engage in the pursuit. The bed of the Sálandí is utilized to a small extent for reed plantations; and the long-stemmed rice, called *rábandí*, is successfully grown in seven or eight feet of water in the hollow cup-lands (*páts*).

EMBANKMENTS cover the district in every direction. The largest series of them extends for about fifteen miles through the Fiscal Division of Ankurá, with a view to keeping out the sea. It was built right across the canal formerly mentioned, to prevent the tides from forcing their way into that channel, as they did great damage to the crops on either side. Although valuable as a defence against the ocean, this embankment intercepts the natural drainage from the land; and when the Gammaí and the Kánsbáns come down in flood, it has to be pierced in order to let the water through. In general, the embankments are intended to protect the country from the rivers during the rains. With what success will be found in my chapter on the calamities of Orissa, and in a subsequent part of this Statistical Account.

NATURAL PRODUCTS.—Laterite is used for building, and the honey-combed variety was largely employed in former times for temples. All ancient statues and idols are carved in chlorite, obtained from the hills on the western boundary of the district. There are no forests nor jungle products in Balasor, nor any wide pasture lands.

WILD ANIMALS.—The wild elephant, very rare; tiger, rare; wild buffalo, common; black bear, chiefly in north of the district; leopard, hyena, elk, blue cow (*níl-gái*), spotted-deer, antelope, hog-deer, mouse-deer, wild dog, wild cat, civet cat, and hare. Among birds, the peacock, jungle-fowl, black partridge, red partridge, quails of two sorts, snipe, golden plover, wild ducks, and wild geese. Among fresh-water fish, the following twenty-three varieties are worthy of notice: Mauráí,

karandí, gorí, chenga, saul, mágorá, singí, bálíá, chingrí, khasmerá, rohí, bhakurá, phelí, merkálí, kantíyá, kau, mirgá, bámtorí, bártorí, kharátorí, khayará, kálbánsí, and pahará. Sea-water fish swarm up the rivers, and form an important article of food. The following nineteen varieties of salt-water fish are caught in the estuaries of Balasor District: Ilsá (hilsa), rupápátíá, páparí, sílá, masálá, aliárá, koárá, gojí-karmá, tálsí, bhektí, tayárá, phirkí, bahál, gochíyá, sásútankháí, láhámá, makundí, gangotará, and rándolá.

POPULATION.—A rough census was taken in 1840 for the Survey Officers. It gave a population of 651,003. In 1865 it was returned at 732,279. After the famine of 1866, the surviving population was estimated at 485,113, assuming at the rate of 5.06 persons per house. No subsequent effort has been made at a general census. The town population will be given in a later page.

IMMIGRANT RACES.—The population practically consists of the same races as in Purí District, except that the Bengali element is stronger, the Musalmán more respectable, and the Telingá much less numerous. There are only two Telingá landholders in the district,—petty proprietors, whose aggregate Government rental does not exceed £80 a year, but who are rich in merchandise. On the other hand, by far the larger proprietors are wealthy Bengali gentlemen, whose families have for some time been settled in Orissa, but who live in or frequently visit Calcutta. The Musalmáns hold ninety-three small estates, and pay a total land revenue of £1584 a year. In short, Balasor District approaches near to Bengal, both in its geographical position and its population. The descendants of the Marhattás are few in number, and scarcely distinguishable from the native population, except by their race name of Bargís.

EMIGRATION.—In 1865, 325 labourers were registered as emigrants from Balasor to Assam. In 1869 there were only 62. Great numbers of the Gaur caste, corresponding to the Hindi gwálá or cow-herd, go to Calcutta as palankeen-bearers, punkah-pullers, and domestic servants. But they never take their families with them, and always return to spend their savings at home.

CASTES.—The Bráhmans hold an unusually important position in Balasor. Their first settlement is conjectured with some reason to have been about 500 A.D., when, according to the legend, a pious monarch of Orissa imported 10,000 Bráhmans from Kanouj. It is the old story which is everywhere current throughout Lower Bengal. The ancient Orissa Bráhmans are said to have lost their caste, and the new colony from the north settled in Jájpur, literally the City of Sacrifice, then the capital of the province, and still an important town, recently transferred

to Çattack District. They are subdivided into two great branches (*srenis*)—the Purí, or southern branch, and the Jájpur, or northern branch. The origin of the southern branch, as stated in the Statistical Account of Purí District, is ascribed to the 450 Bráhmán colonies which Rájá Anang Bhím Deo founded in Purí between 1175 and 1202 A.D. From about that date the existence of the two distinct classes is an historical fact, but they are separated by no hard and fast geographical line, and are now found side by side all over Orissa. They both claim descent from the pure Vaidik Bráhmans, and are classified according to the particular Veda which they profess to study. Each class is divided into Septs (*gotras*); for a full list of which in ancient times, forty-nine in number, see Max Müller's History of Sanskrit Literature, pp. 380–385, ed. 1859. Each sept is subdivided into families distinguished by surnames (*upádhis*). The southern, or Purí branch, is divided into three classes, the Rig-veda, the Yajur-veda, and the Sáma-veda. Of the Rig-veda class, the most important sept is the Basishtha, which is subdivided into two families, the Sharangí and the Mahápátra. The Yajur-veda is divided into the Bharadwáj Sept, including the Sharangí, Misra, and Nanda families; the Atreya Sept with the great Rath family; the Haritasa Sept with the Mahápátra and Dás families; the Kauchhasa and Ghritakaisik Septs with the Dás family; the Mudgala Sept with the Satpathí family; the Baçasa Sept with the Satpathí, Dás, and Achárjya families; Kátyáyan Sept with the Misra and Sharingí families; and the Kapinjala Sept with the Dás family. The Sáma-veda class is divided into the Kásyapa Sept, including the Nanda family; the Dharagautama Sept with the Tripáthí family; the Gautama Sept with the Udgátá or Utá family; the Parásar Sept with the Dibedí or Dubal family; and the Kaundinya Sept with the Tripáthí or Tihárl family. The northern, or Jájpur branch of Bráhmans, is also divided into three classes,—the Rig-veda, Yajur-veda, and Atharva-veda. The Jájpur Rig-veda Bráhmans do not subdivide into well-marked septs. The Yajur-veda class is divided into the Kátyáyana Sept, including the Pandá family; the Sándilya and Krishnátreya Septs with the Pandá and Dás families; the Bhardwáj Sept with the Pandá family; the Barshagana and Kaphal Septs with the Misra family; and the Gautama Sept with the Kar family. Of the Atharva-veda class the only sept is the Angirasa, including the Upádhyaýa and Pandá families. The southern branch is the more esteemed, probably from its close connection with Jagannáth, although teaching is considered a more honourable vocation for a Bráhmán than service in the temple. They all profess to spend their lives in performing their strict caste duties, and do not engage in business, except as men of letters, as Government officials, and in the higher branches of land

management. Many of them, especially the heads of Sásans, or Bráhma villages, assume the title of Pánigráhi (handholder). Besides the Vaidik, or high Bráhmans, there is also a large class of Laukik, or worldly Bráhmans, who engage in business, and are less esteemed. They bear the sept names of Balrámgotrí, Mastáni, and Paniyári, and are as numerous as the sacerdotal class. They are simply peasants, and cultivate nearly the whole of the Múlgáon Fiscal Division, with a large part of many others. I spell the names according to the local orthography, and the subdivisions of the Bráhmans well illustrate my remarks on the Classifications of Castes in the Statistical Account of Purí.

The so-called Kshattriyas of Orissa have already been discussed in that Account. Practically, the Karans rank next to the Bráhmans. They correspond to the position of the Vaisya in the ancient system of castes, but as regards their occupation and habits they are simply the Orissa counterpart of the Káyasths, or writer caste, in Bengal. They do not, however, intermarry with the latter, nor eat with them, but they have, as a rule, no objection to drinking water offered by a Káyasth to them. Mr. Beames, the Collector of Balasor, has noticed a similar peculiarity in certain of the castes of Behar. The Bhuihár may eat with a Rájput only such food as is usually consumed on a journey or in a hurry. For example, parched rice or peas. Such customs seem to indicate that though the classes in question may not eat together when at leisure to attend to the rules of caste, yet, that owing to their close relationship, these rules may be relaxed on an emergency, as on a journey, or in war. Even the parched grain, however, should not be placed in a brass vessel, or in any of the dishes of regular life, but must be eaten out of the hand or on a leaf. The principal divisions of the Orissa Karans are the Krishnátreya, the Sankhyáyana, the Bharadwáj, and the Nágas. These families all bear the surnames of Dás or Máhánti; but those whose ancestors were the principal officers of the native Rájás, enjoy the title of Patnáik, or Chief Reader. The Rájá of the Tributary State of Athgarh is said to be the head of the Karans in Orissa.

The next caste in rank and importance is the Khandáit, properly spelt Khandáyat, literally the Swordsman, from the Uniyá, Khandá—a sword. Although a numerous and well-defined body, the Khandáits do not appear to be really a distinct caste. The ancient Rájás of Orissa kept up large armies, and partitioned the lands on strictly military tenures. These armies consisted of various castes and races, the upper ranks being officered by men of good Aryan descent, while the lower ones were recruited from the low castes alike of the hills and the

plains. On the establishment of a well-defined caste system, such troops took their caste from their occupation, and correspond to the military class in the fourfold division in Northern India. But with this difference, that in Northern India the military class consists of an ethnical entity, whereas in Orissa the Khandáits exhibit every variety of type, from the high Aryan of good social position to the semi-aboriginal mongrel taken from the dregs of the people. They have their septa (*gotras*) like the other castes, named after the ancient Rishis of Northern India, but these distinctions are modern, and they are really divided into Uriyás and Chásás. The former is the title of those who live in, or came from, districts where the population is not exclusively Uriyá, such as the hill country or the adjoining district of Midnapur. Chásá is the ordinary designation of the native Khandáits in Orissa, where it would be no distinction to call a man an Uriyá.

The lower classes may be arranged in thirty-nine divisions. Among them the following seventeen are accounted respectable and well-to-do in Balasor:—(1) Bhát, bards and genealogists; (2) Tántí, weavers; (3) Támboí, betel-nut sellers; (4) Guriyá, sugar sellers; (5) Chásá, peasants who also call themselves Khandáits; (6) Kamár, blacksmiths; (7) Baniyá, merchants; (8) Máli, gardeners; (9) Dagrá, runners; (10) Gwálá, or Gaur, originally cow-herds, now divided into two classes, the Chálishghariá, who do not carry pálkis, and rank slightly above other gwálás, and the Kándhiá, who are pálki-bearers; (11) Barjí, pán growers; (12) Bhandári, barbers; (13) Thatári, braziers; (14) Golá, peasants; (15) Ráju, peasants; (16) Darzí, tailors; and (17) Kápariyá, cloth sellers.

The following twelve rank much lower, but are not wholly beyond the pale of respectability:—(1) Rárhí, purchasers of grain; (2) Telí, oil sellers; (3) Kánchrá, bell-metal workers; (4) Suri, spirit distillers and shopkeepers; (5) Keut, fishermen; (6) Dhobí, washermen and wood-cutters; (7) Barháí, carpenters; (8) Sankhári, makers of shell bracelets; (9) Nahari, makers of lac bracelets; (10) Kumbhár, potters; (11) Gokhá, fishermen; and (12) Khadál, greengrocers.

The following ten are considered utterly impure:—(1) Kandrá, employed in menial avocations; (2) Pán, ditto; (3) Bhuí, palankeen-bearers, coolies, etc.; (4) Dom, matmakers, thieves, etc.; (5) Ghusariyá, swine-herds; (6) Kelá, bird-catchers, beggars, thieves, etc.; (7) Chamár. This caste is divided into two classes, the Siyál or Sial, who make fans from the leaves of the palmyra tree, and sell the fermented date-juice, and the Mochí, who work in leather, and are of a lower grade in the caste than the Sial. (8) Tulábhiná, cotton carders; (9) Chhukár, the men being panders, and the women prostitutes; and (10) Mihtar, sweepers.

It is curious to note that the astrologers (Náyaks), although they wear the Bráhmical thread, are held in great contempt, and reckoned so impure, that when they enter a house, the mats are taken up before they may sit down.

RELIGIOUS DIVISION OF THE PEOPLE.—About eighty-five per cent. of the population are Hindus. There are no Jains or Buddhists. As already stated, the Musalmáns are a more important body in Balasor than in the southern districts of Orissa; but the Collector reports Islám to be on the decline. The Pániyábandhá, one of the Hindu low castes, have been converted to Muhammadanism; but the creed now makes no converts, and has hard work to hold its own, nor is it actively fanatical as in Eastern Bengal. There are no Wahábís or Farázís. The original Musalmán invaders have left few traces, and the Orissa Muhammadan has little in his personal appearance to distinguish him from the Hindu, except his beard. The Bráhma Samáj established a congregation in Balasor Town on the 9th October 1869. They are very zealous; and although consisting at first of only four members, had increased to nineteen in six months. Only seven, however, are natives of the province. The rest are Bengalis in Government service; and the strong attachment of the Hindus to their ancient rites, here as elsewhere throughout Orissa, affords small prospect of conversions on a large scale. There are two settlements of Christian missionaries belonging to the Free Will Baptists from Dover, New Hampshire, U.S. The principal one is at Balasor, and counts 154 native converts, whose social status seems to be better than that of native Christians in other districts. Two or three hold respectable positions in the Government service, and the main body of them are industrious mechanics or peasants. They have an important out-station at Sántipur, near Jaleswar, with eighty-five native Christians engaged in agriculture; and an interesting Christian village at Mitrapur, in the Nilgiri Tributary State, consisting of thirty-one persons. They are all small husbandmen, but well-to-do. There are also two promising schools of orphan children, rescued from the famine of 1866, and containing 112 Christian children. The Rev. Father Sapart presides over the Roman Catholic mission in Balasor, of which a brief account will be found in my general Account of the Province. A small house of nuns devotedly aids him in his good work.

DISTRIBUTION OF THE PEOPLE INTO TOWN AND COUNTRY.—For the history of the town of Balasor see my chapter on Orissa under English Rule. It has declined since the Government abandoned the monopoly of the salt trade; and rows of dismal black salt-sloops lie rotting in little channels leading out of the river, which

were once docks. There are probably about 200 of these melancholy memorials of departed prosperity. The town is situated in lat. $21^{\circ} 28' 45''$ N., and long. $86^{\circ} 59' 33''$ E., on the Burábalang, about eight miles from the coast, as the crow flies, and sixteen by the river. On the bar at the mouth there are twelve to fifteen feet of water at spring-tides, but not more than two or three feet at low-water in the dry season. Large ships have to anchor outside in the open roadstead. The Burábalang River has been described in the section of this Statistical Account which deals with the Water Supply of the District. Horsburgh gives the following directions for making the anchorage :—' *Balasar River*.—The entrance is in lat. $21^{\circ} 28'$ N., and a little to the eastward of the meridian of Point Palmyras. From the Point, all the low coast is planted with trees, until within two or three miles of the entrance of the river, which on both sides is destitute of them, having a sandy barren aspect; by this it may be known, particularly by the small sand-hills on the N.E. side. When the Níl-giri Hills, situated inland to the westward, are seen, they answer as a good mark for a ship having occasion to proceed to the anchorage. With the extremity of the southernmost, or Long Hill, W. $\frac{1}{2}$ S., the peak of the middle one appearing highest and separated from the others W.N.W., or W. by N. $\frac{3}{4}$ N.—the smallest to the N.E. bearing N.W. by N.—a ship will have a good berth in five fathoms mud, with the entrance of the river about N. by W., off shore five or six miles. The banks here are very flat, the depths being two and a half and three fathoms about four miles from the land. From the anchorage in five fathoms the peak of the Níl-giri Hills bears W.N.W., distant nineteen miles; and from Balrámgari, at the river's entrance, it bears W. $\frac{1}{2}$ N., distant fourteen miles. A boat proceeding for Balasar River should carry a compass, and in crossing the bar, ought to bring the flagstaff at Balrámgari, or the Bankshall House, N.N.W.; keeping it on this bearing will lead her to the outer beacons, which are poles placed on each side the entrance of the bar. From hence the channel lies directly towards the S.W. point of the opening of the river, where the passage is marked out by beacons or poles on each side, placed at convenient distances on the extremities of the shoals. At full and change of moon it is high-water about ten o'clock, and the tide rises from twelve to fifteen feet in common springs, but there is not more than two or three feet on the bar at low-water in the dry season; it is, therefore, proper not to attempt to pass over until the last quarter flood, for the sea breaks high upon it during the first quarter flood, particularly during the S.W. monsoon.' The rules and limits of Balasar Port will be found in Government Notification, No. 621, dated 30th March 1858, by

which it was declared subject to Act 'xxii. of 1855. For the trade statistics of the Ports of Balasor District, see the concluding page of this Account.

THE TOWNS in Balasor District are mere collections of hamlets, sometimes clustering into crowded streets and bazaars, but in many places separated by clumps of trees and rice fields. Village life goes on in the heart of Balasor city, just as it does in the remotest homestead. The cows are driven forth in the morning, and come back at night. In harvest time the bullocks tread out the corn, and eager families busy themselves in piling up rice-stacks within sight of the market-place. Nearly every shopkeeper has his little patch of land, to which he clings with all the fondness of a Hindu peasant. The people exhibit no tendency to collect into cities. On the contrary, the towns of Balasor and Soro have certainly declined; and several other towns, such as Bhadrakh and Jaleswar, seem to have been larger in former times than they are now. Only four deserve separate mention, namely—(1) Balasor, properly spelt Báleswara, with a population of 6883 males and 7104 females, total 13,987; (2) Bhadrakh, 3455 males, 4346 females, total 7801, with four persons to each house; (3) Jaleswar, 1712 males, 1745 females, total 3457; and (4) Soro, 1363 males, 1308 females, total 2671.

MATERIAL CONDITION OF THE PEOPLE.—Almost the whole population lives by agriculture. A well-to-do husbandman has one or two pairs of bullocks and four or five milch cows. His entire holding is generally under rice, with the exception of a small patch around his house, in which he raises a small crop of cucumbers, gourds, and plantains. The peasantry still bear the marks of the famine of 1866, but the country is fast recovering itself, and the rich harvest of 1869-70 has done much to restore the district to its former state. The houses of the cultivators consist of four mud walls enclosing a court, and used as the gables of little rooms which line the court inside. A Balasor husbandman has usually at least five of these little apartments, one for his cows, another for his cook-shed, a third for storing his paddy, and two rooms for sleeping and general use. There is generally a verandah outside the wall on both sides of the principal door, for receiving strangers, and as places where the men of the family talk and lounge. Sometimes, but rarely, the cow-shed is built outside the walls. The mud enclosure stands in the middle of a bright green patch of vegetables, and the whole is shut in with a good fence of prickly shrubs. The summer dress of a Balasor peasant is a cotton girdle (*dhoti*) falling over the thighs, and tucked up when at work, with a scarf (*gámchá*) thrown over his shoulder. Occasionally a turban envelopes his head.

A well-to-do shopkeeper has an ample cotton shawl (*chádár*) instead of the scarf, and sometimes wears it twisted round his head and ears. He has also a pair of coarse shoes with long turned-up toes, no heels, and elaborately, though roughly, embroidered with coloured thread. The Uriyá shoe is quite unlike anything in Bengal or Behar. In winter the peasant wraps his head and the upper part of his body in a thick double sheet (*dohárá*), while the shopkeeper indulges in a broad cloth scarf (*luz*) and a cotton shirt. A peasant's furniture consists of a few brass pots, platters, and cups, one or two very rude bedsteads, a few mats, and often some instruments of defence, such as a bow and arrows, a sword, or a spear. The better class have generally one or two palm-leaf books on Hindu Mythology in their houses, or a legend out of the Mahábhárata or Rámáyana. Rice and milk form the peasant's food. Even dried fish is a luxury. The year's supply of it is stored up in reed baskets, and sparingly doled out. Vegetables are also luxuries not always within reach. The peasants set aside their boiled rice till it turns slightly sour, and esteem this unpalatable mess a favourite article of diet. Speaking generally, the shopkeepers are rather better off than husbandmen who hold the same position in the social scale.

CROPS.—Rice is the staple crop of Balasor, as of all other districts in Orissa. It is divided into five great *genera*, and forty-nine principal varieties. (1) The Dálua rice, sown on low lands in December or January, and reaped in March or April; grown chiefly in the Fiscal Divisions of Bayáng and Káyámá. It is a coarse, red, unwholesome grain. Its principal varieties are the Dálua, Lakshmináráyanpriyá, Bámanbáha, Antarakhá, and Sarishphul. (2) Sáthlýá rice, sown on high lands in May or June, and reaped in July or August; common throughout the district. Its principal varieties are, Dudhsará, a fine white, and Kalásuri, a coarse red grain. (3) Niyáli rice, sown on high lands in May or June, and reaped in August or September; common throughout the district. It is a coarse but wholesome grain. Its principal varieties are Náradá, Kakháruyá, Champá, Parbatlýá, Gobrá, and Pándabnáli. (4) Kandhá rice, sown on middling lands, throughout the whole district, in May or June, and reaped in September or October. A white, wholesome grain. Principal varieties, Máru, Pátmahádei, Geti, Motrá, Chotrá, Kártiknakhí, Asviní, Padágaruyá, and Syámali. (5) Guru rice, sown on low lands throughout the whole district, in May or June, and reaped in December or January. Principal varieties, Básubebbhog, Charháinakhí, Lakshmskajjal, Gangábáli, Gangájal, Tulsikeri (*fine*), Dudhsará, Sarsinhá, Pasákáti, Nimái (white sweet-smelling), Palásgundi, Kentákarpur, Kanakchor, Hundá, Methibás, Pipiribás (*fine*)

sweet-smelling), Dhusará, Kayá, Kukum, Rangí, Kanásáru, Sankarsáli, Champáisali, Kalámantá, Básgajá, Rábaná (a long-stemmed variety, growing in eight feet of water, with a coarse grain), and Dembur-pakhiyá (a very coarse grain). Among other crops, (1), wheat, with its varieties Dadhiyá Goham and ordinary Goham, is sown on high land in September or October, and reaped in March. (2) Mug (*Phaseolus Mungo*), with its two varieties, Kalá Mug and Jháí Mug, sown on high and middling high land in August or September, and reaped in December. (3) Harar, red and black, sown in June, and reaped in December. (4) Barguri, sown in August or September, and reaped in December. (5) Birhí, with its two varieties, Noyá and Dáuliyá, sown in June, and reaped in December. (6) Sarishá mustard (oil-seed), with its two varieties, Rái and common Sarishá, sown in October, and reaped in December. (7) Hemp, sown in May or June, and reaped in August or September. (8) Tobacco, sown in October, and cut in March. (9) Cotton, with its two varieties, Mari Kápás and Haldi Kápás, sown in June, and gathered in April; and (10) Sugar-cane, with its three varieties, Kantári, Kadilgorá, and Báusiyá, sown in May, and cut for conversion into molasses in December. The cultivation of these crops is sparingly carried on throughout the district. Betel-leaf is grown in the Fiscal Divisions of Senáot, Pánchmalang, Soso, Sárathá, and Bhográi.

Of late years there seems to have been an improvement in rice cultivation, the finer varieties being more extensively grown than formerly. Every peasant now likes to have at least one field of the finer sort, although the main part of his holding is devoted to the more easily cultivated coarser varieties. No superior cereals have been introduced, however, nor has any marked extension taken place in the quantity of land devoted to rice. It is the one great crop of the district, and the Orissa husbandman has twenty-six distinct names for it in its different stages. As seed, it is *bihán*; when the seed has sprouted, it is *gajá*; the first young shoots are *talá*; the green plant, *buáli*; the mature plant, *páchládhán*; in sheaves, *dhánpurá*; unhusked rice, *dhán*; husked rice, *chául*; rice parched with the husk on, *khai*; rice husks, *tus*; fragments of husks and outer shell of rice given to cattle, *kundá*; rice steeped with the husk on, then slightly boiled, husked, and parched with salt, *muri*; rice boiled in the husk, and husked when warm, *churá*; a preparation similar to *muri*, *hurumo*; another kind of the same, *mangrájí*; a cake made from rice flour, *pithá*; plain boiled rice, *bhát*; rice boiled with split-peas and spices, *khen-churf*; rice cooked with meat (*piláu*), *pitan*; *khai* sweetened with sugar, *ukhurá*; parched rice when ground, *chhátu*; rice boiled with milk and sugar, *kshírf*; thin rice gruel, *jáu*; rice cooked and set aside till it

becomes sour, pakhál ; the water of the above without the rice, toráni ; rice spirits, poshti.

OUT-TURN OF CROPS.—Good land at six shillings an acre yields from twelve to fifteen hundredweight of coarse paddy, and from eleven to thirteen and a half of fine. Land paying three shillings an acre yields from six and a half to nine hundredweight. The price of the crop depends on many local circumstances ; but a fair average value would be twelve shillings for the crop of an acre of land paying three shillings an acre, and a pound for the crop of an acre paying six shillings. Lands lying along the banks of rivers yield a second crop of pulses or oil-seeds, such as Birhi, Mug, Jará, and Sarishá, at about three hundredweight per acre, worth from twelve to sixteen shillings.

CONDITION OF THE PEASANTRY.—Balasor is a district of small estates, and the proverbial harshness of petty landlords is intensified by the perplexing way in which their lands are split up. An estate generally consists of a village in one Fiscal Division, perhaps two in another, and four or five in as many more, all distant from each other. But worse than these ordinary estates are the 'separate collection lands' (*tahsil aldhood*). Such an estate, although forming a fiscal entity, and bearing but one number in the district rent-roll, often consists of sixty or seventy small parcels of land, scattered over the whole district, with two or three acres in one village, and one or two acres in another thirty miles off. The confusion is increased by the frequency of a tenure known as Wages, or Pension-land (*múdjib*), in which the granter bestows a definite portion of land in every village of the estate. Thus, if he wishes to bestow one-sixteenth of his property, instead of giving land to that amount in one place, he makes over one-sixteenth of the land of every one of his villages, so that, as in the case of the Fiscal Division of Soso, almost every hamlet has one proprietor who possesses it as a whole, and another who possesses part of it as Pension-land. In addition to these elements of confusion, there are more than 33,000 rent-free estates, which average less than four acres apiece. Such grants, even although they may not exceed ten acres in extent, will often be in ten different plots in as many different villages. The proprietors have also a passion for having their land parcelled out by the process of law known as *batwára*. In one case, under Regulation xiv. of 1819, actually pending while I write these lines, an estate of 8958 acres, scattered through forty-eight villages, has nine registered proprietors, each of whom demands the most minute subdivision of the land. It is impossible to put their claims into any English nomenclature, but the following represents three of them as they are filed in the Court:—The claim of number

one is two *ánás*, ten *gandás*, three *kauris*, fifteen *biswás*, two *gandás*, one *kauri*; that of number five is one *áná*, two *gandás*, three *kauris*, one *kránti*, nine *biswás*, fifteen *gandás*; and that of number seven, one *áná*, fifteen *gandás*, two *kauris*, one *kránti*, fourteen *biswás*, six *gandá*. This is merely a fair average case. Such a state of things gives rise to endless boundary disputes. The landholder is necessarily at a distance from the greater part of his scattered land, and takes but little interest in the husbandmen. Instead of having a compact tenantry living together, who could be dealt with in a corporate spirit, he has two or three tenants scattered over forty or fifty distant villages, with whom his only connection is the periodical demand for rent. Each proprietor is eager to get every scrap of his land under tillage; nor can he afford, like the territorial magnates of Bengal, to leave large tracts for pasturage,—a parsimony that makes itself visible in the miserable condition of the cattle. His poverty further compels him to rack-rent all tenants not protected by a right of occupancy. A hungry landlord cannot afford to be generous. The husbandmen on their side have to be content with small holdings. In order to get a good-sized farm, they would have to hold under two or three proprietors, and would thus be exposed to the accumulated tyranny of many masters. If they determined to obtain a good-sized holding under one landlord, they would have to take fields in widely distant villages, and would thus lose time in going to and fro. Large farms are, therefore, unknown. The Collector reports that there are not more than one hundred holdings of from twenty to a hundred acres in the District of Balasor, with its 656,000 acres of cultivable land. Even the few farms that exist of these dimensions are generally held by families of brothers, who cultivate the land in common. From ten to twenty acres is a good-sized holding; and twenty-five per cent. of the farms in the District are of this size. About sixty per cent. are below ten acres. The Collector estimates the average size of a holding at eight acres. The cattle are so poor that one pair of oxen cannot possibly work more than six acres. Fifteen acres make a peasant substantially as well off as a respectable shopkeeper. His dress would be coarser, but he would eat more. As regards actual comforts, he would be much better off than a well-to-do man on a salary of sixteen shillings a month. But, unfortunately, the husbandman is almost always in debt. The landlord, or the village usurer, swoops down on him at harvest time; and so much of his rice goes in satisfying their claims, providing clothes for his family, contributing to the priests, and giving a feast to his friends, that he can seldom keep enough of his crop to live on to the next harvest. About the month of June he begins to borrow again,

and the amount accumulates with compound interest till the December harvest. The landholders are the chief rice lenders. They are not so oppressive as the village usurers of Bengal. Money loans are rare; and the long-standing hereditary accounts, which are the curse of the peasantry in other parts of India, are the exception in Balasor. The village usurer is almost unknown in Orissa.

TENANT RIGHTS.—The Balasor husbandmen are divided into two classes, as in the other districts of Orissa,—the *Thání* and the *Páhlí*. The *Thání* cultivators have a right of occupancy. The Collector estimates their number at 30,000; of whom one-half hold at rents not liable to enhancement at all, and the remainder at rents which can only be enhanced by a decree of the Court. He reckons the *Páhlí* cultivators or tenants at 50,000, or five-eighths of the entire peasantry. The numerous holders of rent-free patches cultivate with their hands; but generally speaking, few proprietors of revenue paying estates do so. The distinction between landlord and tenant is well marked in Balasor. As the *Thání* husbandmen hold under the Government Settlement Papers, Act x. of 1859 has but little operation in Balasor; only ninety cultivators having established rights of occupancy under that law. These cases have generally occurred from the landowner taking advantage of the cultivator's eagerness to extend his holding, and getting him to give up his old lease for a new one, conveying a larger quantity of land. The proprietor then sues for an enhancement of the entire rent, on the ground that the holding commences from the date of the new document. But the Courts, in such cases, have confirmed the husbandman in his right of occupancy with regard to his original holding, and allowed the enhancement only in the recent addition to it.

Eighteen shillings a month is a comfortable income for a peasant family of five persons, allowing 2s. for clothing; 14s. for food, which would provide two and three-quarter hundredweights of rice, with a small quantity of oil, fish, and vegetables; 1s. for the family barber, blacksmith, washerman, and priest, who are paid in kind at harvest.

PRICES AND WAGES (1870).—Both buffaloes and oxen are used in agriculture. Sheep and goats are so few in number that the Collector believes them not to be indigenous, and thinks they have grown smaller since they were introduced. An average cow costs 24s.; a pair of oxen, from 50s. to 70s.; a pair of buffaloes, £3; a score of sheep, when procurable, £4; a score of kids, six months old, 30s.; a score of full-grown pigs, £5. The price of the latter animal, however, greatly varies. The wages of day-labourers are now from 2½d. to 3d. a day; in 1850 they were 1½d. Carpenters used then to earn 3d. a day;

they now get $5\frac{1}{4}$ d. Smiths and bricklayers were satisfied with from $3\frac{3}{4}$ d. to $4\frac{1}{2}$ d. a day in 1850; they now earn 6d. The cost of the necessities of life has increased in the same ratio. The price of the best unhusked rice, such as the upper classes use, was one hundredweight and three-quarters for 2s. in 1850, one and a half hundredweight in 1860, and three-quarters of a hundredweight in 1870. The finest cleaned rice was one hundred pounds for 2s. in 1850, eighty pounds in 1860, and forty pounds in 1870. But the great increase of price shown in the higher qualities is hardly a test of the general cost of living. Common rice, such as day-labourers use, is reported at one hundred and twenty pounds for 2s. in 1850, one hundred pounds in 1860, and seventy pounds in 1870. Wheat is reported at thirty-three pounds for 2s. in 1850, twenty-nine in 1860, and eighteen in 1870. Sugar-cane sold at 256 pieces for 2s. in 1850, 192 in 1860, and 128 in 1870. Common distilled liquor sold at 8d. the imperial quart in 1850 and 1860; it now sells at 1s. 4d. The local divisions of time are sixty billtás or half-seconds = one lítá, or half a minute; sixty lítá = one danda or half an hour; two danda = one gharí; three gharí = one pahar or watch of three hours; eight pahar, or sixty-four danda = one ahorátra, or from sunrise of one day to sunrise of the next. Seven din (days) = one saptáha (week); two saptáha, or fifteen days = one paksha; two paksha = one más (month of thirty days); twelve más = one batsar (year); twelve batsar = one yug. Unhusked paddy is measured by the gaun (bushel), which is said to contain twenty pounds, but seldom contains more than fourteen. It is in fact a most variable measure, changing in almost every Fiscal Division, and sometimes in different villages of the same division. The gaun consists of twenty pautís. The outlying parts of the District have local measures of their own, unknown in the town of Balasor. Distance is measured as follows,—Twenty gandás = one chhaták; four chhaták = one páo; four páo = one kos of 12,000 feet, or about two and a quarter miles; four kos = one yojan, or nine miles.

A small husbandman with five acres has a plough, mattock, sickle, harrow, pickaxe, rake, rope, stake, pack-saddle, rope-net, and a pounder for husking rice. The total cost of these implements, together with a pair of bullocks, amounts to about £4.

DAY-LABOURERS were formerly a numerous class in Balasor, but they suffered severely in the famine of 1866, and are now few in number. They are called Múliyás, and find employment in tilling the land of the larger proprietors, on wages of nine pounds of rice per diem. They do not supply the seed or implements, but only their manual labour.

WASTE LAND.—Before the famine of 1866 there was scarcely an

acre of spare land in the district. Since then many fields have fallen out of tillage for want of cultivators. The Salt Tract and the hilly ravines always remain waste ; but in the normal condition of the district, very little land that could be tilled at a profit is left unoccupied. The herds of small hungry landholders cannot afford to leave even a field in pasture for the cattle. There are, therefore, no jungle-reclaiming leases, nor other tenures favourable to the peasant. When Government gave up the manufacture of salt, and the salt lands returned to the proprietors, some of them tried to induce husbandmen to settle on them at easy rates. But this plan did not produce any important results ; and when the famine came it was relinquished. Intermediate holders between the proprietor and the cultivator, such as *patnidárs* or *thákdárs*, are almost unknown. The landholder settles his estate directly with the resident (*tháni*) and migratory (*páhi*) cultivators. Most of the former had their rents fixed by the settlement officers, and the proprietor has no power to raise them. But a body of new resident tenants has sprung up, consisting of husbandmen who have come in since the settlement, and hold under engagements with the landholder on such terms as they can obtain. The *páhi*, or so-called migratory husbandmen, cultivate from year to year, and get land at the best rates they can.

RENTS vary according to the liability of the land to devastating floods. I append the rates for the best sorts of two-crop land, and of winter rice land in each of the Fiscal Divisions. But the following general description will be found perhaps more useful, as giving a practical view of the whole subject. The lowest sort of soil is called *jal*, or water land. It pays from 9s. to 4s. an acre, and in very rare cases as high as 6s., but averages about 3s. It produces inferior kinds of rice. The *kállá*, or black soil, ranks next. It pays from 1s. to 8s. an acre, and averages 4s. It grows all sorts of pulses, mustard, hemp, etc. The next quality is the *pál*, which produces the finer kind of rice, and all the other crops grown on *kállá*. It pays from 4s. to 10s. an acre, and averages 6s. The highest class of land is the *olam*, or the fields lying around the homesteads. They are devoted to vegetables, and other expensive crops, such as tobacco or sugar-cane, and pay as high as 25s. an acre, but may be estimated to average 15s.

The following are the rates of rent in the Fiscal Divisions of Balasor for the best qualities of two-crop and winter rice land. In *Ará-rupauyá*, for winter rice land 4s. an acre. In *Armalá*, 3s. 1½d. per acre for winter rice land. In *Arso*, 6s. 3d. an acre for winter rice land. In *Ahiyás*, 8s. for two-crop, and 3s. 1½d. for winter rice land. In *Ankurá*, 9s. 4½d. for two-crop, and the same for winter rice land. In

Bálkhand, 6s. 3d. for two-crop, and the same for winter rice land. In Bánchez, 8s. and 7s. 2d. respectively. In Bayáng, 18s. 9d. and 5s. In Bisalkhand, 4s. for two crop-land. In Bastá, 1s. 9d. and 2s. 6d. respectively. In Bher, 12s. 6d. and 9s. 4½d. In Bhograí, 12s. 6d. for winter rice land. In Chhánuyá, 5s. and 2s. 6d. In Dhámnnagar, 8s. 2d. and 9s. 6d. In Dasmalang, 3s. 0½d. and 2s. 4½d. In Dolgrám, 6s. 3d. and 6s. 3d. In Dararáchaur, 3s. 7½d. and 1s. 6¾d. In Garhpadá, 1s. 6d. and 1s. 7½d. In Julang, 3s. 3d. for winter rice land. In Kátiyá, 6s. 3d. and 6s. 3d. In Kátsáhi, 2s. 10¾d. and 1s. 6½d. In Kismatkatsá, 10s. 9d. for both descriptions of land. In Kamardáchaur, 9s. 4½d. for winter rice land. In Kunardáchaur, 2s. 6d. and 1s. 7d. respectively. In Kundi, 3s. 4½d. and 2s. 9d. In Khejurí, 2s. and 3s. 9d. In Múlgáon, 4s. 3d. and 3s. 6d. In Muldáchor, 1s. 10d. In Mukhrá, 3s. 9d. In Nápo, 5s. for winter crop land. In Nángaleswar, 2s. 6¾d. and 1s. 8¼d. respectively. In Nunkhand, 4s. 2d. and 2s. 4½d. In Phulwar, 1s. 10¾d. and 2s. 6¾d. In Ráutará, 6s. 3d. and 5s. In Remuná, 4s. and 5s. 6d. In Rádiyáorgará, 6s. 3d. for both descriptions of land. In Senát, 12s. 6d. and 18s. 9d. respectively. In Sunhat, 4s. 7d. for winter crop land. In Soso, 12s. 6d. and 18s. 9d. In Sháhbandar, 11s. and 10s. 3d. In Sátmalang, 6s. 3d., and in Sáratháchaur, 1s. 7d. for winter rice land. In Siádihi, 2s. 3d. and 2s. 7½d., and Talsabang, 3s. 2½d. and 4s. 3d. respectively. In the above list, I have given the Fiscal Divisions as stated by the Inundations Committee of 1866. The Surveyor-General's list will subsequently exhibit a more minute classification of them.

MANURES consist of cow and buffalo dung, ashes, rotten straw, and black earth from the bottom of tanks. Land is thoroughly manured at least once in five years; about ten hundredweight being allowed for rice, and a ton for sugar-cane. The cost when the materials have to be bought is about tenpence an acre. Land is seldom left fallow, and, indeed, to have fallow land is looked upon as a calamity. The cultivators are acquainted with a rotation of crops consisting of rice and cotton, but they practise it only in the Fiscal Division of Senát, and on a few patches of land along the banks of the Subanrekhá.

BLIGHTS are not common, but a small insect called *punhárá*, the same as the *genrui* of Hindustán, occasionally does some mischief. It cuts through the ear of the rice while still green. For a description, see Sir Henry Elliot's Glossary, Mr. Beames' edition, vol. ii. 327.

FLOODS AND DROUGHTS are the scourges of the District. The former result from the sudden rising of the rivers in the hill country and Tributary States. The Burábalang and Sálandí do comparatively little harm, but the Subanrekhá and Baitaraní devastate the country

almost every year. From 1832 to 1867, £62,584 of Government revenue have been remitted in consequence of floods, and £61,866 in consequence of drought, making a total of £124,450 during the thirty-five years, or £3555 per annum. This subject has been fully treated in my Orissa. The protective works against floods consist of embankments, the maintenance of which has, including establishment, amounted to £9182 during the twenty-four years of which records are found, preceding 1866. This would represent the interest on £183,640 at five per cent. During the seven years from 1860-61 to 1866-67, the total outlay by Government for protective works and remissions of revenue averaged £4026, or a charge of ten per cent. on the whole land revenue of the District.

Even this vast outlay wholly fails to control the water supply of the District. The two principal embankments are the Bhográi and Salsá Pát, on the lower reaches of the Subanrekhá. The great Nuna, or salt embankment, has already been alluded to. It runs for many miles along the sea-face of the Fiscal Division of Ankurá, and is intended to keep out the sea. Sometimes, however, this embankment produces the very evil it was constructed to prevent; as in 1867, when it prevented the waters of the Gammaf from escaping. The embankment fortunately gave way before the pressure of the river, and the waters rushed through the breach. The Bhográi embankment is a new work only just completed (1870). At the mouth of the Subanrekhá was an old embankment constructed by the Marhattás, and afterwards replaced by another built by the British Government. Both of these embankments were constructed too close to the river to allow the water to escape freely in time of floods. These have both been destroyed, and the present Bhográi embankment runs further back so as to give plenty of waterway for the floods, and thus prevent the overflowing in the higher parts of the rivers which formerly resulted from the narrowness of their outlets. The Bhográi embankment, by allowing a good passage for the escape of water during flood, will render the Fiscal Divisions of Bhográi, Kamardá, Nápo, and Jaleswar less liable to inundation than in time past. The other large embankment, the Salsá Pát, on the opposite side of the river, protects the southern Fiscal Divisions of the District. The embankments on the other rivers are numerous, but small, and made without reference to any general system of protection from floods. If they do good to the village in which they are situated, they often do harm to villages on the opposite bank, by throwing the set of the current on to the other side. The Collector states that a general scheme of embankments having reference to the protection of the whole District, instead of, as at present, for the benefit

of particular villages or landholders, is urgently needed. The floods are of short duration, but quite unmanageable while they last. The rivers rise to a great height in a few hours, and rush with extreme violence. The obvious plan would be to secure as straight a course as possible for the water from the hills to the sea, so that it may run off quickly and not be driven from bank to bank, and impeded at every turn. This, however, would necessitate the sacrifice of villages occupying projecting tongues of land on the banks. But if the estates in the District were large, the landholders would probably not object to give up one or two villages to save the rest. In the Fiscal Division of Bhográi this was done, the proprietor having readily accepted six shillings an acre for 1000 acres so sacrificed. In other parts of the District estates are so small that the village to be given up would often form the sole property of some half-dozen petty landlords, who could not afford to part with it without heavy compensation, as, in addition to the loss of their rents, it would also deprive them of their status as landholders. The Collector reports that the objection which has been raised to the straightening of rivers in some parts of Bengal, namely, that the water would run away too quickly, does not apply to Balasor, where the rivers are not used for irrigation purposes in their lower reaches, or for navigation in their higher. There is no navigation to speak of beyond tidal limits, and even that almost entirely ceases before the flood season. Sufficient water for shipping is supplied by the tide, and irrigation in the higher courses can be provided for by anicuts and canals. The Collector is of opinion that the works already sanctioned, if supplemented by a well-devised general embankment scheme, would render the district secure against damage by flood.

DROUGHTS arise in Balasor from the absence of local rainfall. The failure of the rivers seldom produces drought, as the people do not use their waters, except to a very limited extent, for irrigation. Four great droughts have occurred in the District within the recollection of the present generation, viz. in 1836, 1839, 1840, and 1865. No provision exists against damage caused by want of rain. The tanks and other receptacles of local drainage are not available for irrigation, and the rivers are allowed to carry away their water unused to the sea. The Collector mentions as an instance of the reluctance of the people to utilize the rivers, the case of the Fiscal Division of Rádiyá-ogará, which suffered severely from want of rain in 1869. The River Sálandí runs through the centre of this Fiscal Division, and when the drought made itself felt, and the people were praying for help, the Collector asked them why they did not use the river-water as a means of irrigation. They only replied that it was not the custom; that the proprietors of

land on the rivers' banks would object to channels being cut through their lands for the purpose of carrying water to fields further inland ; that it would be very hard work ; that it would not pay, and that river-water was not so fertilizing as that which came 'from heaven.' At all events the river-water was not used, and the crops perished in consequence. The Collector reports that the projected Cattack and Midnapur Canal would be of the greatest value for purposes of irrigation. At the same time, he anticipated that the people would be very unwilling to use the water, especially if a high rate be charged. Without going into this difficult question, it will suffice to state that the Collector strongly recommends a general irrigation rate upon all fields within reach of the canal-water. He thinks that under such circumstances the villagers would very soon avail themselves of it, especially if the rate did not exceed two shillings an acre.

There is, however, to a certain extent, a compensating influence in droughts and floods. One part of Balasor, namely the triangular tract between the *Sálandí* river, the Cattack high road, and the district boundary, lies high. The country on the north of this triangle is rather lower, as also are the Fiscal Divisions on the west and north-west of Balasor Town. While heavy floods drown the lowlands, the higher levels escape, but the fertility of the uplands is not increased in anything like a proportionate degree, as the very fact of their being higher, causes the river-water to flow off the more suddenly. If the floods are caused by an excessive local rainfall, which occasionally happens, the dry uplands profit in a more commensurate ratio. But the Balasor District does not present such extremes of dryness or moisture that any considerable area ordinarily lies fallow in the uplands for want of rain, or upon the lower levels, on account of the marshy character of the land. In years when there is a scanty rainfall, however, the low-lying tracts make up in an important degree by their freedom from flood, for the loss of crops in the arid higher levels. The *páts*, or cup-lands, produce magnificent harvests in dry seasons, while the higher tracts suffer severely. Thus, in 1869-70, the high triangular tract, mentioned above, yielded only half a crop ; but the cup-lands so liberally compensated for their sterility, that the Collector refused to apply to Government for relief measures, and the result amply justified his decision.

It may be accepted as a rule in Balasor, therefore, that in years of drought, the sterility of the higher levels may often be compensated by the increased fertility of the lower ones. But in years of excessive floods, the small amount of upland country cannot produce a commensurate increase to the loss of crops in the low-lying tracts. Gene-

rally speaking, therefore, a year of floods does more harm than a year of tolerable drought, as the seven following instances prove. In 1823, unhusked rice rose to 3s. 3d. per hundredweight in consequence of floods. In 1831 and 1832 it rose to 3s. 4d. per hundredweight for the same reason. On the other hand, the years 1836, 1839, and 1840 were seasons of drought. In the first of them, unhusked rice rose only to two shillings per hundredweight; in the second, to three shillings; and in the third, to two shillings and eightpence. In 1848 floods again raised the price of unhusked rice to three shillings and fourpence a hundredweight. But while the general effect of floods is to raise prices higher than droughts, a total abstinence of rain produces the climax of misery. Thus, in the great famine year, 1865-66, unhusked rice rose to thirteen shillings and fourpence, and husked rice to the starvation rate of £1, 14s. 8d. a hundredweight.

FAMINE WARNINGS.—Local prices have returned to very nearly the same level as before the famine of 1866. The Collector believes that they will never quite do so, as the price of everything has risen, or, in other words, the purchasing power of money has decreased in Balasor. He considers that the famine of 1866 has ceased to exercise any influence upon the price of food in his District. Sixty-six pounds of common husked rice for two shillings may be taken as the average retail price in the month of January. If the price should rise to only thirty-three pounds for two shillings in that month, preparations should at once be made for a famine. Thirty-three pounds for two shillings in January would, according to the average rise in prices as the year advances, decrease to twenty-five in March, sixteen in May, and probably before the end of July no rice would be left in the district. By that time it would be impossible to import anything by sea till the end of the monsoon. Mr. Collector Beames, who has studied the subject very carefully, reports to me that in the event of rice ever rising in January to the rate of thirty-three pounds for the rupee, the higher authorities should be warned of the approach of famine. He believes the whole moral of the terrible calamity of 1866 is, to 'get rice into Orissa before the end of March if there is any serious tightness in January.' Among the non-agricultural classes, a hired labourer, with his wife and two children, cannot earn more than twelve shillings a month. Of this they have to spend, as nearly as possible, six shillings for rice when it is at sixty-six pounds for the rupee. The smallest amount that would sustain the working powers of such a family, is one hundred and twenty-three pounds of rice a month; and if it rose to the rate of thirty-three pounds for two shillings, two-thirds of their income would go for the single item of rice alone, calculating

that they only ate enough to keep them alive. When rice rises to twenty-five pounds for the rupee, the non-cultivating classes have to begin to do without it. They would naturally betake themselves to split-peas and other pulses. But, unfortunately, in Balasor District, these crops are scarcely grown. The whole land is under rice, and if rice fails, everything fails.

The agricultural classes would be a little better off, as they would start with a store of grain, and be able to prolong the struggle by the sale of their cattle. They would not begin to die till the rains set in. The District depends almost entirely upon its winter rice crop (Sárad). The autumn crop is insignificant where it is grown at all, and in some Fiscal Divisions it is unknown. It could nowhere make up for the loss of the winter harvest. The means of importation at the disposal of the district consist of the Orissa trunk road and the seaports. The former is metalled and bridged, except at the larger rivers, which are supplied with good ferry-boats. But the cost of the long land transit is very great. The river ports are five in number, namely, Balasor, Churáman, Chhánuyá, Sárathá, Laichanpur, and Subanrekhá, for which see Notification of the Government of Bengal, No. 621, dated 30th March 1858. I append a Comparative Statement of their trade to this Account. But none of them are accessible during the southern monsoon, the very season in which a famine would reach its maximum intensity. Hence the imperative duty of the officer in charge of the district, to keep his eye upon the harvests and the state of the markets, and to give timely notice to the higher authorities before the ports are closed in March. It is vain to expect any relief from inland by means of the rivers. They issue from countries which, in times of scarcity, are even worse off than Balasor.

ADMINISTRATIVE HISTORY.—The District of Balasor was acquired, with the rest of Orissa, in 1803. The early details of its jurisdiction and administrative changes are given at the beginning of this Statistical Account. At first it formed a mere subdivision of Cattack, and very little was spent upon it. The early records have been destroyed, but, so far as I can learn, the separate expenditure on the Civil Administration of Balasor in 1864, was £77, 18s. In 1860-61, the revenue amounted to £58,465, and the expenditure to £44,071. The Budget for 1870-71 estimates the total revenue at £59,126, and the charges for Civil Administration, at £48,061. These figures represent the income and expenditure after the elimination of transfer accounts. The increase in the cost of Administration is due partly to Public Works, and partly to the re-organization of the police in 1861.

THE LAND TAX amounted in 1830 to £29,321; in 1850 to £40,480; in 1870-71 to £41,911. The subdivision of property has gone on rapidly under British rule. In 1826 the District was divided into 677 separate estates; in 1870-71 they had more than doubled, the number being 1486. Not only have estates become smaller, but the number of registered proprietors or coparceners on each estate has greatly increased. Thus, in 1828, the number of registered proprietors was 863; in 1870-71 their number was 4570. In 1828 the average revenue paid by each separate estate was £46; in 1870-71 it is £28. Again, in 1828 each registered proprietor was a man of importance, and paid £36 of Government rental. But the subdivision of estates has now reached such a point, that in spite of several vast estates in the hands of Bengalis, the average Government rental paid by each proprietor is only £9 per annum, and among the mass of native Uriyá landholders it is much less.

THE AMOUNT OF PROTECTION to person and property has steadily increased. In 1804 there was but one permanent officer, and there were only three courts of any sort for the whole District. In 1850 there were eight courts, and one covenanted officer; in 1862, nine courts; and in 1869-70, thirteen, with three covenanted officers. The latter generally consist of (1) a Magistrate and Collector at Balasor; (2) a Joint or Assistant-Magistrate and Deputy-Collector at Balasor; and (3) an Assistant-Magistrate and Deputy-Collector in charge of the subdivision of Bhadrakh. In 1824, the total cost of the district police, officers and men, amounted to £444; in 1840 to £1584; in 1860 to £1442. They now consist of three bodies,—the regular force, the municipal police, and the village watch. In 1868 the regular force numbered three European officers, 133 native officers, and 672 footmen. The average pay of the English officers is £400 per annum; of the native officers, £25, 16s. 6d.; and of the footmen, £7, 12s. 6d. The aggregate strength of all ranks was 808, and its total cost £10,252. The police department estimates the area of the District at 3065 square miles, and the population at 485,113, allowing one policeman to 3·08 square miles, or to every 607 inhabitants. The cost of protection amounts to £3, 6s. 6d. per square mile, and fivepence per head of the population. During 1868 the police made 872 arrests, investigated 596 cognizable cases, and obtained 495 convictions. Among the 805 native officers and men were 122 Hindustánis, 2 Panjábis, and 5 Telingás. The rest are ranked as Bengalis in the police returns. The municipal police consists of 4 native officers, with an average pay of £12 per annum, and 30 footmen on £7, 4s. a year. The village watch numbered in 1840, 1914; in 1860, 2745; in 1868, 2219. Their esti-

mated pay in money and lands in 1868 was £2734. This is equal to a charge of seventeen shillings and tenpence per square mile, or about five farthings per head of the population. Each rural watchman has on an average four villages under his charge, containing a total of thirty-six houses, with 218 inhabitants. These calculations are based upon the police estimates of the area at 3065 square miles, and the population at 485,113. The fiscal area, after recent transfers, is 2041 square miles. Including, therefore, the regular force, the municipal police, and the village watch, the police of all ranks amount to 3058, maintained at a cost of £13,250 a year. For police purposes, the district is divided into nine stations, with sixty-two outposts. The cost of protecting person and property, therefore, in Balasor, is £4, 6s. 5d. per square mile of the police area, and a trifle under sevenpence per head of the population.

