



CSL-AS.
AS001244



354.54 ANN



CSL

26

ANNALS
OF
INDIAN ADMINISTRATION
IN
1872-73.



202 A. 3

3

CSL

ANNALS
OF
INDIAN ADMINISTRATION
IN THE YEAR 1872-73.

FROM THE RECORDS ISSUED BY THE VARIOUS INDIAN GOVERNMENTS IN 1873-74.

EDITED BY

GEORGE SMITH, LL.D. (EDIN.)

VOLUME XVIII.

SERAMPORE:

PRINTED BY GOPAL CHUNDRĀ GUṆGOPĀDHYA.

1874.



4



PREFACE.

From a statistical point of view the Year 1872-73 was marked by the publication of the results of the Census of the greater portion of India, taken at the end of 1871, and by a farther development of that scientific system which was drawn up by the Calcutta Statistical Committee for the uniform preparation of the Annual Administration Reports. The results of the Census, general and detailed, are now published for the first time in a combined and comparative form, including the enumeration of the Christian communities authoritatively issued by the Calcutta Missionary Conference and the Roman Catholic Church. The principal improvement in the system of compiling the Reports consists of a division of the chapters, under the nine great heads, into (1) those which, as referring to comparatively permanent facts, will be reported on only every five years, and (2) those purely administrative facts which vary, change or denote progress every year. As the size of this Volume is restricted the Editor found it impossible to do justice to the decennial Census and the five years' subjects, without cutting short the chapters on ordinary administration. This is especially to be regretted in the case of Finance and Instruction, to which, however, full justice will doubtless be done in next year's Volume. The same necessity has led to the absence altogether of Chapters VI., VIII. and IX. in the scheme which follows. The subject of the first of these three, on Vital Statistics and the Medical Services, will be found to be well represented in the chapters on India and the Army, which contain the only accurate vital statistics yet collected in India. The subject of emigration was fully dealt with in the previous volume. It is impossible to do justice to emigration in a summary of purely Administration Reports. It will, on the other hand, be found that Municipalities, Mines and Manufactures are reported on for the first time in these *Annals*. The scheme sanctioned on the 12th May 1873 for each Province of India is as follows. The subjects to be reported on every five years are printed in italics:—



Part.

I.—PHYSICAL AND POLITICAL GEOGRAPHY.

Physical features of the country, area, climate and chief staples.

POLITICAL.—

Historical summary.

Form of Administration.

Character of Land Tenures; system of Survey and Settlements.

Civil Divisions of the British Territory.

Details of the last Census. Tribes and language.

Changes in the Administration.

Relations with Tributary States and Frontier Affairs.

II.—ADMINISTRATION OF THE LAND.

Surveys.

Settlements.

Waste lands.

Government Estates.

Wards' Estates.

III.—PROTECTION.

Legislating Authority.

Course of Legislature.

Police.

Criminal Justice.

Prisons.

Civil Justice.

• Registration.

Municipal Administration.

Military.

Marine.

IV.—PRODUCTION AND DISTRIBUTION.

Agriculture.

Weather and Crops.

Horticulture.

Forests.

Mines and Quarries.

Manufactures.

Trade.

IV.—PRODUCTION AND DISTRIBUTION.

Public Works.

Road.

Railways.

Canals.

Telegraph.

Post Office.

Irrigation.

V.—REVENUE AND FINANCE.

(a).—Imperial Revenue and Finance.

Land Revenue.

Canal Revenue.

Sources of Imperial Revenue other than the Land.

Customs.

Opium.

Salt.

Excise.

Stamps.

any other taxes levied for imperial purposes.

(b).—Revenue and Finance other than Imperial.

Provincial Revenues.

Local Funds.

Road Cesses.

Education Cesses.

Municipal Revenues.

VI.—VITAL STATISTICS AND MEDICAL SERVICES.

Details of Census if taken in the year of report.

Births and Deaths.

Emigration.

Medical Relief.

Sanitation.

Vaccination.

VII.—INSTRUCTION.

General System of Public Instruction.

Education.

Literature and the Press.

Literary Societies.

Arts and Sciences.

VIII.—ARCHAEOLOGY.

IX.—MISCELLANEOUS.

Ecclesiastical Jurisdiction.

Ecclesiastical.

Stationery.

General Miscellaneous.

The only noteworthy feature of the year 1872-73 is touched upon by the Bengal Report, which deals with events and policies down to the close of 1873. It is the "apprehended scarcity", which has since developed into famine in North Behar and over other portions of Bengal.

Since this Volume went to press it has been resolved to add the Sylhet district of Bengal also to Assam, increasing the area of the new Province, as given at pages 12 and 194, to 41,798



square miles, and the population to 4,122,019, while proportionately reducing those of Bengal.

As the *Annals of Indian Administration* has now reached its eighteenth annual Volume the present Editor, who has been responsible for its appearance since 1859, may thus put on record a few facts as to the origin and history of the publication. In 1856 Mr. Meredith Townsend submitted to Sir Cecil (then Mr.) Beadon, the Home Secretary, a plan for publishing an indexed epitome of the principal Reports annually issued by the Supreme and Provincial Governments, and of some of the Indian Blue-books laid before Parliament. The first Part appeared in that year. In 132 pages the Editor analysed just 2500. Soon afterwards he published a Thesaurus, or general index to all the published records of Government previous to 1856. Lord Canning, then the Governor-General, expressed approval of the work, which continued to appear in quarterly Parts. In 1863 Mr. George Smith, LL.D., obtained from Lord Elgin the appointment of the Calcutta Statistical Committee, to draw up a uniform statistical system for the Administration Reports annually submitted to Parliament. In that Committee Mr. Bullen, President of the Bengal Chamber of Commerce, took charge of the commercial statistics, and Mr. R. H. Hollingbery of the financial statistics, both of which for all India are now promptly issued in monthly and annual volumes by the Financial Department. Dr. Smith drew up the plan and detailed tables of the present Administration Reports, and Sir George (then Mr. Justice) Campbell filled in the details of the judicial portion of that plan. After a few years spent in referring the scheme to the Secretary of State and the Provincial Governments, it was finally adopted with a few modifications to suit local peculiarities. On the 23rd May 1873 the Government of India ordered the farther development of the plan, by a division into five years' and one year's subjects.

SERAMPORE,

The 4th July, 1874.



CONTENTS.

PART I.—PHYSICAL AND POLITICAL GEOGRAPHY.

	<i>Page.</i>
CHAP. I.—Physical Features of the Country	3
India	3
Bengal and Assam	12
Oudh	20
Punjab	25
Central Province	29
Berar	39
Bombay	40
Madras	46
North-Western Province	48
Ajmeer and Coorg	53
British Burma	54
CHAP. II.—The People, their Languages and Civil Divisions	59
Bengal and Assam	59
Madras	75
North-Western Province	91
Central Province	103
Berar	117
Oudh	119
Punjab	123
Mysore	130
Coorg and Ajmeer	135
Bombay	136
British Burma	154
CHAP. III.—The Feudatory States	157
Bengal	166
North-Western Province	170
Punjab	170
Bombay	172
Central Province	177
Madras	177
Government of India	179
General Result	192



CONTENTS.

Page.

PART I.—PHYSICAL AND POLITICAL GEO-
GRAPHY.—*Continued.*

CHAP. IV.—Analysis of the Census of India	...	...	193
The British Empire of India	...	...	194
Races and Creeds	...	...	195
General Result	...	...	203

PART II.—ADMINISTRATION OF THE LAND.

CHAP. I.—Bengal	...	...	207
CHAP. II.—Madras	...	...	217
CHAP. III.—Bombay	...	...	226
CHAP. IV.—North-Western Province	...	...	230
CHAP. V.—Oudh	...	...	233
CHAP. VI.—Punjab	...	...	240
CHAP. VII.—Central Province	...	...	252
CHAP. VIII.—Burma	...	...	260
CHAP. IX.—Ajmeer and Coorg	...	...	263
CHAP. X.—Mysore	...	...	267
CHAP. XI.—Berar	...	...	275

PART III.—PROTECTION.

CHAP. I.—Legislation	...	...	283
The Governor General's Legislative Council	...	...	283
Bengal	...	...	285
Madras	...	...	286
Bombay	...	...	286
CHAP. II.—Police	...	...	288
CHAP. III.—Criminal Justice	...	...	297
CHAP. IV.—Prisons	...	...	305
CHAP. V.—Civil Justice	...	...	315
CHAP. VI.—Registration	...	...	325
CHAP. VII.—Municipalities	...	...	329
Bengal	...	...	329
Madras	...	...	335
Bombay	...	...	339
North-Western Province	...	...	347
Punjab	...	...	350
Oudh	...	...	354
Central Province	...	...	356
Coorg	...	...	358
Mysore	...	...	358
Berar	...	...	359



CONTENTS.

Page.

PART III.—PROTECTION.—*Continued.*

CHAP. VIII.—The Army and Marine	...	...	...	362
Sickness and Mortality of the European Army	...	...	...	366
Sickness and Mortality of the Native Army	...	...	...	376
Summary for 1872	...	...	...	377
Troops of Feudatory States	...	...	...	386
The Marine	...	...	...	391

PART IV.—PRODUCTION AND DISTRIBUTION.

CHAP. I.—Agriculture	...	...	...	395
Bengal	...	...	...	395
Madras	...	...	...	407
North-Western Province	...	...	...	409
Bombay	...	...	...	412
Punjab	...	...	...	417
Oudh	...	...	...	418
Central Province	...	...	...	421
Burma	...	...	...	421
Coorg	...	...	...	421
Mysore	...	...	...	424
Berar	...	...	...	424
CHAP. II.—Forests	...	...	...	427
CHAP. III.—Mines and Manufactures	...	...	...	429
Bengal	...	...	...	429
North-Western Province	...	...	...	436
Madras	...	...	...	436
Bombay	...	...	...	436
Punjab	...	...	...	444
Oudh	...	...	...	450
Central Province	...	...	...	451
Burma	...	...	...	453
Coorg	...	...	...	453
Mysore	...	...	...	454
Berar	...	...	...	455
CHAP. IV.—Foreign and Coasting Trade	...	...	...	456
The Early Trade	...	...	...	456
The Foreign Trade from 1834 to 1874	...	...	...	457
Foreign Trade of each Province	...	...	...	460
Foreign and Coasting Trade from 1871-72 to 1873-74	...	...	...	463
Customs Revenue of each Province...	...	...	...	463



CONTENTS.

Page.

PART IV.—PRODUCTION AND DISTRIBUTION.—*Continued.*

CHAP. V.—Public Works	...	...	...	...	470
Organization	...	...	...	...	471
Expenditure	...	...	...	...	471
Railways	...	...	...	...	473
Canals	...	...	...	...	476
Post Office	...	...	...	...	476
Telegraph	...	...	...	...	477

PART V.—REVENUE AND FINANCE.

CHAP. I.—Imperial	...	...	...	...	480
CHAP. II.—Provincial and Local	...	...	...	...	482

PART VI.—INSTRUCTION.

CHAP. I.—Public Instruction	487
-----------------------------	-----	-----	-----	-----	-----

INDEX.



8 1 CSL

PART I.

PHYSICAL AND POLITICAL GEOGRAPHY.



Each of these eleven Provinces, including Mysore and Berar, submits to the Viceroy and Governor General, for Parliament, an Annual Administration Report drawn up on a uniform statistical system. Each Feudatory State is annually reported on by the Governor General's Agents, the Political Residents, or the Provincial Governments. These Reports form the basis of the present volume.

Surat became the first English Settlement in India under the imperial *firman* granted by Jehangeer on the 11th of January 1613. Two of the Company's factors visited Patna in 1620, and in 1634 Shah Jehan granted it a *firman* for the establishment of a factory in Bengal. But it was in 1636 that Mr. Boughton, a ship's surgeon, obtained the effective privilege of planting settlements there, from the gratitude of the Emperor to the physician who had saved his daughter's life. Mr. Boughton first visited the fort of Piple, but ultimately factories were opened at Balasore and Hooghly. The Presidency of Madras was not constituted at Fort St. George till 1639, three years after, but there had been factories previously on that coast first at Masulipatam and then at Armegan. The Island of Bombay was acquired by the English Crown in 1662, but the Western Presidency was not constituted there till 1668, the year in which the Company sent out their first order for the purchase of 100lbs. weight of the best tea. In the more than two centuries which have passed since that time the consumption of tea in England has risen to 123 millions of lbs. annually, and in the last ten years the new export of Indian tea has grown to 20 millions.

The territorial acquisitions were confined to trading factories defended by forts, till Clive's victory at Plassey in 1757. Since that year the British Empire has been steadily pushed on by the force of circumstances, and in spite of all declarations and frequent attempts in a contrary direction. Under Lord Dalhousie, who annexed Pegu in 1852, it reached and has since rested at its natural boundaries on every side except Burma. Excluding the military outposts of Aden and Perim which command the Red Sea, these boundaries have ever since been the Hala and Sulaiman ranges, the Karakorum and the watershed of the Himalayas on the north except at Nepal and Bhootan; the sea with its islands except Ceylon, a Crown Colony fed with labour from India, on the west and south; and a jungle line marked by no natural features stretching from the Yoma range irregularly in a south-east direction through Burma to the tenth parallel of latitude. British India is included within latitude 8° and 37° N. and longitude 66° 44' and 99° 30' E. involving 11,260 miles of external boundary. From Tenasserim by the Himalayas to Cape Mouze



In Sindh the inland frontier is 4,680 miles, while the coast line from the Straits Settlements to Kurrachee is 6,580. The length of India from the Indus to Cape Comorin, on the meridian of 75° , is 1,900 miles. The extreme breadth is 1,800 miles, on the parallel of 28° .

The French and Portuguese still hold a few square miles of territory, which the former administer from Pondichery, on the Madras coast, and the latter from Goa, on the Bombay coast.