CRIMINAL CLASSES.—Crime is more frequent in Balasor than in Purf District. The average number in jail, for both Balasor and Bhadrakh, in 1868, was 144; of whom, however, only four were females; or about one person always in jail to every 3375, or one female to every 121,278 of the population. The entire number admitted in 1868, amounted to 549 males and 36 females, making a total of 585. The constant rate of sickness was 2.77 per cent. of the jail population, and the deaths 2.77 per cent. The great majority of the prisoners belong to the labouring and lowest agricultural classes, with a proportion, however, of the writer caste, and a much larger number of Muhammadans than is found in Purf or Cattack. At the same time, crime is much less frequent than in the more civilised parts of Bengal; nor is there any class of crime characteristic of the district. Drugging, with intent to rob, is sometimes practised on the great highway to Jagannáth, and Bráhmans have peculiar facilities as cooks for committing this offence. But it is a crime of the trunk road rather than of the district. The cost of rations was £3, 2s. 6d. per head in 1867, and £2, 2s. 7d. in 1868. The total cost of jail establishment was 19s. 3d., and the gross cost of maintenance, including hospital charges, clothing, jail establishment, and repairs, was £5 a head in 1867, and £4, 10s. in 1868.

FISCAL DIVISIONS.—The District of Balasor is divided into seventy Fiscal Divisions, which, as a rule, are much smaller than those of Purf or Cattack. Many of them barely exceed five square miles; several of them are a little over three, and one of them is only 1.04 square miles. It must, therefore, be understood that the term fiscal division (*parganá*) has a much more limited meaning in Balasor than in other districts. The number of villages was returned at 3668 in

1842, and 9627 in 1870,—an indication of the tendency of proprietors who have subdivided their estates, to make as much as possible of their respective parts by setting up new villages or collections of homesteads on each separate fragment. It also explains the increase in the population which took place up to the famine year, amounting to nearly 12 per cent. of the total inhabitants in 1840. Assuming the population in 1865, the year before the famine, to be the normal condition of things, each of the 9627 villages would contain 76·5 persons; but estimating the population at what it was after the famine, each village would only average 50, or one-fourth of the average number in each village of Purí District. It is impossible too frequently to repeat the caution, that such terms as fiscal division and village represent a very different number of inhabitants in different districts, even of the same province. The minute subdivision of properties in Balasor has produced a corresponding splitting up of villages with a very small population in each. The following is a list of the fiscal divisions of Balasor, showing their total area, with the proportion of land under cultivation, capable of cultivation, and uncultivable; the names of the two chief towns or villages; the land revenue, and the population. They have been very carefully compiled, but must be received as approximations to the truth, rather than as absolutely trustworthy statistics. There is also a slight element of error in each, as I do not give fractions of acres:—

1. ANKURA—area, 133·85 square miles, or 85,670 acres; 33,871 acres cultivated; 5,684 cultivable; 46,112 uncultivable; land revenue, £2616; population, 22,051; chief villages, Básdebpur and Karanjáryá.
2. ARARUPAUYA—area, 18·03 square miles, or 11,539 acres; 6,014 acres cultivated; 1190 cultivable; 4334 uncultivable; land revenue, £273; chief villages, Madhusúdanpur and Náráyanpur.
3. ARMALA—area, 10·54 square miles, or 6743 acres; 4429 cultivated; 178 cultivable; 2136 uncultivable; land revenue, £206; population, 5424; chief villages, Armalá and Somnáthpur.
4. ARSO—area, 25·17 square miles, or 16,108 acres; 9412 acres cultivated; 374 cultivable; 6321 uncultivable; land revenue, £47; chief villages, Jaldá and Sárján.
5. BALKHAND—area, 65·34 square miles, or 41,820 acres; 19,462 acres cultivated; 2990 cultivable; 19,267 uncultivable; land revenue, £1189; population, 20,617; chief villages, Purúshattama-pur and Bari.
6. BANAHAR—area, 11·49 square miles, or 7353 acres; 4775 cultivated; 107 cultivable; 2470 uncultivable; land revenue and population not given; chief villages, Depur and Rangapati.

7. BANCHAS—area, 30·54 square miles, or 19,543 acres; 12,473 acres cultivated; 466 cultivable; 6603 uncultivable; land revenue, £4574; population, 79,459; chief villages, Báragán and Jagannáthpur.
8. BASTA—area, 13·29 square miles, or 8503 acres; 4864 acres cultivated; 327 cultivable; 3412 uncultivable; land revenue, £320; population, 2715; chief villages, Bastá and Báhárdá.
9. BAUTRA—recently transferred from Cattack; details not given.
10. BHELORACHOR—area, 40·00 square miles, or 25,584 acres; chief villages, Kholrá and Jhár Pipal.
11. BHERA—area, 53·59 square miles, or 34,301 acres; 22,170 cultivated; 2364 cultivable; 9767 uncultivable; land revenue, £1674; population, 11,130; chief villages, Bindhá and Pánpur.
12. BHOGRAI—area, 48·73 square miles, or 31,189 acres; 8525 acres cultivated; 2230 cultivable; 20,433 uncultivable; land revenue, £1253; population, 13,467; chief villages, Deulá and Bartaná.
13. BISALKHAND—area, 42·68 square miles, or 27,318 acres; 16,845 acres cultivated; 958 cultivable; 9515 uncultivable; land revenue, £2; chief villages, Korái and Asmalá.
14. BAYANG—area, 88·05 square miles, or 56,352 acres; land revenue, £2297; population, 24,764; chief villages, Kothár and Súrjapur.
15. CHHANUYA—area, 10·24 square miles, or 6554 acres; 488 acres cultivated; 3451 cultivable; 2614 uncultivable; land revenue, £78; population, 592; chief villages, Níldá and Chhená.
16. DARARACHAUR—area, 21·77 square miles, or 13,934 acres; 9531 acres cultivated; 369 cultivable; 4033 uncultivable; land revenue, £374, 10s.; population, 3486.
17. DASMALANG—area, 53·54, or 34,268 acres; 6474 cultivated; 802 cultivable; 26,992 uncultivable; land revenue, £313; population, 24,368; chief villages, Ransáhi and Hirágán.
18. DHAMNAGAR—area, 58·84 square miles, or 37,660 acres; 21,983 acres cultivated; 2615 cultivable; 13,061 uncultivable; land revenue, £1650; population not given; chief villages, Churákuti and Syámpur.
19. FATHABAD—area, 61·89, or 39,611 acres; land revenue, £178; other details not on record.
20. GANESWAR—area, 12·80 square miles, or 8191 acres; 3910 acres cultivated; 359 cultivable; 3921 uncultivable; chief villages, Chálunigán and Páikraná.
21. GARHPADA—area, 16·89 square miles, or 10,815 acres; 5658

- acres cultivated; 844 cultivable; 4313 uncultivable; land revenue, £149; population, 3163; chief villages, Uriyásásan and Bhatkhandi.
22. JAYPUR—recently transferred to Cattack; details not given.
23. JALESWAR—area, 36·34 square miles, or 23,256 acres; land revenue, £1014; population, 3457; chief villages, Aruyá and Santiyá.
24. JAYAPUR—area, 21·6 square miles, or 13,481 acres; 8924 acres cultivated; 150 cultivable; 4406 uncultivable; chief villages, Panpaná and Soti.
25. KAEDA—area, 12·11 square miles, or 7754 acres; 4277 acres cultivated; 215 cultivable; 3261 uncultivable; chief villages, Anantapur and Káedá.
26. KAMARDACHAUR—area, 44·58 square miles, or 28,536 acres; 19,039 acres cultivated; 1054 cultivable; 8442 uncultivable; land revenue, £1603; population, 10,904; chief villages, Kasbá-Kamardá and Patiná.
27. KATSAHI—area, 13·81 square miles, or 8841 acres; 4447 acres cultivated; 333 cultivable; 4060 uncultivable; land revenue, £317; population, 2277; chief villages, Tapandáha and Churmárá.
28. KAYAMA—recently transferred from Cattack; details not given.
29. KHEJURI—area, 18·90 square miles, or 12,097 acres; 7555 acres cultivated; 480 cultivable; 4061 uncultivable; land revenue, £497; population, 5015; chief villages, Barunsinh and Khantá-pará.
30. KILA-AMBO—area, 5·67 square miles, or 3630 acres; 1641 acres cultivated; 187 cultivable; 1801 uncultivable; chief villages, Ambo and Tarbhá.
31. KILA AMBOHATA—area, 36·21 square miles, or 23,175 acres; 8924 acres cultivated; 506 cultivable; 13,744 uncultivable; chief villages, Kopári and Haripur.
32. KILA MANGALPUR—area, 10·59 square miles, or 6779 acres; 3309 acres cultivated; 120 cultivable; 3349 uncultivable; land revenue, £103; population not given; chief villages, Gopínáthpur and Mangalpur.
33. KILA PATNA—area, 7·98 square miles, or 5107 acres; 2321 acres cultivated; 134 cultivable; 2651 uncultivable; land revenue, £48; population not given; chief villages, Balanga and Chhatrá.
34. KILA TALMUNDA—area, 19·70 square miles, or 12,610 acres; 7356 acres cultivated; 214 acres cultivable; 5040 uncultivable; chief villages, Mahamuhán and Korái.

35. KISMAT ANKURA—area, 2'34 square miles, or 1495 acres ; 904 acres cultivated ; 16 cultivable ; 575 uncultivable ; details about land revenue and population not given ; chief villages, Gur and Suyán.
36. KISMAT KATSAT—area, 5'51 square miles, or 3530 acres ; 1814 acres cultivated ; 142 cultivable ; 1572 uncultivable ; land revenue, £248 ; population not given ; chief villages, Kasbá Kumári and Báliyápál.
37. KISMAT NAPO—area, 1'04 square miles ; land revenue, £68 ; population and name of chief villages not given.
38. KODINDA—recently transferred from Cattack ; details wanting.
39. KUNARDACHAUR—area, 22'89 square miles, or 14,653 acres ; 8358 acres cultivated ; 450 cultivable ; 5817 uncultivable ; land revenue, £325 ; population, 6065 ; chief villages, Madhupur and Jágái.
40. KUNDI—area, 12'51 square miles, or 8009 acres ; land revenue, £81 ; population, 1204 ; chief villages, Kundi and Gandardá.
41. KURAI—area, 9'13 square miles, or 5841 acres ; 3607 acres cultivated ; 85 cultivable ; 2149 uncultivable ; land revenue, £385 ; chief villages, Kurái and Bángariyá.
42. LAKRAJIT—area, 8'35 square miles, or 5347 acres ; 3085 acres cultivated ; 138 cultivable ; 2123 uncultivable ; chief villages, Golangá and Gobindapur.
43. MANJURI—area 11'33 square miles, or 7249 acres ; other details wanting.
44. MATKADNAGAR—recently transferred from Cattack ; details wanting.
45. MATKADABAD—recently transferred from Cattack ; details wanting.
46. MUKHRA—area, 13'20 square miles, or 8445 acres ; 4309 acres cultivated ; 533 cultivable ; 3603 uncultivable ; land revenue, £287 ; population, 2451 ; chief villages, Gobindapur and Nuyá-pári.
47. MULGAON—area, 12'50 square miles, or 7998 acres ; 4764 cultivated ; 531 cultivable ; 2703 uncultivated ; land revenue, £280 ; population, 2102 ; chief villages, Dhára and Gurdá.
48. MULDACHOR—area, 6'42 square miles, or 4112 acres ; 2810 acres cultivated ; 87 cultivable ; 1214 uncultivable ; land revenue, £101 ; population, 430 ; chief villages, Jámálpur and Kundsha.
49. NANGALESWAR—area, 11'72 square miles, or 9425 acres ; 7321 acres cultivated ; 162 cultivable ; 1942 uncultivable ; land revenue, £316 ; population, 2507 ; chief villages, Nángaleswar and Putrá.

50. NAPOCHOR—area, 35·31 square miles, or 22,599 acres ; land revenue, £1102.
51. NUNKHAND—area, 30·66 square miles, or 19,628 acres ; 11,062 acres cultivated ; 403 cultivable ; 8163 uncultivable ; land revenue, £508 ; population, 5071 ; chief villages, Nuyápur and Sásan.
52. PANCHMALANG—area, 8·62 square miles, or 5520 acres ; 933 acres cultivated ; 67 cultivable ; 4519 uncultivable ; chief villages, Sáhapur and Khára.
53. PHULWAR—area, 3·83 square miles, or 2452 acres ; land revenue, £112 ; population, 872 ; chief villages, Chásákhand and Kállpur.
54. RADIYA-ORCARA—area, 91·08 square miles, or 58,292 acres ; 30,598 acres cultivated ; 4185 cultivable ; 23,509 uncultivable ; land revenue, £1654 ; population, 32,669 ; chief villages, Bhadrakh and Bálo.
55. RAUTARA—area, 13·21 square miles, or 8455 acres ; 1706 acres cultivated ; 2740 cultivable ; 4009 uncultivable ; land revenue, £166 ; population, 1439 ; chief villages, Sárján and Sinthiá.
56. REMUNA—area, 20·12 square miles, or 12,882 acres ; 6629 acres cultivated ; 534 cultivable ; 5718 uncultivable ; land revenue, £525 ; population, 12,005 ; chief villages, Rudrapur and Athántrá.
57. SHAHBANDAR—area, 10·97 square miles, or 7024 acres ; 2581 acres cultivated ; 628 cultivable ; 3814 uncultivable ; population, 41,454 ; chief villages, Annabiratti and Bishanpur.
58. SHAHJAHANABAD—area, 5·13 square miles, or 3289 acres ; 2079 acres cultivated ; 94 cultivable ; 1115 uncultivable ; chief villages, Sháhjáhnábád and Sálanpur.
59. SAHIBNAGAR—recently transferred from Cattack ; details wanting.
60. SARATHACHAUR—area, 4·08 square miles, or 2612 acres ; 1665 acres cultivated ; 87 cultivable ; 860 uncultivable ; land revenue, £61 ; population, 4775 ; chief villages, Gotigariá and Chhatrá.
61. SARHAR—area, 27·72 square miles, or 17,742 acres ; 9632 acres cultivated ; 394 cultivable ; 7716 uncultivable ; chief villages, Machhadá and Sáoriyá.
62. SATMALANG—area 78·73 square miles, or 50,389 acres ; 7493 cultivated ; 3958 cultivable ; 38,938 uncultivable ; chief villages, Jámkundá and Ratái.
63. SEHARI—area, 3·15 square miles, or 2018 acres ; land revenue, £87 ; population, 1115 ; chief villages, Bishnupur and Sehári.
64. SENAOT—area, 108·39 square miles, or 69,368 acres ; land revenue, £449 ; population, 1181 ; chief villages, Dolsái and Ordá.
65. SINGARA—recently transferred from Cattack ; details wanting.

66. Soso—area, 66·87 square miles, or 42,803 acres; 25,009 acres cultivated; 1723 cultivable; 16,070 uncultivable; land revenue, £877; population, 15,857; chief villages, Námi and Bárhát.
67. SUNHAT—area, 30·60 square miles, or 19,587 acres; 8826 acres cultivated; 1315 cultivable; 9446 uncultivable; land revenue, £425; chief towns, Balasor and Dámodarpur.
68. TALSABANGA—area, 24·28 square miles, or 15,538 acres; details of land cultivated, etc., not received; land revenue, £4617; population, 38,802; chief villages, Urangi and Padábargán.
69. TAPPA-MALINCHA—area, 13·86 square miles, or 8873 acres; 5388 acres cultivated; 160 cultivable; 3324 uncultivable; chief villages, Málnincha and Goliyá.
70. TAPPA-PURSANDA—area, 55·17 square miles, or 35,312 acres; 20,395 acres cultivated; 1213 cultivable; 13,703 uncultivable; land revenue, £600; population, 5871; chief villages, Pursanda and Bantá.

CULTIVATED AREA.—The foregoing list of Fiscal Divisions must be received with caution. They refer to about a quarter of a century ago, and since then there is reason to believe that cultivation has greatly increased. The Collector estimates the total area in round numbers at 1,200,000 acres. Of this, 566,000 are under cultivation, and 544,000 are uncultivable. There remain, therefore, only 90,000 acres capable of cultivation not under tillage, or 7·5 per cent. of the whole. Roughly speaking, one-half of the district is under tillage, and one-half is incapable of tillage. No statistics exist as to the comparative area under different crops. The truth is, that the whole cultivated part of the district is one sheet of rice. The Collector believes that the proportion of other crops to this staple does not exceed one acre in 1000. It will be observed that in estimating the district to be 1,200,000 acres, the Collector assumes its area to be 1875 square miles, or 170 miles less than its actual size after the recent transfers.

MEDICAL ASPECTS.—Rainfall in 1869, 49·77 inches, as returned by the Meteorological Reporter to Government; average rainfall during ten years, 68·45 inches. Average temperature for the five years ending 1866, as reported by the Medical Officer—January, 85°; February, 89°; March, 93°; April, 96°; May, 98°; June, 92°; July, 88°; August, 88°; September, 73°; October, 74°; November, 73°; December, 78°. The hot season lasts from March to the middle of June, but is tempered by a cool sea-breeze from the south-west. From middle of June to end of September the weather is close and muggy; from October to February is the cold season, with a north-easterly wind, and cool mornings and evenings.

ENDEMIC.—Elephantiasis Arabum attacks about twenty-five per cent. of the population, and is always present in from fifteen to twenty per cent. of it. Specifically it is the Bucnemia tropica, a local hypertrophy of the cellular structure, attacking the whole body, but more particularly the depending parts and lower extremities. The Civil Surgeon reports that the disease is neither hereditary nor contagious, but when once fairly established, generally lasts through life. No statistics exist to show in what proportion it attacks the two sexes, or different ages. But the Civil Surgeon believes that Dr. Fox's general statistics hold good in Balasor, namely, seventy-five per cent. males, twenty-five per cent. females, and is most frequent between the ages of twenty-five and fifty. The fundamental cause of the disease appears to be the unstimulating character of the national diet. It chiefly attacks the poor, who live all their lives on a daily mess of rice, which, after boiling, is allowed to stand for twenty-four hours in water, until fermentation has slightly set in. To this sour mass a little salt is added, and the Civil Surgeon pronounces it to be unwholesome as an article of human food. Yet this is the invariable diet of the Uriyá peasant. Europeans are seldom affected. Another cause appears to be the deleterious water; but the theory of its injurious qualities arising from its being impregnated with salt is not, so far as I can learn, well founded. On the contrary, the Balasor peasant is particularly sensitive with regard to any saline ingredients in his drinking-water. The labourers who go out to work on the road between the town and the coast, insist on a water-carrier being allowed to each little gang, so that they may be supplied with the pure fluid from beyond the influence of the sea. It is an unquestionable fact, however, that the Balasor peasant drinks all his life from wells and tanks charged with organic impurities. The Civil Surgeon reports that twenty per cent. of the people labour under hydrocele. Goitre is met with but rarely. Fever of a low malarious type is everywhere prevalent, and especially so in the south-east corner of the District, at the mouth of the Dhámrá, which is about as unhealthy a locality as can be found in Bengal. From August to October a low remittent form of fever prevails. Ague and rheumatic affections, colds and sore throats, with the loss of voice, follow from November to February, during the continuance of the north-east monsoon. Syphilis is rife in all its worst forms, and the Civil Surgeon reports that as many as forty per cent. of the population are victims to it. Cutaneous diseases abound in Balasor, as they do among all rice-eating peoples. Till lately no attempt has been made at sanitation. Balasor City contains no fewer than 11,000 tanks, not one of which can be said to be in a wholesome state. Their banks are the

receptacle of every sort of filth, fluid and solid. The one object of the *Urīyā's* life is ceremonial purity, and he reconciles this in a surprising degree with foul drinking-water, and putrid dirt heaps at his door. The Civil Surgeon reports that the first organized efforts at sanitation have been made under the present magistrate, Mr. Beames. Tanks have been cleared out, drains opened, and conservancy rules rigidly enforced. In spite of the above-mentioned endemics, the rural population is not on the whole unhealthy. They carry about their swollen legs with apparent ease, and as regards bodily vigour, contrast favourably with the peasantry of the wet districts in Lower Bengal. The truth is, that throughout all deltas the standard of health is very low.

EPIDEMICS.—Among these scourges, cholera stands first. In 1853, it prevailed during the whole of April or May, working its way steadily from village to village, till there was not a hamlet which escaped it, and very few in which the mortality fell short of ten to twelve per cent. The whole District was panic-stricken. The villagers fled from their homes, leaving behind the dying and the dead. Another terrible visitation occurred in 1866—the famine year. It was worst in the months of March, April, June, and September. Of the little jail community, averaging 100 persons, 88 were attacked, and 35 died. Cholera annually makes its appearance along the trunk road, along with the great stream of pilgrims. This subject, however, has already been treated of in the Statistical Account of Puri. The Balasor people believe that cholera is directly communicable; and the Civil Surgeon gives the following authenticated instance:—A tradesman left his village to do some business in the adjacent country. At the time of his departure, there was neither cholera nor any unusual sickness in his own village, but the place to which he went was being ravaged by the disease. On his way back he suffered a little from diarrhoea. Within six hours after he returned, he was attacked with cholera, and died. The same day the disease made its appearance among his neighbours, and numbers of the villagers, especially those who lived close to him, perished.

CATTLE DISEASES are excessively prevalent, and are of three kinds. (1.) *Basānta*, called small-pox by the Civil Surgeon; *Guti* by the natives, to distinguish it from human small-pox. It is identified by the Cattle Plague Commissioners now on circuit (1870) as a true form of rinderpest. It appears in its severest form in winter, and lasts for about two months, in November and December, occasionally, however, continuing till May. It begins with a high fever for two days, followed by a characteristic eruption all over the body. The animal lies

still, droops its ears, and occasionally flaps them, refuses food, salivates freely, and coughs. During the febrile stage thirst is very urgent, but it afterwards abates. This state of things goes on for four or five days in the severer cases, when a sharp diarrhoea sets in, of a putrid odour, and death releases the sufferer. If the animal survives the sixth day, however, it generally recovers. Of the animals attacked, thirty-five per cent. die in average seasons, but the mortality often rises to eighty or eighty-five per cent. The disease is highly communicable, and is said to attack but once in a lifetime. (2.) *Paschimá*, a severer and more rapidly fatal form of *basanta*, in which there is a determination internally, and not to the skin. The death-rate in both these diseases is very much higher among buffaloes than among cows. (3.) *Khurá* or *Phátuá*, like the two foregoing, is endemic and contagious. It occurs, however, only in winter and the early part of the rains, *i.e.*, during the months of December and January, and in June. It attacks the frog of the hoof, sometimes one, sometimes two, occasionally the whole four. The principal symptoms are as follow:—The animal first has a sore mouth, and refuses food for two days. After two days the mouth gets better, and the animal eats a little. Lameness now sets in, and the owner's attention is thus drawn to the complaint. A disease process goes on in the hoof, which soon becomes maggoty, and sometimes drops off. In the severer cases the lips and tongue become swollen, and the latter looks raw and sore. Saliva dribbles in great quantities from the mouth, the animal wastes to a skeleton, and apparently dies of exhaustion. Death generally occurs within fifteen or twenty days from the first symptoms, the rate of mortality being, in ordinary seasons, from ten to fifteen per cent. of the animals attacked. It is said to rise sometimes to sixty. If the animal survives this period, and is well cared for, a gradual recovery takes place.

FAIRS AND RELIGIOUS GATHERINGS.—Balasor being the district of Orissa most distant from Jagannáth, the pilgrim stream does not appear to be such an active cause of disease. But the Civil Surgeon reports that all the evidence before him points to the conclusion, that the pilgrims do import cholera. Balasor, however, has several important shrines of its own. The first of these, *Jájpur*, recently transferred from *Cattack*, is visited by the Jagannáth pilgrims, both in coming and going. One visit is imperative, in order to perform the funeral rites of their ancestors in the City of Sacrifice. *Jájpur* is also the scene of an annual local fair, in March, held in honour of the Sacred River. The fair lasts three days, and is attended by 10,000 or 12,000 persons. From £500 to £600 worth of goods are sold, among which the black stoneware called *mungí* deserves

special notice. It consists of platters and bowls cut out of a jet-black stone highly polished like marble. An inferior class of black stoneware is excavated from the rocks of the neighbouring Nílgiri hills, and sold in great quantities at the Jápur fair. Another of these religious gatherings is held at Remuná, about five miles west of the town of Balasor. A fair in honour of Kshíríchorá Gopínáth, a form of Krishná, is held here in February; it lasts thirteen days, and is attended by about 10,000 to 12,000 persons. About £600 worth of goods are sold, consisting chiefly of toys, sweetmeats, fruits, vegetables, country cloth, etc. The temple of the god is an unsightly stone edifice, and is made more so by prurient sculptures. It is a favourite resort of the masses during the months of February, April, and November. A third fair is held at Khirang, a place about ten miles south-east of Balasor, and near the sea-coast, in honour of Mahádeva, the All-Destroyer. It lasts for three days, and is attended by about 8000 persons, who buy and sell wares to the extent of about £400. There are four other small gatherings held during the year in honour of Siva. They are of little importance, and last only a single night.

THE INDIGENOUS DRUGS found in the District, and forming the greater part of the pharmacopœia of the native practitioner or kabiráj, are as follows:—Gulancha, a febrifuge; Nágeswar, an antispasmodic; Muthá, an antispasmodic and febrifuge; Sunti (dry ginger), an antispasmodic; Harirá, a febrifuge; Báhará, a febrifuge; Bháliyá, a remedy for leprosy; Jiyalá, a febrifuge; Dhuturá (stramonium); Kaniká (croton seed); Bhárgavi, a febrifuge; Bansalochan, a tonic; Gandhabene, an astringent; Chákundá seed, a detergent, much used in ringworms; Methi, a tonic; Pán Mahuri (aniseed); Hálim, an anodyne; Deb-dáru, a febrifuge; Dhaniyá (coriander); Gánjá (Indian hemp); Satábari, a tonic; Ankránti, a febrifuge; Sálpani, a febrifuge; Kushtapani, a febrifuge; Nabákuri, a febrifuge; Bel (Ogle Marmelos); Gambhári, a febrifuge; Hánripurá, a febrifuge; Sál Chiretá root, a vesicant and counter-irritant; Pátuli, a febrifuge; Agiyábát, a febrifuge; Gokhorá, a febrifuge and expectorant; Tihiri, a purgative; Tálmulí, a tonic; Sunáriyá bark, a purgative; Dulubhá, a febrifuge; Sulpá, a febrifuge; Gandhasunti, an antispasmodic; Ghorábach, an astringent; Gandáli, an anodyne and an astringent; Nárábábli, an astringent and emulcent; Dengábheji, a febrifuge and an expectorant; Atusi and Káládáná, a safe and excellent purgative. The only mineral found in the district, and used medicinally by the native practitioner, is iron. It first undergoes several pharmaceutical processes. The native practitioner is essentially an herbalist, and most of his potions are administered in the form of infusion or decoction. He seldom prescribes powders or pills. Surgery

and chemistry are not known to or practised by him. The study of anatomy is equally unknown, and obstetric medicine is a speciality restricted to uneducated midwives. According to the Civil Surgeon, the native practitioner knows only a rude and barbarous eclecticism. He learns little from experience, investigation, or practical research. All is one unvarying sameness. Every ailment has its formal specifics, from which there is no deviation in orthodox practice, save the option between two or more of the recipes given in his text-book for the same description of symptoms. It must be observed, however, that these strictures have special reference to the degenerate and uneducated native practitioners of Balasor.

SUBDIVISIONAL ADMINISTRATION.—Balasor has but one subdivision, Bhadrakh, whose headquarters are pleasantly situated on the Cattack high road. Bhadrakh is generally managed by a single assistant magistrate, and, unlike Khurdhá in Purl, forms an integral part of the District, which it resembles in soil, natural features, and every other particular. It has therefore received no separate treatment in this Statistical Account.

TRADE STATISTICS.—The following is a statement of the internal and external trade of the Port of Balasor for the ten years 1869-70. For several of the years the return is defective, and information cannot be supplied, as no record exists in the Customs office. In 1860-61, imports (no records), exports £4567; in 1861-62, imports £5824, exports £9931; 1862-63, imports (no record), exports £17,233; 1863-64, imports (no record), exports £40,098, tonnage 3754 tons; 1864-65, imports (no record), exports £72,525; 1865-66, imports £6858, tonnage 6757 tons, exports £27,010, tonnage 9266 tons; 1866-67, imports £15,362, tonnage 2144 tons, exports £8067, tonnage 3339 tons; 1867-68, imports £14,532, tonnage 1257 tons, exports £6122; 1868-69, imports £19,371, tonnage 2378 tons, exports £12,118; 1869-70, imports £28,357, tonnage 9072 tons, exports £27,923, tonnage 9064 tons. The trade of the minor ports of Balasor is as follows—the figures representing the average of the three years previous to 1870:—Dhámrá—imports £8963, exports £1751; Chhánuyá—imports £1, 4s., exports £1161; Sárathá—imports *nil*, exports £84; Churáman—imports £388, exports £167; Laichampur—imports £1266, exports £934; Subanrekhá—imports £52, exports £1405.

APPENDIX III.

STATISTICAL ACCOUNT OF THE TRIBUTARY STATES.

THE Tributary States form the mountainous background of Orissa. They lie between the Mahánadí delta and the interior tableland known as the Central Provinces, or from N. Lat. $19^{\circ} 52' 0''$ to $22^{\circ} 34' 0''$, and from E. Long. $83^{\circ} 36' 40''$ to $87^{\circ} 13' 20''$. Population, 961,355; area, 16,184 square miles. They were formerly eighteen in number, but are now reckoned as nineteen, namely—(1) Angul, (2) Athgarh, (3) Athmallik, (4) Bánki, (5) Barambá, (6) Bod, (7) Daspallá, (8) Dhenkánal, (9) Hindol, (10) Keunjhar, (11) Khandpára, (12) Morbhaj, (13) Narsinhpur, (14) Nilgiri, (15) Nayágarh, (16) Pál Lahará, (17) Ranpur, (18) Tálcher, and (19) Tigariá. They are bounded on the north by the districts of Midnapur, Puruliá, and Sinhbhúm; on the west, by the States of Boná, Bamrá, Rádhákol, Sonpur, and Patná; on the south, by Kaláhándi and Gdumsar; and on the east, by the districts of Purí, Cattack, and Balasor.

The chiefs administer civil and criminal justice under the control of the Superintendent of the Tributary States at Cattack. Heinous offences which require more than two years' imprisonment, and all capital cases, are sent to this officer, who also decides political causes and disputed successions. An appeal from his decision lies to the Government of Bengal. The Magistrates of Purí, Cattack, and Balasor are *ex officio* assistants to the Superintendent; but, with the exception of the Magistrate of Balasor, they do not ordinarily exercise criminal jurisdiction. The Superintendent has also a native assistant, who exercises the full powers of a magistrate, and who tries such cases as the Superintendent makes over to him. The States, during the minority of the Rájás or chiefs, or when for political reasons they are placed under attachment, are managed by the Superintendent through

a Government receiver (*Tahsildár*). The jurisdiction of the Commissioner is defined by Regulation xi. of 1816, and Act xxi. of 1850.

MOUNTAINS.—The Tributary States are a succession of ranges rolling backwards towards Central India. They form, however, three water-sheds from south to north, with fine valleys between, down which pour the three great rivers of the interior table-land. The southernmost is the valley of the Mahánadí, at some places closely hemmed in by peaks on either side, and forming picturesque passes; at others spreading out into fertile plains, laden with rice, and watered by a thousand mountain streams. At the Barmúl Pass, the river winds round magnificently wooded hills, of from 1500 to 2500 feet high. Crags and peaks of a solitary wild beauty overhang its channel, which at one part is so narrow, that it rises seventy feet in time of flood. From the north bank of the Mahánadí the ranges tower into a fine water-shed, from 2000 to 2500 feet high, running north-west and south-east, and forming the boundary of the States of Narsinhpur and Barambá. On the other side they slope down upon the States of Hindol and Dhenkánal, supplying countless little feeders to the Bráhmań, which occupies the second of the three valleys. From the north bank of this river the hills again roll back into magnificent ranges, running in the same general direction as before, but more confused and wilder, till they rise into the Keunjhar water-shed, with peaks from 2500 to 3500 feet high, culminating in Malayagiri, 3895 feet high, in the State of Pál Lahará. This water-shed, in turn, slopes down into the third valley,—that of the Baitarań, from whose northern bank rise the almost unexplored mountains of Morbhanj, heaped upon each other in noble masses of rock, from 3000 to nearly 4000 feet high, sending countless tributaries to the Baitarań on the south, and pouring down the Burábalang, with the feeders of the Sabanrekhá, on the north. The peaks are densely wooded to the summit, and, except at the regular passes, are inaccessible to beasts of burden. The intermediate valleys yield rich crops in return for negligent cultivation; and a vast quantity of land might be reclaimed on their outskirts and lower slopes. The principal peaks are fifteen in number, as follows:—(1.) Malayagiri, in the State of Pál Lahará, in Lat. $21^{\circ} 22' 20''$; Long. $85^{\circ} 18' 41''$; height, 3895 feet. (2.) Meghásan, literally the Seat of Clouds, in Morbhanj, in Lat. $21^{\circ} 37' 58''$; Long. $86^{\circ} 23' 30''$; height, 3824 feet. (3.) Gandha Mádan, in Keunjhar, in Lat. $21^{\circ} 38' 12''$; Long. $85^{\circ} 32' 56''$; height, 3479 feet. (4.) Thákurań, in Keunjhar, in Lat. $22^{\circ} 6' 5''$; Long. $85^{\circ} 28' 30''$; height, 3003 feet. (5.) Páńch Dhar, at Athmallik, in Lat. $20^{\circ} 41' 28''$; Long. $84^{\circ} 43' 36''$; height, 2948 feet. (6.) Tomák, on the boundary of Keunjhar and Sukindá, in Lat. $21^{\circ} 5' 35''$; Long. $85^{\circ} 57' 38''$; height, 2577 feet. (7.) Goáldeo,

in Daspallá, in Lat. $20^{\circ} 31' 5''$; Long. $84^{\circ} 52' 43''$; height, 2546 feet. (8.) Suliyá, in Nayágarh, in Lat. $20^{\circ} 6' 23''$; Long. $85^{\circ} 4' 0''$; height, 2239 feet. (9.) Kopilás, on the boundary of Athgarh and Dhenkánal, in Lat. $20^{\circ} 40' 40''$; Long. $85^{\circ} 48' 53''$; height, 2098 feet. This hill takes its name from that of a temple which is situated near its top, and which in February is visited by about 10,000 pilgrims, when a large fair is held, and trade to a considerable extent is carried on. At the top of the hill there is table-land, which might be made a very pleasant place of residence during the hot months. (10.) Bánkomundí, in Bod, in Lat. $20^{\circ} 42' 24''$; Long. $84^{\circ} 20' 18''$; height, 2080 feet. (11.) The Kanaká range, on the boundary of Narsinhpur and Hindol. The highest peak is in the latter State, in Lat. $20^{\circ} 36' 45''$; Long. $85^{\circ} 11' 7''$; height, 2038 feet. (12.) Bághmári, on the boundary of Morbhanj, and Sinhbhúm, in Lat. $22^{\circ} 29' 3''$; Long. $26^{\circ} 9' 27''$; height, 1997 feet. (13.) Tangári, in Angul, in Lat. $20^{\circ} 52' 48''$; Long. $84^{\circ} 52' 50''$; height, 1952 feet. (14.) Siánangá, in Bod, in Lat. $20^{\circ} 26' 16''$; Long. $83^{\circ} 51' 28''$; height, 1917 feet. (15.) Sápuámundí, in Khandpárá, in Lat. $20^{\circ} 19' 28''$; Long. $85^{\circ} 5' 21''$; height, 1769 feet.

RIVERS.—The principal rivers are the Mahánadí, the Bráhmañí, the Baitaraní, and the Burábalang. The first enters the Tributary States of Orissa in Bod, forming the boundary between that State on the south, and Athmallik and Angul on the north, for forty-nine miles. It then divides Khandpárá and Bánki on the south, from Narsinhpur, Barambá, and Athgarh on the north. In the last State, it debouches through a narrow gorge upon the Cattack delta. It is everywhere navigable throughout the Tributary States, and up to Sambalpur, by flat-bottomed boats of about twenty-five tons burden, and a considerable trade is carried on. Precious stones of different kinds are found in its bed. The river affords valuable facilities for navigation, but for the numerous sandbanks in its channel. The boatmen carry rakes and hoes, with which they clear a narrow passage just sufficient to let their craft pass. Where rocks impede the navigation, there is plenty of depth on either side; and a little blasting would enlarge the water-way, and thus lessen the force of the rapids. When full, it is a magnificent river, varying from one to two miles in breadth, and of great depth. It is liable to heavy floods, which have been fully described in my work on Orissa, where a comprehensive account of the Mahánadí will also be found. Its chief tributaries in the Tributary States, are, on its north bank, the Sápuá in Athgarh, and the Dandátapá and Máno in Athmallik; on its south bank, the Kusumí and Kamá in Khandpárá, with the Jorámu, Hinámandá, Gánduní, Bolát, Sálkí, Bágh, Maríní, and Tel. This last stream divides the Orissa Tributary States from

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those in the Central Provinces, and forms the boundary between the States of Bod and Sonpur.

The BRAHMANI enters the Tributary State of Tálcher, and passes through it and Dhenkánal into the Cattack District. It is navigable for a few months of the year to four miles below Tálcher, where there are some dangerous rocks, which might, however, be easily blasted. Common jasper abounds, along with other precious stones, in the bed of the river.

The BAITARANÍ RIVER rises in the State of Keunjhar, and forms the boundary between that State and Morbhanj for forty miles. In the dry season it is navigable by small boats; but with difficulty as far as Anandapur, a large village on its south bank, in Lat. $21^{\circ} 13' 0''$, and Long. $86^{\circ} 11' 0''$. A considerable trade is carried on at this place; the rural and forest produce brought by land from the south-west being bartered for salt, carried by boats from the coast.

The BURABALANG rises in the State of Morbhanj, and has been fully described in the Statistical Account of Balasor; which also see for an account of the Sálandí and Subanrekhá.

No important instances of alluvion or diluvion are known, nor of any changes in the courses of the above rivers. The banks are generally abrupt, occasionally rising into fine heights, and the beds sandy, with the exception of that of the Baitaraní, which is rocky. Nor have any important islands been formed by the rivers within the Tributary States, but rocks and wooded cliffs have here and there been thrown up from the middle of the Baitaraní and the Mahánadí. The banks are generally buried in jungle, but in many places they might be turned into fertile fields. The Baitaraní is popularly rumoured to have a subterraneous passage, but in reality merely flows through two rocky clefts, called the Cow's Nostrils. The rivers form no lakes, and are far beyond tidal range. None of them are fordable during the rainy season, but in the dry season they are all so at certain parts of their course.

USES TO WHICH THE WATER IS PUT.—Three towns on the Mahánadí subsist by river traffic, namely, Baideswar in Bánki, and Padmábati and Kantilo in Khandpará. These communities carry salt, spices, cocoa-nuts, and brass utensils up to Sambalpur, in the Central Provinces, bringing thence, in exchange, cotton, wheat, oil-seeds, clarified butter, oil, molasses, iron, turmeric, tasar cloth, rice, etc. There are also several smaller towns on both sides of the Mahánadí, which carry on an extensive trade in timber, bamboos, oil-seeds, and other local produce. On the Bráhmaní, the only large villages are Baulpur and Bhuvan, in the State of Dhenkánal, with a thriving river traffic in resin, lac, oil-seeds, etc. There is but a single large village within the Tribu-

tary States on the Baitaraní, viz. Anandpur in Keunjhar, the trade of which is the same as that of the villages on the Bráhmánf.

IRRIGATION.—None of the non-navigable rivers or streams are applied as a motive power for turning mills, etc. ; nor is the water of the larger rivers utilized for the purposes of irrigation, although the smaller streams are often dammed and embanked for the purpose. There is no regular system of storing water at an elevation from which it can be conducted to a distance ; but it is often ladled on the fields by the ordinary native methods described in the Statistical Account of Purf District.

FISHERIES.—All the villages on the rivers are partly inhabited by fishermen, who form about five per cent. of the entire population along the banks, and one per cent. in the interior. The fisheries are of no great value. In Bánki, the rent realized from this source in 1869 was £38 ; in Athgarh, £17 ; in Nayágarh, £13, 10s. ; in Khandpára, £11, 14s. ; and in Angul, only £3.

EMBANKMENTS.—With the exception of Bánki, which is directly under Government management, embankments on an extended scale are unknown within the Tributary States ; nor do the Rájás possess sufficient capital for their construction.

MINERALS.—A coal-field exists in Tálcher. In 1841 an exploring party found coal in several places, extending over a tract of upwards of thirty miles. Further investigations were also made in 1855, and the results published in the Memoirs of the Geological Survey of India, vol. i. part i. It is also believed to exist in Angul, and along the banks of the Mahánadí. Limestone and building stone are procurable in almost all the States. Iron is found in Morbhanj, Keunjhar, Dhenkánal, Angul, Athmallik, Tálcher, and Pál Lahará, and a considerable trade in the metal is carried on. Gold dust is found, but to a very small extent, in the sands of a few streams in Keunjhar, Dhenkánal, and Pál Lahará. A black stone called Mungi is extensively quarried in Nílgi, and manufactured into native plates and cups. Dhenkánal produces talc, and hot springs are found in Athmallik.

JUNGLE PRODUCTS.—The chief marketable timber of the Tributary States is Sál, the forest revenue of the single State of Angul being £35. The jungle yields an annual supply of resin, lac, tasar, bees-wax, dyes, fibres, such as siári, the fibre of a gigantic vine used for cordage ; and Murgá (*Saserviera Zeylonica*). The following classes subsist by collecting and trading in jungle products :—(1.) The Khayrás, who collect and deal in catechu, and belong to the States of Dhenkánal, Keunjhar, Angul, Tálcher, and Athmallik. (2.) Lohárs, iron-smelters, living in Dhenkánal, Keunjhar, Tálcher, and Athmallik. (3.) Kandhs.

(4.) The Gands, residing in Keunjhar, Morbhanj, and Dhenkánal. (5.) Kols, who sell resin, lac, wax, etc., and live in Morbhanj, Keunjhar, and Pál Lahará. (6 and 7.) Juáns and Malhárs, who deal in honey and other jungle produce, and live chiefly on roots and leaves. They come from the States of Keunjhar and Dhenkánal. (8.) Bhúmijas, labourers from Keunjhar, Morbhanj, etc. And (9.) Kostíás, dealers in tasar.

WILD BEASTS.—Among the larger sort of wild animals are the elephānt, tiger, panther, hyena, bear, deer of several sorts, antelope, hog, bison, etc. Wild elephants infest the jungles of Morbhanj and Keunjhar, and in lesser numbers in Athmallik, Angul, and Dhenkánal. They do great damage to the crops, and occasionally trample down a barn, but very seldom destroy human life. Tigers exist everywhere, and annually carry away numbers of men and cattle. At the Mangarhghát Pass, they killed upwards of 300 persons in three years. In the State of Bod eighty-six persons were devoured in 1869, and the Rájá was obliged to engage a huntsman from Sambalpur. In some States the tigers watch the villages, and seize any one who strays beyond their limits; but the Rájás seldom give rewards for their destruction. Some tribes, particularly the Kandhs, regard them with superstitious reverence, and will not kill them. Hundreds of people die every year from snake bites, but payments for serpent killing are unknown. Among the smaller sorts of game are hares, various sorts of wild fowl, wild geese, peacocks, partridges. Wild beast skins form an important article of traffic.

POPULATION.—No regular census has ever been taken of the Tributary States. An estimate prepared by the Topographical Survey in 1860-62 gives the number of towns and villages at 6965, with a population, calculated at the rate of five and a half inhabitants to each house, of 961,355. A detailed statement of the estimated population of the different States will be given subsequently.

The principal races inhabiting the Tributary States are—(1.) the Uriyás, who form the most important and largest section of the population, and inhabit the valleys. The hill tribes consist of—(2.) the Kandhs, residing chiefly in the States of Bod, Kandhmáls, Daspallá, and Nayágarh. They are a simple race, fond of the chase, and capital hunters; easily managed by those who are accustomed to them, but very jealous of any interference with their rights in the soil of their native hills. (3.) Kols, in Morbhanj, Keunjhar, and Pál Lahará, a more turbulent people, sometimes very difficult to control, addicted to daring predatory enterprises, and much dreaded by the neighbouring peasants. (4.) Bhunás, otherwise spelt Bhuyás, who reside in Keunjhar and Morbhanj. This

tribe forms the most important portion of the inhabitants of Keunjhar, and are about ten thousand in number. They are a slightly built race of men, with an average height of only 5 feet 3 inches, and a very dark skin. They have lost their original language, and now speak Uriyá. As a rule, they are honest and truthful, but very tenacious of their land rights, although timid by nature, and easily oppressed individually. (5.) Juáns, residing in Keunjhar and Dhenkánal. (6.) Gands, living in Keunjhar, Morbhanj, and the Central Provinces, have also lost their own language. They are much fairer in the Tributary States than their tribesmen in the Central Provinces, and seem to have a strong mixture of Aryan blood. (7.) Malhárs living in Dhenkánal have no fixed abode, but lead a wandering life in the forest, lodging under trees, and subsisting by the sale of honey, wax, lac, resin, and other jungle products. (8.) Bhúmijas, living in Keunjhar, Morbhanj, and Dhenkánal. (9.) Sántáls, living in Keunjhar and Morbhanj. (10.) Savars. (11.) Domnás, living in the Kandh country. These last people act as priests to the Kandhs. When a Kandh is wounded or killed by a tiger, his whole family becomes outcaste. The Domná priest can, however, restore the family to its former social position, by taking away all the property in the house of the unfortunate man who had incurred the displeasure of the Kandh deities. The hill tribes have already been treated of in the main body of this volume. Each of them has a distinctive oath. A Kandh swears by touching muhwá fruit, or earth; a Kol, by touching cooked rice; a Juán, or Bhuná or Bhuyá, by touching a tiger skin, a white-ant hill, or a bamboo leaf; and a Domná, by touching cow dung. For minor tribes, see list of castes.

No immigration nor emigration to any extent goes on in the Tributary States.

RELIGION.—As in other parts of Orissa, the great mass of the inhabitants of the Tributary States are Hindus, with the aboriginal fetish element more or less distinctly preserved. The number of Musalmáns is very small, and consists of the descendants of those who took service as soldiers under the Rájás in the time of the Marhattás, when there was constant fighting between the various rival States. The Muhammadan religion does not make any progress among the people. In Athgarh there is a village called Chhagán Gobrá, and in Nilgiri one called Mitrapur, entirely inhabited by agricultural communities of native Christians. The principal places of pilgrimage in the Tributary States are Kopilás in Dhenkánal, Kusaleswar and Jotipur in Keunjhar, Mántir in Morbhanj, and Samakul in Nayágarh, all of which attract annual crowds of devotees. Some aboriginal tribes preserve their ancient rites intact.

CASTES.—The list of castes numbers sixty-four. The most esteemed are—(1.) the Bráhmans, who follow the same occupations as the Bráhmans in other parts of Orissa. (2.) The so-called Kshattriyas, who are connections of the chiefs, and are supported by them. They are few in number, and generally rich. (3.) Karans, corresponding to the Káyasth caste of Bengal, chiefly employed as writers and clerks, few in number, and generally well off. Next to the Karans come the so-called Súdras, among whom the ten following are deemed respectable:—(1.) Khandáit, agriculturists, few, and tolerably rich. (2.) Chásá, agriculturists, numerous, poor. (3.) Barhái, carpenters, few in number, poor. (4.) Kamár, blacksmiths, few, poor. (5.) Guriá, confectioners, few, poor. (6.) Bhandári, barbers, few, poor. (7.) Baniá, betel-nut sellers and goldsmiths, few, but sometimes rich. (8.) Gaur, herdsmen, few, poor. (9.) Tambúli, betel-nut sellers, few, poor. (10.) Máli, gardeners, worshippers of Mahádeva, few, poor. The following nine castes are held in much lower esteem than the foregoing, but are within the pale of respectability:—(1.) Patrá, weavers and traders, few, rich. (2.) Pathuriá, stonemasons, few, poor. (3.) Thatári, braziers, numerous, poor. (4.) Chitrakar, painters, few, poor. (5.) Kansári, workers in brass, few, rich. (6.) Ráj, merchants, few, rich. (8.) Náyak, astrologers, few, rich. (9.) Barsud, agriculturists, numerous, poor. The following forty-one castes are utterly despised:—(1.) Tanti, weavers, few, poor. (2.) Kumbhár, makers of earthen pots, few, poor. (3.) Tell, oilmen, few, poor. (4.) Jogí, beggars, few, some poor, but many, as religious mendicants, are rich. (5.) Mátíá, labourers, few, poor. (6.) Keut, fishermen, few, poor. (7.) Thoriá, drivers of pack bullocks, few, rich. (8.) Parirá, horse-keepers, few, poor. (9.) Bhuná or Bhuyá, cultivators who live partly on jungle products, numerous, poor. (10.) Girgiriá, fishermen, few, poor. (11.) Douá, weavers, few, poor. (12.) Bhúmija, labourers, few, poor. (13.) Magadhá, herdsmen, few, poor. (14.) Batakásud, cultivators, numerous, poor. (15.) Korá, cultivators, numerous, poor. (16.) Lohár, iron-smelters, numerous, poor. (17.) Dumál, cultivators, numerous, poor. (18.) Tiar, fishermen, few, poor. (19.) Khayrá, dealers in catechu, few, poor. (20.) Jhará, gold-washers, few, poor. (21.) Dhobá, washermen. (22.) Sinkhálu, labourers, numerous, poor. (23.) Kurmi, labourers, numerous, poor. (24.) Bhuliá, weavers, numerous, rich. (25.) Sundi (Suri), spirit vendors, few, rich. (26.) Chamár, basketmakers, few, poor. (27.) Godrá, basketmakers, few, poor. (28.) Mochi, shoemakers, few, poor. (29.) Malhár, (30.) Kol, and (31.) Juán, aboriginal tribes who sell resin, lac, wax, honey, and other jungle products, and live partly by tillage, chiefly on roots. (32.) Kandh, hired labourers and poor cultivators. (33.) Hári, sweepers,

numerous, poor. (34.) Dom, sweepers, numerous, poor. (35.) Pán, labourers, numerous, poor. (36.) Kandrá, labourers, few, poor. (37.) Sántál, cultivators who partly live on jungle products, few, poor. (38.) Saura (Savar), labourers, numerous, poor. (39.) Tanalá, labourers, few, poor. (40.) Gand, a tribe of aborigines. (41.) Kelá, a wandering aboriginal gipsy-like tribe, few, poor.

CONDITION OF THE PEOPLE.—The peasant's food consists of boiled rice, pulse, vegetables, fish, and occasionally flesh. A prosperous cultivator lives on about fourteen shillings a month. His household expenses are eight shillings for rice, two for vegetables, one for salt, and three for firewood, oil, spices, and occasionally a little fish.

The dress of a well-to-do shopkeeper consists of a white cloth round the loins hanging down to the ankle (*dhoti*), and a white sheet or cloth thrown over the shoulders (*chádár*), worth altogether about four shillings. That of a peasant is a simple waistcloth, worth eighteenpence. A shopkeeper's furniture consists of a few blankets, carpets, mattresses, mats, and pillows, a wooden seat or two, and an instrument for husking rice (*dhenki*).

There are only six villages in the Tributary States containing more than 500 houses, namely—(1.) Kantilo, and (2.) Nijgarh in Khandpára; the first containing 1113 houses with an estimated population of 6121, and the second 1121 houses with an estimated population of 6165. (3.) Nayápatná in Tigariá, with 512 houses and a population of 2816. (4.) Bághsámargarh, and (5.) Chheliá in Morbhanj; the former with 500 houses and an estimated population of 2750, and the latter with 757 houses and a population of 4163. (6.) Garh in Dhenkánal, with 753 houses and a population of 4141.

ADMINISTRATION.—In 1805 the revenue paid to the British Government by the Tributary States amounted to £4555; in 1820 the same; in 1860–61 it had increased to £8286; and the Budget estimate for 1870–71 is £8388. The Rájás rule their territory pretty much according to their own idea of what is right; and even in the two States directly under our management, Bánki and Angul, land litigation is little known. In Bánki the number of rent-suits instituted under Act 10 of 1859 was 14 in 1861–62, 33 in 1862–63, 54 in 1866–67, and 28 in 1868–69. In Angul, during the same years, the number of cases were 29, 57, 37, and 28 respectively.