Physical Geography.—The country is naturally divided into two portions, the Peninsular and the Himalayan. Mr. H. F. Blanford, of the Geological Survey, describes the former as traversed by two principal mountain chains; one running somewhat obliquely across the peninsula, in a nearly east and west direction, from the Gulf of Cambay to Amarkuntuk; and after an interval, rising again in Sirgoojah and running through Chutia Nagpoor and Hazaribagh to the western limits of the Gangetic delta; the other, almost at right angles to the former, running from the mouth of the Nerbudda to the southern extremity of the peninsula. The former may be termed the Satpoora and Chutia Nagpoor ranges, the latter is that of the Sahyadree or the Western Ghats. Besides these, a series of hill groups, separated by intervals of low country, extend in a north-east and south-westerly direction along the east coast. These are frequently termed the Eastern Ghats, but they are not continuous; and although in some parts rising to more than 4,000 feet above the sea-level, as a geographical feature they are of less importance than the first named ranges. These ranges may be regarded as the skeleton on which the form of the country chiefly depends. South and north of the Satpooras extend two great plateaux. The northern is separated from the range itself by the valleys of the Nerbudda and the Sone; along which it terminates by a steep abrupt escarpment, now termed the Vindhya range, on the north of the former, and the Kaimoor range along the latter, river. At the summit of this escarpment, the edge of the tableland is in some places 2,000 feet above the sea; and the surface slopes thence towards the Ganges valley, into which it is drained by the Chumbul, the Sindh, and the Ken rivers. On the west, it terminates at the Aravuli range, 3,000 to 4,000 feet high, which declines to the Thur desert. Mount Aboo in this range rises to 5,000 feet. The southern and larger plateau is not more than 1,000 feet above the sea at Nagpoor; but rises to the westward, till it attains to about 2,000 feet on the edge of the Western Ghats; where certain hills, such as that of Mahableswhar, reach to heights of upwards of 4,000 feet. Further south,



The surface declines towards the Tungabhoodra valley; but rises again in Mysore to 2,000 and even 3,000 feet, terminating in the lofty hill group, the Neelgiris, with an average elevation of 7,000, and one peak (Dodabetta) of 8,760 feet. To the south of the Neelgiris, beyond the Palghat Gap, and to the east, are grouped several massive hill clusters, some of them almost rivalling the Neelgiris, and offering some of the wildest and most picturesque scenery in the Peninsula.

The direction taken by the drainage has been determined mainly by the two mountain ranges first described. The Western Ghats constitute the principal watershed of the peninsula. Their crest is the highest continuous level; so that while their steep western slopes and the narrow plain at their foot are drained into the Arabian Sea, the great plateau to the eastward, occupied by Mysore, Hyderabad, the Dekhan and Nagpoor, with the broader plains of the Carnatic and Orissa, and the whole of the Eastern Ghats, are drained into the Bay of Bengal. The Satpoora and Chutia Nagpoor ranges constitute, either two or three parallel watersheds. The northern slopes of the Rajpeela and Satpoora proper, with the Puchmuree and Mundla hills, are drained by the Nerbudda, which flows westwards parallel with the axis of the chain: and the crest of the Vindhyan escarpment, which runs parallel with the river 20 or 30 miles to the north of it, is the limit of its basin in that direction; since all the plateau of Malwa and Bundelkhund, of which this range is the southern boundary, slopes towards the north, and throws its drainage into the Jumna and Ganges. On the south of the Rajpeelas and the Satpooras, another river, the Taptee, with its tributary the Pooran, also runs parallel to the chain; and, like the Nerbudda, flows westward, and discharges its waters into the Arabian Sea. The crest of the Satpoora, therefore, is the watershed between the Nerbudda and the Taptee. South of this latter river is a third watershed, formed by the Indhyadree hills, also parallel to the river and the two former, and dividing its waters from those of the Godavari basin. The watershed of the eastern or Chutia Nagpoor ranges in Sirgoojah, separates the Mahanudi from the Sone. To the east of Sirgoojah the hills spread out and form a broad plateau between the Sone and the Gangetic delta. The greater part of this is drained by the Damooda; the watershed of which separates it, on the south from the basins of the Brahmani, the Subunreeka and other smaller rivers; and on the north from the Ganges and some small streams flowing into the Hooghly. Thus the Satpoora and Chutia Nagpoor ranges, which are rather broad tracts of hill country than definite mountain ranges, have in both cases an



Independent local drainage system; while they divide the river basins of the Peninsula from that of the Ganges.

Geological Structure.—The rock formations that enter into the structure of the peninsular part of India are the following, beginning with those now actually forming; the others in order of increasing antiquity:—1st.—Certain superficial soils. Modern alluvial deposits of the rivers. Blown sands of the coast. 2nd.—Gravels containing rude stone implements of human manufacture. Old alluvial deposits of the great river valleys, containing bones of extinct animals and shells of living species of fresh water Mollusca, together with rude stone implements. Travancore deposits, containing marine shells, all of existing species. Upraised beds, containing shells of existing species, at many points on the Madras coast. 3rd.—Beds of sandstone termed the 'Cuddalore sandstones,' sometimes containing petrified wood, in Trichinopoly, South Arcot, Madras, and also in Beerbhoom. 4th.—Fossiliferous deposits of older tertiary or eocene date, at Surat and also in Kuch. 5th.—The great volcanic formation of Western India. The beds of fresh water origin, containing shells, intercalated between the trap-flows; and deposit near Rajamahendri containing marine shells. 6th.—The richly fossiliferous shales, sandstones and limestones, of cretaceous age, in Trichinopoly and South Arcot. The fossiliferous limestone and sandstones, immediately underlying the trap-flows, in the lower part of the Nerbudda valley, (the 'Bagh beds' of the Geological Survey): and probably a calcareous bed and sandstones, in a similar position, on the south of the Nerbudda valley near Jubbulpore, (the 'Lameta group' of the Geological Survey). 7th.—Fine shales containing remains of Cycadeous plants, in Trichinopoly, Madras, Nelloor, the Rajmahal hills, Central India (near Jubbulpore) and Kuch. These are probably of about the same age as the Wealden of Europe, or partly perhaps Upper Jurassic. 8th.—The highly fossiliferous Jurassic formation of Kuch. 9th.—An enormous series of deposits in Central India and Bengal, apparently of fresh water origin, for which the name 'Gondwana series' has been proposed. The upper part consists chiefly of massive sandstones, while the lower contains numerous beds of coal. These represent altogether a very long geological period, extending probably from the Devonian or Lower carboniferous, to the Upper Jurassic epoch. 10th.—A large and important series of rocks, consisting of sandstones, shales and limestones, in which no fossil has hitherto been detected. They form a great part of the plateau of Bundelkhand and Malwa, between the Nerbudda and the Ganges; and especially stand out in the Vindhyan escarpment on the south-



ern edge of the plateau. Hence the series has been termed the 'Vindhyan formation.' A lower member of the formation covers also the plain of Chutteesgarh, and is largely developed in Kurnool, parts of the Godavari basin and in the South Mahratta country. 11th.—A series of still older deposits, also quite unfossiliferous, very extensively developed in the Sone valley, Northern Bundelkhand and Gwalior, also in Singbboom and Cudapa underlying the Vindhyan series. These are termed the 'Bijawar series.' They are frequently much metamorphosed. 12th.—The ancient metamorphic (gneiss) rocks which lie at the base of all the above. The lofty hill groups of Travancore, Mysore, Salem and Trichinopoly which average from 3,000 to 7,000 feet in height, and include peaks of more than 8,000 feet, consist entirely of the ancient gneiss. The whole plateau of Mysore, 2,000 or 3,000 feet above the sea, and the greater part of the low country around and between the hills, are formed of the same rock. These hills appear to be the remains of a mountain range of extreme antiquity, since it is from the waste of these rocks that the only less ancient stratified deposits (the Bijawars and Vindhhyans) of the Nagari and Pulicat hills and the Nullamallais have been formed. Another hill region, of very high antiquity, is that of which we have remnants in the Chutia Nagpoor and Hazaribagh plateau, the higher parts of which are 2,000 feet above the sea; while some isolated hills, such as Parasnath, attain to an elevation of more than 4,000 feet. It is as yet uncertain whether the gneiss, of which this consists, is as old as that of Southern India.

Amid all the successive changes of level that must have modified the physical geography of the country, these ancient hill masses have continued to form its principal feature; at one time perhaps as lofty mountains ever yielding to the erosion of rain and rivers; at other times, as hilly islands washed by the sea. The latter was possibly their condition during a part of the cretaceous period, when the sea covered the present plains of Trichinopoly and South Arcot, and occupied what is now Eastern Bengal and the Himalaya as well as the western borders of Central India. But there is some reason to believe that, at a very early period, and perhaps up to this or a somewhat later date, this ancient land was connected with the Seychelles Islands, and at one time even with Southern Africa. Certain animals, whose remains are found fossil in the Panchet rocks, are closely related to kinds hitherto only met with in South Africa and Australia, in rocks of about the same age; and in the existing fauna of India there are many indications of relationship, and some cases of identity, with the South African and Seychelles fauna, pointing



to a common origin, and therefore to a former communication between the two regions. In the latter part of the cretaceous period, or perhaps at its close, took place that enormous outburst of volcanic activity that has covered 200,000 square miles of country with layers of lava and volcanic ash.

For a long time after the close of this volcanic period, the lava beds were subject to denudation by the action of the sea, and it is probable that about this time began that subsidence which buried their western extension beneath the sea. There are deposits of eocene age at Bharoach and Surat, and also in Kuch which shows that these portions of Western India were then covered by the sea: and such was also the case of the Indus and Gangetic valleys, and with much of the region now occupied by the mountains around. But all the remainder of India was probably land, and it may be doubted whether it has ever since been depressed beneath the sea with the exception of the plains lying along the coast and some of the lower hills. The great range of the Western Ghats is considered to be an old sea cliff. If so, it must have been formed during the tertiary period, and the Konkan must, for a long time, have formed the bottom of the sea. The Taptee and Nerbudda valleys, except perhaps the upper part of the latter, have been re-excavated since the volcanic period, for they are cut through the trappean rocks, and the same is true of the upper tributaries of the Godavari and the Kistna, the Wurda and Pain Gunga, the Bheema and the Seena. The alluvial plains along the east coast of the Peninsula have been formed by the deposition of sediment brought down by these and other rivers that drain the interior. At one time, the coast line must have been very irregular, stretching back to the hills of the Eastern Ghats; and the low country of the Payan Ghat was being planed down by the sea. It was then, (during some part of the tertiary period) that the 'Cuddalore sandstones,' were deposited. Finally, this sea bottom was elevated; and the irregularities in the original coast line, thus produced, have been filled up by the deltas of the great rivers, or, being inclosed by sand spits the lagoons left behind them have been gradually filled and then elevated.

Physical Geography of the Himalayan Region.—We come now to the second or Himalayan portion. At the foot of the great mountain ranges which cut off India from the rest of the Asiatic Continent, viz., the Hala and Sulaiman ranges, the Himalaya, and that which in Eastern Bengal rises from the swamps of Sylhet and Mymensing, a broad belt of plain stretches across from sea to sea. This plain completely isolates the ancient highlands and hill groups of the Peninsula, from the more im-



posing but more recent encircling chain. A section of the Himalaya from India to the Desert of Gobi shows, 1 Gangetic Plain. 2. The Great Snowy Range. 3. The Indian Watershed. 4. The Sampo Valley. 5. The Plateau of Tibet. 6. The Keun Lun. 7. The Desert of Gobi.

The direction of the Himalaya is not the same throughout. From the gorge of the Dihong in Upper Assam to the Gunduk it runs nearly west, with a slight curvature, convex towards the plains of India; and beyond this it curves to north-west as far as the valley of Kashmeer. It consists of several parallel but not continuous ridges, and the subordinate ridges or spurs which these give off in a more or less transverse direction. The loftiest of these principal ridges is about 60 or 70 miles distant from the plains. It includes or is connected by spurs with the gigantic peaks, Chamalari, Kunchinjunga, Mount Everest (the loftiest known mountain in the world), Doulagiri, and Nanda Devi, the lowest of which is but little under 24,000 feet, while the others vary from 25,700 up to 29,000 feet about sea-level. The Himalaya may be said to terminate in Kashmeer, and on the north at the sources of the Gilghit river, a tributary of the Indus. Beyond this to the west, with one exception the direction of the mountain ranges is totally different, and parallel to the Indus in the lower half of its course. In Banair and Kafiristan, this direction is approximately north-east and south-west; and further south, where the Indus issues from the Salt-range on the plains of the Punjab, north and south. The chief exception is the Safid Koh which divides the valleys of the Cabul and Shamil rivers, and runs east and west from Peshawur up to the tableland of Cabul. Several peaks of this range are 15,000 and 16,000 feet in height. A range south of the Shamil river and one or two other smaller ridges run parallel with the above. Another exception is exhibited in the Salt-range. This is the range at the edge of the little tableland (about 2,000 feet high) which occupies the angle between the Safid Koh and the Sub-Himalaya. It is drained into the Indus by the river Sohan.

The Sulaiman range bears somewhat the same relation to the tableland of Afghanistan that the Himalaya does to Tibet; but both the tableland and its boundary range are very much lower. The highest peak of the Sulaiman range, the Takht-i-Sulaiman, is only 11,300 feet in height, and the city of Cabul, on the northern and highest part of the tableland, is but a little over 6,000 feet.

The Hala range, to the west of Sindh, and running also north and south, is still lower. Biloochistan, like Sindh and much of



Afghanistan, is a very arid country, large tracts being absolute desert. A little vegetation only is met with along the courses of the rivers, which carry down the scanty drainage of the mountains, and generally lose themselves in the sands, or are used up for irrigation, before they reach any permanent stream. This is not the case, however, with the rivers of Cabul, which drain the snowy ranges of the Safid Koh and the Hindu Koh and are, at all times, well filled streams. The greater part of Afghanistan is drained by the tributaries of the river Helmund, which discharges itself into the salt swamp called the Sistan lake, on the borders of Persia, and lying 1,550 feet above the sea-level.

Of the countries to the east of the Great Dihong river, at which the eastern Himalaya may be said to terminate, we know but little. But there seems to be little doubt that the great ranges of mountains that run down from the Tibetan tableland have a meridional, that is, north and south, direction; while, in the valleys between them, the great rivers, the Irawadi, the Yang-tse-kiang and the Mekhong or Cambodia river, carry down the drainage of the snow-capped peaks and ridges that border Central Tibet. To the south and south-east of Assam, the prevailing direction of the principal chains is intermediate between that of the Himalaya and the line of the Irawadi valley. Thus the Patkoi range, south of Upper Assam, and the Barril range, north-east of Cachar, run north-east and south-west, while the Garo and Khasi Hills between Lower Assam and Sylhet run east and west. All the chains of Arakan and Burma run north and south; and such is also therefore the prevailing direction of the rivers.