POLICE.—The Rájás do not maintain regular police stations, the duties being performed by the páiks, or cultivators holding on a tenure of military service. A regular force has been organized in the two States under Government management. Angul has one head-station at Purnágarh, and four outposts at Tikarpára, Maidharpur,

Balrámprásád, and Chhindipadá. In Bánki there is a head station at Chárchiká, with three outposts at Baideswar, Kalápathar, and Subarnapur. A police force is also maintained in the Kandhmáls, consisting of one head station at Bisipará, and four out-stations at Khejuripará, Kalábág, Nayápára, and Argirkíá, to preserve order in that wild region.

The following is a detailed account of the different States, their area, revenue, crops, fairs, estimated population, etc. Each has its own Rájá, or chief, except the two under direct Government control.

ANGUL, bounded on the south by the river Mahánadí and the State of Narsinhpur; on the north by Tálcher and the State of Bamrá in the Central Provinces; on the east by Hindol; and on the west by Athmallik and Rádhákol. Area, 881 square miles. Estimated population, 39,488. Revenue, according to the Budget estimate for 1870-71, £3067. The State was confiscated in 1847, owing to the Rájá's continued disobedience of the orders of Government, and his attempt to wage war against the English. The revenues are collected, and the State generally managed, by a receiver (Tahsildár). The members of the ex-Rájá's family enjoy pensions from Government. The State was originally in the possession of a Kandh named Ano, but the ancestors of the ex-Rájá having gained a footing in the country as traders, plotted against the Kandh prince, and seized his territory. It is for the most part jungle. Rice, sugar-cane, oil-seeds, cotton, and coarse cereals form the staple crops of the small cultivated portion. Droughts frequently destroy the crops, but there is scarcely any part of the State in danger of flood.

Tillage is conducted in two ways; and as these methods are common to the whole Tributary States, they may be described here once and for all. (1.) Rice cultivation in hollows and on low lands with a command of moisture. In the valleys, where the mountain rivulets can be utilized, the peasants throw a dam across the streams and store up the water. The lower levels thus secure a supply of moisture the whole year round, and the Wet Rice cultivation goes on throughout the twelve months. (2.) Upland or *Tailá* cultivation, upon newly cleared patches of land, and depending entirely on the local rainfall. The forest is cut down and burnt upon the spot, and the soil thus enriched with salts, yields abundant crops of early rice, oil-seeds, and cotton. At the end of four or five years such clearings are abandoned for new ones, and the land relapses into jungle. After years of rest, when a fresh growth of forest has sprung up, the trees and shrubs are again cut down and burnt on the spot; the whole process of clearing and cultivating for another period of five years being repeated *de novo*.

Prior to its confiscation there was no trade in Angul, and its Tribute amounted to only £165; but since then fairs have been established at seven places, attended by traders from Cattaek and the neighbouring districts. The population is sparse, and lives almost entirely by agriculture. With the exception of the hilly southern part, the country is level, and only needs inhabitants to increase its value. The Bráhmán runs within a mile of its north-eastern boundary, and might form a trade-route for the products of the State. Coal and iron are found. The largest village in Angul is Chhindipadá, in Lat. $21^{\circ} 5' 0''$, Long. $84^{\circ} 55' 0''$, containing 149 houses at the time of the Topographical Survey in 1860-62. There are also nine other villages, containing upwards of 100 houses each. The total number of villages is 345.

ATHGARH, bounded on the south by the Mahánadí; on the north by Dhenkánal; on the east by Tigariá; and on the west by Cattaek District. Area, 168 square miles, containing 184 villages, with 3302 houses and an estimated population of 18,326 souls. It yields its Rájá an income of about £1494 a year, and pays £282 as tribute to Government. In ancient times it belonged to the kings of Orissa, one of whom married the sister of his prime minister, and presented the State of Athgarh to his brother-in-law, with the title of Rájá. The present ruler is the tenth in descent, and belongs to the writer caste (Káyasth). Athgarh is a low level country, and very subject to inundations. The only village containing upwards of 100 houses is Gobrá, in Lat. $20^{\circ} 35' 2''$, Long. $85^{\circ} 52' 28''$, with 159 houses. At the village of Chhagán, Lat. $20^{\circ} 34' 14''$, Long. $85^{\circ} 52' 30''$, there is a peasant colony of native Christians under the care of the Baptist Mission at Cattaek. The village has a small chapel, and is prettily situated on a slight eminence, surrounded by well-cultivated rice fields. It has a population of 263, exclusively Christians, who are employed as agriculturists. Two other Christian hamlets adjoin it. The cultivation consists of rice, with an occasional crop of sugar-cane. The Rájá's residence is buried in bamboo thickets, planted as a defence against the Marhattá horse. The high road from Cattaek to Sambalpur passes through the State.

ATHMALLIK is bounded on the south and west by the Mahánadí; on the east by Angul; and on the north by the State of Rádhákol, in the Central Provinces. Area, 730 square miles. Estimated population, 16,250. Yields a revenue of £800 a year to its chief, and pays a tribute to Government of £48. Has but one village containing more than 100 houses, viz. Kainta, with 127. The State is a dense jungle, with little cultivation, and no trade. A long range of hills covered with wood runs along its southern side, parallel with the Mahánadí. The crops consist of coarse rice and other inferior grains, with a few

oil-seeds. The chiefs of Athmallik have no legal claim to the title of Rájá. Their emblem of signature is a *Kadamba* flower.

BANKI, bounded on the north by the States of Athgarh, Tigariá, and Barambá ; on the south and east by Purí District ; and on the west by Khandpára. Area, 150 square miles. Estimated population, 48,813. Paid an annual tribute of £443 to Government from 1805 till 1840, when it was confiscated, the Rájá having been convicted of murder, and imprisoned for life. Since that time the estate has been under direct Government management. In 1860-61 it yielded a revenue of £1333, which has now increased to £1996 (1870-71).

BARAMBA, bounded on the north by the Mahánadí ; on the south by Nayágarh ; on the east by Nayágarh and Daspallá ; and on the west by Purí District. Area, 134 square miles, with 137 villages and 3958 houses. The population is variously estimated, at from 21,967 by the Topographical Survey in 1860-62, to 27,458 by a recent official return. The Rájá, in 1870, calculated the number of villages at 133, with 3748 houses and 20,604 inhabitants ; but this is probably below the truth. The Mahánadí, on its southern boundary, affords water-carriage for the products of the State. Bi-weekly fairs are held at Mainábád, a small village of 48 houses, in Lat. 20° 26' 30", Long. 85° 20' 28" ; and at Banálipur, a village with 74 houses, in Lat. 20° 24' 9", Long. 85° 20' 28", where the usual common description of country products are brought for sale. Timber and bamboos are floated down the Mahánadí to Cattack and Purí. The largest villages are Gobirátpur, 276 houses, on the bank of the Mahánadí, in Lat. 20° 22' 59", Long. 85° 24' 31" ; and Barambá, 232 houses, in Lat. 20° 15' 17", Long. 85° 22' 45". The history of the State commences with a legend of a celebrated wrestler, to whom the Orissa monarch presented two villages. The hamlets were owned and inhabited by Kandhs, but the wrestler speedily drove out the aboriginal race ; and gradually extending his territory at their expense, founded the State of Barambá. The present Rájá is the nineteenth in descent from the original chief. His emblem of signature is a dog metamorphosed into a lion—a heraldic monster that took his origin in a story belonging to the time of the first founder, when a dog assaulted a tiger. Tribute, £140 ; Rájá's income, £1200.

BOD, bounded for sixty-five miles on the north by the Mahánadí ; on the east by the State of Daspallá ; on the west by the Tel River ; and on the south by the Kandh Hills. The latter are under British management, although once nominally feudatory to Bod. Area, including the Kandhmáls, 2064 square miles. Excluding this latter portion, respecting which no reliable statistics have yet been obtained, Bod contains 542 villages and 3349 houses, with an estimated population of

18,687. Many of the villages are deserted. The Rájá pays an annual tribute of £80 to Government, and enjoys an income of about £1000 a year. The Mahánadi and Tel offer facilities for water-carriage; but, with the exception of a small trade in Sál timber, none of the produce of the country is exported. Weekly markets are held at eight villages, for traffic in the usual simple commodities, such as coarse rice, oil-seeds, and jungle products. The only two towns in the State containing upwards of 100 houses, are Bod, with 300 houses, Lat. 20° 50' 30", Long. 84° 22' 0"; and Jagatigarh, with 120 houses. Bod Proper is one of the most neglected of the Tributary States. The reigning family claims an uninterrupted descent of seventy generations from a Bráhma, who founded the petty principality about a thousand years ago. It was once much larger than at present; but powerful neighbours have from time to time wrested parts of it away.

As indicated above, the State is now divided into two parts—Bod Proper, and the Kandhmáls. The latter consist of a broken plateau intersected by ridges of low hills, the last refuge of the Kandh race. The villages are few in number, and divided from each other by rugged peaks and dense forests; but a regular system of government on the aboriginal plan is maintained, the hamlets being distributed into *mutas*, and each *muta* being under the supervision of a clan-chief. Throughout this wild tract, the Kandhs claim an indefeasible right in the soil. They assert that the whole of Bod, and all the neighbouring country, was once theirs, and that they have been gradually pushed back into the recesses of the hills by unscrupulous invaders. They deny that they ever acknowledged the rule of their oppressors, and consider themselves as wrongfully ousted, so that no length of time can bar their inalienable right to the soil. Mr. Ravenshaw, the Commissioner of Orissa (1871), whose minute acquaintance with the people makes him the highest living authority, writes to me that these Kandh legends of having been driven out from more fertile territories are probably true. The Kandhs say that they were pushed eastwards from Sableia, in Sambalpur, the ancient home of their race. The Kandhmáls, at any rate, were never more than nominally subject to the Bod Rájá, who was totally unable to control or coerce them. After the British Government discovered the frequency of human sacrifice among them (1836), it established an Agency to put a stop to the practice (Act xxi. of 1845), and the Bod Rájá gladly ceded the Kandhmáls to us for the better suppression of these inhuman rites. The people are a wild, impulsive race, but the Commissioner of Orissa reports that for years they have lived peaceably under our rule. They pay no rent, and we take no revenue whatever from them, but merely keep order and prevent

oppression by means of a Tahsildár, supported by a strong force of police. This officer's principal duties are to prevent or to put a stop to blood-feuds, to adjust dangerous disputes, and to take cognizance of any serious crime. The Bod Rájá exercises no authority whatever in the Kandhmáls. Their chief product is turmeric, which is grown in large quantities. It is of an unusually fine quality, and is eagerly bought up by traders from the open country, who penetrate with their pack bullocks into the innermost recesses of the hills. For further particulars regarding the Kandhs, see my work on Orissa, and the Central Provinces Gazetteer (where they are spelt Khonds), pp. 25, 124, 196, 239, 251, 286, 393. Ed. 1870. Also Manual of Vizagapatam District, pp. 323-349.

DASPALLA is bounded for twenty-four miles on the north-east by the Mahánadí; on the east by Khandpára; on the west by the Kandh Hills of Bod; and on the south by the State of Gumsar, in the Madras Presidency. It contains an area of 568 square miles, yields an annual income of about £2000 to its Rájá, and a tribute of £66 a year to Government. The Topographical Survey in 1860-62 estimated the number of villages at 365, with 6331 houses and 35,136 inhabitants. A Return officially prepared for me in 1870, gives the population at 43,920. In the same year the Rájá reported the villages at 376, with 6607 houses and 36,338 inhabitants. The Mahánadí here flows through the magnificent Barnúl Gorge in a channel of great depth, with special facilities for water-carriage. A large tract of Daspallá is inhabited by Kandhs, only nominally subject to the Rájá. Throughout the whole State, six villages contain over 100 houses:—(1.) Kunjabana, the Rájá's place of residence, 220 houses; Lat. 20° 20' 45"; Long. 84° 53' 27". (2.) Modiá Kandpatná, 278 houses; Lat. 20° 20' 25"; Long. 84° 58' 24". (3.) Judum, 161 houses; Lat. 20° 31' 28"; Long. 85° 0' 14". (4.) Belpadá, 148 houses; Lat. 20° 24' 59"; Long. 85° 6' 3". (5.) Julindá, 137 houses; Lat. 20° 31' 28"; Long. 84° 59' 23". (6.) Kamaládhár, 121 houses; Lat. 20° 30' 32"; Long. 84° 56' 30".

Daspallá was founded about 500 years ago by a son of the Rájá of Bod. Since then, fourteen chiefs have reigned. The State is divided into two parts,—Daspallá proper, which composed the original principality; and Judum, formerly a part of Angul, but annexed to Daspallá by conquest. The family name of the chiefs is Bhanj, literally broken (also forest); and their emblem of signature a peacock, from a legend that the founder of the family sprang from a peafowl's egg.

DHENKANAL, bounded on the north by Keunjhar; on the south by Athgarh, Tigariá, and Hindol; on the east by Cattack District; and on the west by the Bráhmañí River, Tálcher, and Pál Labará. Area,

1463 square miles. According to the Topographical Survey 1860-62, it contains 859 villages, with 127,411 inhabitants. The Mahárájá, in 1870, returned the villages at 961, with 26,226 houses and 144,255 inhabitants. The State yields an income of about £6000 a year to its chief, and an annual tribute of £509 to Government. It is a very valuable property, and excellently managed under the personal supervision of its ruler, on whom the British Government conferred the title of Mahárájá in 1869, as a reward for his moderation and justice towards his people, and his liberality in the famine of 1866. The Bráhmán runs through the State, and forms a richly cultivated valley. There is, however, a great deal of waste land which might be brought under tillage. Iron abounds, but is worked on a very small scale. A petty trade in cochineal is also carried on. The four following towns consist of more than 200 houses:—(1.) Dhenkánal, 650 houses; Lat. 20° 39' 45"; Long. 85° 38' 20". (2.) Kontheo, 273 houses; Lat. 20° 46' 24"; Long. 85° 32' 30". (3.) Sanda, 346 houses; Lat. 20° 50' 6"; Long. 85° 27' 9". (4.) Komar, 422 houses; Lat. 20° 50' 0"; Long. 85° 21' 48". Weekly markets are held at two villages on the banks of the Bráhmán, Hodipur, and Sadáipur, at which the usual country produce is sold. The name Dhenkánal is said to owe its origin to the fact of the founder of the family having killed the original owner, named Dhenká, in a stream (*nálá*), about 500 years ago, since which time about twenty-three chiefs have ruled, and constantly enlarged their territory by annexations from the neighbouring States. For further particulars see my work on Orissa.

HINDOL, bounded on the north and east by Dhenkánal; on the south by Narsinhpur and Barambá; and on the west by Angul. Area, 312 square miles, with 134 villages, 3735 houses, and 20,729 inhabitants, according to the Topographical Survey of 1860-62; and 123 villages, 3703 houses, and 20,366 inhabitants, according to a Return submitted by the Rájá in 1870. It pays a yearly tribute of £55 to Government, and yields an income of about £1000 a year to its chief. The southern half of the State consists of a wild and jungly range of hills called Kanaká, rising to over 2000 feet high. The Cattack and Sambalpur high road runs through the district, and small quantities of country produce find their way by it to the Mahánádí, and are there sold to travelling merchants. No fairs or markets are held, and only five villages contain over 100 houses:—(1.) Hindol, 297 houses; Lat. 20° 35' 54"; Long. 85° 14' 23". (2.) Karindá, 197 houses; Lat. 20° 42' 32"; Long. 85° 22' 50". (3.) Didárkot, 107 houses; Lat. 20° 41' 26"; Long. 85° 18' 36". (4.) Kanjágolá, 105 houses; Lat. 20° 42' 12"; Long. 85° 20' 12". (5.) Navapatná, 100 houses; Lat. 20° 38' 5"; Long. 85° 20' 35". Hindol consisted originally of three or four very petty

States completely buried in jungle, and ruled by separate chiefs, till two Marhattá brothers belonging to the family of the Kimidi Rájá drove them out, and formed their territories into one principality. The present chief is the twenty-fifth in descent from the founders. His emblem of signature is a sword (*Katár*).

KEUNJHAR is bounded on the east by the State of Morbhanj and the District of Balasor; on the south by Morbhanj; on the north by Pál Lahará; and on the west by Bonái, a Tributary State in the Chhotá Nagpur Division. It has an area of 3096 square miles, and an estimated population of 170,000. It yields to its Rájá an income of about £5000 a year, and a tribute of £197 to Government. The Baitaraní River rises among the ranges of its south-west division. Keunjhar originally formed part of Morbhanj. But, about two hundred years ago, the tribes of this part finding it a great hardship to have to travel through perilous forests to Morbhanj, to obtain justice from their prince, separated themselves, and set up the brother of the Morbhanj Rájá as their independent chief. Since then, twenty-seven Rájás have reigned. The last prince rendered good service during the Kol rebellion in 1857, and was rewarded by Government with the title of Mahárájá. He died without legitimate issue; and a dispute arose about the succession, which was ultimately decided in favour of his natural son. The emblem of signature is a pea-fowl. A fuller account of this State will be found in my Account of Orissa. Keunjhar = Kendu-Jhár, the Kendu tree.

KHANDPARA, bounded on the north by the Mahánadí; on the south by the District of Purí and the State of Nayágarh; on the west by Daspallá; and on the east by Purí District. Area, 244 square miles. The Topographical Survey 1860-62 estimated the number of villages at 281, with 8245 houses and a population of 45,760. A Return prepared for me in 1870, gives the population at 57,180, and with this the Rájá's calculation substantially agrees. The latter estimates the villages at 250, with 10,685 houses and 58,768 inhabitants. Khandpára is a very valuable territory, and one of the most highly cultivated of the Tributary States. The only two seats of trade in it are Kantilo, with 850 houses in 1862, and 1113 in 1870, Lat. 20° 21' 46", Long. 85° 14' 20"; and Padmábatí, 282 houses, Lat. 20° 20' 27", Long. 85° 21' 46". Both are situated on the banks of the Mahánadí. No regular fairs are held, but merchants from Cattack bring salt, spices, etc., to exchange for cotton, wheat, clarified butter, and oil-seeds from Sambalpur. Tribute, £421; chief's income, £2445. Fine Sál timber abounds in the hilly parts of the State, and magnificent mango and banyan trees stud the plains. Besides the two seats of trade mentioned above, five other villages contain over 100 houses, viz.—

(1.) Khandpára, the residence of the Rájá, 680 houses; Lat. $20^{\circ} 15' 55''$; Long. $85^{\circ} 12' 43''$. (2.) Biengoniá, 211 houses; Lat. $20^{\circ} 15' 8''$; Long. $85^{\circ} 16' 0''$. (3.) Fatiágad, 158 houses; Lat. $20^{\circ} 17' 37''$; Long. $85^{\circ} 22' 33''$. (4.) Banmálipur, 130 houses; Lat. $20^{\circ} 16' 14''$; Long. $85^{\circ} 15' 12''$. (5.) Nemapol, 109 houses; Lat. $20^{\circ} 16' 10''$; Long. $85^{\circ} 16' 14''$. This State originally formed a part of Nayágarh, and was separated, about 200 years ago, by a brother of the Nayágarh chief, who set up for himself. Since then, seven Rájás have ruled. The family emblem of signature is a tiger's head.

MORBHANJ is the largest of the Orissa Tributary States, and one of the most valuable. It is bounded on the south and east by the State of Nílgiiri, and by the Balasor and Midnapur Districts; on the west and north by the State of Keunjhar. It extends over 4243 square miles, and presents every variety of soil and scenery. The Rájá, in 1870, returns the villages at 2319, with 24,224 houses and 132,232 inhabitants. The Superintendent of the Tributary States, in the same year, estimated the population at 191,200. Morbhanj yields an annual income of £10,000 to its Rájá, and £106 as tribute to Government. It abounds in rich valleys, but a vast extent remains under the primeval jungle. Of this latter, a considerable proportion might be brought under tillage. The Meghásan hill rises to the height of 3824 feet in the southern part of the State, and well merits its name, literally the Seat of Clouds. Morbhanj is divided into three parts—Morbhanj Proper, Upen-bágh, and Bámanghátí. The last is under British management, necessitated by a peasant rebellion brought on by the oppression of the aboriginal population, Kols and Bhúiyás, by the land-stewards and petty officials of the Rájá. Upen-bágh is also under English surveillance, a body of our police being quartered there at the Rájá's expense. Large herds of elephants roam through the forests and mountains of Morbhanj, and very successful Khedda operations have been carried on for the last two years—upwards of 100 fine elephants having been caught. The chronicles relate that the principality was founded more than two thousand years ago by a relative of the Rájá of Jaipur, in Rájputaná. The emblem of signature is a pea-fowl, and the killing of this heraldic bird is strictly prohibited throughout the State. Further details regarding Morbhanj will be found in the main part of this volume.

NARSINHPUR, bounded on the south and south-west by the Mahánadí; on the north by a range of jungly mountains; and on the east by the State of Barambá. Area, 119 square miles. The Topographical Survey in 1860-62 reported the villages at 191, with 4893 houses and an estimated population of 27,156. The Rájá, in

1870, returns the villages at 173, with 5279 houses and 39,037 inhabitants. The State yields an income of about £1200 a year to its chief, and pays an annual tribute of £145 to Government. Bi-weekly markets are held in a clump of mango trees at Kánpur, a town of 331 houses, in Lat. 20° 24' 4", Long. 85° 3' 21", where grain, cotton, sugar-cane, and oil-seeds are bartered for salt and cloths from Cattack. Five other towns contain over 100 houses, viz.—(1.) Narsinhpur, 313 houses; Lat. 20° 27' 59"; Long. 85° 7' 3". (2.) Adaigundi, 151 houses; Lat. 20° 27' 59"; Long. 85° 11' 53". (3.) Ekdál, 126 houses; Lat. 20° 23' 52"; Long. 85° 10' 37"; (4.) Bukda, 122 houses; Lat. 20° 27' 35"; Long. 85° 12' 57". (5.) Ságar, 101 houses; Lat. 20° 27' 49"; Long. 85° 11' 6". Narsinhpur was founded three hundred years ago by a Rájput who slew its former chiefs, two Kandhs, by name Narsinha and Poro. Since then, twenty-two chiefs have reigned. The emblem of signature is a scorpion.

NILGIRI, bounded on the east and south by the District of Balasor, and on the north and west by Morbhanj, has an area of 278 square miles, and a population, as estimated by the Superintendent in 1870, of 21,000. The Rájá, in the same year, returns the villages at 241, with 5030 houses and 27,665 inhabitants. The State pays an annual tribute of £390, and yields an income of about £1945 to its chief. One-third of it consists of mountains, one-third of waste jungle land, and one-third is under cultivation. Nilgiri was founded by a kinsman of the family of the Rájá of Chhotá Nágpur, who married a daughter of the king of Orissa, Pratáb Rudra Deo. The present chief claims to be the twenty-fourth in the line of descent. His emblem of signature is a *Karolá* flower. The State contains valuable quarries of black stone, from which cups, bowls, platters, etc. are made.

NAYAGARH, bounded on the east by Ranpur; on the north by Khandpárá; on the west and south by Daspallá and Gumsar. Area, 558 square miles, containing 690 villages, many of which, however, are deserted; 13,883 houses, and a population estimated at 77,051. Nayágarh is a large and valuable State, with great tracts of highly cultivated land, yielding an annual income of £5000 to its chief, and a tribute of £552 to Government. Towards the south and south-east, however, the country is exceedingly wild, and incapable of tillage; but the soil of the jungles on the west might be profitably brought under cultivation. The State abounds in noble scenery; and a splendid range of hills, varying from two to three thousand feet in height, runs through its centre. It sends rice, coarse grains, cotton, sugar-cane, and several kinds of oil-seeds to the neighbouring Districts of Cattack and Ganjám. Nine villages contain upwards of 100 houses, viz.—(1.) Nayágarh,

495 houses; Lat. $26^{\circ} 7' 45''$; Long. $85^{\circ} 8' 10''$. (2.) Itámáti, where bi-weekly markets are held, 360 houses; Lat. $20^{\circ} 8' 12''$; Long. $85^{\circ} 11' 42''$. (3.) Nandigoro, 200 houses; Lat. $20^{\circ} 0' 51''$; Long. $85^{\circ} 9' 9''$. (4.) Kural, 217 houses; Lat. $20^{\circ} 0' 52''$; Long. $84^{\circ} 57' 40''$. (5.) Godiápára, 168 houses; Lat. $20^{\circ} 2' 22''$; Long. $85^{\circ} 12' 29''$. (6.) Nátipadá, 190 houses; Lat. $20^{\circ} 26' 3''$; Long. $85^{\circ} 11' 50''$. (7.) Birudá, 135 houses; Lat. $20^{\circ} 7' 57''$; Long. $85^{\circ} 13' 47''$. (8.) Bansiápára, 199 houses; Lat. $20^{\circ} 10' 0''$; Long. $85^{\circ} 13' 56''$. (9.) Shikárpur, 166 houses; Lat. $20^{\circ} 1' 50''$; Long. $85^{\circ} 8' 40''$. Nayágarh was founded about five hundred years ago by a Rájput belonging to the family of the Rájá of Rewah, twenty-one generations distant from the present chief. It originally comprised Khandpára, but a brother of the then reigning chief separated this latter territory about two hundred years ago, and erected it into an independent State. The Rájá's emblem of signature is a tiger's head.

PAL LAHARA formerly belonged to Keunjhar, but was partially separated in consequence of family quarrels. It is bounded on the east by Keunjhar; on the south by Dhenkánal; on the west by Tálcher; and the north by Bonái. Area, 452 square miles, containing 158 villages, 2170 houses, and an estimated population of 12,044. A magnificent mountain, Malayagiri, 3895 feet high, with building space and water on its summit, towers above the lesser ranges. The State produces the usual coarse grains and oil-seeds, but has nothing worthy of the name of trade. Lahará, the residence of the Rájá, is the only village of more than 100 houses. The story of the separation of Pál Lahará from Keunjhar is as follows: Once upon a time, the Keunjhar Rájá compelled his feudatory of Pál Lahará to dance before him in women's attire. From this affront a deadly quarrel resulted, and at the end, as the price of peace, the Pál Lahará chief was exempted from any longer paying his tribute through the Keunjhar Rájá, and now pays it to the British Government direct. The money, however, is still credited in our treasury accounts to the Keunjhar State, although for all practical purposes Pál Lahará is independent of the Keunjhar Rájá and utterly disowns his authority. Pál Lahará contains some of the finest Sál forests to be found in the world.

RANPUR, bounded on the north, south, and east by Purí District, and on the west by Nayágarh, has an area of 203 square miles, containing 173 villages, with 2603 houses and a population estimated at 14,447. The State yields an income of £1500 to its chief, and a tribute of £140 to Government. The only town is the Rájá's place of residence, which consists of one long and wide street, containing 600 houses. The country products are here bartered, in bi-weekly

markets, for iron, cotton, blankets, cloth, silk, wheat, and clarified butter, which are brought from Khandpára, and for fish from the Chilká Lake. The south-west part of Ranpur is a region of jungly hills, almost entirely waste and uninhabited, which wall in its whole western side, except at a single point where a pass leads into the adjoining State of Nayágarh. Tradition states that a hunter named Básura Básuk founded this State some 3600 years ago. It was originally of small extent, but 109 generations of chiefs had constantly annexed their neighbours' territories, until the accession of the British power put an end to such internecine struggles. It is said to take its name from a giant named Ranásur, who lived in it. The emblem of the chief's signature is a sword.

TALCHER, bounded on the north by Pál Lahará, on the south and west by Angul, and on the east by Dhenkánal, comprises an area of 399 square miles, with an estimated population of 30,100. It yields an annual income of £1200 to its chief, and £103 to Government. Iron, lime, and coal are found near the banks of the Bráhmání. Gold is also obtained by washing the sand of the river, but the process is very primitive, and yields but little profit to the workers. The only town of any size in the State is that of Tálcher, the residence of the Rájá, situated on the right bank of the Bráhmání, in Lat. $20^{\circ} 57' 25''$, Long. $80^{\circ} 16' 58''$, and containing 476 houses. There are a few other villages numbering 100 houses. The State was founded about five hundred years ago by a son of the then Rájá of Oudh, who forcibly ejected the savage tribe which had previously inhabited it. It is stated that the founder had to uproot many palm trees in order to make room for his habitation, and that the name Tálcher was derived from this circumstance. Since then, seventeen chiefs have reigned. The title of Mahendra Bahádur was bestowed upon the Rájá by the British Government, as a reward for services rendered during the Angul disturbances. The emblem of the chief's signature is a tiger's head.

TIGARIA, bounded on the south by the Mahánadí; on the north by Dhenkánal; on the west by Barambá; on the east by Athgarh. Area, 46 square miles. The Topographical Survey 1860-62 reports the number of villages at 134, with 3735 houses and 20,729 inhabitants. The Rájá, in 1870, returned the villages at 79, with a population of 15,482. The Superintendent, in the same year, estimated the inhabitants at 25,909. The State yields to its chief an income of about £800 per annum, and a tribute of £88 to Government. It is one of the smallest of the Tributary States, but populous and well cultivated, except among the hills and jungles at its northern end. It produces the usual coarse rice and grains, oil-seeds, sugar-cane, tobacco, cotton, etc., for the

transport of which the Mahánádí affords ample facilities throughout its whole southern part. But only two villages boast of the bi-weekly fairs common in the Tributary States. Two towns contain over 100 houses,—Gopináthpur, with 490 houses, Lat. 20° 26' 46", Long. 85° 30' 38" ; and Pánchgáon, with 132 houses, Lat. 20° 28' 1", Long. 85° 34' 4". The little principality dates from about 400 years ago, when Sur Tung Sinh, a Purí pilgrim from Northern India, halted on his way back, drove out the aboriginals, seized the country, and founded the present family. Twenty-six chiefs have reigned since then. The State was originally much larger than at present, and is said to derive its name from the fact of its having consisted of three divisions, defended by forts (*tri gárh*, or, in Uriyá, *gara*). Extensive domains have, however, been carved out of it by the neighbouring chiefs in the time of the Marhattá Government. The emblem of signature is the Five Weapons (*Sastra pancha*).

LEGISLATIVE HISTORY.—In the earlier part of this Account I have briefly sketched the Administrative and Revenue annals of the Tributary States. These States, however, have formed the subject of frequent legislation of a special character. We took them over from the Marhattás in 1805 with the rest of Orissa ; but as they had always been tributary States rather than regular Districts of the Native Governments, we exempted them from the operation of our general Regulation system, by Sections 36, 13, and 11 of Regs. xii., xiii., and xiv. of 1805. This exemption was recognised on the ground of expediency only ; and it was held that there was nothing in the nature of our connection with the proprietors that would preclude their being brought under the ordinary jurisdiction of the Courts, if it should ever be thought advisable.

The office of Superintendent was established in 1814, and he was directed to endeavour to establish such control over the conduct of the zamindárs as might prevent the commission of crimes and outrages.

Regulation xi. of 1816 appears to be the only law by which the Superintendent was invested with any judicial authority ; and, by that law, claims to inheritance and succession among the Rájás are disposed of by him.

In 1821 the Government ruled that the interference of the Superintendent should be chiefly confined to matters of a political nature ; to the suppression of feuds and animosities prevailing between the Rájás of adjoining Mahals, or between the members of their families, or between the Rájás and their subordinate feudatories ; to the correction of systematic oppression and cruelty practised by any of the Rájás or by their officers towards the inhabitants ; to the

cognizance of any apparent gross violation by them of their duties of allegiance and subordination ; and generally, to important points, which, if not attended to, might lead to violent and general outrage and confusion, or to contempt of the paramount authority of the British Government.

In 1839 Mr. Ricketts proposed the introduction of a regular system of management, but the rules proposed by him and by his successor, Mr. Mills, were not approved. Instructions were, however, given to draw up some short, clear, and well defined regulations, making the Rájás responsible to the Superintendent in all cases of murder, homicide, and heinous offences, without, however, interfering so far as to make them amenable to the Civil Court of the Superintendent in cases between the Rájás and their creditors. In accordance with the above instructions, Mr. Mills prepared revised rules, and submitted them for approval. These revised rules proposed that the Rájás should be prohibited from exercising the powers of life and death ; from subjecting any offender to torture, mutilation, or other punishment opposed to the principles of British rule ; and from allowing the practice of widow-burning and human sacrifices within their territories ;—that they should be made liable to punishment for murder or other heinous offences committed by them, and should be held responsible for the amount of property robbed from travellers, if the commission of the crime and the non-recovery of the property were due to their imperfect police or want of care ;—that the Superintendent's power of interference should be increased, so as to take cognizance of offences committed by foreigners in the Tributary States ; to hold preliminary inquiries in heinous offences committed by the Rájás, and to sentence all offenders except the Rájás to imprisonment for a term not exceeding seven years ;—that the punishment of the Rájás, and all punishments exceeding seven years, should be awarded by the Government of Bengal. The Bengal Government, however, thought it better not to pass any permanent or defined rules upon the subject, but directed that the spirit of the proposed rules should be acted up to in all future cases, with certain limitations, and that the Rájás should be informed that they are ordinarily amenable to the Superintendent's Court, subject to such instructions as may from time to time be furnished by the Government. These orders are now in force ; and all sentences of more than seven years' imprisonment, although passed by the Superintendent, have to be reported to Government for confirmation.

Under Government order No. 3364, of September 1858, the system of trying petty criminal cases *visà voce* was extended to the Tributary States.

Act xx. of 1850 was enacted for settling the boundaries of the Tributary States, and is still in force.

Acts viii. and xiv. of 1859 were extended to the Tributary States of Bánki and Angul, from the 1st January 1862. As regards the States under the Rájás, the proviso contained in Section 11 Regulation xiv. of 1805 is still in force.

The Penal Code was declared applicable to the Tributary States by an order of the Government of India, No. 2425, dated the 18th December 1860.

Under orders of Government of Bengal, No. 1875, dated the 11th March 1863, the criminal authorities were directed to be guided in their proceedings as closely as possible by the spirit of the Criminal Procedure Code. Section 13 of Regulation xiii. of 1805 is still in force.

In the estates under the direct management of Government, viz. Bánki and Angul, the Civil and Criminal Procedure Codes, as well as Act v. of 1861, are in force. They are in fact virtually treated as Regulation Districts. This is the case also in the Kandh-máls.

APPENDIX IV.

STATISTICAL ACCOUNT OF THE DISTRICT OF CATTACK.

CATTACK DISTRICT, the Central Division of Orissa, lies within the twentieth degree of north latitude, and the eighty-fifth and eighty-seventh degrees of east longitude. It is bounded on the north by the Baitarani and Dhámrá Rivers; on the east by the Bay of Bengal; on the south by the District of Purí; and on the west by the Tributary States. Area, after recent transfers, 317⁸ square miles. Population, 1,293,084 souls.

THE JURISDICTION of Cattack District has been frequently changed, and it was not until the 26th November 1868 that a Government notification assimilated the revenue and magisterial boundaries, by making the Baitarani and Dhámrá Rivers the northern limit in both departments. Previously, the Baitarani had only formed the magisterial boundary, while several Fiscal Divisions on the north of it belonged to the Cattack Collectorate, and several on the south of it to the revenue jurisdiction of Balasor. The new arrangement took effect, as regards the transfer of estates from the rent-roll of one District to the other, from the 1st April 1870. The civil jurisdiction of the Judge of Cattack extends over all the Districts of Orissa, except the Tributary States; and in his criminal functions he proceeds on circuit to Purí and Balasor, to hold sessions at certain periods of the year. The jurisdictions of the local subordinate judges (Munsifs) do not at all coincide with those of the subdivisional officers in the revenue and magisterial departments, but a scheme for assimilating them is now under consideration.

NATURAL DIVISIONS.—The District of Cattack, like that of Balasor,

consists of three distinct tracts :—First, a marshy woodland strip along the coast, from three to thirty miles in breadth ; second, the intermediate rice plains in the older part of the delta ; third, the broken hilly region which forms the western boundary of the District.

THE MARSHY STRIP along the coast resembles the Bengal Sundarbans as regards its swamps, dense jungle, and noxious atmosphere ; but it entirely lacks their noble forest scenery. I have examined the flora of both ; and so far as my knowledge extends, it is substantially the same, excepting that everything is on a smaller scale in the Orissa Sundarbans. I give as a separate Appendix, a list of plants which I collected on the islands around False Point, and in the jungles which stretch inland from them, as it may possibly be of service to some one who knows more about the subject than myself. The tract is intersected by innumerable streams and creeks, whose sluggish waters deposit their silt, and form morasses and quicksands. Cultivation does not begin till the limits of this dismal region are passed.

THE INTERMEDIATE PLAINS stretch inland for about forty miles, and occupy the country between the marshy sea-coast strip and the hilly frontier. They are intersected by four large rivers, which emerge from the western mountains, and throw out a network of branches in every direction. These, after innumerable twists and interlacings, frequently rejoin the parent stream as it approaches the ocean. It is a region of rich rice fields, dotted with magnificent banyan trees, thickets of bamboos, exquisite palm foliage, and fine mango groves. It forms the only fertile and really paying part of the District.

THE HILLY FRONTIER separates the settled part of Orissa from the semi-independent Tributary States. It consists of a series of ranges, from ten to fifteen miles in length, running nearly due east and west, with thickly-wooded slopes and lovely valleys between. This region annually sends down vast quantities of minor jungle products to the plains, such as I have described in the Statistical Account of the Tributary States ; but unfortunately the timber is small, and of little value except as fuel.

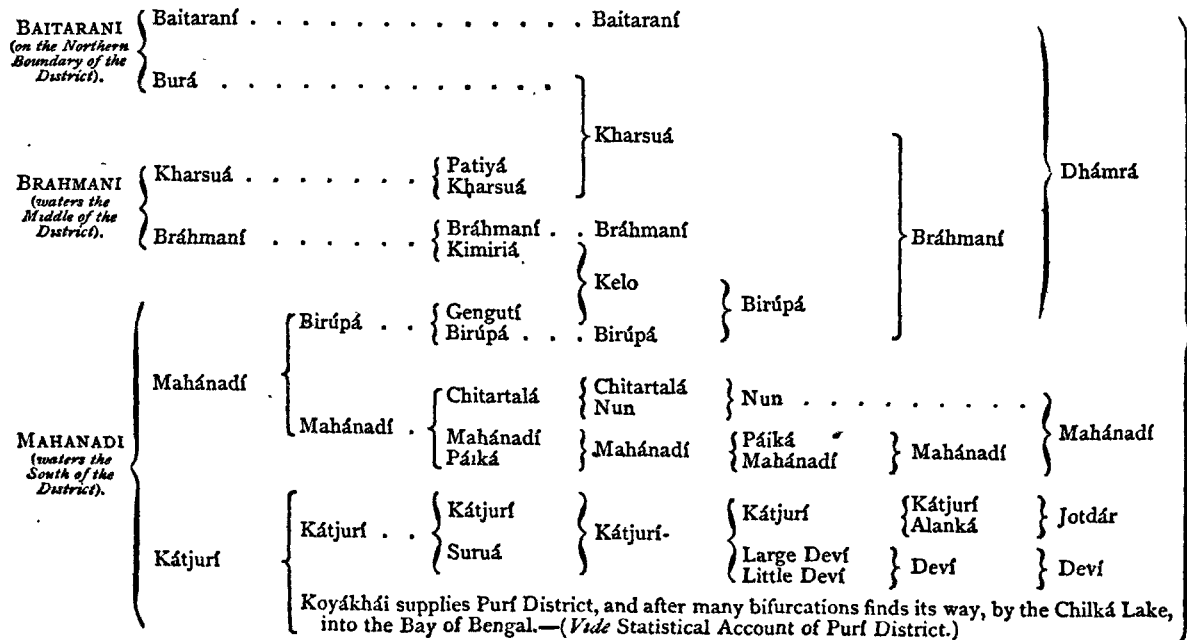
THE POLITICAL CHARACTER of these three tracts is as distinct as are their natural features. The first and third are still occupied by their ancient feudal chiefs, and have never been subjected to a regular settlement, either by the Musalmán or the British Government. They pay a light tribute, now permanently fixed. The intermediate plains known as the Mughulbandí, from their having been regularly settled by the Muhammadans, have yielded to the successive dynasties of Orissa the chief part of their revenue. At present they form an ordinary British District in every respect, excepting that the arrangement

for the land revenue is made for a period of thirty years instead of in perpetuity.

MOUNTAINS can scarcely be said to exist within the District. The highest hills do not exceed 2500 feet; and these, with the exception of a few isolated peaks near the town of Cattack, all lie in the western or frontier region. They are steep, and covered with jungle, but can be ascended by men. Many of them are interesting as Shrine Hills, or for their ancient forts; and when writing my General Account of Orissa (p. 179), I promised to describe them in this Statistical Account. But much of the unpublished material which I then possessed has since been printed in the Journal of the Bengal Asiatic Society, vol. xxxix. p. 158, by the Hindu gentleman who had kindly lent me his documents. I therefore refrain from ground which has been so recently and so ably occupied, and refer antiquarian readers to Babu Chandrasekhara Bânarjî's essay. The most interesting hills are in the Asia Range, particularly Nâltigiri, with its Sandal Trees and Buddhist remains; Udayagiri (Sunrise-hill), with its colossal image of Buddha, sacred reservoir, and ruins; Asiagiri, with its mosque of 1719 A.D., 2500 feet above the sea. The Mahâvinyaka peak, visible from Cattack, has been consecrated for ages to Siva-worship by ascetics and pilgrims, who have penetrated its jungles, fearless of the wild Savar Tribes.

RIVER SYSTEM.—The great feature of Cattack District is its rivers. These issue in three magnificent streams, by three gorges, through the hilly frontier. On the south, the Mahânadî, literally the Great River, pours down upon the delta from a narrow gully at Narâj, about seven miles west of the town of Cattack. On the extreme north of the District, the sacred Baitaranî, the Styx of the Hindus, emerges from a more open country, and forms the boundary line between Cattack and Balasor. The Brâhmanî enters the District about half-way between the two; and Cattack is thus divided into two great valleys, one of them lying between the Baitaranî and the Brâhmanî, and the other between the Brâhmanî and the Mahânadî, and both, therefore, bounded by a river on either side. I say valleys, because the Cattack rivers, according to the law of delta streams explained in my Account of Orissa, run along the high levels, with low lines of drainage between them. They are, in fact, natural canals; and during floods their waters pour over their banks into the surrounding valleys, forming a thousand channels and distributaries, which interlace with each other, and establish direct communication between the parent streams. The following scheme illustrates the main points in the river system of the District, but the minor interlacings are innumerable :—

THE RIVER SYSTEM OF CATTACK DISTRICT.



BAY OF BENGAL.

DISTRIBUTION OF WATER SUPPLY.—Owing to another peculiarity of delta rivers, the water which is thus poured down upon the plains at the three gorges, greatly exceeds the volume which the lower channels are able to carry off. The rivers issue from the hills heavily laden with silt, which they deposit when their velocity is checked by the dead level of the delta. Their beds thus gradually shallow, and prove more and more unable to carry off the floods to the sea, so that every year a large quantity of surplus water pours over the banks. In 1858, Captain Harris, after a series of most careful investigations, arrived at the following conclusions with regard to the Mahánadí. During high floods, 1,800,000 cubic feet of water pour every second through the Naráđ gorge seven miles above Cattack City, while the total distributaries and channels, half-way between that point and the Bay of Bengal, only afford accommodation for 897,449 cubic feet, or less than one half. The remaining half would infallibly devastate the surrounding country were it not for the embankments; but even with embankments, a very large proportion of it every year pours down on the rice fields. During time of flood, about 250,000 cubic feet per second, or from one-seventh to one-eighth of the total, strikes into Purí District by means of the Koyákhái. The remaining six-sevenths, or, in round numbers, a million and a half of cubic feet, pour every second through the Kátjuri, Birúpá, and Mahánadí proper, into the Cattack District. To get rid of this vast volume of water, the Purí rivers have only the means of carrying off 111,755 cubic feet per second, while all the distributaries in Cattack District can only dispose of 788,694 cubic feet. For the portion which passes into Purí *via* the Koyákhái, see Statistical Account of Purí District.

CAPACITY OF CATTACK RIVERS AT A SECTION HALF-WAY BETWEEN
CATTACK CITY AND THE SEA.

NAMES OF RIVERS.	Fall per Mile at Point of Section.	Mean Depth of Section in Feet.	Calculated Velocity by Eitelwyn's Formula, in Feet per Second.	Calculated Discharge per Second, in Cubic Feet.
Little Deví, . .	1'20 feet	18'87	6'06	34,306
Large Deví, . .	1'20 "	29'55	7'58	148,434
Alanká,	1'00 "	16'60	5'18	23,641
Mahánadí, . . .	1'20 "	15'14	5'40	243,589
Páiká,	1'25 "	17'52	5'96	113,836
Chitartalá, . . .	1'30 "	14'23	5'47	83,653
Nun,	1'60 "	20'71	7'33	107,047
Do., Watercourse adjoining,	4'75	10,293
Birúpá,	'65 "	10'19	3'28	23,895
	Average, 1'17	Average, 17'85	Average, 5'66	788,694

ESTUARIES AND HARBOURS.—As the Cattack Rivers enter the District by three great gorges in the hills, so, after innumerable bifurcations, they find their way into the ocean by three principal mouths. On the north, the Baitaraní and Bráhmańí debouch into the Bay of Bengal, under the name of the Dhámra, at Point Palmyras; while the Mahánadí, or rather that portion of it which remains in Cattack District, after a variety of interlacings, forms two great estuaries,—one bearing the name of the Mahánadí at False Point; the other, generally known as the Deví, with its connected channel the Jotdár, in the south-eastern corner of the District. I propose to briefly examine these points of exit, explaining their capabilities as harbours, and the perils incident to their approach. By keeping the first of the two preceding Tables before him, the reader will find his part of the task greatly simplified.

THE DEVÍ, literally The Goddess (a title specially applied to the wife of the All-Destroyer), with its channel the Jotdár, forms the last part of the great network of rivers into which the Kátjurí branch of the Mahánadí bifurcates. According to a characteristic of the Cattack streams, most of the members of the network re-unite as they approach the ocean, and the result is a broad and noble estuary, which, under the name of the Deví, enters the sea in north latitude $19^{\circ} 58'$, and east longitude $86^{\circ} 25'$. A permanent beacon has recently been erected at the mouth, in latitude $19^{\circ} 58'$; and a chart of the channel was in 1869 completed in three sheets. For seven miles inland from the mouth an excellent channel of sixteen to twenty-four feet is obtained. Above this distance the river shallows rapidly, and is only navigable by country boats. Unfortunately, however, this admirable harbour is rendered almost useless by bars of sand across its mouth. During the cold season, or from November to March, vessels drawing ten feet of water can safely enter it by watching the tide. But once the south-west monsoon has set in, the surf rages outside in a way that renders the approach of vessels perilous in the extreme. During this season, navigators, if they dare to approach at all, must go by the depth shown in the new charts of the Indian Marine Department, dated 1869. Outside the bar the water shoals rapidly from 44 to 6 feet. The bar itself is two hundred yards broad, with four feet of water at lowest tide. Once past this, the channel again deepens through six and seven feet to twelve feet; and higher up, as already stated, from sixteen to twenty-four feet. The ordinary rise of the tide is from four to six feet. It runs for twenty-eight miles up the river, and this is the limit of navigation even for country boats, if laden, in the dry season. After the rains, and at the beginning of the cold weather, a much greater depth of water is obtained; and an extensive rice trade has developed at Máchhgáon, about nine miles from its

mouth. Sea-going brigs cannot get up to the mart, but they float in with the tide as far as they can, and are laden from country cargo-boats. The mouth is surrounded by dense jungle, destitute of inhabitants or of tillage; and a line of surf, on both sides of the channel, forms a continuous landmark for vessels running in and out. I have never heard of an English ship venturing into the estuary, nor is the harbour mentioned in Horsburgh's Sailing Directions; but the Madras traders with native masters and crews willingly take the risk in their lighter craft, and get lucrative freights, owing to the local cheapness of rice. The shoals and bars vary in depth from year to year.

THE MAHANADI ESTUARIES; FALSE POINT.—The northern branches of the Mahánadí, after endless bifurcations, also re-unite towards the sea, and eventually enter the Bay of Bengal under the name of the parent stream. The estuary has several mouths, but the principal one is that which debouches through the shoals to the south of False Point Lighthouse. For many miles up the river there is abundance of depth for ships of 300 or 400 tons burden; but unfortunately, as in the case of the Deví, and indeed of all other Orissa harbours, a bar stretches across the mouth, which, in addition to the perils of shoal water, adds to the dangers which are incident to constant changes in the channels and the sandbanks. For example, charts still in use show the Pát-kund channel (which branches off from the Mahánadí about fifteen miles higher up) as debouching through a fair entrance of its own into the sea. But this entrance is reported by the local authorities as now closed by a high ridge of sand; and the river thus shut out from the ocean, runs parallel to the coast in a north-easterly direction, till it re-enters the Mahánadí near its mouth.

FALSE POINT, on the north of the Mahánadí estuary, consists of an anchorage land-locked by islands and sandbanks, and with two channels navigable to the inland. It derives its name from the circumstance that ships proceeding northward frequently mistook it for Point Palmyras, a degree farther north. It lies in north latitude $20^{\circ} 20'$, and east longitude $86^{\circ} 47'$, and was reported by the Famine Commissioners in 1867 to be the best harbour on the coast of India from the Hugly to Bombay. A lighthouse is situated on the point which screens it from the southern monsoon, in latitude $20^{\circ} 19' 52''$ N., longitude $86^{\circ} 46' 57''$ E.; and the harbour is protected by two sandy reefs, Long Island and Dowdeswell Island, the latter being a long narrow spit of sand, which completely land-locks the anchorage. Point Reddie, at the extremity of this latter island, protects the entrance. The harbour is safe and roomy, and the channel properly buoyed. I have very carefully examined the harbour on two occasions, both from the sea and from the inland; and so far as

I could learn, the channels have of late deepened rather than shallowed. In February 1870, I lay far enough in to be perfectly well protected, in a steamer drawing twenty-one feet. At the last survey in October 1868, twenty-five feet of water were given as the *reduced* minimum depth at A buoy, the channel gradually shallowing to a depth of twenty feet, about five hundred yards north-west of B buoy. At a reduced minimum depth of twenty feet, good protection can be obtained from the south-west monsoon; but by proceeding inwards to B or C buoys, with a reduced minimum depth of fourteen and sixteen feet respectively, the protection is as much as need be desired. The channel then gradually shallows through fifteen to thirteen feet at lowest tide, which is reached two hundred and fifty yards north-west of D buoy, and here the protection is absolute. Navigators ought to procure the recent survey by Mr. Harris of the Marine Department; on which, however, Colonel Rundall's Note may also be consulted by persons wishing to make themselves perfectly acquainted with the capabilities of the Mahánadí estuary and channels. A soft mud bottom averts the dangers incident to vessels taking the ground. The latest Survey Report (dated 10th May 1870) recommends that a vessel making the port should give Point Reddie a berth of half a mile, steering up midway between the buoys. Should the buoys be gone, she should keep False Point Lighthouse midway between the two small beacons on Plowden's Island. Vessels drawing 18 to 20 feet should anchor near B and C buoys, unless they wish to discharge cargo, when they may with perfect safety run in till they ground on the soft olive-coloured mud. Inside of Dowdeswell Island lies Plowden Island, for the most part a low jungly swamp, but with a limited extent of high ground on its eastern face, suitable for building purposes. The island is also provided with wells, from which good drinking water may be obtained.

INLAND CHANNELS FROM FALSE POINT.—Two separate channels lead inland from the anchorage,—the Jambu River on the north, and on the south the Bákud Creek, a short deep branch of the Mahánadí. Unfortunately for inland navigation by ships, bars of sand intervene between the anchorage and these channels, and, except at high water, block the entrance to both. At full tide, cargo-boats and steamers enter with ease.

THE JAMBU bar stretches for about three-quarters of a mile, and has one foot of water at lowest tide; after passing which, a channel of two feet, gradually deepening to ten, is obtained in the lowest tide. Higher up, the depth increases to eighteen, and in some places to twenty-eight feet, and a channel of not less than ten may be relied on as high up as Deulpará. The navigation is rendered difficult by the winding of the stream, especially during the freshes, when a very strong current comes

down. Nor is the channel so wide as the second route presently to be described; and towards Deulpára it shoals and narrows to an extent that marks this point as the safe limit of navigation for heavily laden country boats. A creek here unites it with the Nun River, near the entrance of the Kendrápára Canal at Mársághái. This entire route passes through a waste and often desolated country. During floods, the whole tract to the east or coast side is one large sea or jungle-covered swamp. It belonged to the Kujang Rájá, an ancient family crushed by debt, and unable to do anything towards the protection of his territory from the rivers. It has recently been purchased by the Mahárájá of Bardwán, and it is hoped that the wealth and public spirit of this nobleman will inaugurate a new era in those parts.

THE BAKUD, or Southern Channel, is the most direct for navigation inland. A bar of about a thousand yards in length lies across its mouth, and is dry during the last quarter of the ebb. After passing it, a channel of two feet is obtained, gradually deepening to eight, then shoaling again to two, and eventually deepening into an excellent channel of from fourteen to twenty feet, up to its junction with the Mahánadí, a distance of about sixteen miles. It was in this creek that Government established its rice depot for throwing supplies into the Province during the famine of 1866. Eight miles above its bifurcation from the Mahánadí is the junction of the latter river with the Nun. Here a choice of two routes will soon be offered; one lying up the Nun to Mársághái, the entrance to the Kendrápára Canal, while the other will proceed by the Mahánadí to the Táldandá Canal, at present under construction. The only route yet available, however, is the former one, *via* the Nun, which has an excellent channel of twelve feet as far as Baulpára, where it takes a turn, forming a shoal of about a thousand yards, with a narrow channel with eleven to fifteen feet of water. This depth can be relied upon until within two miles of Mársághái, the entrance to the canal, where the river wheels sharply round to the north and shallows fast. This is the safe limit of navigation for river steamers and cargo-boats, but the latter can proceed higher up by catching the flood tide.