The great plain which lies along the foot of these several mountain systems, separating them from peninsular India, and stretching from sea to sea although truly described as a plain, is far from being absolutely level. Its highest point lies at the foot of the Sivaliks, between the Jumna and the Sutlej, where it is more than 1,100 feet above the sea. It declines from the foot of the hills towards the south, and from the Jumna-Sutlej watershed towards the east; so that at the foot of the Sikkim hills and in Lower Assam it is only about 300 feet, at Agra 550 feet, and at Sahetgunj 115 feet above sea level. On the side of the Indus valley, the slope is from north to south (along the line of the Indus); and from east to west, from the foot of the Aravuli chain nearly to that of the Hala and Sulaiman ranges. Hence it follows that, while the Ganges flows along the southern margin of its plain, or at the greatest distance from the hills, the Indus flows along the foot of the boundary range. Were the drainage of the Sulaiman and Hala mountains as copious as



that from the Himalaya, the alluvial deposits brought down from those mountains would raise the level of the plain at their foot; and, in the course of the time, the Indus would be driven to a distance from these hills, just as the Ganges is from the Himalaya. But this part of the country is almost rainless.

Bengal and Assam.

Up to the beginning of February 1874 the Province of Bengal contained Assam, and in this volume Assam will be treated as a portion of Bengal. But the following districts were then constituted a separate Chief Commissionership, by the Governor General's Proclamation :—

		Square Miles.	Population.	Revenue.	
				Land Rs.	Gross Rs.
Assam Division	..	35,130	2,207,453	24,90,716	41,52,727
Cachar	...	1,285	205,027	164,709	2,92,691
		36,415	2,412,480	26,55,425	44,45,418

Area and Boundaries.—Including the above, the territory under the administration of the Lieutenant Governor of Bengal in 1872-73 comprised Bengal Proper, Behar, Orissa, and Chota or Chutia Nagpoor. Its extreme limits extend from $19^{\circ} 18'$ to $28^{\circ} 15'$ north latitude, and between 82° and 97° east longitude. The entire Province was bounded on the north by Nepal, Sikkim, and Bhootan, and towards Assam the Duffa, Akha, Meeree, and Mishmee hills, inhabited by the tribes bearing those names, who occupy the lower ranges of the eastern Himalaya. On the east the boundary was less defined; the Assam frontier is bordered by the hilly country of the Abors, Singphos, Kampteas and Nagas. The friendly state of Manipore next adjoins, and between it and the hill tracts of Chittagong, abutting the districts of Cachar and Sylhet, the hills are occupied by the Lushai and Kookie tribes, who have for many years past proved most troublesome and intractable neighbours, but with whom, as a result of the Lushai expedition, we have now established closer relations. The Arracan hills and the Naaf river complete the boundary on this side, separating Bengal from Burma. The south is washed by the sea and embraces the head



of the Bay, which derives its name from the province. At a point near to Ganjam, on the sea-coast, the boundary line divides Bengal from Madras, and proceeding northwards, verges on the Central Province, the State of Rewah, and the North-Western Province.

The total area of the Province, including Assam, is 251,768 square miles, as given in recently corrected and readjusted returns though some portions are still unsurveyed and only approximately determined. The Regulation and Non-Regulation Districts comprise 213,507 square miles, and the Tributary States and since reclaimed territories make up the remainder. The returns of cultivated and uncultivated areas and of road and water communications are not sufficiently accurate to be embodied in the present volume. The extent of railways completed in 1872 amounted to 1,298 miles. Broadly speaking, the chief characteristics of the Province are the plain of the Ganges proceeding from the north-west, and the valley of the Brahmaputra from the north-east, meeting in the great delta of Bengal. On the west rise the high lands of Chutia Nagpoor and Orissa; on the east the Chittagong, Tipperah, Garo, Khasi, and other hills; on the north the Darjeeling district is our sole possession in the Bengal Himalayas.

Bengal proper is the great alluvial and deltaic plain between the Himalayas and the Bay of Bengal, with some minor hilly tracts on either side. Behar is the upper Gangetic plain west of Rajmehal, and lying between Bengal and the North-Western Provinces. To Behar also is attached a narrow range of hills. Orissa comprises a long, flat, diluvial strip between the hills and the sea, forming one settled district, and a large hilly tract in the rear occupied by the Tributary Mehals. Chutia Nagpoor is the elevated and hilly country west of Bengal and Behar and north of Orissa. Assam is the long valley of the Brahmaputra, to which several hill districts are now attached.

The Ganges enters Lower Bengal from the North-Western Provinces near Ghazeepore; shortly after it receives the Gogra on the north bank, the Soane on the south, and the Gunduk again on the north, at Hajeepore—all rivers of considerable volume—and maintains a course generally easterly, but diversified with windings. The Kosee joins it below Bhaugulpore, after which the river turns the corner of the Rajmehal hills and assumes a nearly southerly direction with its greatest body of water, till the Bhagiruttee flows away on the west side to form the Hooghly, the most navigable of the many mouths, while the main stream continues south-east to Goalundo; there the Jumoonna, the principal branch of the Brahmaputra, is met, and the am-



agmated column empties itself by many channels into the Bay of Bengal. The Brahmaputra, formed by the union of several great streams, enters Assam at its north-east extremity. It flows towards the south-west, through the length of the Assam valley, after which it clings to the contour of the Garo Hills, and then proceeds due southwards to its junction with the Ganges near Goalundo. From these rivers the Gangetic delta is formed, and consists more immediately of the districts included in the Presidency division, with Moorshedabad, and Furreedpore and Backergunge of the Dacca division. Between the cultivated districts and the sea is a tract bearing the general name of the Soonderbuns, which hitherto, owing to inroads of the sea, the jungle, and wild beasts, with the unhealthiness of the climate, have baffled the enterprise of modern man.

The Soorma's course is somewhat similar to that of the Brahmaputra, on a smaller scale, rising as it does in the north-east of the Cachar Hills and flowing westward, past Sylhet and Chuttuck, till it also suddenly adopts a southern turn to join the Brahmaputra and from the Megna. The Soorma valley, to the south of the Garo-Khasi-Jyntea Hills, is the high road to Cachar, and the stream affords good water carriage for the greater part of its length. The Chittagong rivers, including the Fenny, which separates it from Tipperah, fall into the east of the Bay of Bengal, but have no connection with the water system above described. The largest of them, the Kurnafoolee, on which Chittagong is situated, rises in the highlands to the north of the Blue Mountain, and gathers the contributions of the minor hill streams on either bank. Its course is south-westerly, as determined by the conformation of the hills, and changed perpetually by the protruding spurs. On the western side of the Gangetic delta again the rivers have little or no connection with the main system of the country. The Damoodah, the Roopnarain, and the Cossye may all be said to join the Hooghly between Calcutta and Saugor Island, but they are isolated rivers which have sprung from the plateau of Chutia Nagpoor, do not help to form the delta, and are independent entirely in character. The Soobunreeka, the Byturnee, and the Mahanudi, have direction generally parallel to one another and a south-easterly course, the two former rising in Chutia Nagpoor, the latter in the Central Provinces. The Mahanudi is navigable for boats of a sort for 460 out of its 520 miles, and near Cuttack is about two miles in breadth in the rains.

The mountains and hills in the small part of the Himalayan chain within the jurisdiction of the Lieutenant Governor, form



elevations which vary greatly, from Darjeeling 7,000 feet above the sea, on the south, to lofty Kunchinjunga, 28,000 feet high, on the north-west. Gneiss is the chief formation of the rock, while on the banks of the Rungeet river slate is found, and at the foot of the hills iron ore; moreover the presence of copper is ascertained. The Rajmahal hills form the eastern projection of the Central Indian formation ending near the town of that name, round which the Ganges flows. They are the first connected high ground that strikes the eye of the traveller ascending the Ganges. South-west of these are broken, detached hills of considerable height, the largest of which is Parasnath, rising out of the surrounding country often in an almost perfect conical form to a height of about 4,400 feet. Many of these can be seen on the chord line between Raneeunge and Luckeeserai, and appear geographically as irregular links between the Rajmahal hills and the plateau of Chutia Nagpoor, which is hilly almost throughout, scantily populated, and covered with jungle over most of its surface. The extensive collieries at Raneeunge, on the confines of the Burdwan division and Chutia Nagpoor, furnish at present an unlimited supply of coal, which is of a moderately fair description. These regions where coal seams are abundant may generally be said to be from 1,000 to 2,000 feet above the sea. To the south of Chutia Nagpoor again, on the west side of Orissa, are the Orissa Tributary Mahals, a hilly country containing a considerable population. There are forests of sâl on the hills, which run parallel to the line of coast from north-east to south-west, to near the south-west extremity of the province, the Chilka lake, on the banks of which, as along the sea shore of Cuttack, much salt is manufactured.

The mountainous tract to the east of Bengal has some summits with an elevation of 11,000 or 12,000 feet, and our settled hill districts rise to 6,000 feet. They abound in coal and iron ore intermixed with limestone of excellent quality. The eastern boundary of Bengal, at the extreme north-eastern corner of Assam, is formed by a spur from the Himalayas, and from this point the hilly range is never entirely broken to the south of Chittagong. First to the north-east are the hill regions of the Singphoo and Abor tribes, then the Naga hill districts to the south of the Assam valley, continued by the Muniore, Cachar, and Tipperah hill to the Chittagong Hill Tracts: meanwhile the Garo-Khasi-Jynteah range strikes out parallel to the Himalayas up to the bend of the Brahmaputra; a considerable area of this high country is as yet insufficiently explored. The inhabitants are for the most part primitive in their habits, and belong to aboriginal races, of Indo-Chinese type. The jungles are intensely thick. Of the



more remote parts of these hills little is known except from the reports of survey parties and such personal narratives as are depicted in Captain Lewin's "Chittagong Hill Tracts."

The Assam valley is almost a perfect flat, studded with clumps of little conical hills rising abruptly from the general level to the height of 200 to 700 feet, rich in rivers and in mineral treasures, coal of a fair class being found; the climate, too, is very favourable to the indigenous tea-plant, which grows luxuriantly. The greater part of Bengal and Behar is formed of uninterrupted flats, subject to inundation, rich in black mould, some portions naturally more fertile than others,—the Dacca division being so fertile that it has been called "the granary of Bengal." Drawing a line southwards between Baucobrah and Burdwan, carrying it on past Midnapore and down towards Balasore, it will be noticed that to the west the ground partakes of the character of the Chutia Nagpoor plateau, granite being found overlaid with carboniferous sand-stone, containing iron and coal in great abundance, and the climate in consequence being of a drier character.

There are no lakes of importance besides the Chilka, though there are numerous *jheels*, or shallow sheets of water, which expand or diminish owing to the season. The most remarkable are the Monda, Dulabari, and Chullum *jheels* in Rajshahye, the Aka in Jessore, and the great *jheels* in Backergunge.

Climate.—Although Bengal is situated for the most part without the tropical zone, its climate is characteristically tropical. The mean temperature of the whole year varies between 80° (in Orissa) and 74° (in parts of Assam), that of Calcutta being 79°. In the annual range of their temperature, as well as in point of humidity and rainfall, the eastern and western portions of the province are strongly contrasted. In Cachar, nearly 200 miles from the sea, the mean temperature of June is 82°, that of January 64·5°, and the highest and lowest temperatures recorded during five years, *viz.* 99° and 43°, show an absolute range of 56° only. At Chittagong, on the sea coast, the recorded range does not exceed 49°. On the other hand Patna has a mean temperature of 87·2 in June and 60·7 in January, and in 1869 the highest and lowest temperatures registered were 116·3° on the 12th May, and 36·9° on the 3rd and 4th of January; the absolute range of this year was therefore 79·4°. It is probable that some parts of Behar—the neighbourhood of Gya, for instance—experience a range somewhat greater than that of Patna.

The highest temperature recorded in Calcutta during the last 18 years is 106°, which has been reached twice only, *viz.* once in 1867, and again in May of 1873. The lowest temperature,



52.7 has been recorded also twice, *viz.* in January 1860 and 1864, and 52.8 has been observed twice, *viz.* in January 1857 and 1861. The extreme absolute range of the temperature of the capital is therefore a little over 53°, and the mean temperatures of December and May are 68.5 and 85 respectively. The annual rise and fall of temperature exhibits some other local variations. Thus in Orissa and the western part of the Gangetic delta December is the coldest month of the year; elsewhere the mean temperature of January is somewhat lower. This difference is due to the sea winds setting in on this part of the coast very early in the year, whereas in Behar their influence is not felt till much later in the season.

During the rains the temperature of the Hazaribagh plateau, to the west of the delta, falls more rapidly than that of any other part of Bengal. Between May and October the fall at Hazaribagh is rather more than 11°, while at Berhampore, under about the same latitude, it is only 4½°, at Calcutta little more than 3°, and even at Patna it does not exceed 8°. This peculiarity appears to be due principally to the cloudiness of the plateau in the daytime, whereby the sun's heat is rendered less intense, and to the greater radiation at night. This fact has an important bearing on the value of Hazaribagh as a station for European troops, and as a sanitarium for invalids from the plains. The quantity of vapour in the air of Calcutta, relatively to the dry air, is, on the average of the year, about twice as great as in that of London; but the relative humidity of the former equals that of the latter only in the three first months of the rains, which are among the driest months of an European climate.

The districts of Eastern Bengal, including Cachar and Sylhet and the Himalayan Terai, are those of the heaviest rainfall. Their average annual fall almost everywhere amounts to 100 inches, and on the exposed hill flanks, and at their foot, even this large amount is greatly surpassed. Thus Sylhet has an annual average of 141 inches, Darjeeling 126 inches, the Rungbee cinchona plantation 175 inches, Buxa fort 280 inches (the average of three years), and Cherra Poonjee the enormous amount of 527 inches; this last is the highest average rainfall hitherto recorded in the world. The rainfall is also higher on the plains of the coast than on those lying more inland. Thus Saugor Point has an average of 87 inches, and Calcutta 66, False Point 74 inches, and Cuttack 52.5. The lowest rainfall in the provinces under the Bengal Government is that of the southern portion of Behar, including Monghyr, Gya, and Patna, where the annual fall does not much exceed 40 inches, and in the case of



The last mentioned station is only 37 inches. North of the Ganges it increases gradually up to the Himalaya, and on the south up to the high ridge of forest-clad country which is drained by the Soane, the Damoodah, and their tributaries. In this tract, where the monsoon winds from the opposite coasts of India meet, the fall of the few stations that have hitherto furnished registers ranges between 50 and 60 inches. In Calcutta the highest rainfall on record is that of 1871, when it amounted to 93.31 inches; the lowest (if the register can be trusted) during the last 36 years is that in 1837 (the first year of the series), when the registered fall was as low as 43.61 inches. In subsequent years the lowest falls were those of 1838 (53 inches), 1853 (52.08 inches), and 1860 (52.61 inches). In 1873 the rainfall up to the middle of November was only 44.31 inches. The Cherra Poonjee register of 1861 records a fall of 805 inches, of which 366 inches fell in the month of July alone. It is said that 150 inches have been known to fall in six days. 12 inches of rain in one day is far from unusual at Cherra Poonjee. On the 13th June 1861 an equal quantity fell in Calcutta within 24 hours. At Mozufferpore in September 1871 nineteen inches of rain fell in 26 hours.

By far the greater part of the rain of Bengal falls between the months of June and October. Showers occur also in the hot weather months, and in the months of February and March hailstorms are not unfrequent. In the eastern districts rain occurs occasionally in the cold weather months, but is less common in the Delta and the country further westward, excepting in the North-West Provinces and the Punjab. In the eastern districts and in Assam rain is more abundant in all the earlier months of the year; in April the rain sets in heavily and reaches its maximum about June or July. Further to the west the rains usually set in in June, and July and August are the months of the heaviest fall.

The monsoons are not two undivided currents flowing to and from Central Asia during about equal periods of the year, but appear rather to consist at each period of at least two principal currents,—the one tending to or from Northern India, the other to or from the interior of China; and there are probably other minor currents originating or terminating at other centres. The Indian branch of the winter monsoon originates in the plains of the Punjab, the Gangetic valley, the uplands of Central India, and also in Upper Assam, and blows as a very gentle wind towards the two great Bays that wash the east and west coasts of the peninsula. During this season a southerly wind prevails steadily on the Himalaya at heights above 6,000 or 8,000 feet,



descending lower on the western than on the central part of the range. This appears to be the upper return current of the winter monsoon, and corresponds to the anti-trade of the trade-wind region. It descends on the plains of upper India, where the atmosphere is characteristically calm at this season, and brings the winter rains, on which the *rubbee* or springs crops depend. It is less frequently felt in Lower Bengal, where the wind is variable from north and north-west; but to the eastward, in Cachar, southerly winds are very prevalent at the winter season. In Northern India the two branches of the northerly monsoon appear to diverge towards the opposite coasts, from a line characterized by a ridge of higher mean barometric pressure, which passes from the Punjab through Benares to Cuttack. This monsoon ceases on the coast line of Bengal in the month of February, when in the lower atmosphere sea winds set in. At first these are restricted to the immediate neighbourhood of the coast, but as the season advances and the heat of the interior plains rises under the influence of the returning sun, they penetrate further and further inland, and are drawn from greater distances at sea. In the interior of India the wind becomes more westerly and blows towards lower Bengal and Chutia Nagpoor, not as a steady current, but as day winds, which in April and May are highly heated by the parched and heated soil, and constitute the well-known hot winds of those months. Where these two currents meet, the thunderstorms well known as north-westers are generated. Like the thunderstorms of Europe and the dust-storms of the Punjab, they are due to convection currents, and in Bengal owe their prevailing movement from the west or north-west quarter to the strength of the land wind, which maintains its course in the upper atmosphere above the opposite sea-wind, which is felt at the land surface. At this time the north-west wind continues to blow unsteadily in the south of the Bay, but calms are not unfrequent, and it is not till June that the southerly winds of the Bay become continuous with the south-east trades of the South Indian Ocean, and that the south-west monsoon, properly so called, sets in in India. This blows from both coasts, and the two branches meet along a line which about coincides with the southern margin of the Gangetic plain. Both tend towards the Punjab, the region of the greatest heat at this season, and becoming gradually drained of their vapour in their passage over the land, that which remains on their reaching the plains of that province suffices only to afford a scanty rainfall, inadequate to mitigate the temperature, and only rendering the heat more oppressive by increasing the relative humidity and diminishing the evaporative power of the air.



The average pressure of the air in Calcutta, 18 feet above sea-level, is equal to that of a column of mercury at the freezing point, 29.793 inches in height, or to 14.61 lb. on the square inch. It is highest in December, when the mean pressure similarly estimated amounts to 30.041 inches, and lowest in June and July, when it averages 29.551 inches.

Cyclones begin in all cases over the Bay of Bengal, and the more violent and extensive storms, which alone reach the land, probably require many days to form before they move forward from their place of origin. Some of the most destructive that have passed over Bengal have proceeded from the neighbourhood of the Andaman and Nicobar Islands. Their relative frequency in the different months of the year is shewn in the following table, which includes storms of all parts of the Bay, and those that have been felt on all parts of its coasts, Bengal included.

January	...	2	July	...	2
February	...	0	August	...	2
March	...	1	September	...	3
April	...	5	October	...	20
May	...	17	November	...	14
June	...	4	December	...	3

Of these seventy-three storms, twenty-three have been felt in Bengal or on its coasts, and all between the months of April and November, inclusive. Their course is usually north, across the Gangetic delta, north-west from the Orissa coast. The motion of the wind is in an involute spiral, revolving in a direction opposite to that of the hands of a clock, as in all cyclonic storms in the Northern Hemisphere. The greatest pressure of the wind in these storms is yet to be ascertained. The highest that has been registered in Calcutta by an Osler's anemometer is 50 lbs. to the square foot, but this was in a storm of no remarkable violence, and one which did but little injury in Calcutta. The centre of the storm at the time was passing some 15 miles to the east of the city, and the barometer stood at 28.712. In the far more severe storms of the 2nd November 1867 and the 5th October 1864 the anemometer was blown away, under a pressure of 36 lbs. to the square foot, so that no register of their maximum force was obtained. There is a prevalent impression that cyclonic storms have been more frequent of late years than formerly, but the belief does not appear to rest on any sound basis of fact.

Oudh.

Area and Boundaries.—Oudh is an irregular parallelogram with its base to the south-west on the Ganges; to the east, artificial boundaries divide it from the districts of Jounpoor, Azim-



gurih and Bustee; towards the extreme north-east the little river Arrah forms the frontier. The northern boundary runs westward from the Arrah, along the watershed of the range of low hills which divide the province from Nepal. These hills form the northern frontier for 60 miles throughout the Gonda district; at Bhagora Tal, the Nepal territories advance into the Terai below the hills, and so continue to the Koriali. West of that river the Mohun, its tributary, forms the northern boundary for some distance. The district of Shajehanpoor marches with Oudh to the north-west. Its greatest length, from north-west to south-east, is 234 miles, its breadth is 150 miles. It lies between latitude $25^{\circ} 34'$ and $29^{\circ} 6'$ north, and longitude $79^{\circ} 45'$ and $83^{\circ} 11'$ east. Its area is 23,930 square miles, of which 13,126 square miles, or 8,400,000* acres, are cultivated with crops, and 952 square miles are covered with orchards of mango and mhowa trees. 1,134 square miles, or $6\frac{1}{2}$ per cent. of the total area, are covered with lakes, ponds, or rivers. 478 square miles are occupied with the sites of towns or villages, 243 with roads or paths, 1,642 square miles, or seven per cent., are barren wastes; of the remainder, 825 are Government forest, and 5,531 square miles, or 22 per cent. of the whole, are arable waste. The rivers afford no less than 1,347 miles of navigable stream, leaving out of consideration rivulets like the Jai and the Jaketu, navigable only in the rains.

The general slope of the country is from north-west to south-east. Its highest point in the plain country is the high land, north of Dudwah Ghat, in Khyrigurh: this is 600 feet above the sea, but the mountains of Gonda reach an altitude of 2,750 feet just on the border of Nepal. The lowest lying point is near the Goomtee, on the border of Jounpoor, this is about 230 feet above the sea. Lukhimpoor is 484 feet above the sea, Lucknow 403, and Sultanpoor 305. The Ganges, the Goomtee, the Gogra and the Raptee, are the main rivers of Oudh. Their aggregate dry weather discharge is 18,800 cubic feet per second, and the entire river discharge, including the smaller streams, will reach 20,000 cubic feet or half the quantity in the five rivers of the Punjab. These rivers flow all from north-west to south-east, gradually, approaching each other. The Koriali and the Chowka, which after their junction form the Gogra, and the Ganges come from the loftiest elevations of the Himalayas and are fed with perpetual snow; others like the Ramgunga, the Garha and the Raptee, descend from heights of many thousand feet. They would be an immense economic power if their channels did

* Including 150,000 calculated area of cultivation in the 265,000 acres of rent free land.



not lie on an average about 40 or 50 feet below the level of the country.

The forests of Oudh lie principally in the districts of Kheri, Bharach and Gonda. It is difficult to give an exact estimate of their extent, because they shade off insensibly into mere brushwood and jungle. Government possesses 825 square miles of State forests, of which 423 are in the Kheri district, 123 in Gonda, and 269 in Bharach. In addition to these there are forest lands which have been sold to individuals, these amount to 227 square miles in Kheri, and are of trifling extent in other districts. Altogether the forest lands of Oudh may be estimated at 1,300 square miles, and in addition there are 952 square miles covered with plantations. The remaining waste lands consist in about equal proportion of grassy prairies, of alluvial deposit along the rivers covered with the long jhau "tamarix dioeca" and lastly of lands, older lacustrine deposits, now covered with bushy jungle.

The broad features of Oudh as compared with other countries may be stated as follows:—It is a tropical country a little smaller than Scotland, a little larger than Denmark, but with a population more than double that of both put together:—

	Square miles.	Population.
Scotland, ...	30,686	3,366,375—1871
Denmark, ...	21,856	2,464,864
Oudh, ...	22,930	11,220,232

In density of population it surpasses most parts of India and any other Indian Governorship taken as a whole, while no European country approaches it.

	Population per square mile.	Date of census.
Bengal ...	269	1872
North Western Provinces, ...	378	1872
England and Wales, ...	344	1861
Scotland, ...	100	1855
Belgium, ...	400	1855
Oudh, ...	469	1869

The proportion of arable soil to total area in Oudh is very large; there seventy-six per cent. can be cultivated, whereas only thirty-three per cent. of Scotland is productive.

The first or lowest chain of the Himalayas which bounds the Eastern part of Oudh on the north is from 2,500 to 4,000 feet high; it is one of four parallel ranges, each loftier and more remote, one rising a little above the nearer, all of which are distinctly visible in the rains from Faizabad and Seetapoor, though the distance in some cases is nearly 200 miles. The nearest range is forty-eight miles from Kheri; it rises very abruptly but is covered with brushwood and forest. In the Terai, which extends for many miles from the foot of these hills, there are



numerous swamps caused by the presence of a low ridge which stops the drainage. Elsewhere the country is covered with forest, principally and often entirely of Sal (*shorea robusta*.) From the lower slopes of the Himalayas come down innumerable streams; at first their steep slopes produce rapid currents of clear water tossing over huge rounded pebbles which the occasional torrents bring down; very soon, however, they reach more level ground, some ridge crosses the course, the stream spreads in a shallow stagnant pool behind it and large tracts are thus covered with a few inches of water. These lagoons are often fringed with mangroves, and from the quagmires, in some of which an elephant may sink and disappear, rise vast forests of lofty reeds, (*Narkul*) which frequently give shelter to the tiger. The whole of the country is seamed with the dry channels of the rivulets which form the head water of many streams, and with the now abandoned courses of the larger rivers; percolation still supplies abundant moisture, and nothing can be more beautiful than the tropical luxuriance of vegetation which is met with in such places. This part of the country is, however, most unhealthy during a great part of the year except to those who are acclimatised, the stagnant water when drunk is almost certain to bring on dysentery, and the chill which follows a copious draught often ends in fever. Apparently this was not always the case. The area of comparative depression seems to have changed its site, for in former times the country skirting the Himalayas was inhabited and cultivated, while according to the popular view the next zone commencing at a distance of about thirty miles from the mountains was a lake; and there is much to support this view. Everywhere throughout two-thirds of North Oudh, at a depth of ten to twenty feet, a thick layer of fine sand is met with, intermixed with fresh water shells and pebbles; in the south of the Kheri district, when wells are dug, excavations of a few feet turn out numbers of good sized round boulders such as are now found twenty miles further north in the beds of the mountain torrent. However this may have been there is now no area of depression to receive the waters of the Himalayan streams; the elevation of the zone which formerly appears to have been a lake with scattered islands is now almost equal with the country along the base of the mountains, consequently the drainage is impeded, and all the low lands so called, though really from five to six hundred feet above the sea, are marshy and unhealthy.

Between the several rivers, strips, more or less broad, of high land come down from the mountains into this low plain; they are generally covered with Sal forest. Such may be seen between the Ganges and the Chowka, the Chowka and the Koriali, the Koriali



and the Raptée. These tongues of high land generally end precipitously, and then the plain proper of Oudh commences with a fringe of Shisham trees. The rivers, though they have had little to do with the formation of this plain, materially modify its appearance. All along the Ganges, Goontee and Koriali, there are high ridges. The floods when they first rose above their banks and spread over the country deposited at once near the channel the large gritty particles which their water, being now more widely spread, shallow, and gentler, could no longer carry. Thus high sandy banks were formed, while the finer mud was deposited more evenly over the interior. The plain between most of these rivers is rather saucer-shaped, the edge being due to the sandy deposit; the Koriali and Chowka which formerly wandered over a large delta now have well defined channels which they scour deeper year by year. The country on each side is quite beyond the reach of these rivers, although a number of minor streams such as the Sai, Lonee, Kallianee and Oel, which are fed by surface drainage from the upper plateaux of Oudh itself, often flood the cultivated ground and destroy the crops. The remaining features of the Oudh plain call for no detailed description. A rich, well cropped level of fertile ground is varied by fine groves, by barren plains, and by picturesque but shallow lakes.

Oudh is bounded by British territory, except on one side where it adjoins Nepal. The boundary line is partly natural, partly artificial, and the greater portion of it was demarcated by a joint commission of British and Nepalese officers in 1860, when the territory added to Oudh after the Nepal war was restored to the last named country. Such few disputes as arise regarding this boundary are usually settled amicably, and beyond the fact that many criminals evade justice by crossing the border, and trade is interfered with by transit duties, the proximity of an independent State causes little or no inconvenience. The country near the frontier is but thinly populated, and the range of mountains nearest to Oudh is not very high; it is probably owing to these reasons that the Province has for many years been safe from the raids of the hillmen who give so much trouble in some parts of the empire.