Besides the two inland routes above mentioned, several tidal creeks run along the coast, and connect False Point anchorage with the Dhámrá and Bráhmań Rivers on the north, and with the Deví on the south. Such channels are generally very winding and narrow. They are available, however, for country boats all the year round.

HISTORY OF FALSE POINT HARBOUR.—Till within the last eight years, False Point anchorage was little known, and almost unused. Although but two days by steamboat from Calcutta, no regular com-

munication existed; no important trade was carried on; and the exports, consisting chiefly of rice, were entirely in the hands of a few native shipmasters from the Madras coast. Horsburgh, in his *Sailing Directions*, dismisses it with a brief, and so far as regards the depth of water, an inaccurate notice. In fact, he treats of it as a beacon rather than as a harbour. About 1862, the newly started East India Irrigation Company perceived its capabilities for the importation of stores, and an enterprising French firm in Calcutta shortly afterwards established an agency for the export of rice. The arguments against False Point seemed, however, at that time to be conclusive. It was represented to be a fever-stricken spot, with no villages or local population, and with no practicable channels inland. But Colonel Rundall, with Mr. Faulkener, carefully investigated its capabilities, and strongly insisted upon the adoption of it as a harbour. Two thousand tons of material for the canals were landed direct from England from a ship of about 1200, and a barque of about 800 tons burden; the vessels being safely lodged within the anchorage, and discharging without loss of any sort. But it was during the famine year (1866), when Government was anxiously exploring every means of throwing supplies into the Province, that the capabilities of False Point were first publicly appreciated. The formation of the new canals has been the making of the port. Formerly, a traveller landing at the harbour found himself as far from Cattack as if he had never started from Calcutta. Its isolated and jungly situation, and the long, tedious boat route inland, through dense forests and across malarious swamps, rendered it impracticable for goods or passenger traffic. But now that the difficult upper half of the journey can be conveniently and rapidly done by a canal, and that the lower half is accurately surveyed, False Point has grown into the entrepot for the import and export trade of Orissa. A small steamer, maintained by Government, plies between the harbour and the entrance to the canal at Mársághái, from which point the passage is comfortable and rapid, compared with the old uncertain route round by the rivers. I was informed by the people on the spot that the malarial character of False Point has to a large extent disappeared; and the harbour-master, who as lighthouse-keeper has had many years' experience of the locality, assured me that both he and his subordinates had found False Point a healthy station. To the north of the entrance to the Jambu River is a large tract of high sandy land, suitable for building purposes; and during the hot months, when the breeze is off the sea, this site might be made a salubrious residence. It is easily accessible from the anchorage. At the end of the rains, newcomers would have to make up their minds to acclimatization, by

the usual malarial fever common to the whole coast of Bengal and British Barmah.

IMPORTS AND EXPORTS.—The following is a statement of the import and export trade of the port of False Point, so far as the registers enable me to give it, for the nine years ending 1868-69:—In 1860-61, four vessels arrived and left; total tonnage, 2830 tons,—the largest ship being 402 tons; value of imports not given; value of exports, £6759. In 1861-62, ten vessels arrived, and eight left; total tonnage, 7756 tons; tonnage of largest vessel, 1026; value of imports not given; value of exports, £24,657. In 1862-63, fourteen vessels, six inwards and eight outwards; total tonnage, 4016 tons; tonnage of largest vessel, 517; value of imports not given; value of exports, £17,802. In 1863-64, sixteen vessels; total tonnage, 8681 tons; tonnage of largest vessel, 788; value of imports, £33,093; value of exports, £18,828. In 1864-65, sixteen vessels; total tonnage, 12,834 tons; largest vessel, 812 tons; value of imports, £4446; ditto of exports, £25,634. In 1865-66, total burden, 8055 tons, the largest ship being 1154 tons; value of imports, £1550; ditto of exports, £8225. In 1866-67, the year of the great famine, the value of the imports amounted to £184,859, the exports being *nil*. The imports, consisting almost entirely of grain for the relief of the starving population, were conveyed in fifty-one vessels of a total burden of 33,862 tons, the largest vessel being 1207 tons. In 1867-68, twenty-nine vessels, aggregating 33,023 tons—largest vessel, 1207 tons—brought imports to the value of £157,044, the value of the exports only amounting to £54. In 1868-69 fifteen vessels arrived, of a total burden of 13,574 tons; largest vessel, 1341 tons; value of imports, £1710; ditto of exports, £1920. The *bonâ fide* trade of False Point is chiefly with other Indian harbours, although, as already stated, the port is used as the landing-place for stores and material from England for the irrigation works, and these are sometimes re-shipped from Calcutta. During the six years for which I have classified returns of the imports, the value of goods brought from the United Kingdom aggregated £32,825; while those from Indian ports amounted to £348,216; besides £1742 worth of goods from foreign ports. With regard to the exports, I have classified returns for eight years, during which nothing was shipped to the United Kingdom, while the value of exports to Indian and foreign ports amounted to £103,883. The port is open throughout the year, but is visited by native vessels only during the cold season, although steamers now run between it and Calcutta in the height of the monsoon.

FUTURE CAPABILITIES AND IMPROVEMENTS.—False Point, therefore, forms a harbour well marked by a lighthouse; provided with

drinking water and building ground; possessing direct routes inland to Cattack, the capital of the province; and furnishing absolute protection against the south-west monsoon. The existence of the bars across the mouths of the inland routes matters little, as by waiting for the tide plenty of water is always obtained for the class of cargo-boats or steamers that ply on Indian rivers. There can be no doubt that the Commissioners of 1867 were right in reporting False Point to be the best harbour on the whole Indian Peninsula between the Hugly and Bombay; and with the system of famine warnings detailed in the Statistical Account of Balasor, and in my general work on Orissa, I believe that it will afford an absolute guarantee against wholesale starvation by famine. If the crops fail, thousands of people will die in spite of any supplies that Government may throw into Orissa. But, worked in combination with the famine warnings, False Point affords a guarantee against that absolute absence of food throughout Orissa which followed the failure of the crops in 1866, and the mitigation of such a calamity becomes simply a question of expense and of machinery for internal distribution. Government is keenly alive to the necessity of keeping the port open, and checking any tendency which it may evince to deterioration. On two occasions, when visiting the harbour, the expediency of a dredging machine and of assisting the channels to scour by means of spurs, was pressed upon me by separate and competent persons. This and similar questions, however, may safely be left to the scientific surveyors. Government perfectly appreciates the importance of creating a really trustworthy port for Orissa; and the Marine Department has, during the past few years, devoted such close attention to False Point harbour, and is at present so anxiously interested in its welfare, that navigators may rest assured that whatever is necessary will be done.

ESTUARIES OF THE BRAHMANI.—The river system of Cattack District on the north of the Mahánadí consists of the network of channels formed by the Bráhmaní and Baitaraní, which, after infinite winding and interlacing, eventually re-unite, and find their way into the sea by two great outlets at Point Palmyras. The southern of these is the Maipará River, with its tidal creek the Bansgarh which runs southward almost parallel to the coast till it joins the sea about six miles north of False Point harbour. The mouth of the Maipará presents the usual obstacles of bars and high surf; and from its position on the south of Palmyras promontory it is inadequately protected from the monsoon. Between the months of November and March this last objection does not apply, and native craft from the Madras coast frequent it during the cold weather for the purchase of rice.

THE DHAMRA, or northern exit of the united Bráhmañ, Kharsuá, and Baitarañ, forms the boundary line between the Districts of Cattack and Balasor, but is within the jurisdiction of the latter. The latest Survey Report (dated 10th May 1870) places the Dhámrá first among the navigable rivers of Orissa. Its entrance is marked by the Kaniká buoy in twenty-one feet *reduced*, and by Shortt's Tripod beacon on the extreme north-east dry portion of Point Palmyras Reef. The entrance has greatly improved since 1866. The old outer bar with but nine feet of water remains, but a second outer channel with ten feet at lowest tide has opened about a mile to the south. From this to the inner bar no material change in the depth has taken place; but the inner bar, although improved of late, is constantly liable to alterations. In 1859 twelve feet were to be found on this bar; in 1866 only three; and this year (1870) there are eight. The water rapidly shoals from a minimum depth of twenty-one feet at the Kaniká buoy to six feet on the Central Sand. On the north of this, however, the new charts show a channel with a minimum of nine feet, and on the south there is another passage with water nowhere less than ten feet in depth, and in most places from thirteen to sixteen feet. Once through these passages the channels re-unite, and proceed inland with water from twelve to twenty feet, to the Kaniká iron beacon, where twenty-nine feet may be obtained. Proceeding nearly due west, the water again shoals from twenty to eight feet, and again gradually deepens till a depth of thirty feet is reached in the channel to the north of the eastern extremity of Kálfbhanj Island. After this, the difficulties incident to vessels going up are simply those of river navigation. Ships which can get within the southern outer channel, with its minimum depth of ten feet at low tide, find absolute protection from the monsoon. Notwithstanding its excellence as a harbour, the Dhámrá, owing to its distance from Cattack or any large centre of industry or population, has not been so much frequented by European craft as False Point; but larger numbers of native vessels resort to it for the Madras rice trade. At one time, indeed, it was contemplated to select the Dhámrá as the channel by which the whole canal system of Orissa should debouch upon the sea. This was before the formation of the East India Irrigation Company, which, after a most careful inquiry, wisely decided upon False Point as their basis of operations on the seaboard. Horsburgh treats Point Palmyras, at the mouth of the Dhámrá, only as a beacon for making the Hugly, and cautions vessels with regard to the necessity of hauling out into twelve or fourteen fathoms if they sight the eastern limit of the bank. He gives the rise of tide as from ten to twelve feet in the springs, and from seven to eight feet in the neaps. The latest Survey

Report, dated 13th May 1870, returns the tidal range at ten feet, with variations from a minimum of 6 feet 10 inches to a maximum of 10 feet 6 inches. It must be remembered that the depths in the channels given above are the reduced minimum at the lowest possible tide, so that the harbour, like all others along the Orissa coast, is practically available during flood tide to native craft, drawing considerably more water than that which I have mentioned. Brigs and Madras traders, drawing from ten to even eighteen feet, frequent the harbour with perfect safety.

The Dhámrá harbour, which was declared a port by Government Notification, No. 877, of the 18th May 1858, although forming an estuary of the river system of Cattack District, belongs, as already stated, to the jurisdiction of Balasor. As a port for native shippers, it ranks next to that of Balasor among the Orissa harbours. The following return of exports from 1860-61 to 1869-70 is incomplete, no account of the tonnage having been kept prior to 1868-69. The value of the exports was as follows:—In 1860-61, £11,268; 1861-62, £5641; 1862-63, £2393; 1863-64, £1315; 1864-65, £161; 1865-66, £935; 1866-67, the year of the great famine, *nil*; 1867-68, £114; 1868-69, £552, tonnage 398 tons; 1869-70, £4586, tonnage 2960 tons. No separate accounts of the imports of Dhámrá harbour seem to have been kept prior to 1867-68. During that and the two subsequent years, however, the value of the imports was as follows:—In 1867-68, £10,745, tonnage 1283 tons; in 1868-69, £10,713, tonnage 1407; and in 1869-70, £5433, tonnage 2573 tons. The Collector of Balasor estimates that during the famine of 1866-67, out of a total of 3505 tons of rice imported into that District for the relief operations, probably four-fifths were landed by means of the Dhámrá.

CONTROL OF THE WATER SUPPLY.—The great problem in Orissa is, how to prevent the rivers from destroying the crops during the rains, and how to husband them for agriculture and for commerce during the dry season. Five great rivers collect the drainage of 63,000 square miles of the hill country towards Central India, and dash down their concentrated floods upon the 5000 square miles of the Cattack and Balasor Delta. Besides its own rainfall of 63 inches a year, the level strip between the mountains and the sea has to find an exit for the drainage of a territory more than twelve times its own area. In the rainy season the rivers devastate the delta, while, like other Indian streams, they fail to yield a trustworthy supply in summer. An enormous mass of water, aggregating 2,760,000 cubic feet per second, is thrown down in time of flood; while in the hot weather the total supply dwindles to 1690 cubic feet per second, as the following table proves:—

NAMES OF RIVERS.	Catchment Basin, in Square Miles.	Maximum Discharge in time of Flood. Cubic Feet.	Average Cold Weather Discharge. Cubic Feet.	Minimum Discharge in May Cubic Feet.
Mahánadí, .	45,000	1,800,000	3,000	750
Bráhmañí, .	9,000	400,000	1,000	380
Baitarañí, . .	3,100	200,000	500	180
Sálandí, . . .	250	60,000	260	...
Subanrekhá, .	6,000	300,000	600	380
Total, . . .	63,350	2,760,000	5,360	1,690

FIRST EFFORTS.—In spite of this enormous Water Supply during the rainy season, Orissa has from time immemorial been visited by terrible famines from drought. But within the last twenty years there has been a growing conviction that it is the duty of Government to take measures against the recurrence of these calamities. Nature showers down plenty of water ; it is for man to husband and to control the supply. The first work in this direction was at Naráj, about seven miles from Cattack City, where the Mahánadí debouches upon the delta and forms its first bifurcation. The work consisted of a spur sent out from the southern bank, with a view to diverting a portion of the excess flood which poured down the Koyákhái into Purí District. It dates from the year 1858 ; and the Irrigation Company, when it started four years later, recognised the necessity of commencing the regulation of the river at this point. Instead of a spur for the local purpose of checking the Purí Water Supply, the Company constructed a masonry weir, three-quarters of a mile broad, across the river-bed. It is to be connected eventually with a line of Embankments, which runs down the delta head, in order to prevent the waters of the northern branch of the Mahánadí from forcing their way across the level sands into its southern branch—the Koyákhái. The effect of these works, therefore, will be to regulate the southern branch of the Mahánadí at its point of bifurcation. The weir is furnished with sluice-gates, and to a certain extent it has already diverted the floods which used to pour southward into Purí District ; while at the same time it secures a due supply for the northern branches of the Mahánadí, and for the canals that proceed northward and eastward from them.

CANALS.—The Orissa canals are intended both to regulate the Water Supply for irrigation, and to utilize it for navigation and commerce. From the point at which the Mahánadí pours through the

Naráj gorge upon the plains, the fall averages $1\frac{1}{2}$ foot per mile across the delta to the sea. In the Godávarí District, I am informed by the engineers that the slope is only about one foot per mile, but the excess fall in Orissa is, as in the Godávarí, easily overcome by locks. The first thing to be effected was to secure a uniform and a trustworthy supply at the head of the delta. To this end, in addition to the weir at Naráj across the southern channel at the first bifurcation, a massive weir $1\frac{1}{2}$ mile broad has been thrown across the Mahánadí proper at Jobrá, just below Cattack, and another, three-eighths of a mile broad, across the Birúpá at Chaudwár. Each of the three branches into which the parent stream splits at the delta head is therefore regulated by a weir. These works are pierced with two sets of scouring sluices, one of which is on an improved self-raising principle. Their objects being to prevent the accumulation of sand in the river-bed, and to secure a supply of water for the canals, they are left open during the flood season, and closed as the river subsides. The Government bought the whole canal works from the Irrigation Company, on the 31st December 1869, for £941,368, and the capital Account up to 31st March 1871 amounts to £1,274,822, including the original price paid in 1869.

THESE CANALS are four in number; viz. (1) the High Level Canal, (2) the Kendrápára Canal, (3) the Taldandá Canal, and (4) the Máchhgáon Canal, with their respective distributaries.

THE HIGH LEVEL CANAL is designed to provide a great trade route between Cattack and Calcutta, and to irrigate the country through which it passes. Until its completion, it would be premature to pronounce on the commercial aspects of the undertaking; and the following remarks apply only to the sections of it which lie within Orissa. By the time that I come to write the Statistical Account of Midnapur, in which District its last section debouches upon the Hugly River, it will probably have reached a stage when I can safely treat of it as a whole. According to the present estimates, the High Level Canal will irrigate over half a million of acres between Cattack City and Balasor alone. Of these, 89,000 are situated along its first Section, *i.e.* between its starting-point at Cattack and the Bráhmání River; a tract which lies high, and is subject to constant scarcity from drought. The second Section will irrigate a total area of 230,000 acres between the Bráhmání and the Baitaraní Rivers, crossing the Kharsuá on its route. The third Section will irrigate the land between the Baitaraní and the Sálándí, about 100,000 acres; and the fourth Section between that river and Balasor, 153,000 acres more. Total, 572,000 acres.

ITS ROUTE.—The High Level Canal starts from above the weir

across the Birúpa, one mile below its offtake, the Mahánadí, and will eventually proceed through Cattack, Balasor, and Midnapur Districts, till it debouches upon the Hugly, at Ulubáriá, 15½ miles below Calcutta. Its total length will be about 230 miles, but only the first and last sections have been completed. Of the fifty-two miles from Midnapur to Ulubáriá, twenty-five are now opened, and the remainder will be ready both for traffic and irrigation in about eighteen months. At the Cattack end the first twenty-five miles were opened in 1869, and other eleven are just finished (1871). These thirty-six miles span the country between the canal head, near Cattack, and the Bráhmání River.

The weir across the Birúpa, from which the canal starts, is 1980 feet from abutment to abutment. The crest of its breast-wall is 63·5 feet above mean sea-level, or eight feet above the bed of the Birúpa. It has scouring sluices at each end, either set being capable of discharging, during six months of the year, the whole flow of the Birúpa. While the High Level Canal starts from the left flank of this work, the Kendrápára Canal starts from its right; and the current produced by the scouring sluices at each of its extremities keeps the mouths of both the canals free from silt. The High Level Canal skirts the high grounds to the west of the Calcutta road for twenty-three miles, in which are four and a half miles of rock cutting, as far as the village of Neulpur. Here it leaves the road, and comes upon the Bráhmání, in its twenty-seventh mile, whence it keeps along the south bank of the river as far as the village of Jahánpur, where it will cross the Bráhmání by means of an anicut. The dimensions of the canal in this section will ultimately be as follow:—120 feet wide at water-line, with a maximum depth of eight feet; side-slopes two to one, and a fall of one inch per mile, conveying 675 cubic feet per second. The head sluices at the Birúpa anicut are capable of supplying 675 cubic feet of water per second, when there is a depth upon the cill of eight feet. The bed of the Bráhmání is eight feet below that of the Mahánadí at the respective weirs, and this difference is overcome by a lift-lock in the 27th mile; while flood-gates are provided at the 36th, to prevent the freshes of the Bráhmání during time of flood from backing up into the lower reaches of the canal. The first section of the canal was opened in May 1869, for a distance of 25 miles; Neulpur, a village on the Trunk Road, 23 miles from Cattack, being selected as the temporary terminus. In autumn 1871, the opened part was extended to the Bráhmání, and the two next sections as far as Bhadrakh were begun.

IRRIGATION CAPABILITIES.—This first Section, between the Birúpa and the Bráhmání, will irrigate its 89,000 acres by means of seventeen

distributary channels, differing in capacity, but aggregating a length of 113 miles. The width of the water surface in these distributaries varies from ten to twenty-six feet, the depth from two to four feet, and the fall from six to eighteen inches per mile. The land lying between the Birúpá and Gengutí Rivers will be irrigated by means of a syphon, carried under the bed of the latter stream.

COST UP TO 1ST JANUARY 1869.—The High Level is intended as a first-class canal, both for irrigation and navigation. The total expenditure on it up to the 31st December 1868, when it was taken over from the East India Irrigation Company by Government, was £45,878; outlay between 1st January 1869 and 31st March 1871, £58,606; total, £104,484. Land irrigated in 1870-71, 22,035 acres, at 2s. per acre.

THE KENDRAPARA CANAL starts from the right flank of the Birúpá anicut, and proceeds along the northern bank of the Mahánadí and its distributaries the Chitartalá and the Nun, nearly due east to Mársághái, twenty-three miles from False Point. Its route lies along the high ground on the north bank of the Mahánadí till about the eighth mile, at which point the Chitartalá branch diverges to the northward from the great river. The canal therefore keeps along the north bank of the Chitartalá till near the eighteenth milestone. At this point the Nun diverges to the north from the Chitartalá, and the canal proceeds along the north bank of the Nun till it drops into tidal waters at Mársághái, after a total length of $42\frac{1}{2}$ miles. The canal was opened from end to end on the 29th May 1869.

HEAD WORKS AND CAPACITY.—The head lock at the Birúpá weir is 100 feet from cill to cill, and 17 feet wide. The cills are 59·5 feet above sea-level, and the gates $18\frac{1}{2}$ feet in height. The canal is divided into seven reaches, with a width at water-line varying from 75 to 160 feet, a uniform depth of seven feet, a fall ranging from 0 to six inches per mile, and a minimum capacity of discharge varying in the different reaches from 340 to 740 cubic feet per second. This is the discharge available for the cold weather crops, when the water above the anicut is maintained at only 64·5 feet above mean sea-level, giving but five feet of water in the canal. During the rains the canal's capacity of discharge varies in its different reaches from 340 to 2000 cubic feet per second. The total fall of the canal from Jobrá to Mársághái is sixty-four feet, the levels being adjusted by means of eight locks, the last of which is a tidal lock at Mársághái, with a fall of ten feet, the upper cill being six feet above mean sea-level, and the lower cill four feet below. At low water, spring tides, there will always be three and a half feet of water on the lower cill. At Mutri, in the thirty-seventh mile, there is an escape

or waste weir capable of discharging 360 cubic feet per second. Six syphon culverts have been led underneath the canal; and four traffic bridges, in addition to the lock bridges, have been constructed across it.

IRRIGATION CAPABILITIES.—The Kendrápára Canal is designed to irrigate 385 square miles of country. Of this large tract less than two-thirds of the area will require simultaneous irrigation, and the canal will therefore convey water for only 234 square miles, or 150,000 acres. A branch canal is projected to Patámundí, which will start from the Kendrápára one at Sábátlyá in the fourth mile, but it has not yet been commenced. The Patámundí branch will be available both for navigation and irrigation; its estimated irrigable area being 295 square miles. Meanwhile, from the Kendrápára Canal, fifteen distributary channels, of which thirteen have been completed, will irrigate two-thirds of the total area commanded by it. These fifteen distributaries aggregate a total length of 180 miles of main and branch channels.

COST UP TO 1ST JANUARY 1869.—The Kendrápára Canal is used both for navigation and irrigation; and its total cost, inclusive of distribution works, to the 31st December 1868, when it was taken over by Government from the East India Irrigation Company, was £61,328; outlay between 1st January 1869 and 31st March 1871, £40,495; total, £101,823. Land irrigated in 1870–71, 69,670 acres, at 2s. an acre.

THE TALDANDA CANAL will connect the city of Cattack with the main branch of the Mahánadí within tidal range. It is intended both for navigation and irrigation; total length, fifty-two miles. Of these, the first seven, or from Cattack to Bírbátí, were filled with water on the 2d February 1870; and the next or Jayapur section was completed in the first half of 1871 as far as Sonpur. Beyond Jayapur operations have not yet been commenced (January 1871); but the canal, when completed, will end at Sámágol on the Mahánadí, about eight miles as the crow flies from the sea, but considerably longer by the river route. The canal starts from the right flank of the Mahánadí weir at Jobrá, skirts the east side of the town of Cattack for a mile and a half, then turns eastward and runs midway between the Kátjurí and the Mahánadí for four miles; thence to Bírbátí it keeps nearly parallel with the Mahánadí at a distance of from half a mile to a mile. Bírbátí is reached in the seventh mile; and here, as I shall afterwards explain, it will throw out a branch canal to Máchhgáon at the mouth of the Deví River. Meanwhile the parent canal keeps along the high ground on the southern bank of the Mahánadí, until it reaches its destination at Sámágol within tidal range.

DIMENSIONS AND IRRIGATION CAPABILITIES.—The Taldandá Canal in its first reach to Bírbátí, which was completed in 1870, has a

bottom width of 64 feet, with slopes of 2 to 1, and a fall of six inches to the mile. With a maximum depth of eight feet of water, the discharge is calculated at 1460 cubic feet per second, half of which will be carried off by the projected Máchhgáon Canal, leaving 720 feet per second to the lower reaches of the parent channel. None of the distributary channels have been completed (January 1871), but it is estimated that the first reach of seven miles to Bírbátí will irrigate 30 square miles, or 18,000 acres. This reach was opened for traffic in 1870. In addition to the bridge at the head lock, three others will span the canal within the first few miles. Cost up to 31st December 1868, £17,713; ditto, 1st January 1869 to 31st March 1871, £13,832; total, £31,545.

THE MACHHGAON CANAL will connect Cattack with the mouth of the Deví River. It starts from the Taldandá Canal at Bírbátí, and will be supplied with half of the maximum discharge of the parent channel, or 720 cubic feet per second. It was opened in the first half of 1871 as far as Singápur, to which point its route lies along the high ground on the northern bank of the Kátjurí. At Singápur it will be carried across the branch of the Kátjurí which falls into the Mahánadí at Jayapur; and the canal will eventually end at Máchhgáon on the Deví River within tidal limits, and eight miles as the crow flies from the sea. With regard to this estuary, see the foregoing description of the Deví in this Statistical Account. Cost up to 31st December 1868, £1030; ditto between 1st January 1869 and 31st March 1871, £9279; total, £10,309.

GENERAL VIEW OF THE ORISSA CANALS.—While, therefore, the now completed portion of the High Level Canal starts northward from the Birúpá, and provides a navigable channel between that river and the Bráhmaní, with irrigation for the upland country along the foot of the hills; the Kendrápára Canal proceeds due east along the high banks of the Chitartalá, etc., and supplies water to the lower levels of the delta. It irrigates the southern edge of the tract between the Mahánadí (with its subsequent distributaries, the Chitartalá and the Nun) and the Birúpá (with its continuation the Bráhmaní). The Taldandá and the Máchhgáon Canals will deal with that part of the delta which lies between the Mahánadí and the Kátjurí; the Taldandá Canal supplying irrigation for the northern edge of this intermediate tract, and the Máchhgáon Canal providing it for the southern edge. All the canals keep on high levels. In the case of the Calcutta Canal, or, as it is pre-eminently termed, the High Level Canal, the channel runs along the uplands at the foot of the hills. In the case of the other three, which are strictly speaking delta canals, the requisite elevation is obtained by keeping their courses along the banks of the rivers, which, as already

fully explained, are always higher than the intermediate deltaic tracts. Any particulars with regard to the commercial aspects of the undertaking would, as already stated, be premature in a Statistical Account which deals only with accomplished facts. I have therefore treated of this branch of the subject in my general account of Orissa. But the value of the canals for irrigation was last year (1870) publicly realized, and it may be well to state the initial results.

IRRIGATION CAPABILITIES.—The Orissa husbandman has been accustomed to use irrigation only for the more costly sort of crops, such as pán-leaf, sugar-cane, tobacco, and cotton. For such crops a field is generally selected which has the command of a natural watercourse; and the highest form of irrigation known in Orissa consists in throwing water, by means of hollow palm trees or basket scoops, from a tank or dammed-up stream, on to the fields. The East India Irrigation Company fixed the rates for supplying water at ten shillings an acre. The rate proved to be too high, and a graduated scale was afterwards introduced, by which leases for large areas were offered at reduced rates. Even this failed to induce the cultivators to buy the water; and a further concession was made, by which the separate husbandmen in a village might combine to take a general lease for their aggregate lands at the reduced rates. Much confusion and many abuses followed, and practically the Company's rates were reduced to a uniform charge of five shillings an acre. The first year in which the cultivators availed themselves of canal irrigation was 1866-67, when leases were executed for 667 acres at a total charge of £252. Of this, however, only £62 could be collected, and the rest had to be written off as a bad debt. Next year, 1867-68, leases were executed for 1842 acres, at an aggregate charge of £366; but only £175 could be collected, and the balance had again to be written off. The remissions of these two years were rendered necessary partly by the unfinished state of the works, which disabled the Company from performing its share of the contract, partly by the inexperience of the Government officers, and partly by disputes on the part of the cultivators touching the validity of the leases. A large area was irrigated by stealth, and the smallness of the returns was chiefly owing to the difficulties incident to introducing anything new in Orissa. These returns cannot, therefore, be taken as a test of the revenue capabilities of the canals. In 1868-69, a drought at the end of the rains awoke the fears of the husbandmen, and water was taken for 9378 acres, at an aggregate charge of £2288. The popular apprehensions culminated in a panic; and the demand for water became so urgent, that it was found impossible to comply with the usual forms, and irrigation was granted in many cases without leases. In

others the husbandmen appropriated wholesale on their own account. However, after some opposition, the land which had actually received water was measured, and the people have paid, on the whole, very fairly for what they took. This year (1870-71), a long-protracted drought thoroughly aroused the cultivators to the folly of neglecting irrigation. Until far on in October it seemed that another famine in Orissa was inevitable. Still the people thought five shillings an acre too high a rate; and it was not till the Commissioner, Mr Ravenshaw, by insisting upon the terrible risks that the Province ran, induced Government temporarily to bring down the rate to two shillings an acre, that water was taken on a great scale. Between 98,000 and 100,000 acres were immediately put under irrigation; and even this amount of land, although insignificant compared with the future capabilities of the canal, would have sufficed to take the extreme edge off a famine. It represents a total out-turn of about a million and a half hundredweight of paddy, or 750,000 hundredweight of rice. The political aspects of the subject are treated of in my general account of the Province. The Irrigation Company fixed its rates for Orissa from a consideration of those paid in Madras and the North-West Provinces; and it was forced to fix them at the maximum, as the Secretary of State had ordered that the rates, when once fixed, were never to be altered. The future of irrigation in Orissa seems to depend upon accustoming the people to use the canal water by means of low rates. When they have learned how to make the most of the water, they will be both able and willing to pay gradually enhanced rates.

GENERAL STATISTICS.—Although the foregoing pages treat only of the Canals within Orissa, the general Canal System includes two others; viz., the Midnapur and the Tidal Canal. Both of these lie within the Midnapur District; but as the cost of head-works and other general charges apply to the whole canal system, it is necessary to briefly refer to them here. The Midnapur Canal is intended to provide water communication between Midnapur and Ulabariá: twenty-five miles of it have been already opened. The Tidal Canal runs from the Rúpna-ráyan river to Rasalpur, twenty-seven miles being now opened for traffic. The total expenditure upon the whole of the canals up to the 31st March 1871 is as follows:—Price paid on 31st December 1868, when all the canals were taken over from the East India Irrigation Company by Government, £941,368; outlay between January 1st, 1869, and March 1st, 1871, £333,454; total, £1,274,822.

With the works in their present unfinished state, it is needless to hazard any speculation as to the yield of the canals. No estimate whatever can be formed of the traffic until they are opened from end

to end. Still more would any estimate as to their irrigation revenue be out of place. The disjointed sections already opened yielded the following sums in 1869-70 and 1870-71. In 1869-70, irrigation revenue, £5796; traffic and tolls, £2134; miscellaneous receipts, £1429; total, £9359. In 1870-71, the irrigation revenue amounted to £17,400; traffic, £3883; miscellaneous, £1533; total, £22,816. It must be noted, however, that owing to the sudden demand for water, and the undeveloped state of the arrangements, a considerable balance of the irrigation revenue remained uncollected at the end of each year. The traffic returns for the whole of the canals in 1870-71 were as follows:—Number of miles open, 124; number of boats which used the canals, 24,271; tonnage of goods carried through them, 208,628 tons; approximate value of goods conveyed, £1,122,164. The only canal in Orissa finished from end to end is the Kendrapará Canal; but until the general network with which it communicates is completed, its returns are necessarily less than they will be. Moreover, of the 385 square miles, or 246,785 acres, which it will eventually be capable of irrigating, only 95,000 acres are yet commanded by the existing distributaries; and of these 95,000, only 69,670 are yet irrigated. Under all these disadvantages, the canal in 1870 earned eight per cent. upon the money actually expended on it. Thus: Total cost, £101,823. Revenue: irrigation, 69,670 acres at 2s. an acre, £6967; traffic, 3860 boats, yielding £1149; total revenue, £8106. This does not include petty receipts under the head of Miscellaneous; but, on the other hand, it does not show the working expenses, and it assumes that the whole irrigation revenue is collected. Nor is the cost of head-works taken into account, as that belongs to the general Canal System, and cannot be included in the accounts of the only disjointed fragment yet completed. Any estimate of the permanent interest which the canals will yield can at present be only guess-work. The analogy of the adjoining delta to the south, the Godávarí, is however most encouraging.

EMBANKMENTS AND CONTROL OF FLOODS.—The five rivers, shown in a previous table, whose total discharge dwindles to 1690 cubic feet per second in the month of May, dash down 2,760,000 cubic feet of water per second in their floods. This is considerably more than twice the total discharge which the Ganges distributes all over Bengal, Behar, and the North-West Provinces during its maximum floods. It is obvious, therefore, that the immense volumes of water thus concentrated upon the comparatively small Orissa delta must spread over the country in a manner which has hitherto defied control. From time immemorial, defensive works of the nature of embankments have existed along the sides of the rivers. But such works have hitherto

failed to protect the low levels lying between the various deltaic channels. For particulars regarding Purí and Balasor, see my Statistical Accounts of those Districts, with my general volume on Orissa. In Cattaek District, the Collector reports that there are 680 miles of Government and private embankments, which endeavour to regulate thirty-five rivers or distributaries. On the construction and repairs of embankments within Cattaek Division, from the time we took over the Province in 1803 to 1831, and in Cattaek District alone from 1831 to 1866-67, £157,676 have been spent. The inundation of 1866 broke through the Government embankments in 403 places, and at ten other parts that had been previously damaged, making a total of 413 breaches in one year and in the single District of Cattaek. Of the thirty-five embanked rivers, not one escaped uninjured. Along a single one of them, the Chhota Bráhmañ, the flood burst down upon the surrounding country in no fewer than 74 breaches. The distributaries which suffered next to it were the Chhota Chitartalá, which suffered 37 breaches; the Burá Alanká, 31; the Kátjurl, 30; and the Mahánad, 22 breaches. Out of ninety Fiscal Divisions in the District, only six escaped uninjured from this flood. Six hundred and forty-two square miles, or 411,120 acres, were submerged during a period varying from three to sixty days, the depth of water being from three to fifteen feet. A vast population of 699,803 were suddenly thrust out of their homes, and the Deputy Collector estimated the loss of paddy alone at 366,152 tons, representing, at the prices of 1865, £917,413. The Inundation Committee calculated the actual value at one-fourth less. At the prices ruling during 1866, the Famine Year, when the inundation actually took place, its value amounted to £2,173,564. Nor does this calamity stand alone. In 1855 the floods were deeper, although from the shorter period of their continuance they did not do so much harm. Besides the terrible losses thus sustained from a single flood, 33,309 acres, or 52 square miles, are reported by the Inundation Committee as being permanently left waste for fear of flood. Colonel Rundall, the highest engineering authority with regard to Orissa, believes these figures to be merely a fraction of the land left untilled for this cause; and besides the revenue thus lost, no less than £80,881 of Land-tax have been remitted in consequence of floods during the thirty-six years ending 1866-67. This, too, in spite of the outlay on the embankments having constantly gone on increasing. During the first twenty-nine years of which we have record, the expenditure averaged £1218 per annum for Cattaek District; while during the last twenty-eight, ending in 1866-67, it has amounted to £2440. Again, during the first half of these latter twenty-eight years, the average expenditure was £878 a year; during

the third quarter it rose to £3264; and during the last quarter it reached the enormous sum of £4739 per annum. This brings us up to 1866-67, the year of the terrible inundation above described. Besides the loss of the fifty-two square miles left permanently waste for fear of flood, and paying no revenue to Government whatever, the cost of maintaining the embankments, added to the remissions of Land-tax in consequence of inundation, make a total of £157,559 during the thirty-six years ending 1866-67, or an average of £4376 per annum. This amounts to an annual charge of over $5\frac{1}{2}$ per cent. on the Land-tax of the District. But even this does not represent the total loss. For during the same period there have been remissions of revenue amounting to £142,500 in consequence of droughts. Adding this to the above-mentioned charges for floods and protective works, we find that the uncontrolled state of the Cattack rivers have cost during thirty-six years £300,059. This is altogether independent of the large sums spent in relief operations during time of famine. The two items for remissions of land revenue and cost of protective works alone amount to an annual charge of more than $10\frac{1}{4}$ per cent. on the land revenue of the District.

The embankment system as at present maintained has failed, therefore, in spite of the vast sums spent upon it, to afford security to the District. It has failed, indeed, so egregiously, that some of the Orissa officers despair of any system of embankments being successful. Without entering into controversial matters, I shall merely say that I do not share this view. During eight years the subject has been carefully studied and anxiously deliberated upon by the brilliant school of engineers at work on the Cattack Canals; and a scheme is at this moment being matured, which, it is hoped, will definitely subject the Water Supply of Orissa to the control of engineering science.

USES TO WHICH THE WATER SUPPLY IS PUT.—Owing to the absence of harbours, no lucrative river traffic has hitherto developed in Cattack District. As in all deltas, the rivers are the high roads, but their use is for the most part confined to the internal distribution of commodities; the single article of commerce which they carry in quantity to the seaboard being rice. No effort has been made to use the water-supply as a motive power for mills. Since the Government abandoned salt-making, seaboard industries have practically ceased to exist, and the dearness of salt forbids the development of what would naturally be a great source of wealth to the Province, viz. its fisheries. The rivers and maritime creeks abound with the most excellent fish, yet the whole rent for fisheries paid to Government amounts to only £800. The Government rental, however, by no means represents the actual value

of the fisheries to the owners ; but anything like an adequate development of this most important of the natural resources of Orissa is impossible while salt remains at its present rates. Were it not for the high salt-duty, all the lower reaches of the rivers would be seats of large fishcuring establishments. At present, large quantities of fish are sent up into the interior, but they generally reach the villages in a state of putrefaction. A little salting is attempted even at present ; but the restrictions on the salt manufacture, the multiplicity of forms which have to be gone through even when a pass has been obtained, and the vexations attending the transit of salt, render it impossible for the illiterate fisherman to keep a stock of the article without subjecting himself to troublesome surveillance. The Collector reports that the number of people living exclusively by fishing or by navigation is very small ; so small, that he refuses to hazard a conjecture as to their proportion to the total population. A detailed account of the river fisheries of Orissa may be found in Dr. Day's Report, published in the supplement to the Gazette of India, 29th May 1869. I refrain, therefore, from entering into further particulars, merely premising that Dr. Day seems to omit from his calculations the fisheries in the tributary estates on the coast, which are the most valuable of all.

LINES OF DRAINAGE.—In the west of the District, where the mountains slope down to the plains, the lines of drainage are sufficiently marked by the great rivers and their tributaries. In the delta proper the low levels lie, not along the river-courses, but in the valleys midway between the rivers. The most important line of these deltaic lines of drainage is that between the Mahánadí and the Bráhmañí. The surface-water here gathers into a series of marshes, with occasional lakes, and eventually finds its way to the sea-coast by the Gobrí River, which runs near to Kendrápára, and by the Gandakiyá. The shallower marshes are used for the *boro dhán* rice, of which there are ten principal varieties, viz. : *dubi*, *rávaná*, *harisankar*, *lanká*, *balunga-mardán*, *baitálpakhiyá*, *káili*, *kantisiyáli*, *khurd*, and *khejuriyá*. About one-fifth of the whole District is cultivated by this marsh rice. It is a coarse, cheap, indigestible grain, used by the lower castes, or for home consumption by the small husbandmen. It grows in from three to six feet of water. No effort has been made to introduce the longer-stemmed varieties, which in Eastern Bengal yield a harvest in from twelve to eighteen feet of water, and any attempts to improve the cultivation are unknown.

NATURAL PRODUCTS.—Cattack District possesses no important revenue-yielding forests. Sál trees are found in Kila Sukindá, but they have not been brought in quantity into the market, or made to contribute

to the revenue. The eastern jungles along the coast support a good river trade in firewood, and posts for cottage-building. On the western side of the District, the mountainous jungles also supply fuel, which is floated down the Mahánadí. The largest of these hill estates, Darpan, yields a revenue of only £46 a year from this source. Resin, beeswax, and honey are also obtained, with the nux vomica tree (*kuchulí*), and a sweet-scented grass of marketable value (*bala*). The chief supply of the jungle products, especially tasar and lac, is derived from beyond the frontier of the District in the Tributary States.

PASTURES.—The regularly assessed parts of the District (Mughulbandf) are now too closely cultivated to leave any large spaces for grazing. The lower reaches of the rivers, however, pass through prairies covered with coarse grass, which stretch from the line where cultivation ceases, to that at which the Sundarbans and marine jungles begin. This is especially the case towards False Point and Point Palmyras, and extensive breeding grounds form an important item in the rental of such estates. The Kaniká property yields a revenue of £84 a year under this head, and Kujang about the same. Large herds of buffaloes and horned cattle are reared, a proportion of which find their way by Ulubáriá across the Hugly to Bengal; but the persons employed on the grazing-grounds form no appreciable ratio to the total population.

WILD BEASTS.—Tigers, bears, leopards, wild buffaloes, antelopes, spotted deer, hog deer, hyænas, jackals, foxes, and pigs, are found. Fish-eating and man-eating alligators abound in all the rivers or creeks, and grow to a very large size. Comparatively little loss of life is caused by tigers and leopards, as these animals are confined chiefly to the dense jungles on the coast, or in the hilly portion of the District, where the population is sparse, and where the deer and pigs supply them with sufficient food. The loss of cattle reported to the authorities from wild beasts is very trifling. In 1840, the rewards paid for the destruction of wild animals amounted to £9, 5s.; in 1860, to £6, 13s. 6d.; and in 1869, to £1 for wild animals and £3 for alligators. Previous to this latter year no rewards had ever been given for the destruction of alligators, nor have rewards ever been given for snake-killing. The reported loss of life from snake-bites, wild beasts, and alligators in Cattack District during the five years ending 1869 is as follows:—Snake-bites, 741; wild beasts, 470; alligators, 250—total, 1461; but the actual loss probably amounts to twice this number. The small game includes hare, pea-fowl, jungle-fowl, double-spurred fowl, black and grey partridges, snipe, many kinds of duck and teal, bar-necked geese, common green pigeon, and several kinds of doves. No trade

worth mentioning is carried on in wild beast skins ; nor are the forest animals made to contribute towards the wealth of the District.

POPULATION.—Several rough attempts have been made towards a Census of the District. Stirling in his Account, written about 1822, estimates the population of the Orissa Division (Cattack, Purl, and Balasor) at 1,296,365, of which Cattack District contained 440,784 souls. This Census was based upon an enumeration of the dwellings, allowing five persons to each house. The Revenue Survey of 1842 estimated the population of Cattack District at 553,073, and a subsequent attempt at a Census returned it at 800,000. In 1847 another estimate was made, showing a result of 1,018,979, or a population of 320 per square mile. Again, in 1855, another Census was attempted, which returned the population at 1,293,084. All these calculations, with the exception of the last, were made by simply counting the houses through the agency of the police, and assigning an average number of inhabitants to each dwelling. But in the last Census of 1855 special officers were appointed to test the results by counting the houses and their actual inhabitants in different parts of the District, and thus to ascertain the correct average for each dwelling. The result disclosed an average of slightly over five and a half inhabitants to each house, and gave a population, as above stated, of 1,293,084 ; the proportion of the sexes being 676,320 males, and 616,764 females, residing in 225,000 houses. No Census of the District by the simultaneous enumeration of the people has ever been taken. Mr. Ricketts, in his Report on the Districts of Midnapur and Cattack, published in 1858, considers the calculation of 1847 to be excessive, and the present Collector of Cattack (1870) does not think that absolute reliance can be placed in any of the foregoing estimates. He states that their accuracy would depend upon what the various police constables understood by the word *house*. He found, when taking an experimental Census of the chief Towns of the District in 1869, that great difficulty was experienced in making known the distinction between a house and an enclosure, even to a more highly educated class of enumerators ; and any misunderstanding on this point, extending over the whole District, would materially affect the correctness of the returns. After the famine of 1865-66, returns of the surviving population were called for from the landholders, and the result showed a population of 1,072,463. The Collector thinks that this approximated to the truth, but the number has since increased. The population of the chief towns in the District, as shown in the Report on the Experimental Census in 1869, is as follows :—Cattack Town : males, 18,935 ; females, 18,345 ; total, 37,280 ; number of houses, 9018. Cattack Suburbs : males,

4666; females, 4490; total, 9156; number of houses, 2296. Total of Cattack Town and Suburbs: males, 23,601; females, 22,835; total, 46,436; number of houses, 11,314. Jájpur: males, 4491; females, 4689; total, 9180; houses, 2169. Kendrápára: males, 5795; females, 6026; total, 11,821; houses, 2620. Jagatsinhpur: males, 2463; females, 2269; total, 4732; houses, 1770.

No records exist to show whether, in the numerous attempts at a Census, any distinction was made in the average number of inmates per house between the town and rural population, nor does the Collector think that any great difference exists. It is doubtful whether the average of inmates per house is greater in the towns than in the country, as town life has scarcely developed in Orissa, and anything like our crowded city existence is unknown. I have mentioned how prominently this strikes a stranger in the town of Balasor, where the streets and market-places are interspersed with rice fields and homesteads. In the two rural tracts of Cattack District where the Experimental Census of 1869 was taken—viz. Kaniká on the coast, and Chaushattipára in the hilly northern frontier—the number of inmates to each house was greater than in the towns. In Kaniká the average was five, and in Chaushattipára 5·1, while in the towns it varied from 4·5 to 4·1.

ETHNICAL DIVISION OF THE PEOPLE.—The inhabitants of Cattack consist of three races—Aboriginal, Indo-Aryan or Hindu, and Afghán or Musálmán. The aboriginal tribes here, as elsewhere, cling to their mountains and jungles. They chiefly consist of the Kandhs, Kols, and Savars (the latter being by far the most numerous), and are regarded by the orthodox Hindus as little better than the beasts of the wildernesses which they inhabit. Miserably poor, they subsist for the most part by selling firewood and the other products of their jungles; but a few of them have patches of cultivated land, and many earn wages as day-labourers to the Hindus. They form, in fact, an intermediate stage of destitution between the comparatively well-off tribes in the Tributary States (the stronghold and home of the race), and the Páns, Báuris, Kandrás, and other lowland castes, who now rank as the basest among the Hindu community, but who are supposed to be the remnants of the pre-Aryan people, from the similarity of their habits to those of the undoubted aborigines in the hill tracts. The great bulk of the Indo-Aryan or Hindu population consists of Uriyás, with a residue of immigrant Bengalis; Lálá Káyets from Behar and Northern India; Telingás from the Madras Coast; Marhattás from Central and Western India; Sikhs from the Panjáb; and Márwáris from Rájputaná. These immigrant castes live chiefly in the town of Cattack, and are regarded as temporary residents, although

born in the Province. A large number of Bengalis and Lálá Káyets have been settled in different parts of the District for seven or eight generations,—a period sufficiently long to warrant their being classed with the Uriyá population, but for the caste system which has stood in the way of their fusion. Several Sikh families have also settled in the interior. The Afghán or Musalmán population are the descendants of the northern soldiery who swooped down upon Orissa in 1558, and of subsequent Muhammadan invasions, along with the converts to Islam whom they made among the Uriyás.

NO IMMIGRATION OR EMIGRATION, properly so called, takes place in the District. Large numbers of the Gaur and Chásá castes (herdsmen and cultivators) go to Calcutta for employment as upper house servants, palankeen bearers, or workers on the roads; but they all periodically return to their homes after an absence of about three or four years. The Telis (or oil-pressers) supply porters and carriers to Calcutta, but they seldom fail to return to Orissa when they have made a little money. The licensed recruiters also collect small parties of low castes as labourers for the tea plantations of Eastern Bengal, but very few of these return to the District.

CASTES.—The following list exhibits the principal castes in Cattack, with their hereditary occupations. It is arranged, as far as possible, in the order in which they rank in popular estimation. (1) Bráhma, priests, numerous, generally poor, but sometimes well endowed with temple lands; (2) Kshattriya, military service, few, poor; (3) Baidya, emigrants from Bengal, hereditary physicians, but some now employed as Government servants, few, well-to-do; (4) Sikh, military service, few, rather poor; (5) Rájput, military service, some cultivators and messengers, numerous, poor; (6) Káyasth, clerks, bookkeepers, and Government servants, numerous, well-to-do; (7) Karan, clerks and Government servants, but some are also cultivators, numerous, well-to-do; (8) Khandáit, the old rural militia, now mostly cultivators, numerous, well-to-do; (9) Vaishnab, religious mendicants, held in esteem by the followers of Chaitanya, few, poor; (10) Sanyási, religious mendicants, few, poor; (11) Patrá, cloth-sellers, pretty numerous, and in middling circumstances; (12) Guriá, sweetmeat-sellers, well-to-do; (13) Putuli-baniá, spice-sellers, few, well-to-do; (14) Chásá, cultivators, the most numerous caste in the District, as indeed throughout all Orissa, some settled on fair-sized holdings, but most of them poor; (15) Gaur, milkmen and palankeen bearers, numerous, poor; (16) Barhái, carpenters, few, tolerably well-to-do; (17) Kámár, blacksmiths, few, well-to-do; (18) Bhandári, barbers, few, well-to-do; (19) Máli, gardeners, few, poor; (20) Thatári, braziers, well-to-do; (21) Darzá, tailors, few, well-to-do;

(22) Tánti, weavers, numerous, poor, considered stupid and pitied; (23) Kumbhár, potters, few, poor; (24) Teli, oil-sellers and oil-pressers, rather numerous, well-to-do; (25) Jogí, religious beggars, few, poor; (26) Bhát, beggars, few, poor; (27) Náyak, astrologers, few, poor, and despised; (28) Sonár-baniá, goldsmiths, rather numerous, well-to-do; (29) Keut, fishermen, poor; (30) Gokhá, fishermen, few, poor; (31) Dhobá, washermen, few, poor; (32) Suri (Sundi), spirit-sellers, few, well-to-do; (33) Chhukar, musicians, few, poor; (34) Chamár, makers of palm-leaf mats and toddy-sellers, few, poor; (35) Dom, basketmakers, few, poor; (36) Báuri, day-labourers, few, poor; (37) Mochi, shoemakers, few, poor; (38) Kandrá, day-labourers or village policemen, few, poor; (39) Pán, day-labourers, few, poor; (40) Hári, sweepers, few, poor; (41) Kandhs, (42) Kols, and (43) Savars, aboriginal tribes, a few of them cultivators, but for the most part living by the sale of firewood and other jungle products, or as day-labourers.

The above list shows the occupations which the castes ought to follow, according to their hereditary customs; but practically it is not now unfrequent for persons to forsake either wholly or partially their ancestral employment. The higher castes, as a matter of course, look upon these changes with disfavour, and decidedly prefer the old system, according to which every man was bound to follow his caste occupation, and which gave no opportunities to men of the lower classes to qualify themselves for positions reserved for their superiors. A general hankering after the occupations of the higher classes has arisen under our rule, not because such employments necessarily pay better, but on account of their having from time immemorial been associated with castes who rank well in public esteem. It is said to have resulted in a neglect of several trades and callings, very useful in themselves, but which, according to the custom of the country, are followed only by low castes.

THE CHASAS, or hereditary cultivators, are by far the most numerous caste; and, indeed, there is scarcely any other caste which, while following its own calling, has not adopted agriculture as an auxiliary means of livelihood. Not less than three-fourths of the whole population are engaged in husbandry. The people are, generally speaking, poor as compared with the population of Bengal; and the trading, or merchant, castes are better off than the cultivators.

THE BENGALIS, LALA KAVETS, and MUSALMANS, monopolised the principal offices of State under the Muhammadan and Marhattá governments, and continued to do so after the province had passed under British rule, until the vernacular of the country was substituted for Persian as the language of public business and of the courts of law. This

change enabled the Uriyás to compete with the strangers for official employment, and almost simultaneously it was authoritatively laid down that, in selecting candidates for the Government service, preference should be given to natives of the province, if they possessed equal qualifications. The Uriyás thus obtained a fair chance, and the lower ministerial offices are principally in their hands. The higher executive posts, such as those of Deputy Magistrate and Collector, are still, however, monopolised by Bengalis and other immigrants. This is little satisfactory to the natives, but the latter generally admit that the Bengalis have had the start of them in education and enlightenment. In 1869 an attempt, fortunately unsuccessful, by some of the Bengali party to get their language practically substituted for Uriyá in the schools gave rise to some bitterness. But, with this exception, a good feeling is maintained between the different races and castes in the District.

RELIGIOUS DIVISION OF THE PEOPLE.—The population consists almost entirely of Hindus and Muhammadans. No statistics exist showing the proportion of each, but the Collector estimates the Musálmáns at one-eighth and the Hindus at seven-eighths. My own inquiries lead me to believe that the Musálmáns do not exceed one-fourteenth of the total population of the whole District, but they muster strong in Cattack City. The vast majority of the Hindus are Vishnu-worshippers, but almost all the Bráhmans are Sivaites. The worshippers of Káll, one of the forms of the wife of the All-Destroyer, are few in number, and, speaking generally, are found only among the Bengali settlers. The Bráhma Samáj, or Theist Assembly, numbers about forty members in Cattack City, but has made no progress outside the town. The Samáj was established in 1856. Its first church soon scattered, but was re-established in 1858. In 1869 a second Samáj was founded, the principal doctrines being the same as those of the older sect, but more practically applied as rules of life. The older Samáj is composed almost entirely of Bengalis, and their religious services are conducted in that language. The new sect carries on its services in Uriyá, and issues a monthly paper printed in that character. Both institutions were established by Bengali gentlemen, and the pastors make their living by some secular vocation, receiving no stipend for their ministrations. The reformed faith is not regarded in Cattack as a distinct religion from Hinduism, and its professors occupy the position belonging to their different castes, irrespectively of their religious persuasion. The social status of a person still depends more upon the caste he belongs to than on his creed, or anything else. Education, wealth, and official position go far towards securing rank; but if not conjoined with good caste, the respect paid is

forced rather than voluntary. Singularity on points of religion does not affect a man's position in society, unless he becomes an apostate from the faith of his forefathers. The Jains, or modern Buddhists, have a little settlement of fourteen members in the town of Cattack. They are found exclusively among the Márwáris and other traders from Northern India, and seldom or never make an Uriyá convert. In the rural parts they are unknown, and Hinduism reigns supreme.

THE NATIVE CHRISTIANS (Baptists) number 1712 souls, including 658 children who were rescued from the famine of 1865-66. As a rule, they are despised by the Hindus and Musálmáns; but individuals among them extort respect by their high character, combined with wealth or official position. Two peasant settlements of Christians have been founded by the Cattack Mission, one at Chhagán, a village in the Tributary State of Athgarh, but within a short distance of Cattack, on the opposite side of the Mahánadí; and the other at Khandítar, on the banks of the Kharsuá, about ten miles from Jájpur. These little colonies live entirely by agriculture, while the town Christians find employment as Government servants, or in connection with the Mission, or as menial servants or day-labourers. Generally speaking, the native Christians manage to earn just enough to secure a decent livelihood; although, on the one hand, there are some isolated cases of comparative affluence, and, on the other, some who have to be assisted out of the Mission funds. If the famine orphans are excepted, Christianity appears to have made but little progress in actually converting the people, but it has done much indirect good.

MUHAMMADANISM makes no progress whatever, although the famine contributed to add to its ranks in the same way as it did to the native Christians, some charitable Musálmáns having given shelter to deserted children, and brought them up in their own faith.

DISTRIBUTION OF THE PEOPLE INTO TOWN AND COUNTRY.—Cattack (*Katak*, one of the five *Royal Strongholds* of ancient Orissa) is the most important town in the District, and the capital of the Province. It is the centre of commerce, the seat of the principal Civil Court, and the headquarters of the Commissioner of Orissa. In 1825 it contained, according to Stirling, 6512 houses, and a population of about 40,000 souls. In 1869, according to the Experimental Census Report, the town and suburbs contain 11,314 houses, and a total population of 46,436, of which the details have been given on a previous page. For historical and social notices of the city, see my General Account of Orissa. Next in importance to Cattack is Jájpur, also described in that work, the headquarters of the Subdivision of the same name, and a noted place of pilgrimage. Under the Kesari dynasty, who succeeded

in 474 A.D., it formed for some time the capital of the Province, but before the eleventh century it had given place to Cattack. At present it contains 2169 houses, and a total population of 9180 souls. Kendrápára stands third, and is likewise the headquarters of a Subdivision, and a place of pilgrimage, but of less importance than Jájpur. During the Marhattá rule, a magistrate (Fauzdár) was stationed here with a small force for the purpose of checking the depredations of the Rájá of Kujang, who for centuries preyed upon the surrounding country. It contains 2620 houses, and a total population of 11,821. Jagatsinhpur, at présent the headquarters of the Subdivision of that name, was a place of considerable importance during the Marhattá occupation of the Province, but has now only 1770 houses, and a total population of 4732 souls. These are the only places in the District worthy of the name of towns, and indeed are the only ones containing a resident population of over two thousand souls.

The people of Cattack District, as indeed of all Orissa, evince no tendency towards town life. Nothing except necessity can induce them to quit their hereditary homesteads; and if so compelled, they prefer the humblest shed in the country to living in a city. They look down on the towns-people, and seldom intermarry with them, in part owing to a belief that the practices and habits of the city life are not so strictly in accordance with caste rules. The inhabitants of Jájpur and the surrounding country are supposed to be of a more litigious disposition than those in other parts; and the jungle communities along the eastern coast and in the hilly western frontier require a certain amount of tact to manage them. But, as a whole, the people are quiet and submissive; very ignorant of their rights or privileges; and passive under oppression, if clothed with the garb of authority.

THEIR MATERIAL CONDITION is gradually improving. Although it may be difficult to tell precisely when and how this improvement began, the evidences of it are numerous and unmistakeable. Good government and freedom from foreign invasion during the past half century gave them a start, and the prices of country produce have doubled during the past ten or twelve years. Nor is this rise the result of any falling off in the sources of supply, for the area of the land under tillage has increased during the same period. European piece goods, and other articles of comfort and luxury, have been imported into the District in much larger quantities than before. The vast sums expended in late years on the Irrigation and other large public works, have made money more plentiful, and the development of the export trade in grain and oil-seeds has yearly contributed to the currency of the Province. This export trade, although of very ancient standing by the land route to Tamluk

and Ulubáriá on the Hughl, received a fresh impetus from contact with English enterprise which in 1860 began to open out the seaboard. At first, export trade had to contend against serious difficulties arising from the want of roads to the coast, and from the aversion of the petty proprietors to innovation of any sort. But the grain-growers soon came to understand their interests too well to be influenced by the landlords, and the construction of the Táldandá and Máchhgáon roads created facilities for the transport of produce. Fresh capitalists entered the field. The exports grew larger year by year, and carried away from the District the surplus grain upon which the people might fall back in the event of a failure of the crop such as that of 1865. There can be little doubt that the previous heavy exportations intensified the sufferings of that and the following year. The present Collector, after mature experience, reports to me as follows: 'Until the exceptional causes which preclude the country from being dealt with in the same manner as other countries can be removed; or, in other words, until its desiderata in the shape of communications are fully supplied; it may not be an illiberal policy to put such a check upon the export trade as may prove a sufficient guarantee against the country being drained of its reserve store.' The famine, however, had one good effect. The exceptional position and wants of Orissa have been anxiously inquired into. Several important schemes tending towards the amelioration of the condition of the people have been accomplished, the most important being the opening of water communication between Cattack and False Point, by means of the Kendrápára Canal, described on a former page. Although these navigation and irrigation projects had been started before the famine, it is doubtful whether, had that calamity not intervened, the scheme would not have collapsed for want of funds. As it is, Government has now taken them over from the private company which commenced them, and their completion is only a matter of time.

THE DRESS of an ordinary well-to-do shopkeeper consists of a cotton waistband falling over the thighs (*dhoti*), a cotton shawl (*chádár*), and scarf (*gámchá*), all together worth about 3s. 4d. In winter-time a thick coarse cotton shawl (*giláph*) is worn. A Cattack peasant's dress consists of a waistband and cotton scarf of the value of about 2s. 3d., and for the winter a coarse mat wrapped round his body (*hens*). The clothing of a wealthy man differs from that of a poor one in quality, but not in quantity.

THE DWELLING of an ordinary shopkeeper costs about £1, 11s. 6d. to build: thus, four wooden posts, 2s. 6d.; six wooden rafters, 1s. 6d.; 200 bamboos, 6s.; string, 1s. 6d.; straw, 15s.; a pair of doors, 5s. The furniture in such a house generally consists of a brass platter

(*kansá*), value 4s. ; a brass jar (*lotá*), 3s. ; a brass cooking pot (*pítal*), 2s. ; a small brass plate (*sháli*), 4s. ; four brass cups (*katorá*), 4s. ; a stone mortar (*sila*), 9d. ; a mill (*jántá*), 1s. 6d. ; a knife (*panki*), 3d. ; and a coarse mat (*hens*), 6d. ;—total value, £1. Some of the larger shopkeepers have much more substantial dwellings, and a few have even brick-built houses. The dwelling of an ordinary well-to-do husbandman costs about 19s. 6d., as follows : four wooden posts, 2s. 6d. ; three wooden rafters, 9d. ; 100 bamboos, 3s. ; string, 9d. ; straw, 7s. 6d. ; a pair of doors, 5s. This is the kind of house the husbandmen generally live in ; but those of the poor landless classes and day-labourers are much less costly—in fact, mere hovels. The furniture in the house of an average cultivator consists of a brass platter, a brass jar, a small brass plate, a knife, and a coarse mat, the whole worth about five shillings.

THE FOOD of a shopkeeper in ordinary circumstances, having a family of five persons, would cost about sixpence three farthings per diem, or 17s. a month, and would consist of the following articles :—Rice, 6½ lbs. per diem, 3d. ; split peas and vegetables, 0¾d. ; salt and oil, 1½d. ; fuel, 0¾d. ; turmeric, spices, betel-nut, and tobacco, 0¾d. ; total, 6¾d. per diem. The living of an average cultivator, with a family of five persons, costs about 12s. 3d. per month, and comprises rice, salt, vegetables, oil, fuel, and a little tobacco.

AGRICULTURAL.—The staple crop of Cattaek, in common with the other Districts of Orissa, is rice. The following is a list of the principal rice crops, with their varieties :—(1) *Biáli*, grown on high land, the banks of rivers, and on the outskirts of villages. It is sown broadcast in May and reaped in September, the soil in which it grows being called *Dofasli*, or 'two-crop' land. There are two distinct species of *Biáli* rice, the *Sáthfya* and the *Bara*, each subdivided into many varieties. The *Sáthfya* derives its names from the time it takes to come to maturity, which is believed to be exactly sixty days. A tradition relates that the *Biáli* rice was not made by Brahmá, the author of the Universe, but invented by the sage *Viswámitra*. It is accordingly considered less pure, and prohibited in religious ceremonies. The higher classes seldom use it, as it is a coarse grain, difficult to digest, and apt to bring on diarrhoea in stomachs unaccustomed to it. The chief subdivision of the *Sáthfya* species is the *Hárvasáthfya* ; and the principal varieties of the *Bara* species are the *Bakri*, *Inkri*, *Madiya*, *Cháuli*, and *Jiraisáli*. (2) *Sárad* rice is of a better quality, and includes two great species, the *Laghu* and *Guru*. The former is sown in May on comparatively high land, and is reaped in November. Its thirteen most important varieties are, the *Chhoṭa-champá*, *Motrá*, *Rangiasiná*, *Niyáli*, *Háruá*, *Lanká*,

Bodla-champá, Sará, Nardá, Mánt, Bangri-panchi, Palásphul, and Bhut-mundi. The Guru species of Sárad grows on low lands, being sown in May and reaped in November or December. Its twenty-one principal varieties are, the Kalájirá, Narsinhbhog, Surlí, Díwánbhog, Durgábhog, Nripatibhog, Madhu-málati, Bángar-mádhahí, Machhkantá, Dhalákeri, Kalákeri, Muktákéri, Gopálbhog, Nájukbadan, Ratan-churi, Makarká-mudi, Daynágundi, Tulsiphul, Rangpakhiyá, Kalápakhiyá, and Champá. Some varieties are sown broadcast on low marshy ground; others are carefully reared in nursery fields, and transplanted stalk by stalk to higher and dryer soils. Ground covered with a foot of water gives a good crop; but the coarser sorts will grow in six feet, although all must be sown to begin with in solid land. For some, a soil having an admixture of sand (*Dorasá*), while for others a soil not sandy (*Mátdál*), is best adapted. Some require to be sown early in the season, and others late. Certain varieties will not grow unless the land is thoroughly weeded, while others flourish in spite of everything. In order to provide against the uncertainties of the season, the husbandmen sow both the species which require flooding or which will not suffer from it, and those that will flourish with but a moderate rainfall. In addition to the twenty-one varieties above mentioned, the following eleven descriptions of Guru Sárad are sown broadcast on marshy lands, dry in the sowing time and hot season, but covered with from three to seven feet of water in the rains:—Rávaná, Lanká, Balungá-mardán, Harisankar, Dubi, Baitálpakhiyá, Kaili, Kantisiyáli, Khurá, Khejuriya, and Raktachandan. (3) Dálua rice, sown in February and reaped in May, a coarse, indigestible grain with short straw, grown principally along the sea-coast on marshy lands, and often requiring irrigation.

No improvement seems to have taken place with regard to the quality of the rice grown in the District, and the soil is thought to be unsuited for the growth of foreign varieties, although attempts have been made to introduce them. During the famine, Barmah seed was given to the husbandmen, but the experiment failed. Carolina paddy seed was also distributed among some of the landholders in 1868, with results far from encouraging. It is difficult to say whether this was, as supposed by the cultivators, owing to the unsuitability of the soil, or to want of knowledge on the part of those who used the seed.

THE EXTENT OF LAND UNDER RICE CULTIVATION has increased by nearly one-fourth during the last twenty years. A portion of this increase, however, is factitious, as large tracts of land were purposely allowed to remain uncultivated at the time of the Settlement in 1837, in order that they might be entered as waste by the Settlement Officer, and thus exempted from assessment, or assessed very lightly. As soon

as the Settlement was concluded, such lands were gradually put under cultivation.

PRODUCTIVE POWERS OF THE LAND.—An idea prevails among the people, that although the extent of land under cultivation has increased, yet that its productive powers have diminished ; and the superstitious peasants attribute this to the anger of the gods at so much of the old pasture land for cows having been lately brought under the plough. The main cause is the constant working of the soil, which allows the land no rest. A field seldom lies fallow, and the rotation of crops, although not unknown in Cattack, is not systematically carried out. The great extent of pasture and of waste lands which has been brought under cultivation, may have tended to decrease the average yield from the soil ; as such new lands are often of an inferior quality, and formerly were not deemed remunerative for tillage at all. Deficiency of labour is sometimes stated as another cause of the decreased average productiveness. While, on the one hand, the large and important Public Works now being carried on in Cattack have to a small extent withdrawn hired labour from agriculture, the increased amount of land under cultivation has, on the other hand, greatly increased the demand for it. In short, the land is just beginning to cease to be the only outlet for unskilled labour in Orissa. The land may suffer a little, but the labourers gain a great deal.

THE DIFFERENT STAGES OF RICE CULTIVATION are as follows— the names generally consisting of a noun and verb, or of a verb with the word *dhán*, rice, understood. When the seed vegetates, it is called *dhán gajā delá* ; when the sprout divides into two leaves, *dui-patra* ; when the paddy begins to germinate in the stem, *káni-thor* ; when fully germinated, *thor-hebá* ; when the ears emerge from the stem, *dhán-báháribá* ; when the rice flowers, *phul uráibá*, or *hát karibá* ; at the end of the flowering, when a milky substance is generated in the stem, *áhár dhukibá* ; when the kernel is just formed, *kshír chául* ; when ripening, *páchibá* ; when ready for cutting, *katá-jibá*—literally, it will be cut ; when the grain is spread on the ground, and trodden out from the stem by a team of bullocks, *benglá paribá* ; when winnowing, *ura-jibá* ; when husked without boiling, *aruyá chául* ; when husked after the seed has been loosened by boiling, *usná-chául*. The solid preparations of rice are : boiled rice, *bhát*, which is never sold ; rice cakes, *pithá*, a few sorts of which may be sold ; paddy boiled, afterwards slightly fried in the husk and then husked, *churá*, sold at about thirty-five pounds for two shillings ; fried rice, *hurum*, a little over a penny a pound. A preparation made of unhusked rice slightly crushed and fried, *khái*, is sold at the same price. The liquid preparations of rice are : rice

boiled to the consistency of paste, *jáu* ; rice boiled with milk and sugar, *kshír*, or *kshírí* ; and *mad*, a distilled liquor made from rice, and sold at about a shilling a quart. The two first preparations are never sold.

THE OTHER CEREAL CROPS OF THE DISTRICT are : (1) *Mánduá*, a grass-like plant producing a coarse seed resembling rice, sown simultaneously with *Biáli* on the same description of land, and reaped in September. This grain is peculiar to Orissa, and not found in Bengal. It is used freely by the lower orders, who prefer it to rice as cheaper, and who even consider it more nourishing. The higher classes do not use it, and declare it difficult of digestion by unaccustomed stomachs. (2) *Gaham* (wheat) and (3) *Jab* (barley), sown towards the end of November, and reaped in February and March. These crops are grown on rather high land, and require a great deal of irrigation. (4) *Chiná*, a rice-like cereal, rather rare, sown about the end of November, and reaped at the end of January. (5) *Suán*, a rice-like cereal, not cultivated, but grows spontaneously in the paddy fields. It is used only by the lower orders. Indian Corn (*Butá* or *Maká*) has been omitted from the list of cereals, because it is scarcely cultivated in Cattack District. It is only grown in small gardens, and is eaten as a luxury in the green-ear, roasted, and not as an ordinary article of food. The Madras soldiers and camp followers in Cattack City are fond of it, but it is generally considered unwholesome.

THE PULSES grown in the District are : (1) *But* (gram) and (2) *Chaná* (peas), sown about the end of November, and reaped in February. These crops are grown on high land, and require irrigation, but are not common throughout the District. (3) *Mug* (*phaseolus Mungo*), (4) *Birhi*, and (5) *Kolath* (*dolichus biflorus*), sown in October, and cut in January or February. These are generally cultivated as second crops on *Biáli* and *Mánduá* land, but sometimes as the sole crop of the inferior one crop (*ekfasli*) pulse land. The heavy dews which fall during the cold season afford sufficient moisture, and rainy weather is injurious to such crops. (6) *Harar* of two kinds : (a) *Chaitra Harar*, called after the name of the Hindu month in which it is reaped. It is sown almost simultaneously with *Mug* and *Birhi*, and sometimes along with them in the same field ; the *Mug* or *Birhi* being reaped first, and the *Harar* left standing till March or April, when it also is reaped. This description of *Harar* is extensively cultivated, and considered more wholesome than the other variety, namely (b) *Náli Harar*, which is grown on high lands, mostly around the homesteads ; sown in June or July, and reaped in December or January.

THE FIBRES of Cattack District are : (1) *Jute*, sown in July, and

reaped in November, on moist lands along the banks of rivers; not a very common crop. (2) Hemp, sown in high lands in November, and cut in January and February. (3) Kápás (Uriyá, Kapá), Cotton, with its two varieties, Haldiyá and Achhuá. The first variety is grown mostly in the hilly parts of the District, being sown in June or July, and cut in October or November. The seeds obtained from this species produce in the plains the Achhuá variety, which is sown in December and reaped in July. For the Achhuá crop, Haldiyá seed from the hills is preferred. The pods of the Achhuá are larger than those of the Haldiyá of the plains, but those of the Haldiyá grown in the mountainous tracts are superior to either in the delta, the hill soil being much better adapted for the growth of cotton. Land newly reclaimed from jungle is the best for this crop. (4) Simul-tulá, a description of cotton growing on a large tree (*Bombax heptaphylla*). It is never cultivated, but grows spontaneously; and the cotton is largely used for stuffing pillows and mattresses.

MISCELLANEOUS CROPS.—(1) Sarishá (mustard), sown in October, and reaped in January or February; grows well where silt is deposited. (2) Gab (castor oil), sown at the same time, and on the same description of land as Sarishá. It is generally grown as a second crop, but occasionally as a single one on land along the banks of rivers. The oil sells at about 3d. per pound, and is used extensively for lighting. (3) Phesi (linseed), sown in November, and reaped in February or March, as a second crop on Biáli and Laghu Sárád land. (4) Khasá (til seed, *sesamum orientale*) grows on high or dry land; sown in July, and reaped in January. It is extensively cultivated and largely exported, principally to the Madras Presidency. (5) Tamáku (tobacco) is sown in deposits of slimy mud in December, and cut in March or April: irrigation is required. It is largely cultivated, and consumed by the people in the shape of cheroots. (6) Akhu (sugar-cane) should be grown on high land secured from flood-water, which is injurious to the plant. Constant irrigation is required; and as the crop is a very exhausting one, it cannot be grown on the same land in successive years. It is sown in April or May, and cut in February or March. (7) Haldi (turmeric) grows on high land which has previously been left fallow for a year; sown in July, and cut in February or March. (8) Adá (*ginger*), grown on the same description of land, and sown and cut at the same time as turmeric. (9) Methi (*trigonella fœnum*), (10) Dhaniyá (*coriander* seed), and (11) Pámahuri (*himpinella anisum*), are all sown in November, and reaped in January or February. (12) Piyáj (onion) and (13) Rasun (garlic) are sown in November, and reaped in January; require irrigation. (14) Pán (betel-leaf) is planted in July;

and after the plant reaches maturity, in twelve or fifteen months, the leaves are plucked twice a week. This valuable creeper, when once it has fairly taken root, yields leaves for fifty or sixty years. It requires more labour than any other crop, but is also more profitable. It must be constantly irrigated, and protected from the sun by a reed roofing; so that a pán garden is simply a vast low-built mat greenhouse, very steamy inside, but of a uniform temperature all the year round. An acre yields from £88 to £100, of which, however, from £50 to £75 represents the capital laid out by the cultivator, and the rent of the land. A fair profit to the husbandman is from £25 to £35 per acre.

OUT-TURN OF CROPS.—Official Records which represent the Agricultural State of the District in 1842, return the proportion of cultivated, cultivable, and waste lands as follows:—Under cultivation, 857,482 acres; cultivable, 94,357 acres; jungle and uncultivable, 866,486 acres: total, 1,818,325 acres, excluding 407,086 acres of land of which no detailed measurement had been made. Since then, however, a much larger extent of land has been brought under tillage. According to the Settlement Papers of 1837, the total crop of the District for one year amounted to upwards of six and a half million hundredweights, grown on 670,209 acres. Of this area, 458,696 acres were under rice, the crop of which weighed over five million hundredweights. At present, an acre of ordinary two-crop (Dofasli) land paying a rental of 6s. 3d. per annum will yield one bharan of unhusked paddy, equal to about ten hundredweights, worth thirteen shillings; and also a second crop of Mug or Birhi, weighing about three and a half hundredweights, and worth twelve shillings: total value of crop, £1, 5s. an acre. An acre of Sárád, or single-crop land, paying the same rent, will grow nineteen and a half hundredweights of paddy, worth £1, 6s. Two-crop land paying half the above rent gives a crop of Biáli and Mug valued at nine shillings. It will be seen from the above that one-fourth to one-third of the produce is paid as rent, the remaining three-quarters and the straw going to the cultivator for his capital and labour.

RATES OF RENT.—At the time of the Settlement in 1837, the rates obtained for the different descriptions of land on some of the most important estates in the District were as follows. The figures are gleaned from the tabular statements of the Settlement Papers:—In the Fiscal Division of Deogáon, tobacco land yielded a rental of from £1, 17s. 6d. an acre for first-class fields, to 6s. 3d. an acre for the eighth class. Two-crop land growing Biáli rice and Birhi is divided into no less than twelve classes, the rents for which varied from 9s. 4½d. for first-class to 1s. 6¾d. for twelfth-class land per acre. Land growing Biáli and mustard varied from 12s. 6d. for first-class to 3s. 1½d.

for fifth-class land ; that growing Biáli and tobacco, divided into four classes, from $\text{₹}1, 5s.$ to $9s. 4\frac{1}{2}d.$ an acre. Sárád land, ten classes, from $7s. 9\frac{3}{4}d.$ to $1s. 3\frac{3}{4}d.$; wheat and castor oil land, $3s. 1\frac{1}{2}d.$; coriander, two classes, $9s. 10\frac{1}{2}d.$ and $3s. 1\frac{1}{2}d.$ per acre. In the village of Tulang, in the Fiscal Division of Khandi, the rates per acre for the different classes of land growing the most important crops were as follow :— Biáli and Birhi land, eight classes, from $15s. 7\frac{1}{2}d.$ to $6s. 3d.$ per acre ; Mánduá and Birhi, nine classes, $15s. 7\frac{1}{2}d.$ to $6s. 10\frac{1}{2}d.$; Mánduá and cotton, two classes, $11s. 10\frac{1}{2}d.$ and $7s. 7\frac{1}{2}d.$; Sárád (winter-rice land), twelve classes, from $15s. 7\frac{1}{2}d.$ to $6s. 3d.$; Biáli, twelve classes, from $9s. 4\frac{1}{2}d.$ to $1s. 10\frac{1}{2}d.$; Mánduá, nine classes, from $3s. 10\frac{1}{2}d.$ to $9d.$ an acre. In the village of Muguriá, in the Fiscal Division of Bálubisi, rents for the more important qualities of land were as follow :— Mánduá and Kolath, twelve classes, from $12s. 6d.$ to $1s. 6\frac{3}{4}d.$ per acre ; Biáli and Kolath, twelve classes, from $12s. 6d.$ to $1s. 3d.$; Mánduá and cotton, five classes, from $9s. 4\frac{1}{2}d.$ to $3s. 1\frac{1}{2}d.$; Mánduá and Birhi, twelve classes, from $12s. 6d.$ to $1s. 3d.$; Sárád, twelve classes, from $12s. 6d.$ to $1s. 6\frac{3}{4}d.$; Biáli, eight classes, from $6s. 3d.$ to $9\frac{1}{2}d.$; sugar-cane, five classes, from $18s. 9d.$ to $6s. 3d.$; tobacco, five classes, from $18s. 9d.$ to $9s. 4\frac{1}{2}d.$; cotton, eight classes, from $6s. 3d.$ to $1s. 0\frac{1}{2}d.$ In the single village of Krishnapur, in the Fiscal Division of Asureswar, the rates per acre were : for Biáli and Birhi land, twelve classes, from $15s. 7\frac{1}{2}d.$ to $5s. 5\frac{1}{4}d.$; Biáli and wheat, twelve classes, from $15s. 7\frac{1}{2}d.$ to $6s. 3d.$; Biáli and mustard, six classes, $12s. 6d.$ to $6s. 3d.$; Sárád, twelve classes, $12s. 6d.$ to $6s. 3d.$; Biáli, ten classes, $12s. 6d.$ to $3s. 1\frac{1}{2}d.$; Dálua, $6s. 3d.$ to $3s. 1\frac{1}{2}d.$; tobacco, six classes, $14s. 6d.$ to $5s.$; sugar-cane, six classes, $10s. 6d.$ to $6s. 3d.$; mustard, nine classes, $9s. 4\frac{1}{2}d.$ to $1s. 6\frac{3}{4}d.$; turmeric, four classes, $12s. 6d.$ to $5s.$; Birhi, twelve classes, $10s.$ to $3s. 6d.$; Mug, twelve classes, $12s. 6d.$ to $1s. 6\frac{3}{4}d.$ This was thirty-three years ago.

The rates of rent per acre at the present time for the very best qualities of Two-crop and December-rice land (Sárád), in each of the Fiscal Divisions of Cattack, are returned by the Inundation Committee as follows :—(1) Abartak, $15s. 7\frac{1}{2}d.$ for two-crop, and $12s. 6d.$ for winter-rice land ; (2) Alti, $12s. 6d.$ for each description ; (3) Anábartak, $9s. 4\frac{1}{2}d.$ and $7s. 6\frac{3}{4}d.$ respectively ; (4) Apilá, $9s. 4\frac{1}{2}d.$ and $9s. 4d.$; (5) Asureswar, $\text{₹}1, 5s.$ and $18s. 9d.$; (6) Atkhantá, $6s. 3d.$ for each description ; (7) Bahrúpá, $4s. 8\frac{1}{4}d.$ for each ; (8) Bákrahábád, $6s. 3d.$ and $5s.$; (9) Bálubisi, $12s. 6d.$ for each ; (10) Bárán, $4s. 8\frac{1}{4}d.$ and $3s. 10\frac{3}{4}d.$; (11) Bárdiyálá, $7s.$ and $6s. 3d.$; (12) Bárgáon, $9s. 4\frac{1}{2}d.$ for each ; (13) Bappallá, $10s. 5d.$ and $9s. 4\frac{1}{2}d.$; (14) Baruyá, $12s. 6d.$ for each ; (15) Báutará, $9s. 4\frac{1}{2}d.$ for winter-rice land ; (16) Benáhár, $12s. 6d.$ and

9s. $4\frac{1}{2}$ d.; (17) Cattack Hávilí, 7s. $0\frac{1}{2}$ d. and 9s. $4\frac{1}{2}$ d.; (18) Chaurdá Kolát, 9s. $10\frac{1}{2}$ d. and 9s. $4\frac{1}{2}$ d.; (19) Chhedrá, 5s. for winter-rice land; (20) Dálíjorá, 12s. 6d. and 13s. 9d.; (21) Dámarpur, 9s. $4\frac{1}{2}$ d. for each; (22) Deogáon, 9s. $4\frac{1}{2}$ d. for each; (23) Derábisi, 4s. $8\frac{1}{2}$ d. for winter-rice land; (24) Dihi Arakpur, 13s. 4d. for each; (25) Gandilo, 9s. $4\frac{1}{2}$ d. and 15s. $7\frac{1}{2}$ d.; (26) Hariharpur, 12s. and 15s. $7\frac{1}{2}$ d.; (27) Hátimundá, 12s. 6d. and 9s. $4\frac{1}{2}$ d.; (28) Jájpur, 12s. 6d. and 11s. 3d.; (29) Jayanábád, 10s. $7\frac{1}{2}$ d. and 12s. 6d.; (30) Jayípur, 15s. $7\frac{1}{2}$ d. for each; (31) Jhankar, 18s. 9d. for each; (32) Jodh, 9s. $4\frac{1}{2}$ d. and 7s. $6\frac{1}{2}$ d.; (33) Kalámátiyá, 12s. 6d. and 8s. $1\frac{1}{2}$ d.; (34) Kanchikhand, 15s. $7\frac{1}{2}$ d. for each; (35) Karimúl, 15s. $7\frac{1}{2}$ d. for each; (36) Káte, 10s. 5d. and 9s. $4\frac{1}{2}$ d.; (37) Káyamá, 6s. 3d. for each; (38) Keruyákkhand, 15s. $7\frac{1}{2}$ d. for each; (39) Khandi, 15s. $7\frac{1}{2}$ d. for each; (40) Kila Al, 4s. $8\frac{1}{2}$ d. and 4s. 2d.; (41) Kodindá, 12s. 6d. and 14s. $0\frac{1}{2}$ d.; (42) Kokuyákkhand, 12s. 6d. for each; (43) Kuhundá, 10s. and 9s. $4\frac{1}{2}$ d.; (44) Kurniyá, 12s. 6d. and 9s. $4\frac{1}{2}$ d.; (45) Kusmandal, 12s. 6d. for each; (46) Kutabsháhí, 4s. $8\frac{1}{2}$ d. and 4s. 2d.; (47) Manjuri, 9s. $4\frac{1}{2}$ d. for each; (48) Mátkadábád, 6s. 3d. and 9s. $4\frac{1}{2}$ d.; (49) Mátkadnagar, 15s. $7\frac{1}{2}$ d. for each; (50) Mutri, 5s. for each; (51) Máhákhand, 15s. $7\frac{1}{2}$ d. and 9s. $4\frac{1}{2}$ d.; (52) Neulbisí, 6s. 3d. for each; (53) Olash, 15s. $7\frac{1}{2}$ d. and 12s. 6d.; (54) Padampur, 9s. $4\frac{1}{2}$ d. and 12s. 6d.; (55) Palná, 12s. 6d. and 10s. 5d.; (56) Páendá, 12s. 6d. for each; (57) Pánikhand, 9s. $4\frac{1}{2}$ d. for each; (58) Patu Mahánadí, not given; (59) Sáhíbnagar, 4s. $8\frac{1}{2}$ d. for each; (60) Sáibir, 12s. 6d. for each; (61) Sáilo, 12s. 6d. and 10s.; (62) Swaraswatí, 12s. 6d. and 15s. $7\frac{1}{2}$ d.; (63) Sháhábád, 9s. $4\frac{1}{2}$ d. and 15s. $7\frac{1}{2}$ d.; (64) Shergarhá, 12s. 6d. for each; (65) Shujábád, 12s. 6d. and 9s. $4\frac{1}{2}$ d.; (66) Shujánagar, 9s. $4\frac{1}{2}$ d. for each; (67) Suháng, 12s. 6d. and 15s. $7\frac{1}{2}$ d.; (68) Suknai, 12s. 6d. and 15s. $7\frac{1}{2}$ d.; (69) Sultánábád, 7s. $0\frac{1}{2}$ d. and 4s. $8\frac{1}{2}$ d.; (70) Sungrá, 15s. $7\frac{1}{2}$ d. for each; (71) Tapankhand, 15s. $7\frac{1}{2}$ d. and 12s. 6d.; (72) Tisániyá, 9s. $4\frac{1}{2}$ d. for each; (73) Tikán, 12s. 6d. and 9s. $4\frac{1}{2}$ d.; (74) Tiran, 12s. 6d. for each; and (75) Utkan, 12s. 6d. and 9s. $4\frac{1}{2}$ d. respectively.

CONDITION OF THE PEASANTRY.—The husbandmen of Cattack do not seem so badly off as those of Balasor District, although the holdings are generally very small. A farm of twenty-five acres or upwards is considered a very large holding; one of between ten and twenty-five acres a good-sized one; and anything much below ten acres a small one. Every respectable villager has a few acres, often not more than four or five, and the Collector estimates that small holdings of less than ten acres cover one-half of the total cultivated area of the District. Very few farms exceed twenty-five acres. Perhaps two such holdings may be found in a rural commune of four or five hundred families of

husbandmen. The standard by which a cultivator is judged does not consist so much in the extent of fields, as in the number of ploughs he can command. This, however, by no means represents correctly the worth of his farm, inasmuch as some kinds of crop, such as *Bídlí* rice and sugar-cane, require much more ploughing than others. The amount of ploughing required also varies according to the nature of the soil, the land in low-lying parts not needing so much or so deep ploughing as in the higher tracts. In the case of a holding consisting of two-crop and one-crop land in fair proportions, six acres is supposed to represent what is technically called a 'plough' of land, that is, the quantity which a husbandman with one plough and a single pair of bullocks can cultivate. In the case of a farm consisting only of *Sárad* or one-crop land, one pair of bullocks would be able to plough eight, or in a low-lying situation, ten or twelve acres. A holding of twelve acres enables a Cattack cultivator to live quite as well as a respectable shopkeeper, or as a person earning sixteen shillings a month. His family can afford to eat more food than either of these two classes. One-half of the peasantry may be set down as really well off. One-fourth are in debt to the village money-lender or the landlord. The remaining one-fourth, who have very small holdings of from one to four acres, and who eke out a livelihood by hiring themselves as day-labourers to richer husbandmen, are just able to live. Able-bodied pauperism is unknown, except among the religious mendicants.

CLASSIFICATION OF HUSBANDMEN.—The cultivators of the District are composed of two classes—the Resident (*Tháni*) and the Non-Resident or Migratory (*Páhl*) husbandmen. At the time of the Settlement in 1837, the rights of the Resident Cultivators were formally recognised by Government, and secured to them by Palm-Leaf leases (*tál-pattás*). They hold their homestead lands rent free, and are not liable to be ousted so long as they continue to pay the rent assessed on their cultivable lands, nor are these latter rents liable to enhancement until the expiration of their leases, which run concurrently with the Settlement to 1897. At the time of the Settlement in 1837, 37,242 such leases, aggregating 163,721 acres of land, were granted. Since then, some of these Resident Cultivators' rights have become extinct, and a few others have been created by the landholders. The Non-Resident (*Páhl*) husbandmen, previous to the passing of the Land Law (Act X. of 1859), were mere tenants at will, except when secured in their holdings by special leases granted by the landholders. Under Act X. a large proportion of this class have acquired Rights of Occupancy. There is another small class of husbandmen, called Homestead Cultivators (*Chandná rayats*), who hold only homestead and

garden land. Some leases of this description were granted at the time of the Settlement, giving the holders equal rights with the Resident Cultivators, but the Chandná Cultivators generally hold land under the Non-Resident (Páhl) tenure. It must be remembered that 'Resident' and 'Non-Resident' have now become technical terms, and do not necessarily imply residence or non-residence in the village. The Collector estimates that the number of the Resident and Homestead husbandmen, or those whose rents are not liable to enhancement, may be taken at three-eighths of the whole body of cultivators; and of the remainder, or Non-Resident (Páhl) husbandmen, three-fourths may be supposed to have acquired Occupancy rights. The other tenures in the District are as follow:—(1) Resumed Rent-free lands, or those which were held rent free before the Settlement, but which, owing to the invalidity of the deeds, or to the absence of any documents at all, were resumed by Government at the time of the Settlement, and assessed lightly. (2) Tanklyá lands, or those for which nominal rents were paid before the Settlement, and which have since been held at quitrents. (3) Kharidájamá-bandi, or lands which were bought by the husbandmen from the landholders before the British took possession of the Province, and which, at the time of our Settlement, were found to have been held either rent free or at a merely nominal rental, and were accordingly assessed very lightly. The first and second of these three classes were treated as *rayatí* tenures, and the holders not only have a right to their lands without enhancement of rent, but can transfer them by sale or gift. Such tenure-holders are not generally actual cultivators, but either sublet their lands, or till them by means of hired labour. The tenure-holders would consider themselves degraded by following the plough.

THE LAND LAW.—The Settlement Record has left but little room for disputes about enhancement of rent under Act X. of 1859. The only lands liable to enhancement are those belonging to the Non-Resident husbandmen, for which no leases were granted by the Settlement Officers, and such leases of the Resident Cultivators as have lapsed from the holders dying without heirs or from other causes. The peasantry do not avail themselves much of Act X. for establishing Occupancy Rights, either from inability to cope with the landholders, or from the conviction that they consult their own interests better by conciliating than by defying their landlords. Act X. is therefore almost inoperative as an enhancement law, and the Collector reports that the rates of rent are the same as if it had not been passed.

THE DOMESTIC ANIMALS OF THE DISTRICT consist of cows and buffaloes, kept for milk; and oxen for the plough, or as beasts of

burden. The same bullocks are often used for ploughing during the rains, and as carriers of produce during the hot weather, when they are not needed in the fields. Herds of goats and sheep are almost unknown, but a brisk export trade takes place in horned cattle from the breeding grounds on the coast, *via* Midnapur to Calcutta. The trade has been of late on the decline, owing to the decrease in the amount of land left for pasture, and to cattle diseases described in my Statistical Accounts of Balasor and Purl. An ordinary cow in Cattack fetches £1, 4s. ; a pair of oxen, £3 ; a pair of buffaloes, £8 ; a score of sheep, £8 ; a score of kids six months old, £2 ; a score of full-grown pigs, £12.

WAGES of agricultural day-labourers are generally paid in kind, and do not seem to have altered since 1850. Such wages were then about twelve to fifteen pounds of unhusked rice per diem, and the same rate continues at the present day, except when they are calculated according to the money value of the labourer's hire. All labour, however, paid by money wages has increased in price ; and in the large towns, such as Cattack and Jájpur, field work is now frequently paid in this way. Agricultural labour is always paid at a lower rate than other unskilled work. Day-labourers, other than agricultural, now receive from 1¾d. to 2d. a day in the rural Districts, and 3¾d. in the towns ; in 1850 their wages were slightly over a penny in the rural Districts, and 2¼d. in the towns. Smiths and carpenters now get 3¾d. a day in the country, and 6d. in the towns ; in 1850 their wages were 2¼d. and 4½d. respectively. Bricklayers, who are only employed in the towns, earned 2¼d. a day in 1850, and now from 4d. to 6d. On the whole, it may be said that labour fetches double in the towns what it does in the country, and that, during the last twenty years, from 1850 to 1870, the rates of wages have risen from 35 to 40 per cent. The price of the best husked rice was 42 lbs. for 2s. in 1860, 39¼ lbs. in 1868, and 34 lbs. in 1870. Best unhusked paddy sold at 90 lbs. for the rupee in 1860, 84 lbs. in 1868, and 80 lbs. in 1870. Coarse rice, such as that used by labourers, sold at 86½ lbs. for the rupee in 1860, 63 lbs. in 1868, and 64 lbs. in 1870. The same paddy, unhusked, sold at 174 lbs. for the rupee in 1860, 130 lbs. in 1868, and 156 lbs. in 1870. Wheat stood at 48½ lbs. for 2s. in 1860, 42 lbs. in 1868, and 18 lbs. in 1870. In 1869 the prices were higher than in 1868, owing to the partial destruction of the crops of that year (1868) by inundation. In the famine year the maximum prices reached were as follow :—Best cleaned rice, 7¼ lbs. for 2s., unhusked 14 lbs. ; coarse rice husked, 8 lbs., unhusked 18 lbs. ; and wheat, 8 lbs.

THE AGRICULTURAL IMPLEMENTS required by a small husbandman

with a holding of one 'plough' of land, or about six acres, are a pair of oxen, a plough (nángal), harrow (mai), weeder (bidá), two sorts of spades (kánk and kuri), a sickle (dá), a hatchet (katuri), and an iron instrument for digging holes (khanti). I give the Uriyá names; in Bengali, dá means a hatchet. The cost of the whole is about £4, including £3 as the cost of the oxen.

WEIGHTS AND MEASURES.—Rice is sold in the country villages and on the fields to grain merchants, according to the following measure:—4 chhaták = 1 páo; 4 páo = 1 ser; 12 ser = 1 gauni; 8 gauni = 1 bharan. The gauni is simply a basket, which differs in size in different parts of the District. The measure used by shopkeepers in towns and merchants in selling rice is the following:—4 paysá = 1 chhaták; 4 chhaták = 1 páo; 4 páo = 1 ser; 5 ser = 1 pasuri; 8 pasuri = 1 maund. The Cattaek ser weighs 105 rupees, or over two and a half pounds avoirdupois, and is used for all articles except grain on the field or in the country villages, and for salt, which is sold according to the Calcutta ser, equal to 80 rupees weight, or two pounds avoirdupois. Gold and precious stones are weighed according to the following standard:—4 dhán = 1 rati; 8 rati = 1 másá; 10 másá = 1 bhari or tolá, equal to 180 grains Troy weight. Land measure is as follows:—4 káni = 1 biswá; 16 biswá = 1 gunt; 25 gunt = 1 mán, equal to an English acre; 20 mán = 1 bátí. Distance is measured as follows:—4 anguli = 1 mushti; 3 mushti = 1 chákhand (span); 2 chákhand = 1 hát (cubit); 4 hát = 1 dhanu; 2000 dhanu = 1 kos; 4 kos = 1 yojan, or nine miles. During the Musalmán and Marhattá Rule, the current coin of the Province was the kauri (cowrie). Not only were private transactions carried on, but Government salaries were paid in this measure. It has now nearly disappeared from the towns and bázars, but still continues current in the villages. The standard is as follows:—4 kranti = 1 kauri (cowrie); 4 kauri = 1 gandá; 20 gandá (80 cowries) = 1 pan; 16 pan (1280 cowries) = 1 káhan. The number of cowries to the rupee varies; the present rate is reported at 3584; in 1804 it was as high as 7680. It may be estimated, generally speaking, that 3 káhans or 3840 cowries = two shillings.

LANDLESS LABOURING CLASSES.—A distinct class of day-labourers, neither possessing nor renting any lands, has always existed in Cattaek District. It is composed chiefly of Páns, Báuris, Kandrás, and other very low castes, with some families of Chásás. The number of these landless day-labourers is said to have diminished of late years, while the demand has increased in consequence of the large public works now in progress. In short, the enhanced prices of agricultural produce have given an impetus to tillage, and made it pay better to settle on inferior and formerly

uncultivated land than to go out for hire. The price of labour has risen accordingly, and the condition of the labouring class has so much improved as to attract the poorer sort of husbandmen to Cattack City when field work is suspended. Agricultural labourers are of two sorts—permanent and occasional. The former generally receive in advance a small amount of money, about ten or twelve shillings without interest, which they must make good before quitting the service. They are paid daily wages in paddy at a slightly lower rate than that which the occasional labourers receive, but they get a piece of cloth once a year from their employer, and half an acre of land, rent free, which they cultivate on their own account with their master's plough and bullocks. The occasional labourers are merely extra hands for weeding and reaping. When employed on the former, they receive at the rate of fifteen pounds of paddy (equal to six and a half pounds of husked rice) per diem. At harvest they are paid by bundles, at the rate of one for every twelve or fifteen bundles of the crop cut. Women and children are also largely employed at these seasons, but at lower rates.

SPARE CULTIVABLE LAND can only be found in the low-lying ground along the sea-coast. A large number of cultivators perished in these tracts during the famine of 1866, and they have not yet been wholly replaced. Previous to the famine, the amount of such spare land was almost *nil*.

MANURES are hardly used at all in the inundated parts of the delta, and in the other tracts for a few crops only. Rice-fields get but a thin top-dressing of cow-dung and decomposed rubbish; but for sugar-cane, one and a half hundredweight of oil-cake per acre, valued at five shillings, is considered indispensable.

IRRIGATION is conducted almost wholly by means of natural water-courses. Tank water is very seldom used, nor are wells sunk for this purpose. The people scarcely ever cultivate crops requiring irrigation, except in localities where natural facilities exist for it. Cotton, Dálua rice, But, Pán, and Sugar-cane must have a sure supply of water, but a very little suffices for Tobacco, Wheat, or Barley. The Collector estimates the cost per acre of labour in irrigating the different varieties of crop as follows:—Sugar-cane, £3; Cotton, £1, 4s.; Dálua rice, 4s.; Pán, £10; Tobacco, 8s.; Barley, 6s.; But, 6s.; and Wheat, 6s.

ROTATION OF CROPS.—Turmeric, Cotton, and Sugar-cane are not cultivated on the same land for successive years, Biáli rice being grown instead, every alternate year. Although the utility of allowing land to lie fallow is fully understood by the cultivators, the constant demand for land makes it very seldom practised.

BLIGHTS are of rare occurrence; and hitherto, when they do make

their appearance, they have only affected particular localities. No case is recorded of a whole crop being destroyed by blight.

FLOODS and droughts are the real calamities of Cattaek, as of all the other Districts of Orissa. The former arise from sudden freshets of the rivers before they enter the District, and not from excessive rainfall within it. Since 1830 the floods have been of so serious a character as to cause a general destruction of the crop, in 1831-32, 1834-35, 1848-49, 1851-52, 1856-57, 1857-58, 1862-63, and 1866-67, or eight years in forty. The Collector states that the existing embankments can protect the District from ordinary floods, but not when the rivers rise unusually high, or when the embankments are breached. He adds that further protection is much needed by means of new embankments, and the strengthening of the present ones, although this want has been partially met by the canal embankments following the routes of the rivers.

DROUGHTS in Cattaek are occasioned by the absence of local rainfall, and not from the failure of the rivers. On five different occasions within the last forty years, viz. in 1833-34, 1836-37, 1839-40, 1840-41, and 1865-66, drought has occurred on a sufficiently large scale to endanger the safety of the people. In seasons of drought the husbandmen dam up the rivers, and avail themselves of the water thus secured, as well as of the water of tanks, marshes, etc., wherever these exist. In 1865-66, the country was drained in this manner to such an extent as to affect the supply of bathing and drinking water. A system of irrigation-canals, like that in course of construction, will go far to mitigate the effects of these calamities; and the usefulness of such works was put to a practical test in 1870. See a previous page of this Statistical Account.

It sometimes happens that the District is visited with the double calamity of flood and drought in the same year, the former occurring in the early part, and the latter towards the close of the season. Drought, however, is more ruinous than flood. Great distress is caused in years of inundation, but long protracted drought has always been followed by famine.

COMPENSATING INFLUENCES.—As the District is throughout of a deltaic character, and of a very equable level, no compensating influence exists by which in years of flood the crops of the higher lands might make up for the loss of those in the low-lying tracts. Nor, conversely, does the crop of the low lands in years of drought compensate for the loss of that in the higher levels. Both tracts suffer in either case, although in different degrees.

FAMINES.—The Collector considers that prices reach famine rates

when only twenty-one pounds of common husked rice can be got for a rupee, and that relief operations should then commence. In average seasons such rice, the universal food of the people, seldom rises above fifty-two pounds for the rupee. If the price of rice in January should reach forty pounds for the rupee, a very severe scarcity or actual famine is to be feared, as the ordinary rate at that time is seldom less than sixty-eight or sixty-six pounds for the rupee. He would accept such a rise of price as a distinct warning of famine, unless it were susceptible of explanation from local or temporary causes. The District depends almost entirely on the Sárád rice, the acreage under the Biáli rice being only one-fourth of that under Sárád. In the event, therefore, of a general failure of the December harvest, the following one in August and September will not make up for the deficiency. In 1866, the common rice rose to between seven and eight pounds for the rupee.

PREVENTIVE WORKS.—Since the famine of 1866, much has been done to prevent a recurrence of a similar calamity. Harbours, canals, and regular steam communication with Calcutta have broken in upon the isolation of Orissa. These and the irrigation works have been described in a foregoing page. The Collector reports, that even what has been already effected would avert the extremity of famine throughout most of the District, by importations *via* False Point and the Dhámrá River. He believes that, upon the completion of the measures now in progress, the recurrence of a famine such as that of 1866 will be impossible. The most inaccessible portion of the District at present is the Jájpur Subdivision, and it would be very difficult in the dry season to throw large supplies of grain into it from the sea-coast. In the absence of a canal, the Collector considers it most important that the northern part of this Subdivision should be connected with tidal waters by a road.

ADMINISTRATIVE HISTORY.—An account of the occupation of Cattack will be found in my volume on Orissa. In 1829-30, the first year of which regular records survive, the total revenue of the District amounted to £139,642, and the expenditure on Civil Administration to £114,438. In 1860-61, the revenue, after deducting inefficient balances and transfer accounts, had increased to £202,867, and the disbursements to £193,882. In 1868-69, after the same deductions, the revenue amounted to £272,688, and the expenditure to £268,791. During the last forty years, therefore, the revenue of the District has almost doubled, and the civil expenditure has multiplied itself nearly two and a half times.

THE LAND TAX from all sources amounted to £84,937 in 1829-30,

to £78,893 in 1850-51, and to £80,937 in 1868-69. The District, however, included a larger area in 1829 than in the two last-mentioned years. As in every part of Orissa, the subdivision of estates has gone on rapidly under British rule, the number of estates having more than doubled within the last forty years, while the number of proprietors or coparceners has more than quadrupled. In 1829, Cattaek District contained 1509 estates, paying net £81,896, held by 2118 registered proprietors or coparceners; the average land revenue paid annually by each estate amounting to £54, 5s. 6d., and by each separate proprietor to £38, 13s. In 1850 the number of estates had increased to 2351, paying net £78,893, with 5110 proprietors and coparceners, whilst the average annual revenue paid by each estate fell to £33, 11s., and by each proprietor or coparcener to £15, 8s. 9d. In 1869 there were 3223 estates, paying net £78,421, with 8511 proprietors; the average revenue paid by each estate being only £24, 6s. 8d., and by each proprietor or coparcener, £9, 4s. If we go into details, this result is exhibited in a still more striking manner. In 1829 the average payment of each separate proprietor of a small estate paying under £10 a year of Government revenue was £2, 5s. 9d.; in 1850 it had fallen to £1, 8s., and in 1869 to £1, 2s. In the second class of estates, paying between £10 and £100 a year of Government rental, each coparcener paid on an average £22, 9s. 6d. in 1829, £12, 11s. in 1850, and £9, 12s. in 1869. In the large estates, or those paying a land revenue of upwards of £100 a year, the average payment of each individual coparcener was £222, 14s. in 1829, £122, 1s. in 1850, and £60, 4s. in 1869. In 1805, when the Jurisdiction of Cattaek included also the greater part of Balasor and Purí, the land revenue of the Province amounted to £121,904, or only one-third more than that of the single District of Cattaek in 1869. This land revenue was paid by 2275 estates, held by 2517 proprietors or coparceners. At the present day, Cattaek District alone contains nearly double this number of estates, and more than treble the number of proprietors.

PROTECTION TO PERSON AND PROPERTY has increased in a still more rapid rate under British rule. In 1816 there were only four courts, revenue and judicial, in the whole District. In 1850 the number had increased to eleven, in 1862 to sixteen, and in 1869 to twenty-one. These Courts are distributed over the District as follows:—Cattaek Station, 12; Jájpur Subdivision, 3; Kendrápára Subdivision, 4; and Jagatsinhpur Subdivision, 2. The number of Covenanted Officers in the District amounted to three in 1816, five in 1850, four in 1862, and six in 1869.

SUBDIVISIONAL SYSTEM.—The three Subdivisions of Cattack, and the distribution of Courts among them, have been indicated in the last paragraph,—viz. Jájpur, Kendrápára, and Jagatsinhpur. They do not admit of separate treatment, as Cattack District forms a well-marked geographical entity, of which they are strictly integral parts. Several references to them will be found in previous parts of this Account, and in my general work on Orissa; but it would serve no purpose to describe them individually.