Climate.—The climate of Oudh may be briefly described as a mean between that of the Punjab and Upper Provinces, and that of Bengal. For, while the cold is not so great nor the dry heat so intense as in the former, the difference in the seasons is far more marked than in the Lower Provinces of Bengal, with their moisture, though more equable temperature. To a European the climate of Oudh during the short cold season seems nearly perfect.



Places.	Rain-fall in inches.				Average temperature in shade.								
	January to May.	June to September.	October to December.	Total.	May.			July.			December.		
					Sunrise.	2 P. M.	Sunset.	Sunrise.	2 P. M.	Sunset.	Sunrise.	2 P. M.	Sunset.
Lucknow Observatory.	29.47	38.496	...	41.443	78.6	106.8	93.5	81.6	89.2	86.7	48.3	77.0	61.7
Unao Dispensary.	...	2.9	42.0	...	44.9	83.8	111.1	99.1	81.7	93.3	80.1	52.5	73.3
Bara Banki.	...	2.45	37.6	...	40.05	82.4	102.9	95.7	82.6	88.1	85.2	53.6	72.9
Faizabad.	...	2.45	45.3	...	47.75	84.0	100.1	96.7	83.8	85.4	85.9	60.1	66.4
Gonda.	...	4.3	70.3	...	74.6	83.5	99.4	89.6	82.3	84.6	83.1	51.3	71.4
Baran.	...	3.5	31.5	...	35.0	85.4	93.1	93.0	84.8	87.9	86.0	59.6	69.0
Sitapur.	...	3.7	28.2	...	31.9	84.1	93.3	91.3	83.4	87.5	86.3	49.4	76.5
Hardoi.	...	3.6	47.3	...	50.9	82.5	101.9	98.2	81.9	88.7	87.1	49.0	76.0
Kheri.	...	6.0	43.0	...	49.0	75.3	103.3	95.5	80.0	92.3	87.1	49.2	79.8
Rai Bareilly.	...	2.2	34.7	0.5	37.4	83.3	105.9	97.7	79.7	94.7	84.8	50.7	85.3
Sultanpur.	...	2.1	51.1	0.2	53.4	82.7	103.3	98.3	82.4	93.7	86.8	49.4	81.5
Pratapgarh.	...	2.9	37.0	...	39.9	79.9	108.6	96.1	89.8	93.2	85.7	56.7	76.1
General average.	3.254	42.203	50.35	45.52	82.1	101.8	95.8	82.2	89.9	86.3	52.5	75.5	67.7

* The mean sunset temperature for December for Faizabad is given higher than the mean 2 P. M.

The Punjab.

Area and Boundaries.—The territories under the Government of the Punjab and its Dependencies include all British India north of Sindh and Rajpootana lying between the River Jumna on the east and the Sulaiman Hills on the west. The extreme length is about 800 miles, and the extreme width about 650 miles. The total area included within these limits is over 200,000 square miles, more than half of which is the territory of Feudatories. The British possessions in the Province are returned as 103,748 square miles; of which 34,438 square miles, or less than one-third, are cultivated; 28,285 square miles, or about one-fourth, are culturable; and the remainder is unculturable waste. The unappropriated waste at the disposal of Government is returned at 8,067,856 acres; but a very small portion of this area is really available for cultivation. There are 2,470 miles of water communication, and the length of roads, metalled and unmetalled is 20,798 miles. The length of railway communication open within the Province is 410 miles.

The mountains and elevated tracts within and bordering the Punjab consist of (1) the Western Himalaya, including the secondary formations of Spiti and the Kuenlun Range; (2) the Siwaliks and other subordinate groups, running parallel to the Himalayas; (3) the Salt Range, and the geologically-related hills of Kalabagh, Shekh Budin, and Balut; (4) the Sulaiman Range, and the hills of Safed Koh in Peshawur; and (5) the low ranges of hills in the Delhi and Gurgaon districts.



The Punjab.

CSL

A remarkable feature in the topography of the Province is the number of large rivers which, after pursuing their course for hundreds of miles in the valleys and glens of the great mountain ranges to the north, debouch on to the plain country, dividing it into several *doabs*, and flow on in a direction generally southerly to the ocean. These rivers usually overflow their banks, sometimes to the extent of miles round, during the seasons of heavy rain, and contract in the dry season till the slender stream is spanned by a bridge of a few boats, leaving dry beds of sand or mud on either side, which are then brought under cultivation. Such being the character of the Punjab rivers, changes in their course of greater or less extent are not unfrequent. The principal river is the Indus, which issues from the extreme west of the Himalayan Range, dividing the Peshawur Valley from Hazara; it then preserves a southerly course parallel to the Sulaiman Range, and, collecting the entire drainage of the Punjab Proper at Mithankot, flows on through Sindh into the Arabian Sea. On the other side of the Province, and forming its eastern boundary, is the Jumna river, which, at the point it leaves the Siwaliks, separates the Umballa and Shaharanpoor districts, and, after passing the large cities of Delhi and Agra, joins the Ganges at Allahabad. Between the Indus and the Jumna run the five rivers from which the Punjab ("five waters") takes its name; these are (commencing with the more southerly) the Sutlej, the Bias, the Ravi, the Chenab, and the Jhelum. The Sutlej leaves the lower hills near Rupar, in the Umballa district, and has a westerly course until it receives the waters of the Bias above Ferozpoor; it then turns to the southwest, separating Bahawalpoor from British territory, and, after receiving the combined waters of the Ravi, Chenab and Jhelum, joins the Indus at Mithankot. The Bias, though large in volume, has a comparatively short course in the plains; it leaves the lower hills near Haripoor, and, separating the Bari and Jullundhur Doabs, unites with the Sutlej at Hariki above Ferozpoor. The Ravi issues from the hilly country of Chumba, and, proceeding in a south-westerly direction, passes the city of Lahore, and ultimately joins the Chenab about 50 miles above Mooltan. The Chenab enters the Sealkot district from Jamu territory, passes the towns of Wazirabad and Ramnagar, and receives the waters of the Jhelum river at Trimu Ghat below Jhang; thence its course is southerly, past Mooltan, about midway between which city and Trimu Ghat it receives the waters of the Ravi, and ultimately falls into the Sutlej about 60 miles above Mithankot. The Jhelum enters British territory near the town of the same name, having previously passed through the Kashmeer valley; its course is first south-westerly



past the towns of Pind Dadun Khan and Khushab; it then turns to the south, and flows into the Chenab at Trimu Ghat. Amongst the minor rivers of the Province may be mentioned the Cabul and Swat rivers in the Peshawar valley, the Kuram in Upper Derajat, the Markanda and Ghagur in the Umballa district, and the Sohan near Rawalpindée.

The plains of the Punjab are vast expanses of alluvial clay and loam, whose elementary constituents must once have been the same as now form the rocks of the huge ranges of mountains to the north. The principal constituent that produces a variety in the nature of soils, and one which is very important in the Punjab, is sand; in fact, the main distinction of soils, apart from that of their containing or being free from the efflorescent salt locally known as *reh*, is that the soil is sandy, as in many portions of districts it is, or that it is rich loam and clay. The sand is either washed down by rivers which flood their banks, or else the streams change their course, leaving beds of sand behind; in some cases sand is blown by winds from adjacent sandy or desert regions, or from these deserted river-courses to districts where otherwise it would not be found.

The alluvial plains thus constituted are intersected by the great rivers of the Province already described, thus forming the natural divisions of the country. The long and narrow strip between the Sulaiman Range and the Indus is known as the Derajat; the country lying between the Indus and the Jhelum rivers is the Sind Sagar Doab; that between the Jhelum and Chenab, the Jach or Chaj Doab; that between the Chenab and Ravi, the Rechna Doab; that between the Ravi and Bias, the Bari Doab; and that between the Bias and Sutlej, the Jullundhur Doab; the country between the Sutlej and the Jumna is not properly part of the Punjab; it includes, in the upper part, the Cis-Sutlej States, and in the lower, the Delhi territory. Of all these tracts the Jullundhur Doab, though the smallest, is the most fertile. These *doabs* have some features in common; in the sub-montane portions vegetation is most luxuriant; lower down the rivers exercise great influence over the soil,—in the immediate vicinity of the stream are tracts enriched by its alluvial soil, and fertilized by its inundations; beyond its immediate vicinity are lands of varying quality; while, as the high central tract is approached, we meet either with *bar* (*i. e.*, uncultivated land covered with brushwood and trees of stunted growth, mostly used as fuel preserves, or for grazing cattle), as in the Bari, Rechna and Jach Doabs, or with *thal* (*i. e.*, an undulating desert of sand), as in the Sind Sagar Doab. Towards the lower extremities, as the rivers approach each other, the country becomes



nearly level, and is entirely alluvial; in these portions, owing to the extremely scanty rain-fall, cultivation is maintained by means of numerous small canals, or irrigation cuts, which intersect the country in every direction.

The hill-sides and valleys in the interior of the Himalaya are frequently clothed with magnificent forests, though often in situations which render them valueless as sources of timber supply. Forests also occur of smaller extent, clothing the sides and bases of the Sub-Himalayan hills which front the plains; but in the alluvial lower tracts there is a general scarcity of large trees, and hardly anything deserving to be called a forest exists. But the jungle growth of the *bar* is preserved as a source of fuel-supply.

Climate.—The climate of the Punjab generally, as compared with that of the rest of Northern India, is more given to extremes. The cold season lasts longer, and the cold is greater than further south; but the heat is more intense in the summer months, owing to the general scantiness of the rain-fall, except in the Sub-Himalayan districts. January is the coldest month, and the temperature rises from January to May by steps, gradually increasing from 6 to 12 degrees a month. During May, June, July and August it varies but slightly,—June being a little the hottest, and August the coldest of these months. From August to December the temperature falls by steps of from 4 to 10 degrees until it comes down to within 2 or 3 degrees of the mean of January. The mean temperature of April and October nearly coincides with the mean of the whole year, being generally 1 or 2 degrees above it.

The rain-fall chiefly occurs in July and August, but a considerable amount of rain falls in the winter and early spring months, specially in the northern and western districts of the Province. The distribution of rain throughout the plains of the Punjab will be seen from the following table, which shows the amount of rain-fall during the past three years:—

STATION.	In 1870.	In 1871.	In 1872.
	Inches.	Inches.	Inches.
Delhi	24	32	33
Hissar	20	9	31
Umballa	35	38	51
Jullundhur	22	21	45
Lahore	9	9	17
Sealkot	32	32	23
Rawalpindce	30	28	30
Mooltan	2	2	5
Peshawur	8	11	16
Derah Ismail Khan	8	5	7



Rainfall and Temperature.

SL
29

At the hill stations the rainfall is considerably heavier than in the plains. During 1872, 62 inches of rain fell at Simla, 74 inches at Murree, and as much as 146 inches at Dhurmsala in the Kangra Hills. The following table shows the mean monthly temperature (in degrees Fahr.) during 1872 at five different stations in the Punjab :—

	Lahore.	Umritsur.	Loodianah.	Rawul-pindee.	Murree.
January	54	50	54	53	40
February	57	55	58	55	41
March	74	69	73	67	55
April	81	79	82	69	57
May	88	85	88	85	69
June	96	94	96	96	80
July	87	81	86	90	69
August	88	84	86	88	71
September ... ..	...	82	82	83	69
October	77	76	73	74	63
November	67	63	63	62	54
December	56	52	55	56	51

The heat in March was exceptionally great for the time of year throughout the Punjab in 1872. The highest recorded temperatures in the shade during 1872 were 128° at Mooltan on the 9th June, 127° at Lahore on the 2nd June, 126° at Umritsur on the 9th May, and 125° at Sealkot on the 14th June. The lowest readings in the shade during the year were 25° at Murree on the 4th January, 26° at Dalhousie on the same date, and 25° at Derah Ismail Khan on the 10th December ; 29° was registered many times at several places.

The Central Province.

Area and Boundaries.—The Central Province lies between the 18th and 25th degree of north latitude, and extends from the 76th to the 86th degree of east longitude ; it stretches from Bundelkhund to the north to the Madras Presidency in the south, from the frontier of Bengal in the east to independent Malwa and to the Deccan in the west ; the extreme length from north to south is 500 miles, and the breadth from east to west 600 miles. Its area does not fall short of 112,000 square miles, of which 85,000 are purely British territory, and the remainder the territory of dependent Native Chiefs. Of the ancient divisions of India, it comprises portions of Hindostan and Malwa, and nearly the whole of Gondwana, but includes no portion of the Deccan proper. It is bounded on the north by the feudatory States of Bundelkhund, of which the principal are Tehri and



Punna; on the west and north-west by the British district of Chanderi Lullutpoor belonging to the North-Western Provinces, by Bhopal, by Helkar's territory and Klandesh, by Berar and the Nizam's dominions; on the south and south-east by the Nizam's dominions, and by the Madras district of Rajamundri; on the east by the Jeypoor Chiefship under Madras jurisdiction, by those portions of Bengal known as the Tributary Mehals and by the Rewa State. The Central Province therefore occupies a vast tract of country in the centre of the Peninsula. It is inclosed on nearly every side by feudatory territory and cut off geographically from other British Provinces.