THE POLICE.—The cost of officering the District Police from the rank of Head Constable (Jamádár) upwards, has increased from £540 in 1833, to £538 in 1840, and £1286 in 1860. At the end of the year 1868, the regular police force of the District stood thus:—5 European Officers, on an average salary of £456 a year; 24 Native Officers, on an average pay of £86, 8s.; and 756 foot constables, on an average pay of £8, 14s. a year,—total strength of force, of all ranks, 785, maintained at a total cost of £13,270. The Police Department estimates the area of the District at 3370 square miles, and the population at 1,072,463. According to these figures, the strength of the regular police, as compared with the area of the District, is one man to every 4·3 square miles, or one to every 1366 of the population,—maintained at a cost of £3, 18s. 9d. per square mile of area, or a fraction less than threepence per head of the population, per annum. The Subordinate Officers and men consist of the following races:—590 Uriyás, 61 Hindustánís, 40 Bengalis, 7 Panjábís, 71 Telingás, 8 Támuls, and 2 Europeans (Sub-Inspectors). During the year 1868 they conducted 1694 cognisable cases, made 1952 arrests, and obtained 1194 convictions.

VILLAGE WATCH.—Besides the regular District Police, there is a Village Watch and a Municipal Police. The former amounted in 1868 to 5363 men, receiving an estimated pay in money and lands of £10,252, equal, according to the police calculations of the area and population of the District, to a charge of £3, os. 10d. per square mile of the area, or twopence farthing per head of the population. The proportion to the area is one man to every 0·63 square miles, or one man to every 199 of the population. Each rural watchman has, on the average, 38 houses under his charge. The Municipal Police is a small force maintained at an average cost of £480 a year, and consists of three native officers drawing an average pay of £12, and 68 footmen on an average pay of £6, 8s. 6d. Including the Regular Force, the Municipal Police, and the Village Watch, the police of all ranks amounts to 6219, maintained at a total cost of £24,002, being one man to every 172 of the population. The annual cost of protecting person and property, therefore, in Cattack District, is £7, 2s. 5d. per

mile, or upwards of $5\frac{1}{4}$ d. per head of the population according to the police basis of calculation. For police purposes, the District is divided into nine Subdivisions (Thánás).

CRIME is more prevalent in Cattack than in either Purí or Balasor. The average daily number in Jail in 1868 in Cattack District, including the Subdivisions of Jájpur, Kendrápára, and Jagatsinhpur, was 415, of whom only 16 were women, or about one person always in Jail to every 3116 of the population aggregating 1,293,048 souls. The entire number admitted in 1868 amounted to 1469 males and 75 females. The cost of rations per prisoner amounted to £3, 14s. 9d. in 1867, and £2, 9s. 7d. in 1868. The great difference is owing to the famine of 1866, the effects of which in 1867 still made themselves severely felt on the price of food. The total cost of Jail Establishment in 1868 was 9s. 9d. per prisoner; and the gross cost of maintenance, including diet, clothing, hospital charges, and all other items, amounted to £4, 3s. 9d. per head.

FISCAL DIVISIONS.—Cattack District was divided into 86 Fiscal Divisions (Parganá) in 1837, which, with three transferred from the District of Balasor in 1869, make a total of 89; including four Hereditary Forts (Kilas), regularly settled and surveyed; and 8 which have neither been measured nor settled. With the exception of Sukindá, however, an estimate of their area and proportion of cultivated to uncultivated lands is shown in the subjoined list. The Fiscal Divisions are, generally speaking, larger than those of Balasor District, but a few of them are even smaller; 4 being less than one square mile, 8 under three square miles, and 14 under five square miles in extent. The number of villages or rural communes was returned at 6731 in 1839, and 6941 in 1870, containing on an average 150 inhabitants each, taking the total population of the District to be 1,293,084, as estimated by the Surveyor-General. The following list exhibits the Fiscal Divisions of the District, as they were arranged for Settlement purposes in 1837, showing the total area, with the proportion of land under cultivation, capable of cultivation, and uncultivable; the land revenue paid; the estimated population, and the names of the chief villages in each. Fractions of acres are not given.

(1.) ABARTAK—Area, 8.46 square miles, or 5419 acres; 3196 acres cultivated; 69 cultivable; 2153 uncultivable; land revenue, £512; population, 3261; chief villages, Sáatrápúr and Jayapur.

(2.) AL KILA (unmeasured and settled portion of)—Area, 131.10 square miles, or 84,129 acres; 54,000 acres cultivated; none cultivable; 30,129 uncultivable; land revenue, £2814; population, 52,594; chief villages, Garh Al and Derábisi.

(2 $\frac{1}{2}$.) AL KILA (measured and settled portion of)—Area, 1.8

square miles, or 690 acres; 571 acres cultivated; 15 cultivable; 103 uncultivable; land revenue, £55; population and names of chief villages given above.

(3.) ALTI—Area, 76·97 square miles, or 49,298 acres; 24,163 acres cultivated; 2071 cultivable; 23,023 uncultivable; land revenue, £2674; population, 43,592; chief villages, Káyamá and Barambardá.

(4.) ANABARTAK—Area, 3·86 square miles, or 2471 acres; 1147 acres cultivated; 133 cultivable; 1190 uncultivable; land revenue, £875; population, 1260; chief village, Pathuriyá.

(5.) APILA—Area, 4·98 square miles, or 3188 acres; 2134 acres cultivated; 79 cultivable; 974 uncultivable; land revenue, £195; population, 1535; chief village, Singársáhf.

(6.) ASURESWAR—Area, 65·17 square miles, or 41,712 acres; 30,806 cultivated; 1721 cultivable; 9185 uncultivable; land revenue, £3061; population, 44,183; chief villages, Malipur and Barkhír.

(7.) ATKHANTA—Area, 5·60 square miles, or 3589 acres; 2323 acres cultivated; 405 cultivable; 861 uncultivable; land revenue, £146; population, 1694; chief villages, Orto and Aetpur.

(8.) AHIVAS—Lately transferred from Balasor; details wanting.

(9.) BAHURUPA—Area, 170 square miles, or 1086 acres; 469 acres cultivated; 56 cultivable; 561 uncultivable; land revenue, £53; population, 609; chief villages, Bidhárpur and Atgarh.

(10.) BAKRABAD—Area, 52·86 square miles, or 33,830 acres; 13,223 acres cultivated; 1515 cultivable; 19,092 uncultivable; land revenue, £1609; population, 65,064; chief villages, Bishábar and Barhampur.

(11.) BALUBISI—Area, 58·30 square miles, or 37,311 acres; 22,113 acres cultivated; 1198 cultivable; 13,999 uncultivable; land revenue, £2926; population, 28,788; chief villages, Muhammadpur and Raghunáthpur.

(12.) BARAN—Area, 26·95 square miles, or 17,251 acres; 8223 acres cultivated; 1683 cultivable; 7344 uncultivable; land revenue, £485; population, 3289; chief villages, Hátsáhf and Deultará.

(13.) BARDIYALA—Area, 6·71 square miles, or 4297 acres; 1498 acres cultivated; 89 cultivable; 2709 uncultivable; land revenue, £128; population, 1714; chief villages, Syámprasád and Tárásáhf.

(14.) BARGAON—Area, 15·97 square miles, or 10,219 acres; 4751 acres cultivated; 625 cultivable; 4842 uncultivable; land revenue, £517; population, 4136; chief village, Ratnagir.

(15.) BARPALLA—Area, 9·74 square miles, or 6231 acres; 4206 acres cultivated; 334 cultivable; 1691 uncultivable; land revenue, £303; population, 4754; chief villages, Pangpál and Janpál.

(16.) BARUYA—Area, 46·89 square miles, or 30,007 acres; 18,388 acres cultivated; 2892 cultivable; 8727 uncultivable; land revenue, £2235; population, 30,433; chief villages, Haripur and Báliyápal.

(17.) BAUTARA—Area, 5·60 square miles, or 3586 acres; 2716 acres cultivated; 63 cultivable; 806 uncultivable; land revenue, £185; population, 1524; chief villages, Kasbá and Gobindpur.

(18.) Benáhár—Area, 46·43 square miles, or 29,717 acres; 19,288 acres cultivated; 673 cultivable; 9756 uncultivable; land revenue, £1538; population, 16,663; chief villages, Bálikudá and Khámbákul.

(19.) BISHANPUR KILA—Area, 17·51 square miles, or 11,208 acres; 5000 acres cultivated; 6208 uncultivable; land revenue, £186; population, 2367; chief villages, Panchpallí and Gaurásáhl.

(20.) CATTACK HAVILI—Area, 11·97 square miles, or 7666 acres; 1422 acres cultivated; 178 cultivable; 6066 uncultivable; land revenue, £170; population, 12,050, exclusive of 46,436 population of Cattack Town and Suburbs; chief town, Cattack.

(21.) CHAURDA KOLAT—Area, 12·98 square miles, or 8310 acres; 4977 acres cultivated; 749 cultivable; 2583 uncultivable; land revenue, £624; population, 7207; chief villages, Kespur and Gobind-prasád.

(22.) CHHEDRA KILA—Total area, 8·37 square miles, or 5356 acres; 3300 acres cultivated; 2056 uncultivable; land revenue, £228; population, 1952; chief villages, Barang and Gunpur.

(23.) CHHEDRA KADALIBARI—Area, ·4 square miles, or 25 acres; 7 acres cultivated; 17 cultivable; 1 uncultivable; land revenue, £3; population included with that of Chhedrá Kila.

(24.) DALIJORA—Area, 97·22 square miles, or 62,220 acres; 7863 acres cultivated; 648 cultivable; 53,709 uncultivable; land revenue, £887; population, 10,867; chief villages, Agráhát and Bhagatpur.

(25.) DAMARPUR—Area, 17·30 square miles, or 11,077 acres; 7078 acres cultivated; 114 cultivable; 3885 uncultivable; land revenue, £761; population, 9853; chief villages, Dámarpur and Dhumát.

(26.) DARPAN KILA—Area, 97·27 square miles, or 62,257 acres; 25,983 acres cultivated; 1039 cultivable; 35,234 uncultivable; land revenue, £731; population, 22,013; chief villages, Dharmasálá and Chhatiyá.

(27.) DEOGAON—Area, 49·73 square miles, or 31,830 acres; 17,026 acres cultivated; 2107 cultivable; 12,697 uncultivable; land revenue, £1722; population, 17,359; chief villages, Neyáli and Kasardá.

(28.) DERABISI—Area, 0·7 square miles, or 46 acres; 37 acres

cultivated; 9 cultivable; none uncultivable; land revenue, £4; population included with that of No. 3 parganá Alti.

(29.) **DIHI ARAKPUR**—Area, 6·2 square miles, or 3852 acres; 2269 acres cultivated; 212 cultivable; 1371 uncultivable; land revenue, £362; population, 4702; chief villages, Arakpur and Padmalábhpur.

(30.) **DOLGRAM**—Recently transferred from Balasor District; details wanting.

(31.) **DOMPARA KILA**—Area, 88·37 square miles, or 56,557 acres; 6670 acres cultivated; 574 cultivable; 49,313 uncultivable; land revenue, £133; population, 8520; chief villages, Tálbast and Pátpur.

(32.) **GANDITO**—Area, 13·90 square miles, or 8892 acres; 6404 acres cultivated; 337 cultivable; 2150 uncultivable; land revenue, £556; population, 8978; chief villages, Kantáballabhpur and Pákanpur.

(33.) **HARIHARPUR**—Area, 61·59 square miles, or 39,418 acres; 28,104 acres cultivated; 893 cultivable; 10,421 uncultivable; land revenue, £2491; population, 39,370; chief villages, Jagatsinhpur and Nabapatná.

(34.) **HARISHPUR KILA**—Area, 59·96 square miles, or 38,376 acres; 6477 acres cultivated; 1995 cultivable; 29,904 uncultivable; land revenue, £364; population, 6437; chief villages, Gorá and Borkiná.

(35.) **HATIMUNDA**—Area, 16·28 square miles, or 10,417 acres; 5693 acres cultivated; 769 cultivable; 3954 uncultivable; land revenue, £546; population, 5727; chief villages, Gobindpur and Dadhibámanpur.

(36.) **JAJPUR**—Area, 86·63 square miles, or 55,446 acres; 38,201 acres cultivated; 1376 cultivable; 15,868 uncultivable; land revenue, £3219; population, 61,993; chief villages, Jájpur and Siddheswar.

(37.) **JAYANABAD**—Area, 8·14 square miles, or 5208 acres; 4577 acres cultivated; 39 cultivable; 591 uncultivable; land revenue, £271; population included with that of Hariharpur.

(38.) **JAYIPUR**—Area, 20·11 square miles, or 12,870 acres; 8742 acres cultivated; 967 cultivable; 3161 uncultivable; land revenue, £965; population, 16,508; chief villages, Khandihát and Koliatá.

(39.) **JHANKAR**—Area, 54·83 square miles, or 35,092 acres; 21,483 acres cultivated; 751 cultivable; 12,858 uncultivable; land revenue, £2757; population, 30,771; chief villages, Kanpur and Birtol.

(40.) **JODH**—Area, 15·55 square miles, or 9952 acres; 6148 acres cultivated; 931 cultivable; 2872 uncultivable; land revenue, £615; population, 6667; chief villages, Bânsáhi and Katrápur.

(41.) KALAMATIYA—Area, 43·80 square miles, or 28,029 acres; 15,572 acres cultivated; 151 cultivable; 12,305 uncultivable; land revenue, £1315; population, 17,745; chief villages, Bari and Náráyanpur.

(42.) KALKALA KILA—Area, 17·56 square miles, or 11,238 acres; 6000 acres cultivated; 5238 uncultivable; land revenue, £13; population, 1351; chief village, Kalkalá.

(43.) KANCHIKHAND—Area, 4·73 square miles, or 3026 acres; 1565 acres cultivated; 83 cultivable; 1377 uncultivable; land revenue, £166; population, 1955; chief villages, Rájkaná and Barcháncho.

(44.) KANIKA KILA—Area, 577·60 square miles, or 369,661 acres; 91,645 acres cultivated; 35,917 cultivable; 242,098 uncultivable; land revenue, £2041; population, 39,186; chief villages, Ganjá and Mato.

(45.) KARIMUL—Area, 28·9 square miles, or 17,979 acres; 7415 acres cultivated; 878 cultivable; 9686 uncultivable; land revenue, £850; population, 11,971; chief villages, Púbkachh and Bhátpará.

(46.) KATE—Area, 66·88 square miles, or 42,803 acres; 22,394 acres cultivated; 1195 cultivable; 19,214 uncultivable; land revenue, £1741; population, 19,539; chief villages, Mádhav and Gajrájpur.

(47.) KATIYA—Lately transferred from Balasor; details wanting.

(48.) KAYAMA—Area, 54·38 square miles, or 34,799 acres; 22,789 acres cultivated; 952 cultivable; 11,058 uncultivable; land revenue, 1498; population, 10,670; chief villages, Ustiyá and Báligán-nágpur.

(49.) KERUYALKHAND—Area, 9·83 square miles, or 6289 acres; 3148 acres cultivated; 184 cultivable; 2957 uncultivable; land revenue, £535; population, 7689; chief villages, Kukudáng and Jastrájpur.

(50.) KHANDI—Area, 29·55 square miles, or 18,909 acres; 14,432 acres cultivated; 75 cultivable; 4401 uncultivable; land revenue, £1710; population, 24,238; chief villages, Tulang and Dengá.

(51.) KODINDA—Area, 36·84 square miles, or 23,580 acres; 13,272 acres cultivated; 674 cultivable; 9634 uncultivable; land revenue, £1367; population, 17,461; chief villages, Rájhansa and Mahurá.

(52.) KOKUYAKHAND—Area, 29·28 square miles, or 18,739 acres; 12,195 acres cultivated; 526 cultivable; 6017 uncultivable; land revenue, £1273; population, 15,834; chief villages, Tángf and Hariantá.

(53.) KUHUNDA—Area, 1·18 square miles, or 754 acres; 524 acres cultivated; 67 cultivable; 162 uncultivable; land revenue, £49; population included in that of parganá Jayfpur; chief villages, Kuhundá-grám and Sfpurá.

(54.) KÚJANG KILA—Area, 358·74 square miles, or 229,366 acres; 100,000 acres cultivated; 129,366 uncultivated; land revenue, £750; population, 18,059; chief villages, Tikhírf and Páradwíp.

(55.) KURNIYA—Area, 7·25 square miles, or 4642 acres; 3343 acres cultivated; 51 acres cultivable; 1247 uncultivable; land revenue, £267; population, 3598; chief villages, Chanyarpur and Ichhápur.

(56.) KUSMANDAL—Area, 8·11 square miles, or 5189 acres; 3548 acres cultivated; 252 cultivable; 1389 uncultivable; land revenue, £550; population, 4338; chief villages, Barhampur and Jháleswar.

(57.) KUTABSHAHI—Area, 0·42 square miles, or 266 acres; 212 acres cultivated; 6 cultivable; 47 uncultivable; land revenue, £13; population, 110.

(58.) MADHUPUR KILA—Area, 60·58 square miles, or 38,773 acres; 15,000 acres cultivated; 23,773 uncultivable; land revenue, £617; population, 22,421; chief villages, Madhupur and Singápur.

(59.) MANJURI—Area, 11·15 square miles, or 7140 acres; 4767 acres cultivated; 183 cultivable; 2189 uncultivable; land revenue, £338; population, 3188; chief village, Mahámáníyá.

(60.) MATKADABAD—Area, 16·42 square miles, or 10,494 acres; 6004 acres cultivated; 14 cultivable; 4476 uncultivable; land revenue, £442; population, 4106; chief villages, Masudpur and Mugdihi.

(61.) MATKADNAGAR—Area, 31·17 square miles, or 19,950 acres; 13,852 acres cultivated; 1038 cultivable; 5060 uncultivable; land revenue, £1602; population, 24,945; chief villages, Máhángá and Káliantf.

(62.) MUTRI—Area, 14·32 square miles, or 9165 acres; 836 acres cultivated; 65 cultivable; 8263 uncultivable; land revenue, £108; population included with that of Bakrábád; chief village, Naráj.

(63.) NEULBISI—Area, 3·94 square miles, or 2510 acres; 1602 acres cultivated; 365 cultivable; 551 uncultivable; land revenue, £119; population, 1905; chief villages, Bodhang and Nayápára.

(64.) NAHAKHAND—Area, 16·49 square miles, or 10,555 acres; 7436 acres cultivated; 582 cultivable; 2536 uncultivable; land revenue, £871; population, 9611; chief villages, Bharatpur and Bágurá.

(65.) OLASH—Area, 39·8 square miles, or 25,011 acres; 14,815 acres cultivated; 1476 cultivable; 8720 uncultivable; land revenue, £1464; population, 27,686; chief villages, Rasulpore and Rájendrapur.

(66.) PADAMPUR—Area, 25·94 square miles, or 16,600 acres; 9593 acres cultivated; 355 cultivable; 6652 uncultivable; land revenue, £1247; population, 18,954; chief villages, Págáhát and Mahásinhpur.

(67.) PAENA—Area, 9·39 square miles, or 6009 acres; 3307 acres cultivated; 255 cultivable; 2447 uncultivable; land revenue, £420; population, 4553; chief villages, Páilo and Rágpur.

(68.) PAENDA—Area, 40·72 square miles, or 26,062 acres; 13,368 acres cultivated; 1393 cultivable; 11,301 uncultivable; land revenue,

£1313; population, 21,793; chief villages, Paharájpur and Kishan-nagar.

(69.) PANIKHAND—Area, 1'82 square miles, or 1162 acres; 514 acres cultivated; 263 cultivable; 384 uncultivable; land revenue, £64; population, 2407; chief village, Kakhar.

(70.) PATIYA KILA—Area, 42'21 square miles, or 27,013 acres; 10,000 acres cultivated; 17,013 uncultivable; land revenue, *nil*; population, 8794; chief villages, Raghunáthpur and Garh Patiya.

(71.) PATU MAHANADI—Area, 0'1 square mile, or 8 acres; all cultivated; land revenue, 5s.; population included with that of Kila Dompára.

(72.) SAHIBNAGAR—Area, 8'40 square miles, or 5372 acres; 4225 acres cultivated; 229 cultivable; 918 uncultivable; land revenue, £328; population included with that of Jájpur; chief villages, Hargobindpur and Champábandh.

(73.) SAIBIR—Area, 31'82 square miles, or 20,362 acres; 11,468 acres cultivated; 1864 cultivable; 7030 uncultivable; land revenue, £1713; population, 13,107; chief villages, Puran and Madhusudanpur.

(74.) SAILO—Area, 39'16 square miles, or 25,064 acres; 13,771 acres cultivated; 686 cultivable; 10,605 uncultivable; land revenue, £1233; population, 21,677; chief villages, Gobindpur and Kurang.

(75.) SWARASWATI—Area, 9'49 square miles, or 6070 acres; 3380 acres cultivated; 442 cultivable; 2247 uncultivable; land revenue, £460; population, 5555; chief village, Purúshottampur.

(76.) SHAHABAD—Area, 3'32 square miles, or 2124 acres; 1541 acres cultivated; 225 cultivable; 357 uncultivable; land revenue, £108; population included with Hartharpur.

(77.) SHERGARHA—Area, 137'70 square miles, or 88,127 acres; 33,527 acres cultivated; 2256 cultivable; 52,344 uncultivable; land revenue, £1918; population, 29,152; chief villages, Korá and Pánikauli.

(78.) SHUJABAD—Area, 4'6 square miles, or 2596 acres; 1714 acres cultivated; 176 cultivable; 706 uncultivable; land revenue, £122; population included with that of Tiran; chief villages, Gullnagar and Sayyidpur.

(79.) SHUJANAGAR—Area, 17'30 square miles, or 11,069 acres; 5759 acres cultivated; 836 cultivable; 4473 uncultivable; land revenue, £435; population included with that of Sáilo; chief villages, Chaupára and Eranch.

(80.) SUHANG—Area, 17'66 square miles, or 11,304 acres; 6536 acres cultivated; 816 cultivable; 3951 uncultivable; land revenue, £705; population, 8719; chief villages, Nembálo and Nágarpur.

(81.) SUKINDA—Not measured; land revenue, £136; population, 15,627; chief villages, Banjá and Sukindá.

(82.) SUKNAI—Area, 28·77 square miles, or 18,409 acres; 11,673 acres cultivated; 1023 cultivable; 5712 uncultivable; land revenue, £1502; population, 13,107; chief villages, Narendrapur and Bángálpur.

(83.) SULTANABAD—Area, 5·25 square miles, or 3361 acres; 2151 acres cultivated; 404 cultivable; 805 uncultivable; land revenue, £125; population, etc., included in the statement of parganá Kalámátiyá.

(84.) SUNGRA—Area, 41·87 square miles, or 26,799 acres; 19,164 acres cultivated; 1175 cultivable; 6459 uncultivable; land revenue, £2413; population, 32,092; chief villages, Sálepur and Lachhmábar.

(85.) TAPANKHAND—Area, 14·64 square miles, or 9371 acres; 2074 acres cultivated; 250 cultivable; 7046 uncultivable; land revenue, £277; population, 3366; chief villages, Bánipadá and Guripatná.

(86.) TISANIYA—Area, 32·53 square miles, or 20,819 acres; 13,062 acres cultivated; 700 cultivable; 7056 uncultivable; land revenue, £1049; population, 20,982; chief villages, Binjhárpur and Márkandpur.

(87.) TIKAN—Area, 52·72 square miles, or 33,744 acres; 19,522 acres cultivated; 3069 cultivable; 11,153 uncultivable; land revenue, £1436; population, 16,467; chief villages, Kendrápára and Thákurpatná.

(88.) TIRAN—Area, 42·8 square miles, or 26,932 acres; 17,296 acres cultivated; 781 cultivable; 8854 uncultivable; land revenue, £1887; population, 14,254; chief villages, Jagannáthpur and Pánduá.

(89.) UTIKAN—Area, 63·29 square miles, or 40,506 acres; 26,511 acres cultivated; 5072 cultivable; 8923 uncultivable; land revenue, £2712; population, 19,771; chief villages, Patámundí and Chandan-nagar.

CULTIVABLE LAND.—The above statement, principally compiled from the Settlement papers of 1837, must be received with caution. The population is derived from a separate return after the famine of 1866. The Settlement Records show a total area, excluding the large tract of Sukindá, and the three Fiscal Divisions recently transferred from Balasor, of 3477 square miles, or 2,225,412 acres. According to the Settlement Record of 1837, the area then under cultivation was 1,045,227 acres; the area cultivable, but not under tillage, 94,357 acres; and uncultivable, 1,085,827 acres. Roughly speaking, therefore, one-half of the whole area was under cultivation or cultivable, the other half being uncultivable and waste. In 1837, the area capable of tillage, but lying untilled, was 9·02 per cent. of the land actually cultivated, or 4·23 per cent. of the whole District. In most of the Fiscal Divisions, however, the actual proportion of arable land was much greater than the uncultivable. The two large seaboard tracts of Kaniká and Kujang were, from the nature of the country, in a very

backward state, and disturbed the general average. If they be omitted from the calculation, the result shows an area of 947,939 acres of cultivated or cultivable land, against 714,363 acres incapable of tillage. The Collector reports, that since the time to which the above figures refer, at least 7-8ths of the land set down as cultivable has been brought under the plough, and states that a large portion of that returned as uncultivable has also been reclaimed. The uncultivable land in the regularly settled part of the District was classified in 1837 as follows:—(1) Jungle lands, 131,852 acres; and (2) rivers, roads, waste lands, etc., 378,349 acres. A return drawn up in 1865 states that, of this area, 32,895 acres of jungle and 96,587 acres of waste land were then capable of being brought under cultivation. This has now to some extent been laid under crops, and the Collector estimates the total increase of rice cultivation at nearly one-fourth during the past twenty years.

SURVEY MEASUREMENTS.—The foregoing estimates were made for Settlement purposes, and I have deemed it necessary to give them, as the Settlement of 1837 was continued unchanged in 1867 for other thirty years, and is therefore still current. The Survey Officers divided the District into eighty Fiscal Divisions instead of eighty-nine; and owing to changes in the boundaries of such Divisions (*parganá*s), and to a more correct system of measurement, obtained very different results. These results are now embodied in the Surveyor-General's Maps (scale, 1 mile to the inch), and represent the Fiscal Divisions and net total area of the District at the period of their last measurement. The differences are due, as already stated, not merely to a more accurate system of work, but to changes in the boundaries of the Fiscal Divisions, and of the District. The total area of the District is returned by the Surveyor-General at 3178.39 square miles, arranged in eighty Fiscal Divisions, as follow:—(1) Abartak, area 9.73 square miles, or 6225 acres. (2) Al Kila, 80.60 square miles, or 51,582 acres. (3) Alti, 79.19 square miles, or 50,682 acres. (4) Anábartak, 4.20 square miles, or 2686 acres. (5) Apilá, 5.24 square miles, or 3353 acres. (6) Asureswar, 68.89 square miles, or 44,091 acres. (7) Arakpur, 4.79 square miles, or 3064 acres. (8) Atkhanta, 6.02 square miles, or 3851 acres. (9) Ahiyás (portion of), 33.29 square miles, or 21,306 acres. (10) Bahurúpá, 1.66 square miles, or 1059 acres. (11) Bákhrábád, 60.93 square miles, or 38,993 acres. (12) Bálubisi, 59.77 square miles, or 38,252 acres. (13) Barán, 26.72 square miles, or 17,103 acres. (14) Bárdiyálá, 6.81 square miles, or 4357 acres. (15) Bárgáon, 16.10 square miles, or 10,303 acres. (16) Barpallá, 6.42 square miles, or 4109 acres. (17) Baruyá, 50.03 square miles, or 32,019 acres. (18) Bántará, 5.58 square

miles, or 3574 acres. (19) Benáhár, 47·16 square miles, or 30,182 acres. (20) Bishanpur Kila, 17·51 square miles, or 11,208 acres. (21) Cattack Hávil, 14·84 square miles, or 9499 acres. (22) Chauda Kolát, 13·08 square miles, or 8374 acres. (23) Chhedrá Kila, 3·37 square miles, or 5356 acres. (24) Dáljorá, 79·64 square miles, or 50,971 acres. (25) Dámarpur, 17·09 square miles, or 10,935 acres. (26) Darpan Kila, 100·91 square miles, or 64,580 acres. (27) Deogáon, 50·93 square miles, or 32,595 acres. (28) Derábísi, 50·85 square miles, or 32,546 acres. (29) Dolgrám, transferred from Balasor District, 43·99 square miles, or 28,155 acres. (30) Dompárá Kila, transferred from the Tributary States, 84·83 square miles, or 54,293 acres. (31) Gandito, 14·91 square miles, or 9545 acres. (32) Hariharpur (Jagatsinhpur), 65·37 square miles, or 41,839 acres. (33) Harishpur Kila, 62·09 square miles, or 39,736 acres. (34) Hátmundá, 16·07 square miles, or 10,286 acres. (35) Jáipur, 70·20 square miles, or 44,924 acres. (36) Jhankar, 56·77 square miles, or 36,331 acres. (37) Jodh, 15·09 square miles, or 9659 acres. (38) Kalámátiyá, 44·10 square miles, or 28,221 acres. (39) Kalkalá Kila, 17·56 square miles, or 11,238 acres. (40) Kanchikhand, 4·65 square miles, or 2973 acres. (41) Kaniká, 280·84 square miles, or 179,737 acres. (42) Karimúl, 27·80 square miles, or 17,791 acres. (43) Káte, 68·35 square miles, or 43,745 acres. (44) Káyamá, 14·31 square miles, or 9157 acres. (45) Káyamá Kila, 6·47 square miles, or 4143 acres. (46) Keruyákhhand, 9·61 square miles, or 6150 acres. (47) Khandi, 30·29 square miles, or 19,385 acres. (48) Kodindá, 38·23 square miles, or 24,469 acres. (49) Kokuyákhhand, 29·27 square miles, or 18,736 acres. (50) Kothdes (one village of, transferred from Purí), 0·34 square mile, or 219 acres. (51) Kuhundá Jayapur, 21·48 square miles, or 13,749 acres. (52) Kátiyá, 26·77 square miles, or 17,132 acres. (53) Kujang Kila, 358·38 square miles, or 229,366 acres. (54) Kurniyá, 7·57 square miles, or 4846 acres. (55) Kusmandal, 8·36 square miles, or 5353 acres. (56) Kutabsháhí, 0·42 square mile, or 269 acres. (57) Madhupur Kila, 60·58 square miles, or 38,773 acres. (58) Mátkadábád, 15·23 square miles, or 9743 acres. (59) Mátkadnagar, 34·05 square miles, or 21,794 acres. (60) Neulbísi, 4·12 square miles, or 2640 acres. (61) Náhákhhand, 17·33 square miles, or 11,088 acres. (62) Olásh, 41·57 square miles, or 26,603 acres. (63) Padampur, 24·91 square miles, or 15,940 acres. (64) Páená, 10·42 square miles, or 6669 acres. (65) Páendá, 38·87 square miles, or 24,877 acres. (66) Pánikhand, 3·62 square miles, or 2316 acres. (67) Patiyá Kila, 42·21 square miles, or 27,013 acres. (68) Sáhíbnagar, 6·44 square miles, or 4122 acres. (69) Sáibir, 33·56 square miles, or 21,477 acres. (70) Sáilo, 41·23 square miles, or

26,388 acres. (71) Swaraswatí, 11·10 square miles, or 7104 acres. (72) Shergarhá, 136·69 square miles, or 87,478 acres. (73) Suháng, 18·85 square miles, or 12,067 acres. (74) Suknai, 31·01 square miles, or 19,846 acres. (75) Sungrá, 46·99 square miles, or 30,073 acres. (76) Tísáníyá, 32·79 square miles, or 20,983 acres. (77) Tapankhand, 13·29 square miles, or 8505 acres. (78) Tikan, 56·36 square miles, or 36,068 acres. (79) Tíran, 43·82 square miles, or 28,048 acres. (80) Utikan, 68·08 square miles, or 43,573 acres. Total area, 3178·39 square miles, or 2,034,476 acres.

MEDICAL HISTORY.—Average rainfall for five years previous to 1870, 63·18 inches; average temperature for ditto, 84°. The hot season commences in March, and lasts till about the middle of June; the rains from the middle of June till the end of October, when the cold weather sets in.

ENDEMIC.—Intermittent fever is common throughout the year, but reaches its greatest height from the close of the rainy season in October to the end of December. The houses throughout the District are built of mud dug up from the vicinity of the dwellings. The consequence is, that in the neighbourhood of almost every hut or house there is a dirty pit filled to overflowing with water in the rainy season, and the receptacle of every description of filth. After the rains, when the water dries up, these holes throw off a malarial stench, charged with fever-poison. Fevers of a very severe type prevail in the Hill tracts from October to the end of December. Elephantiasis is also common. The Civil Surgeon, after five years' residence in the District, reports that he has not observed any improvement in the health of the inhabitants during this period.

EPIDEMIC.—Cholera always breaks out in the months of June, July, and August, being brought by the pilgrims bound to or from the great festival of Jagannáth. Measles appear to be unusually prevalent in Cattack City and District. Small-pox generally makes its appearance about the beginning of the year, and as a rule ends before the middle of April. The Civil Surgeon states that its regular appearance during these months is owing to the practice of inoculating with small-pox matter. The inoculators preserve the virus in cotton, and commence operations about the end of December or beginning of January. Small-pox thus spreads to the unprotected, and becomes general throughout the District. The Uriyás are perfectly regardless of contagion; and it is no uncommon sight to see people in the streets, or walking about the crowded market-places, covered with the disease. Ancient prejudice stands in the way of vaccination, and even the more enlightened natives of Orissa will seldom allow their children to be

touched with vaccine matter. The Civil Surgeon reports favourably of the precautions which have been adopted to keep the pilgrims (the main cause of cholera epidemics) out of the Town of Cattack. The most prevalent form of cattle disease is Guti, or cattle small-pox, of which a full description is given in my Statistical Account of Balasor.

FAIRS.—The only large fair, or religious gathering, is the Báruní, which takes place in all the larger towns in the months of May or June, the most important being held on the sands of the Baitaraní at Jájpur, and continuing for two or three days. It is not attended by people from other Districts, but the peasants for miles around flock into the nearest town where it is held, sometimes to the number of 10,000 souls, laden with rural produce for barter or sale. The Civil Surgeon reports that no connection exists between these gatherings and the outbreak of epidemics. Cholera generally appears with the arrival of the Purí pilgrims, and does not cease till they have left the District.

THE INDIGENOUS DRUGS are as follow :—Ambulá (*spondia mangifera*); a bark used in dysentery. Ankránti (*solanum jacquinii*); an expectorant. Ansun (*terminalia tomentosa*); a stimulant. Arjun (*terminalia arjuna*); bark astringent and diuretic febrifuge. Arkhá (*calotropis gigantea*); a stimulant, the leaves used as an anodyne, and in elephantiasis, ringworm, lepra, and as a poultice in sprains and boils. Aguyábát (*prema spinosa*); a stimulant, febrifuge, and expectorant; also used in eruptive diseases, and in indigestion. Asuágandhá (*physalis somnifera*); the bark and root used as a tonic, anodyne, and diuretic; the leaves steeped in oil are used for boils and other inflammatory eruptions. Asok (*Jonesia Asoka*); bark used as an astringent in cases of internal hæmorrhoids, and also in menorrhagia. Amba (*mangifera indica*); a bark used as an astringent in diarrhœa. Bel (*Ægle marmelos*); a fruit used in dysentery and diarrhœa. Bhringaráj (*verbena scandens*); used externally in headache and ophthalmia. Bámunhátá (*clerodendrum syphonanthus*); used in asthma and fevers. Baulo (*mimusops elengi*); a bark used as an astringent in sore throat. Bajra Múlá (*penicillaria spicata*); root used in gonorrhœa. Bháliyá (*semecarpus anacardium*); a tonic and counter-irritant; also used in lepra and indolent sores. Beguniyá; an expectorant and stimulant. Báhárá (*terminalia belerica*); an astringent used in diarrhœa and dysentery. Báygobá, two kinds (*jatropha curcas* and *glandulosa*); an anodyne; the oil from the nut used in rheumatism, etc. Bená (*andropogon muricatum*); a diaphoretic and febrifuge. Básang (*bergera kœnigii*); an expectorant and antispasmodic. Bhutairi; tonic and febrifuge. Bar Koli (*zizyphus jujuba*); bark of the root used as

an astringent in diarrhoea. Báibidanga (*emblica ribes*); a vermifuge. Baruná (*cratæva Narvala*); bark used as a tonic and febrifuge. Bhui Aolá (*phyllanthus niruri*); root used in jaundice, etc. Bákuchi (*psoralea corylifolia*); used in lepra and skin diseases. Chatauri (*asparagus racemosus*); tonic used in gonorrhœa and lepra. Chemudánimúl (*hemidesmus Indica*); alterative used in syphilis. Chiretá (*agathotes cheyrata*); not an indigenous drug; used as a febrifuge and tonic. Chitámúl-níl (*plumbago Zeylanica*); a vesicant. Chitámúl-lál (*plumbago rosea*); used in spleen, and for procuring abortion. Chákundá (*cassia tora*); leaves used as a purgative. Champá (*melichia chumpaca*); bark a stimulant, expectorant, and astringent; seeds and fruit used for healing cracks in the feet; root a purgative. Dálimba (*punica granatum*); root and bark astringent. Dhuturá, all kinds (*Datura metel*); narcotic, stimulant, antispasmodic, and anodyne, and smoked in asthma. Dáru Haldá; used in palpitation of the heart, and in ophthalmia and rheumatism. Donti (*croton polyandrum*); root and seeds used as a purgative. Dudhiá-latá (*oxystelma esculentum*); a decoction of the plant used in ulceration of the mouth; the fresh roots in jaundice. Ghi Kumári (*Agave cantula*); used in vertigo and tic as a refrigerant. Gila (*guilandina bouducella*); seeds used as a tonic and febrifuge; root in rheumatism. Gajá pipul (*scindapsus officinalis*); a febrifuge, tonic, and stimulant. Golancha (*cocculus cordifolius*); tonic, febrifuge, and antibilious. Gab (*ricinus communis*); oil purgative; old oil used in rheumatism. Gakhurá (*tribulus terrestris*); tonic, anodyne, and febrifuge. Hasti-karna (*clerodendrum hastala*); tonic, febrifuge, and purifier of the blood. Hárbhángá (*cissus quadrangularis*); used for dislocations and in joining fractures. Hijli-bádám (*anacardium occidentale*); oil used in rheumatism, etc. Haridrâ (*terminalia chebula*); tonic in fever. Indrajab (*Wrightea antidysenterica*); bark, root, and seeds used in dysentery, diarrhoea, and fever, and as a vermifuge. Indra-báruní; a purgative. Isabgul (*plantago ispaghula*); diuretic and demulcent, used in urinary diseases. Jám (*eugenia jambolana*); root and bark used as an astringent in diarrhoea. Jaitimúl (*Ceschnomene sesban*); root an antispasmodic; leaves used as a poultice in orchitis. Jádumári (*cassia alata*); leaves used in ringworm. Jayapál (*croton tiglium*); seeds used as a purgative; root in snake-bite. Kaukuá (*alpinia*); bark an astringent; root a vermifuge. Krishna Pámi (*Herpestis monniera*); febrifuge and antibilious. Kantákusum (*argemone Mexicana*); the yellow milk used in itch and ringworm, as well as the oil of the seeds. Kuchilá (*Strychnos nux vomica*); poison, used as a febrifuge, antirheumatic, and in lepra; also as an antisiphilitic. Káládáná (*pharbitis nil*); seeds and roots purgative. Karmangá

(averrhoa carambola); seeds used as a vermifuge. Kásondi (cassia sophora); seeds used as a vermifuge, and in scabies. Khetpáprá (oldenlandia biflora); an excellent febrifuge, tonic, and stimulant. Lanká siju (euphorbiaceæ); juice or milk used as a detergent healing, or in swellings; the bark and seeds as purgatives. The milk of some species used in cases of scabies, lepra, and ringworm. Ludhu (symplocos racemosa); astringent and antibilious, used in ophthalmia. Muthá (cyperus longus); febrifuge and tonic. Matmatíá; tonic, febrifuge, and vermifuge. Mán Sáru (arum Indicum); used in piles. Murgábi (sansevieria Zeylanica); a febrifuge, also used in consumption. Mahánim (melia sempervirens); astringent refrigerant, and used in lepra. Manjishthá (rubia manjista); tonic, and used in hysteria. Nágeswar (mesua ferrea); oil used in chronic rheumatism, the flowers as a refrigerant and tonic. Nim (melia azedarachta); tonic and febrifuge; leaves used as poultices in bad ulcers, lepra, and other skin diseases. Ol (arum campanulatum); used in indigestion, colic, piles, and enlargement of the spleen. Pán (piper betle); stimulant and expectorant. The root is used to prevent child-bearing. Phutphutiká, used in scabies, and as a poultice in sprains. Pitá-nalítá (corchorus olitorius); bitter tonic. Patal (tricosanthes dioica); cathartic. Palás (butea frondosa); gum or resin astringent, the seeds used as a vermifuge. Raktachandam (pterocarpus santalinus); astringent and febrifuge. Suánoi; tonic, febrifuge, vermifuge, and purifier of the blood. Sunári (cathartocarpus fistula); a purgative. Somráj (serratula anthelmintica); vermifuge. Sajiná (moringa pterygosperma); stimulant, diuretic, used in colic. Sálpárni, febrifuge and tonic, allays thirst in fever. Sál (shorea robusta); seeds astringent; the young shoots are used in cases of inflammation. Simul (Bombax heptaphyllum); seeds used to prevent small-pox from spreading over the body. Sonámukhi (cassia obovata); purgative. Tentuli (Tamarindus Indica); seeds astringent, used in diarrhœa. Tchori (Ipomœa turpethum); purgative and cathartic. Tálmúli (curculigo orchioides); tonic, and purifier of the blood. Tundporá; stimulant, expectorant, antisyphilitic, and antiseptic.

APPENDIX V.

GEOLOGICAL ACCOUNT OF ORISSA.

THE following account has been kindly drawn up for me by the Geological Survey of India; and I take this opportunity of acknowledging the generous assistance of Dr. Oldham, the head of the Survey, in many matters connected with the Gazetteer of Bengal.

The Province of Orissa consists, geologically as well as geographically, of two very distinct portions: the one, a belt of nearly flat country, from fifteen to fifty miles in breadth, extending along the coast; and the other, an undulating area, broken by ranges of hills, in the interior. The former is entirely composed of alluvial formations, the greater portion of its surface being probably composed of deposits from the great river Mahánadí, and the smaller streams, the Bráhmañí and Baitarañí. Near its western limit alone, a few hills of gneissose rock rise from the alluvial plain, especially between the Bráhmañí and Mahánadí. The inland hill-tract, on the other hand, is chiefly composed of rocks of very ancient date, so completely altered and crystallized by metamorphic action, that all traces of their original structure are lost, and any organic remains which they may originally have contained obliterated. The same rocks cover an enormous area in Eastern and Southern India, and are usually spoken of, in works on Indian geology, as the crystalline or metamorphic series.

- Further exploration in the little known Tributary States will doubtless show the existence of beds belonging to other formations; but hitherto the only instance in which any considerable area is known to be occupied by rocks of later date than the metamorphics, is in the tract known as the Tálcher coal-field, in the estates of Tálcher, Angul, Bánki, Athmallik, and Dhenkánal; also in Rádhákol in the Central Provinces. High up the Bráhmañí a series of very slightly altered or unaltered rocks, comprising slates with jasper, quartzites, and schistose beds, are known to occur; but it has not been ascertained whether they

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extend into the district administered from Cattaek, though they are believed to occupy portions of Keunjhar and Bonái ; the latter in the Chotá Nággpur Division.

The greater portion of the Tributary States have never been explored geologically, and the information procurable as to their character is most imperfect. It is possible that other coal-fields may exist, though not probable. Even the Tálcher coal-field has only received, for the most part, a very hurried examination. Excluding the formations of which no accurate information has been obtained, such as the slates, quartzites, and jasper, believed to be found in Keunjhar and Bonái, the following is a list, in descending order, of the rock systems hitherto described as existing in Orissa :—(8.) *Blown sands*. (7.) *Alluvium*. *b.* River delta deposits. *a.* Older alluvium of coast plain. (6.) *Laterite*. (5.) *Cattaek or Athgarh sandstone*. (4.) *Mahádeva or Pánchet sandstone and grit*. (3.) *Dámodar sandstone, shale, and coal*. (2.) *Tálcher sandstone, shale, silt and boulder bed*. (1.) *Metamorphic or crystalline rocks*.

The following is a brief description of the characters of each of these formations as found in Orissa :—

I. METAMORPHIC OR CRYSTALLINE ROCKS. — These consist of various forms of gneiss, mica-schist, hornblend-schist, quartzite, etc. Crystalline limestone, common in many parts of India, has not been hitherto observed in Orissa. True granite is found in the form of veins traversing the gneiss, and is of various forms, the most common being a highly crystalline variety, with but little mica, and passing into pegmatite, of the kind known as graphic granite, beautiful specimens of which have been found in parts of the Tributary States. This granite is apparently, for the most part at least, of cotemporaneous age with the metamorphism of the gneiss. But besides this, the gneiss itself frequently passes into a granitoid form, perfectly undistinguishable in blocks from granite, but which, when in place, is usually found to retain every here and there traces of its original lamination, and to pass by insensible degrees into a distinct laminated gneiss of the usual form.

Other prevalent forms are ordinary gneiss, composed of quartz, felspar, and mica ; hornblendic gneiss, in which the mica is replaced by hornblend, the latter mineral sometimes forming a very large proportion of the rock ; and quartzose gneiss, in which the felspar and mica, or hornblend, are in very small proportion, and the quartz predominates. This gradually passes into quartzite, in which felspar and mica are either wanting, or occur only in very small quantities.

The above may be considered the prevailing forms of the crystal-

line rocks ; but there are others of less frequent occurrence. Amongst these are diorite, amphibolite, syenite, and a magnesian rock, a kind of potstone. These may all very possibly be of later date than the mass of the metamorphics, though the serpentine-like potstone appears to be fairly intercalated.

2. TALCHER GROUP.—The lowest beds associated with the coal-bearing strata are themselves destitute of useful fuel, and well distinguished mineralogically from the Dámodar or coal-bearing rocks. They were first separated from the overlying beds in Orissa, and named after the estate in which they were found. They consist, in the case of the Tálcher coal-field, of blue nodular shale, fine buff or greenish sandstone, and of extremely fine silt beds, often interstratified with sandstone more or less coarse in texture, in thin alternating laminæ. The sandstones frequently contain felspar grains, which are usually undecomposed. In the sandstone and fine silty shale, rounded pebbles and boulders of granite, gneiss, and other crystalline rocks abound, some of them as much as four or five feet in diameter. This remarkable formation is known as the boulder bed. It is peculiar to the Tálcher group, and has been found in India wherever that group has been examined ; in the valleys of the Dámodar, the Son, the Narbadá, and the Godávarí, as well as in that of the Bráhmañ.

Of this singular association of large blocks of stone in a fine matrix but few other instances are known, the most remarkable one being that of the 'boulder clay' of Great Britain and other countries, which is now considered by most geologists to be of glacial origin. The boulder bed of the Tálcher group differs entirely from the 'boulder clay,' however. In the former the fine matrix is distinctly stratified, and the boulders are rounded, neither of which is the usual condition of the boulder clay. But the origin of such a rock is in both instances surrounded by the same difficulty, viz. that any current of water which could round and transport the boulders would sweep away, instead of depositing, the fine sand, clay, and silt in which they are embedded. Yet nothing is clearer than that the two were deposited together. Ice is rather a startling power to invoke in endeavouring to explain the phenomena of rocks found in a tropical climate ; but without its agency it appears difficult, in the present state of geological knowledge, to account for the Tálcher boulder bed.

In 1855, Mr. Blanford suggested (*Memoirs of Geological Survey of India*, i. p. 49) that these beds might have been deposited in a high table-land, and that the association of the boulders was perhaps due to ground ice. The advance of cosmical theories since that time has rather tended to increase the possibility of periods of cold having

occurred in the course of the earth's history, some of which may have been sufficiently severe to affect the tropics, or portions of them. Tálchers have now been found over so extensive an area, that the probability of their having been deposited at any considerable elevation above the sea has greatly diminished, and some observers are inclined to consider them marine,—a view which Mr. Blanford does not share. No other hypothesis, however, not involving ice-action has been offered which accounts satisfactorily for their peculiarities.

3. DAMODAR GROUP.—Above the Tálcher, or occasionally resting upon the metamorphic rocks, without the intervention of any other sedimentary beds, is found a series of sandstone and shale, with beds of coal. The sandstone is mostly coarse grey and brown rocks passing into grits. They are usually more or less felspathic, the felspar being decomposed and converted into clay, and are often ferruginous. Blue and carbonaceous shale, often more or less micaceous, and ferruginous shaly sandstone, are characteristic of this group. Fossil plants, chiefly consisting of ferns, such as *Glossopteris*, *Pecopteris*, *Trizygia*, *Equisetacea*, and *Calamites*, and above all, peculiar stems divided into segments (*Vertebraria*), believed to be roots of unknown affinities, are frequently found. Most of the fossil species found, perhaps all, are characteristic of the Dámodar formation.

The peculiar interest attaching to this group of rocks is, however, derived from its being the only one in which workable coal has been found in the peninsula of India. All the coals of Ráníganj and the other fields of the Dámodar valley, as well as all those of the Narbadá valley, and of other parts of the Central Provinces, are in Dámodar rocks. So far as they have hitherto been examined, the coals of Tálcher appear to be of inferior quality to those of Ráníganj, the Narbadá, and other localities; but the field in the Tributary States has by no means been thoroughly explored as yet.

4. MAHADEVA GROUP.—Above the coal-bearing series in the eastern part of the Tálcher coal-field, a considerable thickness of coarse sandstone, grits, and conglomerates is found, quite different in character from the beds of the Tálcher and Dámodar groups, and resting unconformably upon them. These rocks are usually coloured with various shades of brown, and are frequently very ferruginous. The separate beds composing them are massive, and not interrupted, as the Dámodar sandstones frequently are, by partings of shale. They form hills of considerable size in the State of Rádhákol, in the Central Provinces.

It is by no means clear that these beds are the representatives of the group in the Narbadá valley, to which the name Mahádeva

was first applied ; but there is a general subdivision of the rocks throughout the greater portion of the Indian coal-fields into three principal groups. To the higher of these the term *Mahádeva* has been given in the Nabadá valley and in Orissa, and Pánchet in Bengal ; and until a re-examination of the Orissa beds has enabled their relations to that of other coal-fields to be more accurately made out than was possible when they were first mapped, it appears best to retain the name first applied to them.

5. CATTACK OR ATHGARH GROUP.—South-west of the town of Cattack is a considerable area, occupied by grit, sandstone, and conglomerate, with one or more beds of white or pinkish clay. The beds are very similar in general character to those last described ; but there is no evidence of their connection, and it appears at least as probable that the Cattack rocks are of later date. No fossils have been found in these beds except some obscure impressions, apparently of vegetable origin, in the clays.

6. LATERITE. — The laterite of Orissa is evidently of detrital origin, and consists essentially of small pisolitic nodules, chiefly composed of hydrated oxide of iron (brown hæmatite) and coarse quartz sand, cemented together more or less perfectly into either a firm, though somewhat vesicular, rock, or into a less coherent mass, or at times remaining in a loose gravelly condition, and thus passing by various gradations into a sandy clay, with a few pisolitic iron nodules. As a rule, the forms containing most iron are the most coherent, and *vice versa*. The more solid sorts are largely used as building stone, having the peculiar but important property of being softest when first cut, and of hardening greatly on exposure.

Beneath the detrital laterite, especially when a felspathic form of the metamorphic rocks occurs, the decomposed upper portion of the latter is frequently greatly impregnated with iron, and converted into a kind of lithomarge, which closely resembles the detrital laterite in appearance, and is employed for the same purposes. The massive form of laterite which caps many of the higher hills in Peninsular India, and which is more compact than the detrital laterite, is not known to occur in Orissa.

7. ALLUVIUM.—(a) OLDER ALLUVIUM OF COAST PLAIN.—In the neighbourhood of the hills, and frequently for many miles from their base, the alluvium of the plains consists of clay and sand, usually more or less commingled, and in most places containing calcareous concretions (*Kankar* or *Ghutín*) and pisolitic ferruginous nodules. This deposit passes by insensible degrees into laterite on the one hand, and into the more recent delta alluvium on the other ; but in its typical form it is

well distinguished from both, by being more sandy, and containing nodular carbonate of lime, or Kankar.

The age of this alluvial deposit is shown by its surface having been modified and rendered uneven by the action of rain and streams, so that the country composed of it is more or less undulating. Whether this formation, or any portion of it, is of marine origin, is a question hitherto undetermined. So far as it has been yet examined, it appears to be in Orissa unfossiliferous. The greater portion has doubtless been produced by deposits washed down by the great rivers from the higher country to the westward; and it appears likely that a portion of these have been deposited along the coast. But other deposits have been in all probability formed upon the original marine beds by the additional accumulations brought down by streams and washed by rain from the hills, so that it is questionable whether the lower marine beds which probably exist are anywhere exposed.

5. RIVER DELTA DEPOSITS.—In the neighbourhood of the great rivers the soil is finer and the country level, the greater portion of it being yearly inundated by flood-waters, and receiving a fresh deposit from them, except in places where they are kept from overflow by artificial means. The alluvium thus formed is generally highly fertile, but the country is swampy, and often malarious. As above pointed out, the only character by which this modern alluvium can be distinguished is the flatness of its surface, showing that the area occupied by it is one of deposition, and not of denudation. Usually also it is less sandy than the older alluvium, and Kankar is not of frequent occurrence in it, though a thin layer of it often covers deposits of calcareous sand and clay, from which the later deposit can with difficulty be distinguished.

8. BLOWN SAND.—Along the coast, as at Purí, large tracts of ground are covered with sand blown inland from the beach. The nature and origin of the formation is obvious, being simply a deposit of sand carried onward from the margin of the sea by the monsoon, and sometimes rising into ridges and cliffs.

In proceeding to give a sketch of the geological character of the different Districts and States of which Orissa is composed, I shall first describe the Districts of Balasor, Cattack, and Purí, and subsequently those Tributary States with regard to which any definite information has been obtained.

BALASOR.—Almost the whole District consists of alluvial deposits. Metamorphic rocks occur in the Nílgi hills, along the western boundary; but they scarcely enter the district anywhere, and in no case are found more than a mile or two within the boundary. Laterite, fre-

quently massive, forms in some places a narrow fringe to the mountains. A few sandhills skirt the shore in the north-eastern part of the District, which to the east of the Subanrekhá extend from three to four miles inland. The older alluvium occupies the greater portion of the District, the flat river alluvium forming the southern part near the Baitaraní, Kharsuá, and Bráhmań Rivers, and a tract in the north-east near the Subanrekhá. Around Balasor itself the soil is rather sandy, and contains laterite gravel. Concretionary carbonate of lime (Kankar) is widely distributed, especially in the western part of the district.

IN CATTACK, as in Balasor, the largest part of the district consists of alluvium, the older form with an undulating surface, occupying, however, a much smaller area proportionally, and being confined to the north-western part of the District, nearly all of the remainder being composed of the flat deltas of the Mahánadí and Bráhmań. Along the sea-coast blown sand is generally found, but it only forms a narrow belt.

Between the Rivers Bráhmań and Mahánadí, in the Kilas of Balrámpur, Madhupur, Darpan, Kalkalá, Dálíjorá, and scattered over the country to the east in Parganá Alti, there are numerous hills, all more or less isolated, and all composed of gneiss. Along the Bráhmań, near Balrámpur, and for some miles to the south-east, the rock is compact and granitoid. Farther south it is less compact, and usually soft from partial disintegration near the surface. It is marked with numerous red blotches, the remains of decomposed garnets. This soft decomposing gneiss is sometimes quarried, and used for building. The hills in this part of the country are not accurately represented on the Revenue Survey maps; but those shown in the Topographical Survey maps of the Tributary States are very correctly drawn.

No laterite occurs around the more eastern hills, but around those in the neighbourhood of the road from Calcutta to Cattack there is frequently a narrow fringe, often conglomeritic, as if it had been originally a beach deposit; and to the west of the high road to Cattack, the metamorphic hills are surrounded in general by broad terrace-like flats, frequently stretching from hill to hill; and when they do not do so, affording evidence that the laterite is continued beneath the intervening alluvium. This laterite is frequently employed for building purposes.

PURI, the southern District of Orissa, contains a much larger extent of hard rocks than either Cattack or Balasor. All the country near the coast, and a broad tract in the north-east of the district, are alluvial; but the western part of the area is occupied by laterite, sandstone, and metamorphic rocks. There is a very small extent of the older undulat-

ing alluvium. Almost all the eastern part of the District, and the country extending from the Mahánadí to the Chilká Lake, is perfectly flat, and consists of the newer or delta alluvium. Hence its liability to flooding from the Mahánadí. Hills of blown sand extend along the whole coast, and frequently are disposed in two or three principal ranges, the first close to the shore, the second from one to two miles inland; occasionally another range is still farther from the sea.

The greater portion of Dompára and Dándimál, south-west of the town of Cattack, consists of the Athgarh sandstone. To the west these beds appear to rest on the metamorphic rocks, and they have a general dip to the east and south-east, at low angles not exceeding 5° or 6° . They are surrounded on all sides by laterite and alluvium. At their apparent base to the west is a coarse conglomerate, the pebbles chiefly of quartzite. These rocks contain one band at least of white clay, which is largely dug, and used for whitewashing houses, and for other purposes. South-west of the sandstone countries, and west of Khurdhá, there is a broad undulating plain, partly covered with laterite, through which the gneiss rises at intervals. In the extreme west of the District around Bolgarh and Goriáli, there are two very barren ranges of no great height, running east and west, and formed of compact, rather granitoid gneiss.

From this point, where the boundary of the District turns to the eastward, as far as the Chilká Lake, only detached hills occur, all of gneiss, with intervening plains of laterite and alluvium. The group of hills near Chatármá are of granitoid gneiss; most of the others are of garnetiferous gneiss, with quartzose bands. Such are Khurdhá Hill, with the smaller elevations in the neighbourhood, and also the hills east of the Cattack and Ganjám road between Rámeswar and Monglápuri.

A precisely similar country extends to the west of the Chilká Lake. The lake itself was formerly a part of the sea, first rendered shallow by deposits from the mouths of the Mahánadí. It is now entirely cut off from the sea by a spit of sand formed by the violent winds of the southern monsoon. Near the south-western extremity of this spit there is a considerable deposit of estuarine shells, at a height of twenty to thirty feet above the present flood-level of the Chilká. The shells found—*Cytherea casta* and *Area granosa*—have not been observed living in the Chilká, and both are estuarine species, not occurring in the sea itself; but the former is now abundant in the estuary connecting the lake with the sea. This deposit appears to afford evidence of a recent elevation of the land.

There can be but little doubt that the Chilká is gradually

diminishing in size and in depth ; but as it receives no streams of importance, the quantity of water charged with sediment poured into it is small, and its rate of decrease is probably very slow. Its fauna is peculiar, and deserves more attention than it has hitherto received. Indeed, the whole estuarine fauna of the Indian backwaters and deltas has been but imperfectly worked out ; and further information is extremely desirable, above all, regarding the mollusca, for the illustration of the fossils of the many deposits which have doubtless accumulated under very similar circumstances in past times.

TRIBUTARY STATES.—Of the geology of the States of Morbhanj, Pál Lahará, Narsinhpur, Earambá, and Tigariá, lying north of the Mahánadí, and of all the States south of the Mahánadí River, except Bánki, viz. Bod, Daspallá, Khandpára, Nayágarh, and Ránpur, nothing definite is known. It is pretty certain that a large proportion of their area consists of metamorphic rocks, and it is possible that no others may be found.

Of Keunjhar and Nilgiri, only the edges bordering on the Balasor District have been examined. Hindol has been traversed ; portions of Dhenkánal and Athmallik have been examined ; whilst in Angul, Tálcher, and the little estates of Athgarh and Bánki, a more general survey has been made, but still far from a complete or detailed one.

NILGIRI AND KEUNJHAR.—The hills bordering on Balasor consist entirely of metamorphic rocks of various kinds. In the northern part of the range gneiss is found, so granitic that the direction of the foliation can scarcely be ascertained. It appears to be nearly parallel with the escarpment of the range. Granite veins are scarce ; but greenstone dykes, or pseudo-dykes, many of them of great size, abound, and most of them, if not all, appear to run parallel with the gneissic foliation. These facts render it probable that the dykes in question are really beds so altered as to be perfectly crystalline. A kind of black magnesian rock, intermediate in composition between potstone and serpentine, approaching the former in appearance but less greasy in texture, is quarried to some extent, chiefly for the manufacture of stone dishes, plates, and bowls. The stones are roughly cut into shape in the quarry, and finished partly with tools, and partly on a lathe in the villages. The rock employed is found interfoliated with the gneiss in several places, and is quarried at the villages of Sántrágodiá and Gujádhá, a few miles south of Nilgiri, at a spot two or three miles from Jugjuri, and in scattered localities to the north-west.

A few miles west-south-west of Jugjuri, near Parkpadá, the granitoid rocks are replaced by a tough, hard, indistinctly crystalline hornblende rock, resembling diorite, but exhibiting more foliation than is

seen in the hills near Nīlgiri. Still farther to the south-west quartz schist appears in a well-foliated form, occasionally containing talc. A detached hill near Bākipur consists of this rock, and so does the whole south-west portion of the range as far as Rogadi, except in the immediate neighbourhood of the Sālandī River, where it leaves the hill. Here syenite occurs, which forms a detached hill near Dārāpur. The southern portion of the range is free from the trap dykes which are so conspicuous to the north-east of Jugjuri. All the western portions of Keunjhar are unexplored.

TALCHER, ANGUL, and ATHMALLIK.—*The Tálcher Coal-field.*—These States comprise by far the most interesting geological area in Orissa and its dependencies. The basin of sedimentary rocks known as the Tálcher coal-field is surrounded on all sides by metamorphics. This basin extends about seventy miles from west by north to east by south, with a general breadth of from fifteen to twenty miles, its eastern extremity at Karakprasád on the Bráhmañī River being nearly fifty miles north-west of Cattack town. Its western limit is not far from Rámpur, in the State of Rádhákol in the Central Provinces, and it comprises nearly the whole of Tálcher, and a considerable portion of Angul and Rádhákol, with smaller parts of Bánki, Athmallik, and Dhenkánal. The western half of this field is chiefly occupied by the rocks already described as belonging to the Mahádeva group, conglomerate and coarse sandstone, which form hills of considerable height in a very wild, jungly, and thinly inhabited country. At the period when the Tálcher coal-field was examined, nothing whatever was known of the classification of rocks which has since been made out by the Geological Survey in the various coal-fields of India. Indeed, one of the very first and most important distinctions, that of the Tálcher group, below the coal-bearing division, was made in this region, as already mentioned. The boundaries of the Mahádevas and Dámodars on the map in the *Memoirs Geol. Surv. of India* is merely a rough approximation made from memory, and partly by guess, after quitting the field. The differences of the rocks had been noted in the field, but their area had not been mapped.

It is by no means improbable that the Dámodar coal-bearing rocks will hereafter be found in portions of this area. Indeed, they have been observed at the village of Patrápadá.

In the extreme west of the field Tálcher beds occur in the upper part of the valley of a stream tributary to the Tikariá, near Deincha, and also near the village of Rámpur, in Rádhákol. In both cases Mahádeva rocks appear to rest directly on them, without the intervention of any Dámodars.

Besides occupying the western part of the field, the Mahádevas are found in two places along the northern boundary, which is formed by a fault of considerable dimensions. One of these places is near the villages of Bodaharna and Dereng, where the upper beds occur as a narrow belt, five or six miles from east to west, their presence being marked by low hills of hard conglomerate. Farther to the west they recur in another isolated patch, forming the rise called Khandgiri Hill. This hill consists of sandstone, capped by conglomerate, the pebbles from which weather out and cover the sides of the hill, concealing the sandstone beneath.

The northern part of the field in which these outliers of the Mahádevas occur is much cut up by faults, or, to speak more correctly, by branches of one great fault. These faults are in some places marked by a quartzose breccia, containing fragments of sandstone and other rocks. The vein of breccia, varies in breadth. At the village of Karjang it is so largely developed that it forms a hill of considerable height. Between the branches of the fault Tálcher beds and metamorphics occur; north of all the faults metamorphics only are found.

The eastern part of the field, from near Karjang on the Tikariá River, and Kánkurái on the Tengrá, to east of the Bráhmañ, is principally composed of Dámodar rock. These may usually be recognised by the occasional occurrence of blue and black shale, the latter carbonaceous, and sometimes containing coal. The general section of the beds, so far as could be made out in a difficult country, much obscured by surface clays and jungle, is as follows:—

1. Interstratifications of blue and black shale, often very micaceous, with ironstone and coarse felspathic sandstone. These are at least 1500 feet thick.
2. Carbonaceous shale and coal, about 150 feet.
3. Shale and coarse sandstone, the latter prevailing towards the base; thickness doubtful, but not less than 100 feet.

If this be correct, the coal only occurs upon one horizon. It is by no means impossible, however, that other beds may be found. Coal is known to be exposed in three places. The most westwardly of these is at Patrápadá, in Angul, a village on the Medúliá Jor, a tributary of the Aulí River. Here some six feet of carbonaceous shale and coal are seen in the bank of the stream, capped by clay, upon which rest the coarse grits of the Mahádeva group. The area occupied by the beds is small. The next place, which is far better known, is at Gopálprasád, in Tálcher, on the Tengrá River. The rocks at this spot are nearly horizontal for a long distance, and the coal-bed extends for some miles along the banks of the stream above the village. It also recurs lower

down the stream. The thickness of the bed is considerable, but its quality is inferior, the greater portion being excessively shaly and impure. Selected specimens contain upwards of thirty per cent. of ash, but it by no means follows that better coal may not be found; and even the inferior fuel would be useful for many purposes if any local demand existed; and from the horizontality of the beds, a large quantity might be procured with very little labour. The general dip in the neighbourhood is to the north; and any attempts at working the coal on a large scale, or further explorations by boring, should be made north of the Tengrá stream.

The third locality is in a small stream running into the Bráhmañi from the west, just north of the town of Tálcher. Beds lower than the coal are seen on the bank of the Bráhmañi, at the Rájá's residence. The carbonaceous shale with coal is exposed about 400 yards from the river, in the small watercourse. Only two or three feet are visible. The dip is north-west, and the coal is covered by micaceous, sandy, and shaly beds. A boring north-west of this spot would test the bed fairly.

There is another locality in which the section can be tested, at the village of Kánkarápál, in Angul, about ten miles north-west of Gopálprasád. It is by no means certain that the Gopálprasád shale is close to the surface here; but the spot is the summit of an anticlinal, and some black shale seen in the stream resembles the uppermost portion of the rocks of Gopálprasád. It is highly probable that closer search will show other places where coal is exposed at the surface. The south-eastern part of the field consists of Tálcher beds, in which boulders are only occasionally found towards the base. They are micaceous near the village of Porongo. Above the silt-bed containing the boulders, there is a fine sandstone frequently containing grains of undecomposed felspar. There is no chance of coal being found in this portion of the basin; that is, south of a line drawn from east by north to west by south running about two miles south of Tálcher.

In several places in the Tálcher field iron is worked. The ore varies. Sometimes the ironstones of the Dámodar beds are used, but more frequently surface concretions, the supply of which is necessarily limited. Sometimes the little pisolitic nodules of the laterite are found washed from their matrix, and deposited in sufficient quantities in alluvial formations to be worth collecting. In one instance, the ore was derived from the metamorphic rocks, and brought from a distant locality. It resembled the mixture of peroxide of iron and quartz found at the outcrop of metallic lodes, and known as 'gossan' in Cornwall. The method of smelting the iron in small furnaces is similar to that used in other parts of India; but the bellows employed

are worked with the foot,—a peculiarity only found in the south-western dependencies of Bengal and Orissa. An account of the process, with figures, by Mr. H. F. Blanford, will be found in Dr. Percy's *Metallurgy of Iron and Steel*, p. 261.

The arenaceous ironstones of the Dámodar group would doubtless yield a large supply of ore.

DHENKANAL and HINDOL.—These regions require scarcely any notice. So far as is known, they consist of metamorphic rocks, except the western extremity of the first-named State, which comprises the eastern end of the Tálcher basin. The metamorphic rocks are of the usual descriptions.

ATHGARH.—The northern and western parts of this State consist of metamorphic rocks. Along the Mahánadí, from near Cattack to the boundary of the State, within three or four miles of the village of Tigaríá, there is a belt four or five miles broad, of the same 'Cattack' sandstones as are seen south of the Mahánadí, in the Purí district,—being, in fact, a portion of the same basin. The rocks are precisely similar—coarse sandstone and conglomerate, with one or more bands of white clay.

BANKI.—West of the sandstone area in the Purí district, there is a broad expanse of alluvium running for a considerable distance to the southward from the Mahánadí. West of this, again, metamorphic rocks occur. There is a fine semicircle of detached hills running from Bánkigarh to the village of Baideswar. The hills are partly of garnetiferous gneiss, partly of compact hornblendic gneiss—Bánki Peak of very quartzose gneiss. The strike varies in a peculiar manner, being very irregular, but with a general tendency in all the hills to dip towards the centre of the semicircle. South of the hills is a large undulating plain, partly covered with laterite.—W. T. B.

APPENDIX VI.

SPECIMENS OF ORISSA FLORA.

N.B.—I had not the opportunity of making anything like a complete collection, but the following represent the general character of the Flora in the Orissa Sundarbans, and establish their similarity to the vegetable products of the Gangetic Sundarbans.—W. W. H.

(a) *Specimens collected on Long Island, off False Point Lighthouse, at the mouth of the Mahánádí.*

1. *Bani*: mangrove roots; bushes of 3 feet high as the first growth of new silt; and from 20 to 30 feet high on older formations. *Avicennia officinalis*, L. Sp. fl. 110; Schauer in De Candolle, Prodróm. xi. p. 700. (*Av. tomentosa* R. Br. in Wight Icon. t. 1481.)
2. *Teluguni*: grows to 18 feet high, and flowers at the extremities of the twigs. *Ægiceras majus*, Gaertn. f. Fruct. i. 216, t. 46. Miquel, Flor. Ind. Batav. ii. p. 1031.
3. *Rái*: 15 to 18 feet high, broad and bushy; may be either *Rhizophora mucronata*. Lamk., or *Rh. conjugata*. L.
4. *Khírúá* (or *Khírúá*): 20 to 25 feet high. *Sonneratia apetala*; Ham. in De Candolle, Prodróm. iii. 231; Wight and Arnott, Prodróm. i. 327. Roxb. Fl. Ind. ii. 506.
5. *Uru* (or *Uruá*): height 15 feet; small red flower, edible fruit. *Ægialitis annulata*. R. Br. Prod. Nov. Holl. i. 246; Gaud. Freyc. It. Bot. p. 446, t. 51; Miq. Fl. Ind. Bat. ii. 995.
6. *Gnúá*: height 12 feet, small white flower and berry, not edible. *Excoecaria Agallocha*, L. De Candolle, Prodróm. vol. xv. part 2, p. 1220.
7. *Baniá* (or *Bariá*): height 12 feet, bushy, fair sized, yellow flower.

- Hibiscus tiliaceus, L. Sp. pl. 976. De Candolle, Prodróm. i. 454. Miq. Fl. Ind. Bat. i. part 2, p. 153.
8. *Rasuniá* (or *Rasuriá*): height 8 to 12 feet, small white clustering flowers pendent. *Kandelia Rheedii*, W. A. Is the same as No. 7.
 9. *Sundari Gnúd*: height 10 feet. *Sonneratia acida*. De Candolle, Prodróm. iii. 231; W. A., Prod. i. 327; Roxb. Fl. Ind. ii. 506; Wight Icon. t. 340.
 10. *Agáváthu* (or *Agáváth*): height 9 feet.
 11. *Karansá*: height 12 feet; twigs succulent; abundant and succulent foliage. *Pongamia glabra*, Vent. Malm. t. 28; De Candolle, Prodróm. ii. 416; W. A., Prod. i. 262; Wight Icon. t. 59.
 12. *Pitá-mári*: about 15 feet high.
 13. *Gílá*: height 7 to 9 feet; broad and bushy. Probably *Mimosa rubicaulis*. Lamk. in De Candolle, Prod. ii. 429; W. A., Prod. i. 268. (*M. octandra*, Roxb. Corom. Pl. II. t. 200.)
 14. *Harkath*: about 3½ feet high. *Acanthus ilicifolius* L., Roxb. Fl. Ind. iii. p. 32. (*Dilivaria ilicifolia* Juss. Wight Icon. t. 459.)
 15. *Guriá*: very tall thorn, about 30 feet high; small leaf, *Dalbergia spinosa*, Roxb. Fl. Ind. iii. 233; W. A., Prod. i. 266.
 16. *Kurárid*: a shrub 2 feet high. Probably *Tephrosia purpurea*, Pers. De Candolle, Prodróm. ii. 251; Wight and Arnott, Prodróm. i. 213.
 17. *Kápatár*: height 6 feet. *Clerodendron inerme*. Gaertn. Miq. Fl. Ind. Bat. ii. 868.
 18. *Antabáji* (*Anananta-báji*): a bushy edible vegetable, 3 inches high, growing in sand. Appears to be *Microrrhynchus asplenifolius*, De Candolle, Prodróm. vii. 181.
 19. *Burburká*: a succulent creeper. *Hydrophylax maritima* L. f., De Candolle, Prodróm. iv. 576. W. A., Prod. i. 441; Roxb. Corom. Pl. III. t. 233.
 20. *Máharará*: a creeper growing on sand; like a convolvulus, with a delicate purple flower; eaten by men and deer.
 21. *Bajramári*: a creeper growing on sand. *Sida cordifolia*, L. De Candolle, Prod. i. 464; Roxb. Fl. Ind. iii. 177; W. A., Prod. i. 58.
 22. *Kansári* (or *Kansári-latá*): convolvulus, growing on sand. *Ipomœa pes-capræ*, Swartz; Chois, in De Candolle, Prodróm. ix. 349.
 23. *Kentiá*: a long ground creeper with small white flower.
 24. *Tartarú*: an edible creeper growing on sand. *Chamissoa nodiflora*, Mart. Nov. Act. N. C., xiii. 286; Moq. Tand. in De

COLLECTED ON THE MAINLAND SUNDARBANS. 177

- Candolle, Prodrum. xiii. part 2, 249; Miq. Fl. Ind. Bat. i. 1029; Wight Icon. t. 1770.
25. (*Annamédh*): a ground creeper. *Atylosia scarabæoides*. Bth. in Pl. Jungh. i. 242; Miq. Fl. Ind. Bat. i. 173.
 26. *Chimari-nai*: a very long creeper. Probably *Hemidesmus Indicus*. R. Br. De Candolle, Prod. viii. 494; Miq. Fl. Ind. Bat. ii. 465.
 27. *Agni-kumári*: a small sand plant, 2 inches high. *Grangea made-raspatana*, Poir., De Candolle, Prodrum. v. 373; Miq. Fl. Ind. Bat. ii. 39; Wight Icon. t. 1097.
 28. *Ghar-purid*: a sand creeper. *Spermacoce articularis*. L. fil. Suppl. 119; Miq. Fl. Ind. Bat. ii. 322; W. A., Prod. i. 438.
 29. *Náliá*: a reed-like grass, grows in mud up to 5 feet high.
 30. *Arsá*: broad flag, grows in mud, 3 feet high, white flower.
 31. *Rávaneswar-dárhi* (Beard of Rávan): large tufted grass. *Spinifex squarrosus* L. Miq. Fl. Ind. Bat. iii. 474.

(b) *Specimens collected on the Sundarbans of the Mainland.*

1. *Sundari*: grows from 30 to 40 feet high. Appears to be *Heritiera minor*, Lamarck's Dictionary, iii. 299. De Candolle, Prodrum. i. 484.
2. *Jamu*: 30 feet high. Perhaps *Eugenia fruticosa*, Roxb. Fl. Ind. ii. 418; Wight, Ill. ii. p. 16 (*Syzygium fruticosum*, De Candolle, Prodrum. iii. 260).
3. *Anáchará*: from 4½ to 6 feet high. *Glycosmis pentaphylla*, Correa in Ann. d. Museum, tom. vi. p. 384; Oliver in proceedings of Linnæan Society, V Suppl. p. 37.
4. *Kukurchalid*: a medicinal plant, 6 feet high. *Pavetta Indica*, L. in De Candolle, Prodrum. iv. 490; Wight and Arnott, Prodrum. i. 431; Bot. Reg. 3, t. 198; Wight Icon. t. 148.
5. *Cháludhuá* (or *Chálduá*): 5 or 6 feet high.
6. *Susumár*: 15 to 18 feet high. *Xylocarpus obovatus*. A. Juss. in Mém. Mus. xix. p. 344; Miquel, in Flor. Ind. Batav. vol. i. part 2, p. 546.
7. *Rasunid*: 9 feet high. *Kandelia Rheedii*, Wight and Arnott, Prodrum. i. 34; Arnott in Annals of Natural History, i. 365; Wight, Illustr. i. p. 809, t. 892; Miquel, in Flor. Ind. Batav. vol. i. part 1, p. 585.
8. *Háwáli*: 15 feet high. *Thespesia populnea*, Correa in Annal. Mus. ix. 290. De Candolle, Prodrum. i. 456; Wight and Arnott, Prodrum. i. p. 32; Miquel, Flor. Ind. Bat. vol. i. part 2, p. 150.

9. *Ságara-bátud*: from 4 to 5 feet high. Perhaps *Eugenia fasciculata*, Wall.
10. *Khirkuri* (or *Khiri-kuri*): a thorn from 10 to 12 feet high. *Carissa diffusa*, Roxb. Flor. Ind. ii. 524. De Candolle, Prodróm. p. 333; Miquel, Flor. Ind. Batav. ii. 399.
11. *Nite* (or *Nitii*): a long thorny creeper, *Mezoneuron cucullatum*. Wight and Arnott, Prodróm. i. 283.
12. *Náiká* (or *Nárká, Náluká* or *Náruká*): from 15 to 18 feet high.
13. *Gwágúá*: from 7 to 9 feet high.
14. *Geridá*: an edible vegetable, $1\frac{1}{2}$ feet high. *Suæda Indica*. Moq. Tand. in Nouv. Ann. Sc. Nat. xxiii. p. 316; Wight Icon. t. 1796; Miquel, Fl. Ind. Bat. i. part 1, p. 1021.
15. *Singará*: from 15 to 18 feet high. *Cynometra bijuga*, Spanogh in Miquel Flor. Ind. Bat. i. part 1, p. 78. In Bengal, Singará is applied very generally to *Trapa bispinosa*.
16. *Jaulá* (or *Jaurá*): a sort of *Arbor Vitæ* looking shrub, generally about 4 feet, but grows up to 12 feet high. *Tamarix Gallica*. L. De Candolle, Prodróm. iii. 96; var. *B. Indica*, Ehrenb. (T. Indica. De Candolle, Prodróm. iii. 96. Roxb. Fl. Ind. ii. 100).
17. *Hartál* (or *Hartár*): grows up to 10 or 12 feet high. Probably *Phœnix paludosa*, Roxb. Fl. Ind. iii. 789.

LIST OF THE PRINCIPAL VEGETABLE PRODUCTS OF THE PURI DISTRICT.

FLOWERING PLANTS. — Rangbán (Indian shot); *Canna Indica*. Gangsiuli (night flowering Jasmine); *Nyctanthes arbor tristis*. Mallik (Jasmine); *Jasminum sambac*. Mach-mach (Indian cork-tree); *Millingtonia hortensis*. Rangani (scarlet ixora); *Ixora coccinea*. Háti-surá; *Heliotropium Indicum*. Lál-chitá; *Plumbago rosea*. Banbanká (Moon-flower); *Calonyction grandiflorum*. Kansárinatá (goat's-foot creeper); *Ipomea pes-capræ*. Dudá-tárák (Elephant creeper); *Argyreva speciosa*. Haragaurá (Indian balsam); *Impatiens balsamina*. Ains-káti; *Vinca alba* and *rosea*. Kaniyári (Oleander); *Nerium odorum*. Málathiphul (a clove-scented creeper); *Echites caryophyllata*. Kát-chámpá; *Plumieria acuminata*. Khambsiju; *Cereus phyllanthus*. Sapt-pheniyá (prickly pear bush); *Opuntia vulgaris*. Phurush; *Lagerstrœmia Indica*. Goláb; *Rosa centifolia*. Asháruyá; *Capparis acuminata*. Barun; *Cratæva trifolia*. Rangkain (red water-lily); *Nymphæa rubra*.

Dhabalá-kain (lotus); *Nymphaea lotus*. Subdikain (blue water-lily); *Nymphaea cyanea*. Padam (rose-coloured lotus); *Nelumbium speciosum*. Broad-leaved water-lily; *Euryale ferox*. Ponang (Alexandrian laurel); *Calophyllum inophyllum*. Chámpá; *Michelia champaca*. Pándhuyá; *Erythrina Indica*. Simli (red cotton-tree); *Bombax Malabaricum*. Aparájítá; *Clitorea ternatea*. Solo; *Aschynomene aspera*. Bayajanti; *Sesbania Egyptiaca*. Dayaná; *Artemisia Indica*. Gendu; *Tagetes patula*. - Kesardá; *Eclipta prostrata*. Surjyamukhi (Sun-flower); *Helianthus annuus*. Mánikchanni (Indian camomile); *Chrysanthemum Indicum*. Ansarishá; *Cleome pentaphylla*. Keya (fragrant screw-pine); *Pandanus odoratissimus*. Kánchan; *Bauhinia acuminata*. Chin-chámpá; *Artabotrys odoratissimus*. Krishna-churá; *Poinciana pulcherrima*. Mandár (Shoe-flower); *Hibiscus rosa sinensis*. Muljuyáti (Henna); *Lawsonia alba*. Angutí; *Clerodendrum phlomoides*.

Dyes.—Surbuli (Indian Madder); *Hedyotis umbellata*. Achhu; *Morinda tinctoria*. Gulbás and Viláyati Haldi (Arnotto); *Bixa orellana*. Kámulgundi; *Rottlera tinctoria*. Manjístá; *Rubia Mungista*. Raktachandan (red sandal-wood); *Pterocarpus santalinus*.

Fibres.—Nalitá (jute); *Corchorus olitorius*. Chhani (Sun-hemp); *Crotalaria juncea*. Kánuriyá; *Hibiscus cannabinus*. Bárabarshi (American Aloe); *Agave Americana*. Kapá (Indian Cotton); *Gossypium Indicum*.

Woods.—Kendu (ebony); *Diospyros melanoxylon*. Sál; *Shorea robusta*. Piyásál; *Buchanania latifolia*. Sisu; *Dalbergia sissoo*. Gambhári; *Gmelina arborea*. Panas; *Artocarpus integrifolia*. Jeut; *Artocarpus lacoocha*. Kadamba; *Nauclea cadamba*. Kelikadamba; *Nauclea parviflora*. Deb-dáru (mast-tree); *Guatteria longifolia*. Tíniyá; *Acacia speciosa*. Jháu; *Casuarina muricata*. Bat (Banyan-tree); *Ficus Indica*. Dimri; *Ficus glomerata*. Pipal; *Ficus religiosa*. Mandakaich; *Adenanthera pavonina*. Bághánkúrá; *Alangium decapetalum*. Baul; *Mimusops elengi*. Chárkuli; *Mimusops hexandra*. Oao; *Dillenia speciosa*. Heinjal; *Barringtonia acutangula*. Indrámai; *Odina wodier*. Karanj; *Pongamia glabra*. Itá; *Sapindus detergens*.

Fruits, Vegetables, etc.—Haldi (turmeric); *Curcuma longa*. Sáru; *Colocasia antiquorum*. Pání-sáru; *Colocasia Indica*. Adá (ginger); *Zingiber officinalis*. Pán (betel-leaf); *Chavica betle*. Báigun (brinjal); *Solanum melongena*. Lankámarich (chili); *Capsicum annum*. Golápjám (rose-apple); *Eugenia aquea*; *Syzigium jambolanum*. Bhunyár; *Cordia myxa*. Barkuli (jujube-tree); *Ziziphus jujuba*. Lanká-Am; *Anacardium occidentale*. Amba (mango); *Mangifera Indica*. Kádali (plantain); *Musa paradisiaca*. Nichu (litchi); *Nephelium lichi*. Kar-

mangá; *Averrhoa carambola*. Belambi; *Averrhoa bilimbi*. Kandmúl; sweet potato. Sajiná (horse-radish tree); *Moringa pterygosperma*. Karendá; *Carissa Carandas*. Ankakuli; *Carissa diffusa*. Pításág; *Mollugo spergula*. Pichu (peach); *Amygdalus Persica*. Mahul; *Bassia latifolia*. Mekhuya (custard-apple); *Anona squamosa*. Ata; *Anona reticulata*. Múlá (radish); *Raphanus sativus*. Parbatkúriyá (Roselle, or red sorrel); *Hibiscus sabdariffa*. Bhendi (esculent okro); *Abelmoschus esculentus*. Tentuli (tamarind); *Tamarindus Indica*. Múg (green gram); *Phaseolus Mungo*. Birhi; *Phaseolus Roxburghii*. Koloth (horse gram); *Dolichus biflora*. Lobhiya-chhai; *Dolichus Simensis*. Khoriyá; *Lablab vulgaris*. Páthásim; *Lablab cultratus*. But (chick-pea, or Bengal gram); *Cicer arietinum*. Harar; *Cajanus Indicus*. Maká or Butá (Indian corn); *Zea mays*. Kagiinebu (acid lime); *Citrus Bergamia*. Kamlanebu (sweet orange); *Citrus aurantium*. Bátábinebu (Shaddock); *Citrus decumana*. Turanja (lemon); *Citrus limonum*. Notiyá; *Amarantus campestris*. Khará; *Amarantus frumentaceus*. Puruni-ság; *Portulacca oleracea*. Methi (fenugreek); *Trigonella foenum-græcum*. Nariyal (cocoa-nut); *Cocos nucifera*. Tál (Palmyra palm); *Borassus flabelliformis*. Khejuri (Indian date); *Phoenix sylvestris*. Guya (Betel-nut palm); *Areca catechu*. Narkuli (country gooseberry); *Cicca disticha*. Anyalá; *Emblica officinalis*. Amra (hog-plum); *Spondias mangifera*. Chhachhindará (snake-gourd); *Trichosanthes anguina*. Karena; *Momordica charantia*. Janhi; *Luffa acutangula*. Ksharbuj (melon); *Cucumis melo*. Phuti; *Cucumis Momordica*. Kakurí (cucumber); *Cucumis sativus*. Tarbuj (water-melon); *Cucurbita citrullus*. Baitákakháru (red-gourd); *Cucurbita maxima*. Páni-kakharu; *Cucurbita pepo*. Láu (bottle-gourd); *Lagenaria vulgaris*. Khamb-Alu (yam); *Dioscorea alata*. Amrita-bhanda (Papaw); *Carica papaya*. Sanpuri (pine-apple); *Ananassa sativa*. Agasthi; *Agati grandiflora*. Piyáj (onion); *Allium ascalonicum*. Rasun (garlic); *Allium sativum*. Pui (Malabar nightshade); *Basella alba*. Kaith (wood-apple); *Feronia Elephantum*. Bel; *Ægle Marmelos*. Bhursungá (curry-leaf tree); *Bergera Koenigii*. Rang-cháuliyá (red guava); *Psidium pomiferum*. Dhaba-cháuliyá (white guava); *Psidium pyriferum*. Pál (arrowroot); *Curcuma augustifolia*. Jámkuli (blackberry); *Eugenia jambolana*. Saptá (sapidilla); *Achras sapota*. Sakarkand (Tapioca); *Janipha Manihot*. Rási (rae-seed); *Sesamum Indicum*. Rái-sarishá (white mustard-seed); *Sinapis alba*. Sarishá (black mustard-seed); *Sinapis nigra*.

Drugs.—*Ghikumári* (Indian Aloe); *Aloe Indica*. Dhablá-Dhaturá (white-flowered thorn-apple); *Datura alba*. Kalá Dhaturá (yellow-flowered thorn-apple); *Datura fastuosa*. Bheji-begun; *Solanum*

jacquini. Akránti; Solanum diffusum. Nabhi-ánkuri; Solanum trilobatum. Phutphutiya; Cardiospermum halicacabum. Kuchilá (strychnia-tree); Strychnos nux vomica. Katak; Strychnos potatorum. Arksha; Calotropis gigantea. Mendi; Tylophora asthmatica. Uttururi; Daemia extensa. Chimrinaimul (country sarsaparilla); Hemidesmus Indicus. Khaeyá (catechu-tree); Acacia catechu. Bába (Babool-tree); Acacia Arabica. Ursmáru (yellow thistle, or Mexican poppy); Argemone Mexicana. Podiná (Mint); Mentha sativa. Gais; Phlomis Zeylanica. Dhalá 'tulasi (sweet basil); Ocimum basilicum. Kalá-tulasi (holy basil); Ocimum sanctum. Rukuni-HátPOCHÁ; Plectranthus aromaticus. Beguniyá (five-leaved chaste-tree); Vitex negundo. Hálim; Lepidium sativum. Palás (bastard teak); Butea frondosa. Gokshurá; Pedalium Murex. Chitá; Plumbago Zeylanica. Kainch (wild liquorice); Abrus precatorius. Káládáná; Pharbitis nil. Isvarjatá; Aristolochia Indica. Pitakáruya; Wrightia antidysenterica. Gab (Castor-oil plant); Ricinus communis. Ganjái (gunja, or common hemp plant); Cannabis sativa. Tundaporá; Toddalea aculeata. Bach (sweet flag); Acorus calamus. Sunári; Cassia fistula. Pánmauri; Anethum panmori. Barjuyán (Bishop's weed-seed); Ptychotis ajowan. Maruyá (rue); Ruta graveolens. Gugul; Boswellia thurifera. Dálim (pomegranate); Punica granatum. Gilá (Bonduc nut); Guilandina bonduc. Nim (Neem-tree); Azadirachta Indica. Bádám (almond-tree); Terminalia catappa. Báhárá; Terminalia belerica. Harijá; Terminalia chebula. Guluchi; Cocculus cordifolius. Báigab; Jatropha curcas. Hárbhángá; Vitis quadrangularis.

Miscellaneous.—Bet (rattan cane); Calamus rotang. Bhuin Bet; Calamus reticulatus. Sárengá Báns (Bamboo); Bambusa arundinacea. Belengi Báns; Bambusa tulda. Dhán (paddy); Oryza sativa. Durbbághás (hay grass); Cynodon dactylon. Akshu or Akhu (Sugarcane); Saccharum officinarum. Ankshuyá; Saccharum spontaneum. Bená (sweet-scented grass); Andropogon muricatum. Samu (a famine grain); Panicum frumentaceum. Agarjathá; Panicum Coromandelianum. Kákuriyá ghás; Eleusine Egyptiaca. Mándiyá; Eleusine Coracana. Barjhánjhe; Pistia stratiotes. Páni-sioli (tank-weed for cleansing water); Menyanthes cristata. Muyámuyá; Sagittaria sagittifolia. Rakta pitta; Ventilago Madraspatana. Chákandá; Cassia tora. Pisiná; Maba buxifolia. Dumdumá; Monetia tetra-cantha. Kánti; Cæsalpinia sepiaria. Gokshra; Tribulus lanuginosus. Háti-ánkusá; Pisonia aculeata. Dokáná-siju; Euphorbia antiquorum. Patra-siju; Euphorbia Morila. Ksharisiju; Euphorbia tirucalli. Káinchi-Kakuri; Coccinia Indica. Sáhárá; Epicarpurus Orientalis. Bainch; Flacourtia sepiaria. Cháldbriyá; Antidesma pubescens.

APPENDIX VII.

A CHRONICLE OF THE KINGS OF ORISSA, FROM 3101 B.C. TO 1871 A.D.

BASED ON THE PALM-LEAF RECORDS OF JAGANNATH (see p. 199 of my ORISSA, vol. i.), as digested in the Purúshottama Chandriká by Bábu Bhabánícharan Bandopádhyáya, collated with Mr. Stirling's Essay in the Asiatic Researches, vol. xv. (Ed. 1825), and his posthumous Paper in the Bengal Asiatic Society's Journal, vol. vi. part ii. 1837.

B.C.

- 3101-3089. YUDHISHTHIR, a monarch of the Mahábhárata, of the Lunar Race of Delhi. Reigned 12 years. [According to Stirling (Asiatic Researches, vol. xv.), 3095-3083 B.C.]
- 3089-2358. PARIKSHIT, a monarch of the Mahábhárata, of the Lunar Race of Delhi. Reigned 731 years. [According to Stirling, 3083-2326 B.C.]
- 2358-1807. JANMEJAYA, a monarch of the Mahábhárata, and the patron of that work; sprung from the Lunar Race of Delhi. Reigned 551 years. [According to Stirling, 2326-1810 B.C.]
- 1807-1407. SANKAR DEVA. Reigned 400 years. [According to Stirling, 1810-1400 B.C.]
- 1407-1037. GAUTAM DEVA. Extended the Kingdom of Orissa to the Godávarí River. Reigned 370 years. [According to Stirling, 1400-1027 B.C.]
- 1037-822. MAHENDRA DEVA. Founded the town of Rájmahendri as his capital. Reigned 215 years. [According to Stirling, 1027-812 B.C.]
- 822-688. ISHTA DEVA. Reigned 134 years. [According to Stirling, 812-678 B.C.]
- 688-538. SEVAK DEVA. Reigned 150 years. [According to Stirling, 678-528 B.C.]

- B.C.
- 538-421. **BAJRA DEVA.** In this reign Orissa was invaded by Yavanas from Márwár, from Delhi, and from Babul Des—the last supposed to be Iran (Persia) and Cabul. According to the Palm-Leaf Chronicle, the invaders were repulsed. Reigned 117 years. [According to Stirling, 528-421 B.C.]
- 421-306. **NARSINH DEVA.** Reigned 115 years. Another chief from the far north invaded the country during this reign, but he was defeated, and the Orissa prince reduced a great part of the Delhi kingdom. The monarch excavated the tank at Dántan near Jaleswar, which exists at this day. [According to Stirling, this prince was called Sarasankha, and reigned 421-306 B.C.]
- 306-184. **MANKRISHNA DEVA.** Reigned 122 years. Yavanas from Kashmír invaded the country, but were driven back after many battles. [According to Stirling, this king was called Hansa, and reigned 306-184 B.C.]
- 184-57. **BHOJ DEVA.** A great prince, who drove back a Yavana invasion, and is said to have subdued all India. Reigned 127 years. [Stirling's date here coincides with that of the Palm-Leaf Record; and when this is the case, I do not give his figures.]
- A.D.
- 57 B.C. to 78 A.D. Two reigns, that of **VIKRAMADITYA** and his brother **SAKADITYA.** Neither the Purúshottama Chandriká nor Stirling gives separate dates for these reigns, but the two extended over 135 years. Vikramáditya made himself master of all India, but was slain by a rebel conqueror from Southern India, named Sáliváhan, identified as his brother Sakáditya, who succeeded him. The current or Sakábda era dates from the end of this reign, 77-78 A.D. During the above fourteen reigns, 3179 (or, according to Stirling, 3173) years of the Kali Yug elapsed.
- A.D.
- 78-143. **KARMARJIT DEVA**; reigned 65 years.
- 143-194. **HATKESWAR DEVA**; reigned 51 years.
- 194-237. **BIR BHUVAN DEVA**; reigned 43 years. [According to Stirling, the name of this prince was Tribhuvan.]
- 237-282. **NIRMAL DEVA**; reigned 45 years.
- 282-319. **BHIM DEVA**; reigned 37 years.
- 319-323. **SOBHAN DEVA.** During this reign of 4 years, the maritime invasion and conquest of Orissa by the Yavanas under Red-Arm (Rakta Báhu) took place. The king fled with

A.D.

the sacred image of Jagannáth, and with those of his brother and sister, Balbhadrá and Subhadrá, and buried them in a cave at Sonpur. The story of Rakta Báhu's waging war with the ocean, which overwhelmed his forces and formed the Chilká Lake, will be found in chapter ii. of my ORISSA. The lawful prince perished in the jungle, and the Yavanas ruled in his stead. [According to Stirling, the reign commenced 318 A.D.]

323-328. CHANDRA DEVA, who, however, was only a nominal king, as the Yavanas were completely masters of the country. They put him to death in A.D. 328. [Stirling calls this prince Indra Deva.]

328-474. Yavana occupation of Orissa, 146 years. [According to Stirling, these Yavanas were Buddhists.] See my ORISSA, chap. v.

474-526. YAYATI KESARI, who expelled the Yavanas and founded the Kesari or Lion Dynasty. Reigned 52 years. This prince brought back the image of Jagannáth to Puri, and commenced the Temple City to Siva at Bhuvaneswar. His capital was at Jájpur. [According to Stirling, he reigned from 473 to 520 A.D.]

526-583. SÚRJYA KESARI; reigned 57 years.

583-623. ANANTA KESARI; reigned 40 years. [According to Stirling, this and the previous reign extended from 520 to 617 A.D.]

623-677. ALABU KESARI, who completed the Temple of Bhuvaneswar, reigned 54 years. [According to Stirling, he was called Lalát Indra Kesari, and began to reign 617 A.D.]

With the exception of five kings, Stirling does not give the names of the other monarchs of the Kesari Dynasty from Lalát Indra Kesari to the extinction of the line. He merely says that 32 uninteresting reigns followed, extending over a period of 455 years. The Palm-Leaf Records, however, give the names of 40 princes. Only three of the five kings referred to by Stirling can be identified in the list.

677-693. KANAK KESARI; reigned 16 years.

693-701. BIR KESARI; reigned 8 years.

701-706. PADMA KESARI; reigned 5 years.

706-715. BRIDDHA KESARI; reigned 9 years.

715-726. BATA KESARI; reigned 11 years.

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- 726-738. GAJA KESARI ; reigned 12 years.
- 738-740. BASANTA KESARI ; reigned 2 years.
- 740-754. GANDHARVA KESARI ; reigned 14 years.
- 754-763. JANMEJAYA KESARI ; reigned 9 years.
- 763-778. BHARAT KESARI ; reigned 15 years.
- 778-792. KALI KESARI ; reigned 14 years.
- 792-811. KAMAL KESARI ; reigned 19 years.
- 811-829. KUNDAL KESARI ; reigned 18 years ; built the Temple of Márkandeswar in Purí.
- 829-846. CHANDRA KESARI ; reigned 17 years.
- 846-865. BIR CHANDRA KESARI ; reigned 19 years.
- 865-875. AMRITA KESARI ; reigned 10 years.
- 875-890. BIJAYA KESARI ; reigned 15 years.
- 890-904. CHANDRAPAL KESARI ; reigned 14 years.
- 904-920. MADHUSUDAN KESARI ; reigned 16 years.
- 920-930. DHARMA KESARI ; reigned 10 years.
- 930-941. JANA KESARI ; reigned 11 years.
- 941-953. NRIPA KESARI. A warlike and ambitious prince, who founded the city of Cattack. Reigned 12 years. [Stirling dates the foundation of Cattack by this prince in 989 A.D.]
- 953-961. MAKAR KESARI. Constructed a long and massive stone revetment to protect the city of Cattack from inundation. Reigned 8 years. [Stirling calls this prince Markat Kesari, and places the construction of this work in 1006 A.D.]
- 961-971. TRIPURA KESARI ; reigned 10 years.
- 971-989. MADHAV KESARI ; (according to Stirling) built the fortress of Sárangarh on the south bank of the Kátjurí River, opposite the city of Cattack ; reigned 18 years.
- 989-999. GOBINDA KESARI ; reigned 10 years.
- 999-1013. NRITYA KESARI ; reigned 14 years.
- 1013-1024. NARSINH KESARI ; reigned 11 years.
- 1024-1034. KURMA KESARI ; reigned 10 years.
- 1034-1050. MATSYA KESARI ; built the great bridge across the Atháranálá, at the entrance to Purí, existing to this day ; reigned 16 years.
- 1050-1065. BARAHA KESARI ; reigned 15 years.
- 1065-1078. BAMAN KESARI ; reigned 13 years.
- 1078-1080. PARASU KESARI ; reigned 2 years.
- 1080-1092. CHANDRA KESARI ; reigned 12 years.
- 1092-1099. SUJAN KESARI ; reigned 7 years.

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- 1099-1104. SALINI KESARI ; reigned 5 years. His queen built the Nát Mandir or Dancing Hall of the Temple of Bhuvan-
eswar.
- 1104-1107. PURANJAN KESARI ; reigned 3 years.
- 1107-1119. VISHNU KESARI ; reigned 12 years.
- 1119-1123. INDRA KESARI ; reigned 4 years.
- 1123-1132. SUVARNA KESARI ; reigned 9 years. The Kesari
Dynasty ended with this prince, who died childless, and
was succeeded by Chorgangá, a king from the south. See
my ORISSA, chap. v. Another Palm-Leaf Record con-
taining a list of the Kings of Orissa, and kept by a Bráhma-
n family of Purí, gives a different account of the extinction
of the line. It states that Búsudeva Báhanpati, a powerful
officer of the Orissa Court, having been driven from the
royal presence, went to the Carnatic, and instigated Chor-
gangá of that country to invade Orissa, which he did,
conquering Cattack, and establishing a new dynasty.
[According to Stirling, 36 princes of the Kesari line ruled
over Orissa 473-1131 A.D., of whom, however, he only
gives the names of nine. One of these, Barujyá Kesari, is
said to have quadrupled the land-tax, and another, Surajya
Kesari, to have reduced it to the old rate.]
- 1132-1152. CHORGANGA, the founder of the Gangávansa Dynasty ;
reigned 20 years. His memory is preserved by the name
of a quarter in Purí city, called the Churang Sáí, and also
by a tank in that town bearing the same name. [Stirling
places this reign 1131-1151 A.D.]
- 1152-1166. GANGESWAR.—His territories are said to have extended
from the Ganges to the Godávarí, and to have included five
royal cities, Jájpur, Chaudwár, Amrávatí, Chatná, and Birá-
nasí, or Cattack. As a penance for a crime, he excavated a
splendid tank called Kausalyá Gangá, between Pippli and
Khurdhá. [According to Stirling, he ascended the throne
1151 A.D.]
- 1166-1171. EKJATAKAM DEVA ; reigned 5 years.
- 1171-1175. MADAN MAHADEVA ; reigned 4 years.
- 1175-1202. ANANG BHIM DEO, one of the greatest of the Orissa
kings. He made a survey of his whole kingdom, measur-
ing it with reeds ; and built the present Temple of Jagan-
náth. Reigned 27 years. [According to Stirling, he
ascended the throne in 1174 A.D.]

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- 1202-1237. RAJRAJESWAR DEVA; reigned 35 years. [Stirling places his death in 1236 A.D.]
- 1237-1282. LANGULIYA NARSINH; reigned 45 years; built the great Sun Temple at Kanárák on the Sea (the Black Pagoda).
- 1282-1307. KESARI NARSINH; reigned 25 years. This prince filled up the bed of the river Balágandi, which ran between the temple and the country house of Jagannáth, and which obstructed the cars that carried the idols at the great festival. Previously a double set of cars had been required for the conveyance of the images. [According to Stirling, this prince was called Kabir Narsinh, and erected the bridge across the Atháranálá at the entrance to Purl; the bridge which the Temple Records ascribe to Matsya Kesari, who reigned 1034-1050.]
- 1307-1327. PRATAB NARSINH; reigned 20 years.
- 1327-1329. GATIKANTA NARSINH; reigned 2 years.
- 1329-1330. KAPIL NARSINH; reigned 1 year.
- 1330-1337. SANKHA BHASUR; reigned 7 years.
- 1337-1361. SANKHA BASUDEVA; reigned 24 years.
- 1361-1382. BALI BASUDEVA; reigned 22 years.
- 1382-1401. BIR BASUDEVA; reigned 19 years.
- 1401-1414. KALI BASUDEVA; reigned 13 years.
- 1414-1429. NENGATANTA BASUDEVA; reigned 15 years.
- 1429-1452. NETRA BASUDEVA; reigned 23 years.
- 1452-1479. KAPILENDRA DEVA, originally a common herd-boy, tending the flocks of his Bráhmaṇ master, but afterwards raised to the throne. Reigned 27 years.
- 1479-1504. PURUSHOTTAMA DEVA.—The King of Conjevaram refused to marry his daughter to this prince, on the ground of the Orissa Dynasty holding the office of Sweeper to Jagannáth. Purúshottama accordingly invaded the southern country, defeated the Conjevaram king, and carried off his daughter, whom he swore should be married to a sweeper, in revenge for her father's refusal. The minister to whom he entrusted the execution of his order, brought forth the princess at the next great festival of Jagannáth, as the king himself was publicly performing his lowly office before the god, and presented her in marriage to his master.
- 1504-1532. PRATAB RUDRA DEVA; reigned 28 years. A learned man, deeply versed in the Sástras. His reign was disturbed by theological discussions as to the merits of the

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- Buddhistic and Bráhmanical religions. Stories are told of how sometimes one, sometimes the other, of these religions obtained supremacy over the mind of the prince, and how the followers of each were persecuted by turns. The great Vishnuvite reformer Chaitanya visited Purí during this reign, and finally converted the king to the Vaidik faith. The Temple of Baráha at Jájpur was constructed by this king ; and the Annalists state that he extended his conquests as far as Cape Comorin, capturing the city of Vizianagaram *en route*. The Afgháns, however, made incursions into Orissa and plundered Purí, the idols being removed and secreted beforehand. [According to Stirling, he reigned 1503-1524 A.D.]
- 1532-1533. KALUYA DEVA, son of the last-mentioned king. Reigned 1 year, when he was murdered by Gobind Bidyádhár, the Prime Minister. [According to Stirling, 1524-1529.]
- 1533-1534. KATHARUYA DEVA, THE LAST OF THE GANGAVANSA LINE, brother of the previous king, like him assassinated by Gobind Bidyádhár, who now ascended the throne, after murdering all of the royal blood.
- 1534-1541. GOBIND BIDYADHAR ; reigned 7 years. Disputes with the Muhammadans as to the possession of Rájmahendri. [According to Stirling, he began to reign 1533 A.D.]
- 1541-1549. CHAKRA PRATAB ; reigned 8 years.
- 1549-1550. NARSINH JANA ; reigned 1 year.
- 1550-1551. RAGHU RAM CHHOTRA ; reigned 1 year.
- 1551-1559. MUKUND DEVA, or Telingá Mukund Deva ; reigned 8 years. The last of the independent kings of Orissa, and a man of great courage and ability. He constructed a large landing-place (ghát) on the Huglí at Tribení, near the town of Huglí. During his reign, Kálápahár, the general of the Muhammadan King of Bengal, invaded the province with a large force. The Orissa king was defeated and slain in a battle outside the walls of the capital, Jájpur, and the monarchy overthrown, A.D. 1559. [According to Stirling, 1555 A.D.] Kálá Pahár plundered the holy city of Purí. The Muhammadan writers place the conquest of Orissa in 1567-68, and after a careful comparison of authorities, I have adopted this last date. See chap. vi. of my ORISSA.
- 1559-1578, or 1568-1578. An anarchy of 19 years, after which Rám Chandra Deva, the son of the Prime Minister of the previous reign, was elected to the throne. During the anarchy the Afghán

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governor of Orissa, Dáúd Khán, invaded Bengal, but was defeated by the Mughuls under Munim Khán, and the province was annexed to the Mughul Empire. [According to Stirling, the anarchy lasted 1558-1579 A.D.]