Geographically the Province is divided into two parts by the Satpoora range of hills that runs south of the Nerbudda river from east to west. The range embraces within itself considerable tracts of table land which have been formed into districts, and speaking generally the Province is divided into districts north of the Satpooras, districts on the Satpoora plateaus, and districts south of the Satpooras. Commencing at the lofty plateau of Amarkuntuk, the range extends westwards as far as the Western Coast. From Amarkuntuk an outer ridge runs south-west for about one hundred miles to a point known as the Saletekri hills in the Balaghat district, thus forming, as it were, the head of the range which, narrowing as it proceeds westward from a broad table land to two parallel ridges bounding on either side the valley of the Taptee, ends so far as this Province is concerned at the famous hill fortress of Aseergurh. Beyond this point the Rajpeeppla hills, which separate the valley of the Nerbudda from that of the Taptee, complete the chain as far as the Western Ghats. The mean elevation of the range is about 2,500 feet above the sea, but many of the peaks and some of the table lands have an elevation of more than 3,500 feet. The plateaux of Amarkuntuk and Chauradadar in the easterly Mundla district rise to a height of nearly 3,500 feet, the height of the hill of Khamla in the Betool district in the west of the Province is 3,700; the general height of the Chikalda hills overlooking the Berar plain still further to the west, is estimated at 3,700 feet; and the Pachmurhi hills east of Betul rising abruptly from the Nerbudda valley culminate in Dhupgurh at an elevation of 4,500 feet. Just east of Aseergurh there is a break in the range through which the Railway from Bombay to Jubbulpoor and the road to Central India pass, at which the elevation is not more than 1,240 feet above the sea. West of Aseergurh the range is continued through Kandesh to the Western Ghats by a belt of mountainous country, 40 to 50 miles in breadth, at an average height at the crest of the chain, but a little under 2,000 feet



above the sea, while many peaks rise above 3,000 feet, and some as high as 4,000 feet. The whole length of the range is scarcely less than 600 miles, while the breadth diminishes from 100 miles at its head across Balaghat and Mundla to the narrow ridges of Nimar. On the table lands of this range east of Aseergurh lie the districts of Betul, Chindwari, Seonee, Balaghat and Mundla.

North of the range low hills, offshoots of the Satpooras, form the south-eastern boundary of the Jubbulpoor district and stretching northward approach the Kaimur hills, which with the Bhauner hills—both branches of the Vindhyan range—bound Jubbulpoor to the north and west and form the eastern scarp of the plateau, on which lie the districts of Dumoh and Sagur, the most northerly in the Province. These ranges attain a height of 2,500 feet. Extending eastward from Amarkuntuk to within a few miles of the Eastern Coast a succession of ranges of mountains, which are offshoots of the Vindhyan chain, separate the Jubbulpoor plain, the most easterly portion of the Central Provinces, from Chota Nagpoor. To the south the Province is shut in by the wide mountainous tract of Bastar, which stretches from the Bay of Bengal to the Godavari, and west of that river is continued onward to the rocky ridges and plateaus of Khandesh by a succession of ranges that enclose the plain of Berar along its southern border.

The plain country of the Province may be said to lie in two great divisions to the north and south of the great central range of mountains. North of the Satpooras we have the rich valley of the Nerbudda, which may be said to commence towards the north of the Jubbulpoor district, and to extend westward through the district of Nursingpoor as far as the western limit of Hoshungabad, a distance of nearly 300 miles. The elevation of the valley above the sea falls from 1,400 feet at Jubbulpoor to 1,120 at Hoshungabad. In breadth it is about 30 miles, extending between the Satpooras and the southern scarp of the Vindhyas. This great plain, 12,500 square miles in extent, contains for the most part land of the greatest fertility cultivated with wheat, cotton and sugar-cane. The continuation of the valley west of Hoshungabad forms the northern portion of the district of Nimar, the further limit of which touches the Khandesh district of the Bombay Presidency. Towards the river, though rich in parts, the tract of country is wild and desolate, but nearer the base of the hill range the country forms itself into a large natural basin of fertile land which is highly cultivated.

South of the Satpooras and of the ranges that run eastward towards the Bay of Bengal and complete the central chain of



mountains, we have first, beginning from the east, Sumbulpoor which with all its Native States and Zemindaries extends over an area of 23,000 square miles, and may be considered the central basin of the Mahanudi. Separated from Sumbulpoor by ranges of hills running southward from the central chain lies the great plain of Chutteesgurrh at a mean elevation above the sea of 1,000 feet; it has an area of 22,000 square miles and forms the upper basin of the Mahanudi. Further to the west, and again divided off by hills, is the great plain of Nagpoor, extending over 21,000 square miles. Its general surface inclines towards the south from 1,000 feet above the sea at Nagpoor to 750 feet at Chanda; subdivided by a low line of hills, its eastern division is drained by the Wyngunga, the western by the Wurdha. Continuous with the western portion of the Nagpur plain is the great plain of Berar, lying between the Satpooras on the north and the Adjunta range on the south; it extends for 200 miles from the Wurdha river to Khandesh, the general slope of the plain being to the westward, and gradually falling from 1,000 feet above the sea at Budnera to 700 at Bhosawal.

The principal rivers which with their tributaries drain this wide region, are the Nerbudda, the Mahanudi, the Wyngunga and the Wurdah. The Nerbudda, rising in the high table land of Amarkuntuk, for the first two hundred miles of its course winds among the Mundla hills, which form the head of the Satpoora range; then, at Jubbulpoor, passing through the rocky gorge known as the "marble rocks," it enters its proper valley between the Vindhyan and Satpoora ranges; and, bordered closely by them the whole way, pursues a nearly direct westerly course for 500 miles to the Gulf of Kambay. It may be said to receive the whole drainage of the northern slopes of the Satpooras, the watershed of the Vindhyan tableland which bounds its valley to the north being almost entirely northward. Confined in a narrow valley between two ranges of hills, the Nerbudda presents the general characteristics of a mountain stream. From the great declivity of its bed and the nature of its tributaries it has no great depth of water excepting in the monsoon, and it is almost everywhere fordable in the hot weather. It flows between lofty banks from 40 to 100 feet in height, in some places formed of rock, in others of deep alluvial deposit: its bed along the greater part of its length is a sheet of basalt, seldom exceeding 150 yards in width, which has been upheaved in ridges which cross it diagonally. These elevations occur every few miles, and cause natural barriers, above which the water remains in pools more or less deep, but in which the current is slack in the dry weather. The feeders of the Nerbudda are numerous, but they are all



mountain torrents, rising in the neighbouring hills and having short courses; comparatively few retain a running stream throughout the year, and by far the greater number present in the hot weather only a succession of stagnant pools.

The Mahanudi rises in the wild mountains of Bustar that close in the Chutteesgurrh plain to the south. In the first part of its course, taking a northerly direction, it drains the eastern portion of that plain; then a little above Seorinarain it receives the waters which its first great affluent, the Seonath, has collected from the western portion of the plain; thence flowing for a while due eastward, its stream is augmented by the drainage of the hills of Uprora, Korba, and the ranges that separate Sumbulpoor from Chota Nagpoor. At Padmapoor it turns towards the south, and, struggling through masses of rock, flows past the town of Sumbulpoor to Sonpoor. In this section of its course it is joined by several tributaries which drain the plain of Sumbulpoor and the mountainous country to the south. From Sonpoor it pursues a tortuous course among ridges and rocky crags towards the range of the eastern ghat mountains, which it pierces by a gorge 40 miles in length. Emerging from the hills it expands its bed and spreads itself over sands till it reaches Cuttack, where the delta commences, by which its waters find their way into the Bay of Bengal. In the upper part of its course, in the districts of Raipoor and Bilaspoor, it has a broad sandy bed, but in its course through the Sumbulpoor territory it is more confined among rocks; a mighty river in the rains, and navigable as far as Seorinarain, for a few weeks after they have ceased, its stream falls rapidly, and in the hot months becomes fordable every few miles of its course within the bounds of this Province.

The Wyingunga, rising in the Seonee plateau, winds among the hills of the central portion of that district towards its eastern border. A few miles east of Keolari it receives the Thanwar, and then turning southward, it emerges by a rocky gorge into the Nagpoor plain, and, continues its course due south, through the Balaghat district; then traversing the districts of Bhundara and Chanda, it joins the Wurdha fifty miles below the town of Chanda. It with its affluents, drains the southern slopes of the Satpooras west of Mundla as far as the plateau of Multai, and also the greater part of the Nagpoor plain. In the Seonee and Balaghat districts its bed is a continuous sheet of basalt containing water in deep pools separated by broad basaltic barriers, in the indentations of which the divided stream trickles in the hot weather. In its course through the Nagpoor plain it receives many large affluents, and flows for the most part over a broad sandy bed, interrupted here and there by rocky barners. Its whole length, from its source to its junction with the Wurdha



is about 350 miles. In the rains it is navigable for nearly two hundred miles of its course, but in the hot weather is almost everywhere fordable.

The Wurdha, rising in the Satpooras between Nagpoor and Betool, some seventy miles north-west of the former town, and flowing south-east, separates the districts of Nagpoor, Wurdha, and Chanda from Berar and the Nizam's dominions. Its first great affluent is the Paingunga, which drains the eastern and southern portions of the plain of Berar; this it receives a little above the town of Chanda, one hundred and ninety miles from its source. Sixty-four miles lower down it joins the Waingunga, and the united stream, flowing onward in the same direction for sixty miles under the name of the Pranbita, falls into the Godavari at Seroncha. Through the whole of its course above its junction with the Paengunga the Wurdha flows in a deep and rocky bed. In the monsoon it becomes a furious torrent, but in the hot months in the upper part of its course it retains little more than a succession of nearly stagnant pools, and is everywhere fordable.

This description of the four great rivers of the Province shows the rapid drainage of the country. All of them receive the drainage of immense areas, and have a course of several hundreds of miles; they are navigable for long distances during the rains; but their sources and the greater part of their catchment basins lie at a great elevation above the sea. The surface of a great part of the country through which they flow is rocky, and the fall towards the sea rapid, and they all flow in deep beds many feet below the level of the country which they drain. The drainage of the country is, therefore, very rapid, and as ordinarily no rain sufficient to affect the water supply falls between the cessation of one rainy season and the commencement of another the streams annually run very low; even the large rivers become everywhere fordable, while the rivers of secondary magnitude are reduced to rivulets flowing in the middle of broad belts of sand or trickling over masses of rock, and the minor streams dry up or contain only pools of stagnant water.

Generally the Central Provinces may be said to be a mountainous country in which hill and plain, plateau and valley alternate with each other. The northern districts which rest upon the Vindhyan range form a hilly and undulating country; to the south comes the Nerbudda valley between the Vindhyan and Satpoora ranges, with hills always in view; then the Satpooras with their wide plateaus, and to the south of them the Nagpoor and Chutteesgurb plains separated from each other by hills and bounded by hill and forest in the south.

The slopes on both sides of the great central range of hills



are covered with dense forest, and wide tracts of forest occur in the plain country south of the range; in fact there is not a district of the Province which has not many thousands of its acres covered by jungle and forest. On the other hand, in many parts of the Province the absence of trees forms a characteristic feature of the scenery. In the wide central area of the Chutteesgurrh plain, or the uplands of the Satpooras, over a great part of the Wurdha valley and along the whole length of the Berar plain, there is often scarcely a tree to be seen for miles.

The plateaux and valleys of the Satpoora range, where not denuded, are covered with the true blacksoil or "regar," formed from the decomposition of trap, a soil that is highly retentive of moisture, and where it exists insufficient depth produces the finest wheat; while the uplands, where the soil is shallow, are cultivated only in the rains, and then only in patches with the small millets, kodo (*Paspalum frumentaceum* and kutki (*Panicum miliaceum*); the rest of their expanse remaining covered with coarse grass which springs up in the rains, to wither and become brown as soon as the dry winds of the autumn set in. This serves as fodder for the large herds of cattle which are kept in every hill village, but as the hot weather approaches the residue is everywhere set on fire to make way for the herbage of the ensuing rains.

On the south of the mountainous range to the east, where the rocks are chiefly crystalline, the soil of the Sumbulpoor plain is light and sandy, culturable only in the rainy season, when it produces a plentiful crop of rice. In the Chutteesgurrh plain its north-western portion lying under the Satpooras is covered with rich black soil, and here a large proportion of wheat is grown; but in the central and eastern portions the soil is light and porous, and cultivation is only practicable during the period of almost constant rain, and rice forms the staple crop. In the eastern portion of the Nagpoor plain, where the formation consists chiefly of crystalline rocks, and in the Chanda district, where the porous coal-bearing strata are found, cultivation is much dependent on heavy rain, and rice is here also the staple crop; while in the Wurdha valley, where the overflowing trap is the superficial rock, and true blacksoil prevails, the tall jawari (*Sorghum*) and cotton are the staple crops, and wheat is largely grown in the dry season.

The cotton country of the Central Province lies on the left bank of the Wurdha river. In the north where the river debouches from the Satpoora hills the cotton cultivation covers a rich but narrow strip along the bank. This strip widens as it proceeds southwards until it ultimately attains a width of some 50



miles. The well known cotton mart of Hingunghat may be said to be situated where the cotton field is widest; but the whole plain though capable of producing cotton is not entirely occupied by it, for wheat and jawari alternate with cotton fields. After reaching its greatest width the cotton country again narrows itself, until at last, in the south of the Chanda district, it is lost in the encircling brush-wood and jungle.

Climate.—A hilly country with a large surface of rock exposed, and having rapid drainage, lying partly within the tropics at a considerable distance from the sea, and separated from it on all sides by ranges of hills of great elevation, would naturally have a hot and dry climate. The temperature is to some extent modified by the general elevation of the country. The south-west monsoon, which prevails from the end of June to the beginning of September, usually brings with it an abundant rainfall, and the wide tracts of forest that cover so large a part of the area of the Province retard evaporation. But, notwithstanding these modifying influences, a climate still remains, of which a high temperature and a low degree of humidity are marked characteristics for nine months in the year.

As regards temperature in the hot months of April and May, Nagpoor, which lies below the Satpooras in the Nagpoor plain, exceeds both Bengal and the Upper Provinces. In the rains from June to September the temperature is nearly the same in Nagpoor and Calcutta but is much lower than that of the Upper Provinces. In the cold weather Nagpoor and Calcutta again approach each other on the point of temperature, while the Northern Provinces become much colder. The districts above the Satpooras have a temperature more nearly approaching that of the North-West Provinces, while the Satpoora plateau districts have from their superior elevation a somewhat cooler climate. As regards moisture of the atmosphere, in the spring and hot weather, from February to May, Nagpoor is far below both Bengal and the Northern Provinces. In the rainy season the moisture of Nagpoor exceeds that of Northern India, but is considerably below that of Calcutta. After the rains have ceased it again falls very rapidly to a lower point than is obtained either in Calcutta or Northern India.

The mean annual rain-fall of the Province is 45 inches, of which 41 inches fall in the monsoon season from June to October. This is a much higher fall than occurs in the Upper Provinces; but, owing to the rapid drainage of the country, this heavy rainfall is fully required. Any considerable diminution in the quantity occasions loss of the crops and scarcity of water in the hot weather. This does not often happen, but in 1868 a mean defi-



ciency of 15 inches was followed by drought and famine in 1869. The arrival of the monsoon occurs with great uniformity over the whole Province, usually before the 20th June.