- 1578-1607. RAM CHANDRA DEVA, the first prince of the present family of Khurdha ; reigned 29 years. Rájá Todar Mall, Akbár's general, and afterwards Prime Minister, was deputed to restore order in Orissa. He confirmed the native prince on the throne, but towards the end of this reign the province was disturbed by a rival claimant, who appealed to the Emperor Akbár. Rájá Mán Sinh, another Hindu general of the Mughul Empire, was sent to adjust the quarrel, which he managed amicably by bestowing on the claimant the Fort of Al and its dependencies. [According to Stirling, the reign lasted 1580-1609 A.D.]
- 1607-1628. PURUSHOTTAMA DEVA ; reigned 21 years ; was slain in battle. From this period the Orissa kings were merely Rájás of Khurdhá. See my ORISSA, chap. vi.
- 1628-1653. NARSINH DEVA ; reigned 25 years. Invasion of Orissa by a Muhammadan general from the south, named Sháhábáz. The king finding himself unable to resist the invaders, was compelled to purchase peace by the payment of a large sum of money. This prince brought the images of the sun and moon from the Temple of Kanárák to Purl. [According to Stirling, he reigned 1630-1655 A.D.]
- 1653-1654. GANGADHAR DEVA ; reigned 1 year. [According to Stirling, 1655-1656 A.D.]
- 1654-1662. BALABHADRA DEVA ; reigned 8 years. [According to Stirling, 1656-1664 A.D.]
- 1662-1690. MUKUND DEVA ; reigned 28 years. [According to Stirling, 1664-1692 A.D.]
- 1690-1713. DRABYA SINH DEVA ; reigned 23 years. [According to Stirling, 1692-1715 A.D.]
- 1713-1718. KRISHNA DEVA ; reigned 5 years. [According to Stirling, 1715-1720 A.D.]
- 1718-1725. GOPINATH DEVA ; reigned 7 years. [According to Stirling, 1720-1727 A.D.]
- 1725-1736. RAM CHANDRA DEVA ; reigned 11 years. [According to Stirling, 1727-1743 A.D.]
- 1736-1773. BIR KISOR DEVA ; reigned 37 years. Habsb Khán, a Muhammadan officer of the Marhattá army, invaded and

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- wrested the province from this king, but afterwards restored it. In 1753 the Marhattás finally took possession of the province. [Stirling places this reign 1743-1786 A.D.]
- 1773-1791. DRABYA SINH DEVA ; reigned 18 years. [According to Stirling, 1786-1798 A.D.]
- 1791-1810. MUKUND DEVA ; ruled 19 years. Occupation of Orissa by the British and expulsion of the Marhattás in 1803. In the following year this prince headed a rising of the Khurdhá people, but was defeated and taken prisoner. After being kept in confinement for some time in Cattack and Midnapur, he was allowed to retire to Purí.
- 1810-1857. RAM CHANDRA DEVA ; ruled 47 years.
- 1857-1871. DIBYA SINH DEVA, the present Rájá of Khurdhá. He is the fifteenth of the line of princes who succeeded in 1575 to the Orissa kingdom, as a fief of the Mughul Empire, after the anarchy which followed the extinction of the Gangavansa dynasty. The above Chronicle, taken from Hindu sources, does not truly represent the facts of Orissa history after the Musalman conquest in 1568. See my ORISSA, chap. vi.

W. W. H.

APPENDIX VIII.

THE MUHAMMADAN HISTORY OF ORISSA, FROM 1510 TO 1751, AS TOLD BY THE PERSIAN ANNALISTS.

THE following Abstract has been compiled from the Akbar-námah, *Aín-i-Akbarí*, *Makhzan-i-Afghání*, *Badáoní*, and *Tuzuk-i-Jahángírí*. For the early connection of the Muhammadans with Orissa between the thirteenth and sixteenth centuries, see chapter vii. of my Work on that Province. I am indebted to Professor Blochmann's mss. for the materials from which the following events are taken :—

A.D. 1510 (?)—Muhammadan invasion of Orissa by Ismá'íl Ghází, General of Husain Sháh, King of Bengal.

A.D. 1520 (?)—Battle near Kandapalli (Condapilly), and conquest of Telingána by Sultán Kulí Kutb Sháh, the monarch of the Southern Muhammadan Kingdom.

A.D. 1567–68 (A.H. 975).—Afghán conquest of Orissa by Sulaimán Kararání, King of Bengal and Behar. The last independent native king of the Province, Rájá Mukund Deo, was slain in the battle fought outside the walls of his capital, Jájpur. Siege and capture of the city and temple of Purí by Kálá Pahár.

A.D. 1571 (A.H. 979).—Conquest of Rájmahendri by Malik Náib, general of Ibráhím Kutb Sháh, King of Golconda. (A.D. 1550 to 1581.)

A.D. 1572 (A.H. 980).—Death of Sulaimán, who is succeeded by his son Báyazíd as King of Bengal, Behar, and Orissa. Báyazíd murdered by Hánsú, his brother-in-law. Dáúd Khán, second son of Sulaimán, succeeds. Khán Jahán Afghán, appointed Governor of Orissa, and Kutlu Khán Lohání, Governor of Purí.

A.D. 1574 (A.H. 982).—Behar conquered by the Emperor Akbar, and flight of the rebel King of Bengal, Dáúd Khán, to Orissa. First

invasion of Orissa by the Mughuls under Munim Khán and Akbar's Hindu general, Rájá Todar Mall.

A.D. 1574, 25th March (A.H. 20th Zikad'a 982).—Great battle of Tukaroi or Mughulmárf, near Jaleswar, between the Mughuls under Munim and Rájá Todar Mall, and the Afgháns under Dáúd, in which the latter were completely defeated. After the battle, Munim advanced upon Cattack, where a peace was concluded, Dáúd ceding Bengal and Behar to the Mughuls, in return for which he was acknowledged as King of Orissa by the Emperor Akbar.

A.D. 1575 (A.H. 983).—Afghán invasion and occupation of Bengal by Dáúd Khán, from Orissa, on the death of Munim Khán, Akbar's Governor of Bengal and Behar. Husain Kulí Khán Jahán appointed Governor of Bengal and Behar by the Emperor, in succession to Munim Khán.

A.D. 1576, 12th July (A.H. 15th Rab'ul-Sánf 984).—Battle of Agmahall (Rájmahal), in which the Afghán insurgents were completely defeated, and their leader, Dáúd Khán, slain by the Imperial troops under Husain Kulí Khán Jahán, the new Governor of Bengal.

A.D. 1576 (A.H. 984).—The Afgháns again defeated near Húglí, and retreat into Orissa. Nominal annexation of the Province to the Delhi Empire.

A.D. 1578 (A.H. 986).—Death of Husain Kulí Khán Jahán, Governor of Bengal; succeeded by Muzaffar Khán.

A.D. 1579 (A.H. 987).—Masúm Khán Kábulf, appointed Governor of Orissa by Akbar.

A.D. 1580 (A.H. 988).—Rebellion in Orissa and Bengal, under the leadership of Masúm Khán, the newly-appointed Governor of Orissa. Muzaffar Khán, Governor of Bengal, killed by the rebels. Orissa cleared of Mughul Imperialists. The rebels, assisted by the Afgháns of Orissa and Ghorághát, occupy Behar. Usurpation of the throne of Orissa by Kutlú Khán, a Lohánf Afghán. Battle of Salmábád, south of Bardwán, in which Kutlú Khán defeats Mírzá Naját, Akbar's Governor of Sátgáon, and extended his power as far as the Dámodar. Mírzá 'Azíz Kokah Khán i A'zam appointed Governor of Behar, Bengal, and Orissa, by the Emperor Akbar.

A.D. 1581 (A.H. 989).—Kutlú defeats and kills Kiyá Khán Gang, in Orissa.

A.D. 1582 (A.H. 990).—Behar and Western Bengal recaptured by Mírzá 'Azíz, Akbar's Governor. His officers are unsuccessful in their operations against Kutlú Khán of Orissa.

A.D. 1583 (A.H. 991).—Battle on the Dámodar river, south of Bardwán, near Mughulmárf, in which Kutlú Khán was defeated by

Sádik Khán and Sháh Kulí Mahram. Death of Kálá Pahár, the conqueror of Purí.

A.D. 1584 (A.H. 992).—Peace concluded between Akbar's officers and Kutlú Khán, the latter being allowed to retain Orissa. Akbar disapproves of the treaty made by his generals with Kutlú.

A.D. 1590 (A.H. 998).—Rájá Mán Sinh appointed Governor of Bengal and Behar. He invades Orissa, staying at Madáran, south-west of Bardwán, during the rains. Kutlú Khán defeats the Imperial troops, captures Jagat Sinh, son of Rájá Mán Sinh, at the battle of Dharpur, and occupies Bishenpur. Death of Kutlú Khán. His minister 'Isa concludes a peace with Rájá Mán Sinh, and releases Jagat Sinh. Purí ceded to Akbar. (A.H. 998 to 1000.) 'Isá's administration of Orissa.

A.D. 1592 (A.H. 1000).—'Isá dies. The two sons of Kutlú Khán, Khwájah Sulaimán and Khwájah 'Usmán, seize Purí, and break the treaty. Rájá Mán Sinh invades Orissa a second time. Great battle at Banápur, in which the Afghán Orissa rebels were completely defeated by Mán Sinh. Capture of Jaleswar, Cattack, and Fort Al by the Imperial troops. The Afgháns make a last but ineffectual stand at Fort Sárangarh, then submit, the two sons of Kutlú Khán becoming vassals of the Delhi Empire. Orissa finally annexed to Akbar's Empire. Rájá Mán Sinh appointed Governor of Behar, Bengal, and Orissa. Rájá Rám Chandra Deo, the native king of Orissa, and three of his family, made grandees of the Delhi Court.

A.D. 1598 (A.H. 1007).—Jagat Sinh officiating Governor during the temporary absence of his father Rájá Mán Sinh. Revolt of the Orissa Afgháns under 'Usmán. Defeat of the Imperial troops under Mahá Sinh, a younger son of Rájá Mán Sinh, by the Afgháns under 'Usmán, near Bhadrak. Occupation of Orissa and south-western portion of Bengal by the Afghán rebels.

A.D. 1599 (A.H. 1008).—Return of Rájá Mán Sinh; he defeats 'Usmán near Sherpur 'Atál, north of Bardwán, and pursues him to Mohespur, near Bishenpur. Southern Orissa retained by the Afgháns.

A.D. 1605 (A.H. 1014).—Death of Akbar, and accession of Jahángír. Mán Sinh reappointed as Governor of Bengal and Orissa.

A.D. 1606 (A.H. 1015).—Mán Sinh recalled, and Kutb-ud-dín, Jahángír's foster brother, appointed Governor of Bengal and Orissa.

A.D. 1607 (A.H. 1016).—Kutb-ud-dín, killed at Bardwán by Sher Khán, husband of Núr Jahán. Jahángír Kulí Khán, Governor of Behar, appointed to act as Governor of Bengal and Orissa.

A.D. 1607 (A.H. 1016).—Orissa created a separate Governorship; Háshim Khán appointed Governor.

A.D. 1611 (A.H. 1020).—Rájá Kalyán Mall appointed Governor of Orissa, vice Háshim Khán, transferred to Kashmír. The Afgháns under Usmán make a last effort to regain their independence, but are defeated, and their leader killed by Shujáat Khán near the Subanrekhá river. All Orissa, with the exception of Khurdhá and Rájmahendri, finally annexed to Delhi. Mukarram Khán appointed Governor of Orissa.

A.D. 1618 (A.H. 1027).—Mukarram Khán defeats the Rájá of Khurdhá, and annexes his territory to the Delhi Empire. Rájmahendri is acknowledged to be independent.

This defeat ended the struggle between the Afgháns and the Mughuls, and Orissa remained simply a province of the Mughul Empire until 1751, when the Marhattás obtained it. The remnants of the Afgháns still used it as a basis for marauding expeditions; one of which, in 1695-98, attained the dignity of a revolt, and temporarily wrested Bengal and Orissa from the Empire.

In the following pages I have generally adopted Mr. Stirling's and Major Stewart's accounts:—

A.D. 1621 (A.H. 1031).—Prince Sháh Jahán rebels against his father, Emperor Jahángír, and takes possession of Orissa before its Deputy-Governor, Ahmad Bey, could prepare for resistance. He recruits his army by enlisting the Afghán chiefs with their followers into his service, and takes possession of Bardwán.

A.D. 1634 (A.H. 1043).—Sháh Jahán, now Emperor of Delhi, gives a *firman* to the English, allowing them to trade with their ships in Bengal; but Azim Khán, then Governor of Bengal, Behar, and Orissa, restricted their vessels from entering any other port than Pippli, near Balasor, and the English established their first factory in Bengal at that place.

A.D. 1636 (A.H. 1046).—Surgeon Gabriel Boughton cures a daughter of the Emperor who had been dreadfully burnt. As a reward to Mr. Boughton, his nation is allowed to trade in Bengal and Orissa free of all duties.

A.D. 1640 (A.H. 1050).—Sultán Shujá, Governor of Bengal, Behar, and Orissa, licensed the English to build factories at Balasor and Hugli, in addition to that at Pippli, in reward for the success of Surgeon Boughton in curing a sick lady of the Governor's seraglio.

A.D. 1685-1688 (A.H. 1097-1100).—East India Company makes war with the Mughuls. The Balasor Governor threatens our factory, and imprisons two of our English servants. Captain Heath accordingly attacks and plunders the town. (29th November 1688.)

A.D. 1695 (A.H. 1107).—Revolt of Subhá Sinh in Bengal. He is joined by the Orissa Afgháns under Rahim Khán. Bengal and Orissa fall into the hands of the rebels, but are afterwards reconquered by the Imperial troops.

A.D. 1706 (A.H. 1118).—Murshid Kulí Khán, Governor of Bengal, Behar, and Orissa, appoints his son-in-law, Shujá-ud-dín Muhammad Khán, Deputy-Governor of Orissa, with two Bráhmans, Bhupati Ráy and Kisor Ráy, as his secretaries. The District of Midnapur, which heretofore formed a part of Orissa, was at this time annexed to Bengal.

A.D. 1725 (A.H. 1139).—Death of Murshid Kulí Khán Shujá-ud-dín, Governor of Bengal, Behar, and Orissa. He appoints Muhammad Taki, his illegitimate son, as his Deputy in Orissa. On the north, the remainder of the old Jaleswar Division (Sarkár) lying between Tamluk, Midnapur, and the river Subanrekhá, was, with the exception of a few small Fiscal Divisions, annexed to Bengal. On the south, the Nizám's Government took possession of the estate of Tikáli Raghunáthpur and the Chilká Lake, belonging to the Rájá of Khurdhá (Rájá Rám Chandra Deo), who rebelled, but, after a long struggle, he was captured and taken as a prisoner to Cattack. The priests of Jagannáth fled with the sacred image across the Chilká Lake, on account of the oppressions of the Deputy. Twenty-two police stations were established in the jurisdiction of the Khurdhá estate, in order to keep in check the turbulent spirit of the people.

A.D. 1734 (A.H. 1147).—Death of Muhammad Taki Khán. Murshid Kulí Khán, son-in-law of Shujá-ud-dín, appointed Deputy-Governor of Orissa. He induced the priests to bring back the idol of Jagannáth to the temple, as the absence of it seriously affected the public revenues. Important financial reforms in the Province, inaugurated by Mír Habib, who assisted the Deputy as his Diwán. Excessive cheapness of food; rice selling at 320 lbs. for a shilling in Bengal.

A.D. 1739 (A.H. 1151).—Shujá-ud-dín dies. Sarfaráz Khán becomes Governor of Bengal, Behar, and Orissa.

A.D. 1740 (A.H. 1153).—Alí Vardí Khán defeats Sarfaráz Khán, who is slain in the battle, and usurps the throne. He requests Murshid Kulí Khán to retire from Orissa. The latter refuses. Alí Vardí Khán marches towards Orissa with 12,000 men. Murshid Kulí Khán is defeated on the north of Balasor, and embarks on board a ship for Masulipatam. Alí Vardí Khán marches to Cattack, and gives the Government of the Province to his nephew, Sayyíd Ahmad. The new Deputy becomes very unpopular. The people rise, and imprison him in his own house. One Bakhir Khán now assumed the Government of Orissa. Alí Vardí Khán defeats Bakhir Khán on the banks of the

Mahánadí, and rescues his nephew. He appoints Muhammad Másúm Khán to the Deputy-Governorship of Orissa.

A.D. 1741-2 (A.H. 1154-5).—Alí Vardí Khán returns to Bengal, and encamps at Midnapur, when he hears that the Marhattás have invaded the country by way of Orissa. He marches towards Bardwán and fights several small engagements with the Marhattás. Eventually Bháskar Pandit, the Marhattá general, demands a million sterling and all the elephants (Bengal Governor's) as the price of his quitting the country; but is refused. The Marhattás devastate Bengal and seize Orissá, killing the Governor, but are finally defeated and driven out. Abdul Rasúl Khán is appointed Governor of Orissa.

A.D. 1745 (A.H. 1157).—Raghuji Bhonslá, the Marhattá, invades Bengal, reduces Orissa, and on his return to his own kingdom at Nágpur, leaves Mír Habib to defend the newly-acquired Province.

A.D. 1747 (A.H. 1160).—Mír Jáfár appointed by the Bengal Governor to expel the Marhattás and Afgháns from Cattack, but fails. Ataullá Khán supersedes Mír Jáfár, and defeats the Marhattás near Bardwán. Alí Vardí, the Bengal Governor, now takes the command himself, and defeats the Marhattás in several engagements. The Afgháns in Behar revolt, and the Marhattás join them, but are defeated.

A.D. 1750 (A.H. 1162).—Jánojí, the son of Raghuji the Marhattá, returns to his own country (Nágpur), leaving a body of Marhattás under Mír Habib for the defence of Cattack.

A.D. 1751 (A.H. 1164).—Alí Vardí Khán, the Bengal Governor, marched towards Cattack to expel the Marhattás from Orissa, but cannot bring them to a decisive engagement. He practically cedes to them the Province of Orissa, and engages to pay twelve lakhs of rupees a-year as the *Chauth* for Bengal. See my ORISSA, chap. vi.

APPENDIX IX.

THE LITERATURE OF ORISSA :

BEING AN ANALYTICAL CATALOGUE OF 107 URIYA WRITERS,
ALPHABETICALLY ARRANGED ; WITH A BRIEF DESCRIPTION
OF 47 MSS. OF UNDETERMINED AUTHORSHIP.

THE following pages are based upon manuscripts (vernacular and English), chiefly supplied by Mr. T. Ravenshaw, Commissioner of Orissa.

I. ABHIMANYU SAMANT SINHAR ; lived about 100 years ago. The most celebrated and popular of his works are, (1) Bidagdha Chintámani ; and (2) Príti Chintámani, the subject of both being the amours and adventures of the shepherd god Krishna and his mistress Rádhá.

II. ACHYUTANAND DAS ; lived about 100 years ago ; his works are Anant Goyl, or 'The Eternal Mystery,' a religious book containing an account of the penances and austerities which the ancient sages performed for the sake of their salvation ; (2) Achyutánand Málíká, a prophetic work ; and (3) Saptá Bhágvata, or a version of the Vaishnava Scriptures in Sanskrit, called the Bhágvata.

III. ARAT DAS ; period not known ; author of Jagannáth Janána, which consists of prayers to, and praises of, Jagannáth.

IV. BALBHADRA BHANJ ; period not known ; a Rájá of Gumsar, and supposed to be the ancestor of Upendra Bhanj, another prince of the same State, and the most eminent of the Orissa poets. His work is called Bhababatí, a romance relating the love adventures of a prince.

V. BALRAM DAS ; lived 300 years ago ; a Vaishnav of Purí, and author of numerous works, of which the twenty-three following are the chief : (1) Bedhá Paríkrama, or 'A Walk around the Sacred Enclosures of the Purí Temple,' a poetical work describing the various minor shrines and deities connected with the temple of Jagannáth ; (2) Arjuna Gíta, a religious poem ; (3) Bhaba Samudra, an ethical poem ;

(4) Bhágvata Gítá, a Vaishnava Scripture translated from the Sanskrit, constantly read and quoted by the Uriyás; (5) Bhakti Rasámrita Sindhu, or 'The Sea of the Nectar of Faith,' a work on devotional subjects; (6) Bhuta Keli, the sports of Krishna and Rádhá; (7) Biráta Gíta, an ethical poem; (8) Chandí Purán, an account of the destruction of the buffalo demon Mahíshásur by Chandí, a name of the Goddess Kálí; (9) Chhatisá Gíta, a religious poem; (10) Gaja Nistárana Gíta, a tale of the Mahábhárata, regarding the rescue of an elephant from the teeth of a tortoise; (11) Ganesa Beguti, a poem on religious subjects; (12) Garura Gíta, a rather famous work on metaphysical subjects; (13) Gíta Sára, an ethical work; (14) Gupta Gíta, a poem containing metaphysical and ethical discourses between Krishna and Arjuna, the third Pándava; (15) Krishna Lilá, or the sports of Krishna; (16) Mahábhárata, an Uriyá version of the Sanskrit Epic of the same name; (17) Mrugání Stuti, a tale of the deliverance of a roe from distress by Parasuráma, and her praises to her deliverer; (18) Námáratna Gíta, a religious poem; (19) Rámáyana, an Uriyá version of the Sanskrit Epic of the same name; (20) Rasabinoda, the sports of Rádhá and Krishna; (21) Rasakeli, the same; (22) Saríra Bhugola, metaphysical and theological discourses between Krishna and Arjuna; and (23) Tulá Bhiná, the same.

VI. BARDDHAMAN MAHAPATRA; lived six hundred years ago; a Bráhman of Purí, and a Sanskrit author of some note; his works are, (1) Barddhamán Káriká; and (2) Durgotsaba Chandriká, both in Sanskrit, the former on Smriti (Hindu Law), and the latter about the worship of the ten-handed goddess Durgá, another name and form of Kálí.

VII. BASUDEVA MISRA; period unknown; a Bráhman who wrote two Sanskrit grammatical works: (1) Básu Prakriyá; and (2) Sára Manjari.

VIII. BASUDEVA SARMA; period not known; a Bráhman who wrote a Sanskrit work on rhetoric, called the Sáhitya Darpana Tiká Prabhá Smriti.

IX. BASUDEVA TRIPATHI; period unknown; a Bráhman who compiled a Sanskrit book on Hindu rites and ceremonies, called the Práyaschitta Bilochana.

X. BASU RATH BAJAPAYI; period unknown; author of a Sanskrit work on Smriti (Hindu Law) which bears his own name.

XI. BHAGABAN KABIRAJ; lived 600 years ago; author of a noted work in Sanskrit, written in a dramatical style, called the Gundichá Champá, describing the Bathing and the Car Festivals of Jagannáth.

XII. BHAKTA CHARAN DAS KABI; lived 150 years ago; author of Mathurá Mangal, a famous work on the sports of Krishna and Rádhá, the ms. of which was lately published in Cattack.

XIII. BHIKARI PATNAIK; period unknown; wrote a small drama, Lankádáyana Nátiká, on the conquest of Lanká (Ceylon) by Ráma Chandra.

XIV. BHIMA DAS; lived 200 years ago; a Vaishnav of Purí who wrote a book, Bhakti Ratnamálá, on religious subjects.

XV. BHIMA DHIBARA; lived 150 years ago; a highly esteemed poet of the fisherman caste. His works are, (1) Kapatpásá, a tale from the Mahábhárata, of the loss of his kingdom, at dice-playing, by Yudhisthir; and (2) Bhárat Sábitrí, a poetical version of the Bhárat.

XVI. BIDYAKAR PUROHITA; lived 200 years ago; a Bráhman who wrote a Sanskrit book, Náráyan Shataka, on Náráyan, another name of Vishnu.

XVII. BIDYAKAR BAJAPAYI; period unknown; wrote a Sanskrit work on Smriti, called the Bidyákar Paddhati.

XVIII. BIPRA KANTHA DAS; lived 250 years ago; he wrote two popular books called (1) Napai; and (2) Chhapai, containing small ballads on the early sports of Krishna.

XIX. BISWA NATH DAS KABI, *alias* PURUSHOTTAMA BISWA NATH KHUNTIA; lived 300 years ago; a writer of great celebrity, and author of the Bichitra Rámáyana, or 'The Wonderful Rámáyana,' an Uriyá version of the original Sanskrit Epic. Of all the translations of the Rámáyana in Uriyá, this is the most popular, and passages from it are still recited by dancing boys when the scenes and events of the epic are acted on the stage.

XX. BISWA NATH PATJOSI; period not known; a Bráhman who wrote a Sanskrit drama, Usha Parinaya Nátak, which gives an account of the love and marriage of Ushá, the daughter of King Bán, with Aniruddha, grandson of Krishna.

XXI. BISWA NATH NAMA PANDIT; lived 300 years ago; wrote a Sanskrit book, Smriti Sár, on Hindu Religious and Domestic Law.

XXII. BISWAMBHARA MISRA KABI; lived 200 years ago. His work is Bichitra Bhárat, or 'The Wonderful Bhárat,' a poetical translation of the Aranya and the Birát volumes of the Mahábhárat, very popular with the Uriyás.

XXIII. BRAJA NATH DAS; period not known. His works are, (1) Ambiká Bilás, or 'The Love of Ambiká,' a tale from the Mahábhárat; (2) Samara Taranga, a poem on war; and (3) Gurticha Bije, a poem on Jagannáth's journey to his country seat during the Car Festival, with his brother Balbhadra and sister Subhadrá.

XXIV. CHAKRA DATTA; a Bengali Káyasth; period unknown. He wrote a medical work which bears his own name, and is consulted by native physicians in the country south of Cattack.

XXV. CHAKRAPANI PATNAIK; lived 150 years ago; a Karan who wrote a Sanskrit work called the Gundichá Champá, describing the Bathing, the Car, and other festivals of Jagannáth.

XXVI. CHANDRA MANI MOHANTA; lived 150 years ago. His works are, (1) Sudarsan Bilás, a Sanskrit work on the amours and sports of Sudarsan; (2) Hansa Dut, a translation of the work of the same name of Rúp Goswámí, the Bengali Vaishnav; and (3) Sabda Kalpa Latá, a Sanskrit lexicography.

XXVII. CHANDRA SIKHARA RAYA GURU; period unknown; a Bráhman, and the religious preceptor of the king. He wrote Madhuraniруд्धा Nátaк, a Sanskrit drama on the adventures of Aniruddha, Krishna's grandson. This work is much esteemed by the Uriyá Pandits.

XXVIII. DHANANJAY BHANJ; period unknown; a Gumsar Rájá who composed two books: (1) Raghu Náth Bilás; and (2) Ráma Bilás, both based upon the Rámáyana.

XXIX. DHANI DAS; lived 150 years ago; wrote a Sanskrit book on astrology called the Nakshatra Katapáyá.

XXX. DHARANI DHAR; lived about 250 years ago; translated in verse the celebrated poem, Gíta Govinda of Jayadeva Goswámí.

XXXI. DIBAKAR MISRA; lived 200 years ago; wrote the book Jagannáth Charitámrita, on Jagannáth.

XXXII. DIBYA SINH MAHAPATRA; lived 200 years ago; wrote two Sanskrit books: (1) One on Hindu Law; and (2) The other on Hindu funeral ceremonies.

XXXIII. DINBANDHU DAS; period unknown; a Bráhman, author of a work called Chhanda Cháru Prabhá, on love matters.

XXXIV. DINBANDHU RAYA; lived 250 years ago; a Rájá of one of the Tributary States who wrote a book called the Rádhá Bilás, about the amours of Rádhá.

XXXV. DINA KRISHNA DAS, also called SINDHU; lived about 300 years ago; a Karan Vaishnava, and so popular an author that he is considered to be the son of god Jagannáth. His works are written in an elegant and remarkably simple style, and his descriptions of natural scenery are often very beautiful. The following fifteen of his works still enjoy a wide popularity among high and low:—(1) Rasakallol, or 'The Waves of Sentiment,' an account of the early sports of Krishna; (2) Chakradhar Bilás, a work on the same subject; (3) Madhusudan Bilás, another work on the same subject;

(4) Mádhabakar Gíta, a medical work ; (5) Arttatrán Chautisá, hymns addressed to Jagannáth ; (6) Báramás Kaili, or 'The Twelve Months' Cuckoo,' a lamentation of Rámá's mother on her son's exile ; (7) Jagomohana, on Jagannáth ; (8) Sámudrika, a rare book on palmistry, translated from the Sanskrit ; (9) Gundichá Bije, a poem describing Jagannáth's journey to his country house during the Car Festival ; (10) Pratáp Sindhu, a book said to contain lectures which the sage Vasishtha delivered to King Dasaratha, Rámá's father ; (11) Guna Ságara, a poem on Krishna's early life ; (12) Ujwala Nílmani Káriká, a work in prose describing the amours of Krishna and Rádhá ; (13) Rádhá Kanacha, a work containing certain incantations and ceremonies ; (14) Dwádasá Kunja Lilá, on amorous sports of Krishna ; and (15) Krishna Dás Bali, a medical work.

XXXVI. GADAHAR MAHAPATRA RAYA GURU ; lived 200 years ago ; the religious preceptor of the Orissa Rájá. He wrote the following works in Sanskrit : (1) Kála Sára ; (2) Sráddha Sára ; and (3) Achára Sára, on Hindu rites and ceremonies, etc.

XXXVII. GADADHAR PATNAIK ; lived 170 years ago ; wrote a book on amorous subjects, called Rasa Kalpa Latá.

XXXVIII. GOPAL BHANJ ; lived 600 years ago ; contemporary with King Lánguliyá Narsinh, who built the Black Pagoda at Kanárák, on the shore of Orissa. He is the author of the Arka Máhátmya, a Sanskrit work describing the sanctity and the building of the temple.

XXXIX. GOPENDRA BHANITA ; lived 200 years ago ; author of a rather popular book, called Madhupa Chautisá, on the sports of Krishna among the shepherd-maids of Brindában.

XL. GOPI NATH KABI BHUSHAN ; lived 200 years ago ; wrote (1) Kabi Chintámani, a treatise on the rules of versification ; and (2) Ráma Chandra Bihára, an account of the adventures of Ráma.

XLI. GOPI NATH RATH ; lived 150 years ago ; a Bráhman, and a Sanskrit commentator on the poets. His works are, (1) Hansadut Tiká ; and (2) Nishádha Tiká, Sanskrit commentaries on Hansadut and Nishádha.

XLII. GOVINDA DAS ; lived about 250 years ago ; a native of the Tributary State of Tigariá, who wrote a Sanskrit grammar called the Prakriyá Sára Byákarán.

XLIII. GOVINDA DAS ; lived 260 years ago ; a Bráhman Vaishnav who wrote a book called Charana Sudhánidhi, a panegyric on Vishnu in two of his incarnations.

XLIV. GOVINDA SANTRA ; lived 300 years ago ; a Bráhman, author of (1) Suri Sarbaswa ; and (2) Bira Sarbaswa, both in Sanskrit, two treatises of laws, morals, etc.

XLV. HARA DAS ; lived about 100 years ago ; wrote a prophetic work called the Hára Dás Málíká.

XLVI. HARI CHANDAN DEVA ; lived 300 years ago ; a Rájá of one of the Tributary States ; author of a work called Lilábatí, a poem containing an account of the amours of Lilábatí, daughter of the Chola Rájá, and Chandra Bhánu, prince of the Anga Des.

XLVII. HALADHAR DAS ; lived about 500 years ago ; wrote the following works : (1) Ardhátmya Rámáyana, another Uriyá translation of the Rámáyana ; and (2) Haladhar Káriká, a work on Hindu Religious and Social Law.

XLVIII. HANUMAN MISRA ; period unknown ; wrote commentations on the celebrated Sanskrit drama, Mahánátaka.

XLIX. HARIHAR KABI ; lived about 300 years ago ; author of Suchitra Rámáyana, a translation of the Rámáyana in verse, which almost equals the Bichitra Rámáyana in elegance of style.

L. HARIHAR ACHARJYA ; lived about 300 years ago ; author of a Sanskrit work on Hindu Religious and Social Law, called the Samaya Pradip.

LI. HARI KRISHNA MAHAPATRA ; period unknown ; wrote Rukminí Bilás, an account of the amusements of Krishna's wife, Rukminí.

LII. HARI NAIK ; lived 650 years ago ; wrote Gíta Prakás, a Sanskrit work containing hymns to gods.

LIII. JADUMANI BHANJ ; lived 250 years ago ; a Rájá of Gumsar ; author of Rukminí Bilás, an account of the sports of Krishna and his wife Rukminí.

LIV. JAGANNATH DAS ; lived 350 years ago ; wrote the following works : (1) Páshanda Dalana, or 'The Destruction of the Sinners,' a religious work ; (2) Bhágvat, a translation of the Vaishnava Scriptures Bhágvat, which is very often read and quoted by the Uriyás ; (3) Manasikshá, a series of discourses between the sages Suka and Sanaka about the youthful sports of Krishna ; and (4) Jagannáth Káriká, a Sanskrit work on Smriti, or Hindu Religious and Domestic Law. His works are esteemed by the people.

LV. JALANTARA KABI SURJYA RAYA GURU ; lived about 150 years ago ; a native of Párikud ; author of the following works : (1) Chaupadi, a collection of verses ; (2) Kesari Chandra Champá, on the loves of Rádhá and Krishna ; (3) Ananda Dámodar Champá, on the same subject ; and (4) Hásyárnaba, comic verses. The first three are written partly in Uriyá and partly in Sanskrit.

LVI. KABI CHANDRA RAGHU NATH PARIKSHA ; lived 600 years ago ; wrote the Sanskrit drama of Gopí Náth Ballabh Nátaka, on the sports and amusements of Krishna among the shepherdesses of Brin-

dában. This writer was a contemporary of King Lánguliyá Narsinh Deva.

LVII. KABINDRA NARAYANA SARMA; lived 1200 years ago; a contemporary of King Lalát Indra Kesari; wrote the two Sanskrit works: (1) Ekámбра Chandriká; and (2) Birajá Máhátmya, on the sanctity of the sacred places of Bhuvaneswar and Jájjpur. Both enjoy a considerable reputation.

LVIII. KALI DAS CHOVINI NAMA PANDIT; lived 500 years ago; author of Suddhí Chandriká, a Sanskrit work on Hindu Law.

LIX. KARNAMGIRI; lived 100 years ago; an ascetic who wrote the Bhakti Rasámrita, a book on devotional subjects, and a work of some note among the people.

LX. KESAB DAS KABI; lived 200 years ago; author of Suchitra Bhárata, an abstract of the Mahábhárata in Uriyá.

LXI. KRISHNA DAS; period not known; wrote the following books: (1) Pinsa Ratnákar, on devotional subjects; (2) Gít Govinda, an Uriyá version of Jayadeva's Gít Govinda; and (3) Bhágvat, a translation of the original work in Sanskrit.

LXII. KRISHNA MISRA; lived 250 years ago; his works are, (1) Prabodha Chandrodaya Nátiká, a Sanskrit drama; (2) Sáhitya Ratnákar Alankár Tiká, a commentary on Sanskrit rhetoric; and (3) Krishna Misra Prakriyá, a Sanskrit grammar.

LXIII. KRISHNA SINHA; lived 200 years ago; translated the Bhárata, Rámáyana, and Bhágvat from the Sanskrit, and paraphrased the Haribansa, a noted work on the family of Krishna.

LXIV. KRUPA SINDHU DAS; lived 200 years ago; wrote the following books: Srl Jagannáth Stuti, prayers to Jagannáth; and (2) Braja Bihára, sports of Krishna among the shepherd-maids of Brindában.

LXV. KRUPA SINDHU PATNAIK; lived 300 years ago; his works are, Dasa Bali Braja Bihára, sports of Krishna at Brindában; (2) Kamalá Kánt Chautisá, on Krishna's adventures; and (3) a poem on the same subject called the Sajaní Chautisá.

LXVI. KUNJA BEHARI PATNAIK; lived 150 years ago; author of Kunja Behárl, a poetical work about Krishna.

LXVII. LAKSHMIDHAR DAS; lived 200 years ago; wrote the work, Angadapári, an account of Rámá's embassy to Rávana, King of Ceylon.

LXVIII. LAKSHMIDHAR MISRA; lived 200 years ago; a native of Bhuvaneswar, and author of Saivakalpadruma, a Sanskrit work on rituals to be observed in the worship of Siva.

LXIX. LOK NATH BIDYADHAR; lived 200 years ago; wrote the following works: (1) Chitrakalá, on love adventures; (2) Sarbánga

Sundarī, a poetical romance; (3) Chittotpala; (4) Parimalā; and (5) Rasakalā, all on love matters.

LXX. LOK NATH DAS; lived 100 years ago; author of (1) Kari-kābali, and (2) Karmakānda, both Sanskrit works on rites and ceremonies.

LXXI. LOK NATH NAIK; lived 150 years ago; wrote Khari Lilābatī, a mathematical work in Uriyā verse.

LXXII. MADHAVA KAR; lived 400 years ago; wrote Mādhava Kar, a Sanskrit work on medicine. This work is very much esteemed, and is consulted by physicians in the country north of Cattack.

LXXIII. MAGUNI PATNAIK; lived 150 years ago; his work is Rāmachandra Bihārā, on the adventures of Rāma.

LXXIV. MAHADEVA DAS; lived 200 years ago; writer of (1) Padma Purān; (2) Mārkaṇḍa Purān; (3) Māgh Māhātmya; (4) Baisākh Māhātmya; (5) Kārtik Māhātmya; and (6) Rāmāyana, all translations from the Sanskrit works of the same name.

LXXV. MANIKYA DEVA PANDIT; period unknown; wrote Suddhi Guchchha, a Sanskrit work on rites of purification.

LXXVI. MARKANDA DAS; lived 600 years ago; his works are, (1) Kesab Kaili, complaints of Jasodā, Krishna's mother; and (2) Gyan Udaya Kaili, a theological work.

LXXVII. NARAYAN ACHARJYA; lived 300 years ago; author of Sulakshana, a poem on love affairs.

LXXVIII. NARAYAN PUROHITA; lived 700 years ago; author of Brata Ratnākar, a treatise on versification, written in a kind of Uriyā verse called the Chhanda.

LXXIX. NIDHI RATH; lived 300 years ago; translated into Uriyā the Ritu Sanhār of Kālidās.

LXXX. NILAMBAR BHANJ; lived 150 years ago; a Rājā of Haldā, and author of (1) Krishna Lilāmrita, on the sports of Krishna; and (2) Pancha Sāyaka, on love matters.

LXXXI. NILAMBAR DAS; lived 400 years ago; his work is Jaimuni Bhārata, an Uriyā version of the Mahābhārata.

LXXXII. NARSINH BAJPAYI; lived 300 years ago; author of (1) Achār Pradip; (2) Vyavasthā Pradip; (3) Prāyaschitta Pradip; (4) Bājapāyī Smṛiti; and (5) Dāna Sāgara, all in Sanskrit, on Hindu ceremonies, rites, the virtue of bestowing alms and gifts, etc.

LXXXIII. NARSINH PATNAIK; lived 90 years ago; wrote a Sanskrit lexicography in verse, called the Sabda Mālā.

LXXXIV. PADMA NABH DEVA; lived 400 years ago; a Rājā of one of the Tributary States who wrote a romance called the Prabhābatī.

LXXXV. PADMA NABH PARIKSHA ; lived 150 years ago ; author of *Gīta Tāla Prabandha*, a work giving instructions on music.

LXXXVI. PITAMBARA RAJENDRA ; lived 200 years ago ; a Rájá of one of the Tributary States ; wrote *Rámalilá*, sports of Rámachandra.

LXXXVII. PINDIKI SRI CHANDANA ; period unknown ; his work is *Mukunda Málá Gīta*, a book of hymns and invocations.

LXXXVIII. PITAMBARA MISRA KABI CHANDANA ; lived 150 years ago ; his works are the following : (1) *Gundichá Champá*, a Sanskrit work on Jagannáth's journey to his country house during the Car Festival ; (2) *Náráyana Shataka Tiká*, a commentary on the Sanskrit work *Náráyana Shataka* ; (3) *Jatakálankár Tiká*, a commentary on the Sanskrit astrological work *Jatakálankár* ; (4) *Ráma Birudábali*, a Sanskrit work on Ráma Chandra's adventures ; and (5) *Pitambarí Chandí*, a commentary on the *Chandí Bhágvat* in Sanskrit.

LXXXIX. PITAMBARA DEVA ; lived 300 years ago ; a Rájá who wrote a work on devotional subjects, called the *Akhila Rasa Chintámani*.

XC. PURUSHOTTAMA DAS ; lived 200 years ago ; translated *Gundichá Bijé*, or the journey of Jagannáth to his country seat, from the Sanskrit work of the same name.

XCI. PURUSHOTTAMA MISRA ; lived 500 years ago ; a Bráhman, and the author of the following works : (1) *Sangīta Náráyana*, Sanskrit hymns, music, etc. ; (2) *Kshetra Máhátmya*, a celebrated work containing an account of Purí and the gods in it ; and (3) *Níládri Máhátmya*, a Sanskrit work on Jagannáth, his temple, etc.

XCII. PURUSHOTTAMA PARHI ; lived 300 years ago ; wrote (1) *Anarghya Rághava Tiká*, a commentary on the Sanskrit drama *Anarghya Rághava* ; (2) *Samasta Kabimánankar Tiká*, Sanskrit commentaries on all the poets ; and (3) *Amarkosh Tiká*, a Sanskrit commentary on *Amarkosh*, the Sanskrit dictionary.

XCIII. RAGHU NATH DAS ; lived 150 years ago ; a celebrated Sanskrit scholar, author, and commentator. His works are : (1) *Baidya Kalpa Latiká*, a Sanskrit work on physics ; (2) *Práyaschitta Tarangíní*, a Sanskrit work regarding purification from pollution ; (3) *Amarkosh Tiká*, a commentary on the Sanskrit dictionary *Amarkosh* ; (4) *Raghu Náth Dás Prakriyá*, a Sanskrit grammar ; (5) *Barddhamán Byákarán Tiká*, a Sanskrit commentary on the *Barddhamán Byákarán*, a grammar ; (6) *Samasta Kábimánankar Tiká*, a commentary on all the poets ; (7) *Sanskrita Manjari*, a Sanskrit work on rules of grammar ; (8) *Raghuvansa Tiká*, a Sanskrit commentary on *Kalí Dás's Raghuvansa*, a work on the ancestors of Ráma ; and (9) *Utpáta Tarangíní*, a Sanskrit poem.

XCIV. RAMA CHANDRA BAJAPAYI ; lived 400 years ago ; a Purí

Bráhmaṇ who wrote a Sanskrit work on Hindu Social and Religious Law, called the Karmánga Paddhati.

XCv. RAMA CHANDRA DAS; lived 200 years ago; his works are, (1) Balbhadra Bali, concerning Krishna; and (2) Chaupadis, a small book of poems.

XCvI. RAMA CHANDRA PATNAIK; lived 500 years ago; author of (1) Hárábatí, a romance; (2) Saiva Chintámani, in Sanskrit, regarding the worship of Siva.

XCvII. RAMA KRISHNA RATHA; period unknown; wrote a Sanskrit commentary on rhetoric called the Sáhitya Ratnákar Alankár.

XCvIII. SADAJAYA; period unknown; author of (1) Saralá Stuti, the prayers to a village goddess, Saralá; (2) Mangalá Stuti, eulogies on a village goddess, Mangalá; and (3) eulogies on the goddess Bimalá of Purí.

XCIX. SADANANDA KABI SURYYA BRAHMA; lived 167 years ago; a popular writer on ethics, devotional subjects, etc.; his works are, (1) Nistára Nilmani; (2) Námáchintámani; (3) Prema Panchámrita; (4) Jugal Rasámrita Lahari; (5) Prema Taranginí; (6) Prema Lahari; (7) Prema Bhaunri; and (8) Jugal Rasámrita Chaunri; all devotional or theological works.

C. SAMBHU KAR BAJAPAYI; lived 150 years ago; a Bráhmaṇ who wrote a Sanskrit book on Hindu Social and Religious Law called after his name.

CI. SARALA DAS KABI; lived 300 years ago; translated Mahábhárata into Uriyá.

CII. SISU DAMA DAS; period unknown; author of Dáru Brahma Gíta, an interesting work on the discovery of the Dásu Brahma, and the consecration of the Purí temple to Jagannáth.

CIII. SISU SANKARA DAS; lived 250 years ago; translated the Sanskrit drama, Usháparinaya Nátaka, into Uriyá.

CIV. SRIDHAR DAS; lived about 300 years ago; a native of Banki, one of the Tributary States, who wrote a work called the Kánchan Latá, the early sports of Krishna.

CV. SRIPATI DAS; lived 700 years ago; a celebrated Bráhmaṇ astrologer, and author of the famous work on astrology which bears his own name, Srípati, from which the yearly Uriyá almanacks are drawn up.

CVI. TRIPURARI DAS; lived 200 years ago; produced, (1) Kata-páya, a Sanskrit astrological work; (2) Kerala Gíta, an astrological work; (3) Ráma Krishna Keli Kallol, a work on Ráma and Krishna; and (4) Rádhá Krishna Keli Kallol, a work on Krishna and Rádhá.

CVII. UPENDRA BHANJ; a Rájá of Gumsar, and the most emi-

ment of all the Uriyá poets; lived 300 years ago. His works are, (1) Abaná Rasa Taranga, a work on Ráma Chandrá's Adventures; (2) Bachantisa, songs on Krishna; (3) Baidehi Bilás, on the adventures of Ráma; (4) Bhababatí, a romance; (5) Braja Lilá, sports of Krishna; (6) Chandra Kalá, a romance; (7) Chandra Rekhá, a romance; (8) Chaupadi Bhushana, a small love piece; (9) Chaupadi Chandra, a small love piece; (10) Chhanda Bhushana, a treatise on versification; (11) Chitra Lekhá, a romance; (12) Chitra Kábya Bandhadáya, a treatise on versification; (13) Duhá, ethical tales; (14) Gahá, ethical tales; (15) Gítábidhana, a lexicography in verse, lately published by the Cattack Mission Press; (16) Hemamanjuri, a romance; (17) Ichchhábatí, the adventures of Cháta and Princess Ichchhábatí; (18) Jamaka Rájá Chautisá, songs on Krishna; (19) Kalábatí, the love adventures of Bhárata and Kalábatí; (20) Kalákantaka, enigmas on Krishna's sports; (21) Kámakalá, a romance; (22) Koti Brahmánda Sundarí, an interesting tale illustrative of woman's constancy and fidelity; (23) Kunja Behára, sports of Krishna; (24) Lábanyabatí, an account of the loves of Prince Chandrabhánu and Princess Lábanyabatí, a popular work; (25) Muktábatí, adventures of Muktábatí; (26) Manoramá, a romance; (27) Prema Latá, a romance; (28) Prema Sudhánidhí, an account of the Princess Prema Sudhánidhí, the daughter of the King of Kerala; (29) Purúshottama Máhátmya, on the sanctity of Purí, its temples, etc.; (30) Ráhás Lilá, sports of Krishna; (31) Rasa Lekhá, adventures of Rasa Lekhá, a princess; (32) Rasa Panchaka, songs on the five classes of amorous sentiments; (33) Rasiká Hárábatí, a work on amorous subjects; (34) Ráma Lilámrita, adventures of Ráma Chandra; (35) Rasamanjuri, a treatise on rules of versification; (36) Shararitu, a version of Kálidás's Ritu Sanhár; (37) Sangíta Kaumadí, a treatise on music; (38) Sasi Rekhá, a romance; (39) Sobhábatí, adventures of Princess Sobhábatí; (40) Subarna Rekhá, a romance; (41) Subhadrá Parinaya, an account of the marriage of Arjun and Subhadrá, Jagannáth's sister; and (42) Trailokya Mohiní, a romance.

THE AUTHORS OF THE FOLLOWING WORKS ARE DOUBTFUL:—

(1) Artha Kaili, tales about Krishna; (2) Aswattha Kshetra Máhátmya, on the sanctity of Kujang; (3) Basanta Kaili, tales about Krishna; (4) Bháratámrita, a Sanskrit poem about Bhárata; (5) Bhanja Mahodaya Nátiká, a small Sanskrit drama; (6) Bhati Rasámrita Sindhu, a work on devotional subjects; (7) Bidagdha Mádhava, on Rádhá and Krishna; (8) Brahma Gyána, a metaphysical work; (9) Chaitanya Charitámrita, life of Chaitanya, the Vishnuvite reformer of Naddea, translated from the Bengali; (10) Deolá Tolá, an account of the

building of the great temple of Jagannáth; (11) Dhvani Manjari, a Sanskrit lexicography; (12) Dwirepha Kos, the same; (13) Ekámbrā Kshetra, on the sanctity of Bhuvaneswar, its temples, etc.; (14) Ekámbrā Purán, a local Purán on the same; (15) Ekákshara Kos, a Sanskrit lexicography; (16) Gyána Chandra Churámāni, a work on metaphysics; (17) Itihás Lekhana, on the same; (18) Jaleswara Paddhati, a Sanskrit work on Smṛiti; (19) Káncikáveri, an interesting tale about the conquest of Conjeveram, and the adventures of Princess Padmavati; (20) Kapila Sanhitá, a Sanskrit work on the places of pilgrimage in Orissá, Purí, Kanárak, Bhuvaneswar, and Jájpur; (21) Kosamanjari, a Sanskrit lexicography; (22) Kshetra Máhátmya, a Sanskrit work on the sacred places of Orissa; (23) Mohanta Nirnaya Rasa, a work on various classes of ascetics; (24) Mantránaba, a Sanskrit work on the Tantras, the scriptures of the worshippers of the Wife of Siva; (25) Mahi Mandala, a work on creation; (26) Mukunda Málá, partly in Uriyá and partly in Sanskrit, about the adventures of Ráma; (27) Naba Brindában Bihár, on Krishna's sports with the maids of Brindában; (28) Nánártha Kosh, a Sanskrit dictionary; (29) Nidána Tiká, a Sanskrit commentary on Nidán, a book of medicine; (30) Páriját Haran, a small Sanskrit drama on Krishna's forcibly taking away the Páriját flower from the garden of the god-king of Heaven; (31) Práchi Máhátmya, in Sanskrit, on the sanctity of the small river Práchi; (32) Premloka Nátaka, a Sanskrit drama; (33) Purúshottama Kshetra Máhátmya, a Sanskrit work on Purí; (34) Rádhámrita Gíta, on Rádhá and Krishna; (35) Ráma Síta Ballabh Nátak, a Sanskrit drama on Ráma and his wife Síta; (36) Ráma Lilá Nátak, another Sanskrit drama of the same sort; (37) Sabda Kosh Tolá, a Sanskrit grammar; (38) Sampradáya Siddha, a Sanskrit work on Hindu Law; (39) Sahendayánanda, a poem in Sanskrit; (40) Siva Purán, a translation of the original Sanskrit work; (41) Siva Lilámrita, concerning the sports of Siva; (42) Slokábali, a Sanskrit work; (43) Surjya Kshetra Máhátmya, a Sanskrit work on the sanctity of the temple of Kanárak; (44) Tantra Sára, a Sanskrit work on the Tantras; (45) Tattwarnaba, a Sanskrit work on medicine; (46) Tulasi Kshetra Máhátmya, a Sanskrit work on the sanctity of Kendrápára; and (47) Utkal Máhátmya, in Sanskrit, an account of the holy places in Orissa.

In the names of books and authors I have sometimes transliterated from the Sanskrit orthography, sometimes from the Uriya form, the latter being generally followed when the name is a very common or popular one among the inhabitants of Orissa. Many of them, although not professedly translations, are paraphrases or compilations rather than original works.

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N.B.—The following Index only applies to the text of 'Orissa' (both volumes), as the Appendices are themselves so condensed, and embrace such a variety of subjects, that any attempt to give an alphabetical *précis* of them would unduly swell this Index.

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