The Central Provinces being within the tropics, the changes in the direction of the wind, as the different seasons come round, are very regular. The north-easterly wind sets in in October and continues steadily in this direction or easterly through November and the early part of December; in the latter part of that month it slackens, and southerly winds are frequent; the north-east wind, however, continues the prevailing wind till the end of January or beginning of February. In February and March the wind is variable, but southerly and south-westerly winds are more frequent. In April the prevailing wind is north-west, and it continues from this direction until about the middle of June, when the monsoon sets in, the general direction of which is W & SW.

Westerly and north-westerly winds are the strongest, the north-east and easterly winds are generally light. A clear sky commonly accompanies the north-east and easterly winds, and their comparative dryness is shown by the rapid decrease of the relative humidity of the atmosphere in the month of November when these winds prevail with the greatest steadiness; the wind from the north-west is, however, the driest wind. South and south-westerly winds bring clouds, and are commonly followed by electric disturbances and showers.

The currents of air that traverse Central India differ considerably from those that prevail in the Ganges Valley and Northern India; particularly as regards the relative frequency of winds from the south-east and east. In the Ganges Valley and the North-West Provinces south-east and easterly winds are frequent from March till October. In this part of India a south-easterly wind is rare at all seasons; north-easterly and easterly winds prevail in the cold weather, but after February an easterly wind never occurs except for a few hours from some local atmospheric disturbance.



CSL

Place.	Rain-fall in inches.				Average temperature in the shade.											
	January to May 1872.	June to September 1872.	October to December 1872.	Total.	May.				July.				December.			
					Maximum.		Minimum.		Maximum.		Minimum.		Maximum.		Minimum.	
					Highest.	Mean.	Lowest.	Mean.	Highest.	Mean.	Lowest.	Mean.	Highest.	Mean.	Lowest.	Mean.
Sagar ...	2.45	44.01	.2	46.66	108.	104.	75.	79.	92.	84.4	69.	72.3	84.	78.4	50.	55.6
Jubbulpoor ...	3.1	62.21	1.88	67.19	110.	106.7	69.	80.8	91.	86.1	69.	74.1	85.	76.9	38.	48.4
Hoshangabad ...	.1	34.39	1.7	36.19	113.	108.7	70.	86.4	97.	88.	51.	73.3	86.	80.8	40.	53.4
Khandwa ...	.92	34.51	2.59	38.02	111.2	107.	66.4	75.	98.5	87.9	59.7	71.6	89.	84.4	41.7	54.1
Asirgurh ...	1.02	73.5	1.6	76.12	101.	96.7	67.	75.8	83.	76.2	62.	66.8	92.	83.4	37.	46.4
Seonee ...	1.45	54.44	1.4	57.29	110.	106.3	72.	76.5	90.	84.4	64.	68.2	84.	81.2	44.	50.6
Burha ...	...	72.21	.5	72.71	114.	108.6	74.	82.2	90.	84.7	70.	73.7	85.	81.	43.	51.7
Nagpoor ...	1.07	35.6	4.27	40.94	115.	110.9	74.	82.1	98.	88.7	70.	75.1	87.	83.5	47.	56.3
Chanda ...	2.57	44.84	1.29	48.7	115.	110.4	77.	83.1	93.	88.4	70.	73.9	86.	82.	43.	54.6
Raipoor ...	1.52	48.9	3.78	54.2	113.8	109.8	80.	84.6	91.2	85.1	70.	73.4	89.6	82.	47.	56.2
Sumbulpoor ...	.93	65.84	2.67	69.45	114.5	112.1	80.	87.8	92.	88.4	64.	69.2	86.	80.4	37.	45.1

The Central Province.



Area and Boundaries.—Berar is, in the main, a broad valley running east to west, lying between the Sautpoora range in the north and the Ajunta range in the south. The old local name of the valley at the base of the Sautpooras being Berar Painghat; that of the tracts situated among the uplands and hills of the Ajunta range being Berar Balaghat. The real strength of the province is found in the valley at the base of the Sautpooras. This valley is watered or drained, as the case may be, by the Poorna, (an affluent of the Taptee) and a perfect network of streamlets descending into the main stream both from the hills in the north and from the hills in the south. Its soil is one vast superstratum of black loam overlying trap and basalt. Its rain-fall is regular and copious; its area is now entirely cultivated; its whole surface is covered over at harvest time by a sheet of crops. Its habitations are proportionately frequent. Its population is dense, and consists of Koonbees and other hardy and industrious agricultural tribes. It is traversed, from west to east, its whole length by the Railway from Bombay to Nagpoor. It possesses one of the richest and most extensive cotton fields in India; and several cotton marts of the very first calibre. Its other products, especially millet and oil-seeds, are also excellent. Altogether, it is one of the most promising tracts in India; and in respect to natural and material advantages, it surpasses any tract in either the Central Province or the Deccan.

The area of the Province may be reckoned at 17,000 square miles or a little more, about equal to that of the Kingdom of Greece without the Ionian Islands. Its population is double that of Greece. The length of Berar from east to west is about 150 miles and its breadth averages 144 miles. It is between longitudes 76° and $79^{\circ} 13'$, and is traversed by $19^{\circ} 30'$ to $21^{\circ} 46'$ parallels of north latitude. The principal rivers are the Taptee, the Poorna, the Wurdha, and the Paengunga or Pranhita. The whole province has only one natural lake, the salt lake of Lonar, a great curiosity. The only forests worth mentioning are those on the Gawilgurr hills. Something like 400 square miles are conserved by the Government. In South Berar also there are 246 square miles of forest under conservancy. Iron ore is very plentiful throughout large tracts on the eastern side of Berar, especially in the hills about Karinja and among the low range close to Oomraottee on the north-east. It is not worked by the natives, and the proportion of iron to the ore has not been scientifically determined. The only district within Berar which

* Officially termed Hyderabad Assigned Districts, from 1st April 1874, under one Commissioner.



fields coal is that of Woon, where, stretching along the valley of the Wurdha river in a direction rudely north and south, a group of beds of thick coal of fair quality has lately been found. This group of beds may be said to extend from near the Wurdha river on the north to the Paeengunga on the south. The beds associated with the coal can be traced throughout, and, although there has not yet been time to prove the existence of coal throughout the entire distance, there can be little reasonable doubt that it will be found to occur.

The Climate probably differs very little from that of the Deccan generally, except that in the Paeenghat valley the hot weather may be exceptionably severe. It sets in early, for the freshness of the short cold season vanishes with the crops, when the ground has been laid bare by carrying the harvest; but the heat does not much increase until the end of March. From the 1st of May until the rains set in, about the middle of June, the sun is very powerful, and there is by day severe heat, but without the scorching winds of Upper India. The nights are comparatively cool throughout, probably because the direct rays of the sun have their effect counteracted by the retentiveness of moisture peculiar to the black soil and by the evaporation which is always going on. During the rains the air is moist and cool. In the Balaghat country, above the Ajunta hills, the thermometer always stands much lower. On the loftiest Gawilgurh hills, the climate is always temperate: the sanitarium of Chikulda is on this range, a few miles from Ellichpore. The average rainfall for the whole province is not yet accurately known; it is said to be about twenty-seven inches in the valley, and above thirty inches above the Ghats. On the Gawilgurh hills it is of course much more.

Bombay.

Area and Boundaries.—The territory under the administration of the Government of Bombay extends from north latitude $28^{\circ} 32'$ —the most northerly point of Sindh—to $13^{\circ} 55'$ in the extreme south of the Collectorate of Kanara, and from east longitude $66^{\circ} 43'$ —the most westerly point of Sindh—to $76^{\circ} 20'$, the eastern extremity of Khandesh. The Province is bounded on the north-west, north, and north-east by Beloochistan, the Punjab, and the Native States of Rajpootana; on the east and south-east by Indore, the Central Provinces, West Berar, and the Nizam's Dominions; by Madras and Mysore on the south; and on the west by the Arabian Sea.

This territory comprises a total area of 188,195 square miles, of which the Regulation Districts contain 77,767, Sindh 47,175,



and 63,253 are under the rule of Native Chiefs. The total population is returned at 25,624,696,—the Regulation Districts contributing 14,160,208, Sindh 2,192,415, and the Native States 9,272,073.

The only foreign possessions included within the limits of the Bombay Province are those of the Portuguese Government—Goa, Damun and Diu. Of these the principal is Goa, with a total area of 224 square miles, situated on the coast in north latitude $15^{\circ} 44'$ and east longitude $73^{\circ} 45'$, between the districts of Rutnagiri and Kanara. In north latitude $20^{\circ} 18'$ and east longitude $60^{\circ} 35'$ is situated the settlement of Damun, containing an area of 22 square miles. Diu, a small island $1\frac{1}{2}$ square miles in extent, lies off the southern coast of the peninsula of Kathiawar.

In proportion to its area the Bombay Presidency has the advantage of an extensive line of coast, reaching from Honawar, in north latitude $14^{\circ} 3'$, to Kurrachee, in north latitude 25° . This coast is, however, rock-bound and difficult of access; and though it contains many estuaries forming fair-weather ports for vessels engaged in the coasting trade, Bombay, Kurrachee, and Karwar alone have harbours sufficiently landlocked to protect shipping during the prevalence of the south-west monsoon. The coast line is regular and unbroken, save by the Gulfs of Kambay and Kuch, between which lies the peninsula of Kathiawar.

The *physical features* which give their peculiar character to the different parts of the Presidency, are the river Indus in Sindh; the Gulfs of Kuch and Kambay and the Runn of Kuch in the peninsula of Goojrat, and the rivers Nerbudda, and Taptee in Goojrat proper; in Khandesh the River Taptee in the Deccan the Godavari and Bheema, and—separating the plateaux of Khandesh and the Deccan from the low-lying plains of Goojrat and the Konkan—the Sahyadri Hills.

The chief mountain ranges have a general direction from north to south. In the north, on the right bank of the Indus, the Hala Mountains, a continuation of the great Salaman Range, separate British India from the dominions of the Khan of Khelat. Leaving Sindh, and passing by the ridges of low sand hills—the leading feature of the deserts east of the Indus—and the isolated hills of Kuch and Kathiawar, which form geologically the western extremity of the Aravali Range, the first extensive mountain chain is that separating Goojrat from the States of Central India. These hills, rising in the neighbourhood of Mount Aboo, and stretching southwards to the valley of the Nerbudda, may be considered as a spur of the Aravali Mountains, or as a continua-



tion of the Western Ghats north of the valleys of the Nerbudda and the Taptee. The rugged and mountainous country south of the Taptee forms, strictly speaking, the northern extremity of the Sahyadri or Western Ghats. This great range of hills, running parallel to the sea at a distance of from forty to fifty miles, with a general elevation of upwards of 1,800 feet, contains individual peaks rising to more than double that height. Stretching southwards for upwards of 500 miles, the Western Ghats extend over a belt of country in many places not less than twenty miles in breadth. The western declivity is abrupt, the land at the base of the hills being but slightly raised above the level of the sea. The hill sides are not, however, generally precipitous; but, as is usually the case with hills of trap, they descend to the plain in terraces with abrupt fronts. The landward slope is gentle, also falling away in terraces, the crest of the range being in many places but slightly raised above the level of the plateau of the Deccan. In the neighbourhood of the Sahyadri Hills, particularly towards the northern extremity of the range, the country is rugged and broken, containing isolated peaks, masses of rock, and spurs, which, running eastward, form water sheds for the great rivers of the Deccan. These spurs excepted, only two ranges of hills—the Satpoora and the Satmala or Ajunta Hills—have a general direction at right angles to the main line of the Ghats. From the neighbourhood of the Fort of Aseergurh to their termination in the east of Goojrat, the Satpoora Hills separate the valley of the Taptee from the valley of the Nerbudda, and the district of Khandesh from the territories of Indore. The Satmala or Ajunta Hills, separating Khandesh from the Nizam's Dominions on the south, are of less importance, being rather the northern slope of the plateau of the Deccan than a distinct range of hills.

The chief river of Western India is the Indus, with a course from Attok to the sea of 962 miles. In the dry season the surface water varies in breadth from 480 to 1,600 yards. The greatest depth is found between Kalabagh and Attok, where it is 186 feet. The season of floods begins in March and continues to September, the average depth of the river rising during the inundation from nine to twenty-four feet, and the velocity of the current increasing from three to seven miles an hour. The discharge of water, which in December is calculated at 40,857 cubic feet per second, is estimated in August to attain more than ten times that amount.

Next to the Indus in length and in volume of water comes the Nerbudda. Rising in the Central Provinces, and traversing the dominions of Holkar, the Nerbudda after a course of 700 miles falls into the Gulf of Kambay, forming near its mouth the alluvial



plain of Broach, one of the richest districts of the Presidency. For about 100 miles from the sea the Nerbudda is at all seasons navigable by small boats, and during the rains by vessels of from 30 to 50 tons' burden. Though inferior in point of size to the Nerbudda, the Taptee is of more importance to the Presidency of Bombay than its companion stream, draining as it does, about 250 miles of country, and being, in a commercial point of view, the most useful of Goojerat rivers.

Of other Goojerat streams the Sabarmatee and the Mahee deserve notice. Rising, the former in the northern and the latter in the southern extremity of the Mahi Kanta Hills, and flowing southwards, they drain the districts of Northern Goojerat and fall into the sea near the head of the Gulf of Kambay. Passing southwards, the streams, which rising in the Sahyadri Range flow westward into the Arabian Sea, are of little importance. During the rains, it is true, they are formidable torrents; but with the return of the fair weather they fall off in volume, and during the hot season, with few exceptions, they cease to flow. Clear and rapid as they descend the hills, on reaching the low lands of the Konkan they become muddy and brackish creeks. Though for purposes of irrigation these creeks are useless, in a country so rugged as the Konkan they are valuable, forming highways for a not inconsiderable traffic. Starting further inland, the Kanarese rivers have a larger body of water and a more regular flow than the streams of the Konkan. One of them, the Shera-wati, in the neighbourhood of the village of Gasopa, forcing its way through the western crest of the Ghats, plunges from the high to the low country by a succession of falls the principal of which is 890 feet in height. It is not, however, on account of such streams as these that the Sahyadri Hills are famous over India; but because the mighty rivers—the Godavari and the Krishna—have in them their sacred sources; the former northwards near Nasik, and the latter among the Mahableshwar Hills. These rivers, collecting to themselves tributary streams, some of them of considerable size, drain the entire plain of the Deccan as they pass eastwards towards the Sea of Bengal.

Six portions of the Province naturally fall under the head of Plains—Sindh, Goojerat, the Konkan, Khandesh, the Deccan, and the Karnatic. Sindh—the valley of the Indus, a flat plain without hills and with but scanty vegetation—depends for its productiveness entirely on the water of the river. This it obtains partly by natural inundation during the months of flood, and partly by the artificial irrigation of canals. Goojerat, except in its northern parts, consists of rich, highly cultivated plains, alluvial in their origin, but not now subject to inundation. The tract of



country known as the Konkan, the low lands between the base of the Ghats and the sea, though containing rich plots of rice land and gardens of cocoanut, is as a whole a rugged and difficult country, intersected by creeks, and abounding in isolated peaks and detached ranges of hills. The plains of Khandesh and the Deccan are drained by large rivers, near whose banks are considerable tracts of much fertility. The air is, however, dry, and the rain-fall uncertain, so that even in favourable years they are, except during the rainy season, bleak and devoid of vegetation. The Karnatic—the country south of the Krishna—has few hills and few tracts incapable of cultivation. It consists of extensive plains of black, or cotton, soil in a high state of cultivation.

With the exception of the Munchur Lake in Sindh and the Runn of Kuch, this Province is almost entirely without natural lakes. Situated on the right bank of the Indus in the neighbourhood of the town of Sehwan, the Munchur Lake, when fed by the waters of the river during the months of flood, attains a length of twenty miles and a breadth of ten, covering a total area estimated at 180 square miles. Perhaps the most peculiar natural feature of the Province is the Runn of Kuch—according to the season of the year a salt marsh, an inland lake, or an arm of the sea. The area of this tract of country is estimated at 8,000 square miles. It forms the western boundary of the province of Goojerat, and when flooded during the rains, by uniting the Gulfs of Kuch and Kambay, converts the province of Kuch into an island. In the dry season the soil is impregnated with salt, the surface in some places being moist and muddy, and in others, like a dry river-bed or sea-beach, strewn with gravel and shingle. Its present condition is probably the result of some natural convulsion. But whether the Runn is an arm of the sea from which the waters have receded, or an inland lake whose sea-ward barrier has been swept away, would seem to be still a matter of discussion.

Two artificial sheets of water—Vehar in the neighbourhood of Bombay, and Karakwasla near Poona—would seem from their size to deserve a place among the lakes of the Province. The former, designed for the supply of water to the city of Bombay, is situated about 16 miles distant in a group of hills near the station of Tanna. Its area is about 1,400 acres. The latter, formed for the water-supply of Poona and for the irrigation of the country in its neighbourhood, is considerably larger, covering an area of 3,500 acres. The most considerable tract of marshy land is the more recently formed portion



of the delta of the Indus south of Kurrachee. Along the coast of the Konkan there are also low-lying lands on the borders of the salt-water creeks, large tracts of which are at high tide liable to inundation.

Geology.—The Province consists, geologically as well as physically, of two parts. The north-western of these consists of Sindh, Kuch, Goojerat; the south-western comprises the Mahratta country. Roughly speaking, the river Nerbudda may be said to divide the two regions. A part of the distinction is climatic, the north-eastern division being to a great extent beyond the area of the periodical monsoon rains; but the essential differences are due to the very dissimilar geological formations of which the two regions consist. The geology of the Mahratta country is, for the most part, of the simplest kind, by far the greater portion of the surface being composed of nearly horizontal strata of basalt and similar rocks. Hence the peculiar features of the country, the extensive plateaux, the long hog backed hills, the terraces on their sides, and the black precipices which in so many places almost cut off communication with the low ground. Hence also the fertility of the soil which covers the country, and its adaptation to the growth of cereals, pulse, and cotton; and to the same cause may be attributed the thinness and stunted growth of the forest, except in a few favoured localities. The rocks of the Bombay Deccan are precisely similar to those of neighbouring portions of the Indian peninsula. India proper, in its geology, stands as strikingly aloof from neighbouring portions of Asia as it does in its ethnology and zoology; but the rocks of Goojerat, Kuch, and Sindh, are only partially represented in the Indian peninsula, and must rather be considered as belonging to continental Asia, being continuous, as was long since shown by Dr. Carter, with the formations found in Persia and Arabia. To the northward, the Sindh rocks extend to the foot of the Himalayas. To this striking change in the geology is due, to no small extent, the difference in the physical features of the countries north-west of Goojerat. Instead of plateaux covered by black soil, we find undulating, sandy plains, with scattered craggy hills; the immense alluvial flats to the north of Kuch and Goojerat are for the most part deserts of blown sand, and the fertile country consists of a belt rapidly diminishing in breadth to the westward, along the borders of the sea; its verdure is due to the humidity caused by the neighbouring ocean. In Sindh even this ceases, and the country, except on the banks of the Indus, or where reclaimed by irrigation, is an arid tract of gravel and sand, from which arise the steep scarps of limestone ranges."



Climate.—In a territory extending through so many degrees of latitude, containing low lands lying near the coast, and elevated plateaux remote from the sea, and while receiving in its more southern parts the full force of the south-west monsoon, extending northwards beyond its influence, great varieties of climate are met with. In Upper Sindh the extreme dryness and heat, combined with the aridity of a sandy soil, make up a climate resembling that of the sultry deserts of Africa. The mean maximum temperature at Hyderabad, in Lower Sindh, during the six hottest months of the year has been given at $98^{\circ} 5'$ in the shade, and the water of the Indus reaches blood heat; but in Upper Sindh it is even hotter, and the thermometer has been known to register 130° in the shade. In Kuch and in Goojerat the heat, though less, is also very great. The Konkan is hot and moist, the fall of rain during the monsoon sometimes nearly approaching 300 inches. The table-land of the Deccan, above the Ghats, on the contrary, has a very agreeable climate, as has also the Southern Mahratta country; and in the hills of Mahableshwar, Singurh, and other detached heights, Europeans may go out at all hours with impunity. Bombay island itself, though in general cooled by the refreshing sea breeze, is oppressively hot during May and October. The south-west monsoon generally sets in about the first week in June, and pours a prodigious quantity of rain along the coast. From June till October, therefore, travelling is difficult and unpleasant, except in Sindh, where the monsoon rains exert no influence. The season for travelling is from November till June.

Madras

Area and Boundaries.—The coast line extends on the east of the peninsula from Orissa, in Bengal, to Cape Comorin. On the west the narrow strip of country, which includes the Native States of Travancore and Cochin, forms the coast line from Cape Comorin to the town of Cochin, where Madras territory again extends along the coast until its junction with the Bombay Presidency at the northern extremity of the South Canara District. In the centre of the peninsula are the Nagpoor country and Berar, the territories of His Highness the Nizam, known generally as the Deccan, and the province of Mysore; but all of the centre of the peninsula, south and east of Mysore, belongs to Madras.

The Province includes an area of 139,698 square miles. It has a coast line of about 1,600 miles, and consequently a large area of country but little elevated above the level of the sea.



Mountain ranges run northward from Cape Comorin along the western coast, attaining an elevation in some parts of from 4,000 to nearly 9,000 feet. Ranges of hills follow also the general line of the east coast; but these, as a rule, are of lower elevation than the Western Ghats. The drainage of the peninsula is, for the most part, from west to east into the Bay of Bengal, the area of country drained by rivers running westward being only the narrow strip of territory between the Western Ghats and the sea. As a rule the country slopes gradually from the eastern base of the western mountain chain down to the Coromandel Coast, while the fall is sudden and precipitous on the western side of the mountains. The centre of the peninsula consists generally of undulating table-lands from 1,000 to 3,000 feet above the level of the sea.

Physical Features and Climate.—The peculiar physical geography of the peninsula of India, with a huge mountain chain running from north to south along its western boundary, is of importance in regard to climate and the productions of the various districts. These hills have the effect of arresting the lower strata of rain clouds brought up from the Indian ocean by the periodical winds of the south-west monsoon, and of causing excessive rain precipitation on the narrow strip of coast line on the western side of the peninsula.

Where the mountain range is of great height, as between Malabar and Coimbatore, the rain clouds are almost entirely diverted from the districts immediately below the mountains on the eastern side, and while the annual rainfall on the western side may be one hundred and fifty inches, not more than twenty inches will be registered on the eastern side, immediately within the influence of the mountain ranges. Where the mountain chain is of lower elevation, the rain clouds pass over the hills, and rain is precipitated in uncertain and varying amount over the peninsula to the east of the Western Ghats; but, except in the northern districts, where the rainy season approximates to that of Bengal, the heaviest rain-fall of the southern portion of the eastern division of the peninsula occurs during the period of the north-east monsoon. During the continuance of this monsoon, the western ranges of mountains have a similar effect in arresting the rain clouds, so that at the season of the year when the Carnatic is deluged by heavy rain, the Western Coast Districts enjoy fine clear weather.

To the physical barrier of the Western Ghats must be attributed the vast differences of climate, and the nature of the productions, in the eastern and western divisions of the peninsula. In the former the uncertainty, and capricious character



CSL

Madras. North-Western Province.

of the rain-fall has taught the cultivators of the soil the necessity of making provision for the storage of water for irrigation purposes, and the existence of innumerable tanks or reservoirs, scattered all over the country, testify to the fact that, from periods of the remotest antiquity, the inhabitants of the tracts of country which receive an irregular rain-fall, have exercised great ingenuity and readiness of resource in the construction of public works for the artificial irrigation of the soil. On the western side of the mountains, however, the necessity for such works has never arisen. There the periodical rains fall with great regularity as to time and quantity, and the earth yields her fruits so abundantly that, although in certain exceptional years there may be partial failures of crops, absolute famine, as a result of bad seasons, is unknown. Only three of the twenty-one districts of which the Madras Province is composed lie within the influence of the never-failing rains of the south-west monsoon. In the remaining eighteen districts Nature demands the assistance of art in the collection, storage, and distribution of the condensed moisture of the heavens. In some of these eighteen districts however, as in the northern coast area, the periodic rains fall more regularly than in others, while in several of them the rivers running eastward, swelled by the south-west monsoon rains, are utilized in the fertilization of districts in which the natural moisture is defective.

North-Western Province.

Area and Boundaries.—The Province, covering 82,213 square miles, lies between lat. $31^{\circ} 5' 30''$ and lat. $23^{\circ} 51' 30''$ N., and long. $77^{\circ} 3' 45''$ and $84^{\circ} 43' 30''$ E. It is bounded on the north by the territories of the Rajah of Gurhwal, Thibet, Nepal, Oudh and the Nepalese Terai; on the east by the Divisions of Behar and Chota Nagpore, in Bengal; on the south by the Native State of Rewa, the petty Principalities of Bundelkhund, the Saugor District of the Central Province, and the Native States of Gwalior, Dholepore and Bhurtpore; on the west by the District of Goorgaon in the Punjab, and the River Jumna up to its confluence with the Tonse, after which point the latter stream forms the boundary.

Plains.—By far the larger portion of this area is an alluvial plain, traversed by great rivers which take a south-easterly direction after leaving the lower ranges of the Himalayas. Of these the most important are the Jumna and the Ganges, which inclose between them the great plain known as the Upper Doab.



To the north-east lie the plains of Rohilkhund and Oudh, and to the south-east the plains of the Benares Division. To the west of the Jumna lies the tract known as Bundelkhund, which for a few miles from the banks of that river to the south (up to forty miles in Humeerpore and Jaloun) differs little in appearance from the Doab. Beyond this hills appear, at first isolated, and then gradually assuming the appearance of groups and ranges, until they are finally merged in the Kymore and Vindhyan ranges in the western portions of Banda, Humeerpore, Jhansie, and Lullutpore; further south of this lies the trans-Gangetic portion of the Mirzapore District, where the hills approach that river more closely, and actually touch it at Chunar. Thence to the south and west lies an extensive block of hilly and broken country covered with forests, connected with the great jungles that stretch across Central India, from the Sone to the Godavery, and traversed by streams that form torrents during the rainy season. The scenery of south Mirzapore resembles that of western Bundelkhund, the land being hilly and stony and covered with jungle. There is little cultivation, except in the valleys and the few plains that occur at intervals. The edge of the plateau itself, where it leans over the Gangetic plain, consists of a very steep descent, pierced at intervals with openings that have admitted, after great labour and expense, of roads being made to connect the uplands with the plains. These tracts compare unfavourably with the Doab and other alluvial plains already mentioned, which are for the most part highly cultivated and fertile. Turning to the north, close to the hills, we are met by a marshy belt of land known as the Terai, and between this and the hills a dry tract, called the Bhabur, and further west the *doons* or valleys and then the Himalayan ranges. The Terai commences where the springs fed from the drainage of the Himalayas, after disappearing amid the boulder detritus of the Bhabur, again come to the surface at irregular intervals, and unite to form extensive swamps. The Bhabur is a belt of waterless jungle, formed of boulders and the debris of the lower ranges of the Himalayas, and extending from four to fourteen miles in breadth, at the base of the hills under Kumaon. Except in the upper portions close to the hills, where cultivation is extensively carried on by means of small canals, the face of this tract also is covered with grass jungle. Wells cannot be dug, and without the canals crops could not be raised.

To the west of the Bhabur come the Kotah, Patlee and Dehra *doons*, or valleys, lying nearly parallel to the great chain of the Himalayas, but bounded externally by hills of from 2,000 to 4,000 feet in elevation, known under Dehra as the Sewaliks.



The largest of these valleys is the Dehra Doon, which towards the centre is 2,640 feet above the level of the sea, and, especially towards the west, is fertile and highly cultivated. There is little cultivation as yet in the eastern Doon of Dehra and the other *doons*, which are chiefly valuable as timber reserves, containing vast forests of *sal*, *bakla*, and *sain*.

The *Himalayan tracts* under the Government of the Province consist of the districts of Kumaon and Gurhwal, belonging to the Kumaon division, and the tract to the west of Mussoorie, known as Jounsar Bawur, adjoining the hill station of Chukrata. The Kumaon Division embraces the ranges and valleys from the plains to Tibet. The exterior ranges rise sometimes abruptly, as in the Dehra Doon, and sometimes gradually, as further east from the Doons or the plains, to a height of 7,000 or 8,000 feet, except at the point of exit of the rivers, when, as might be expected, the outline of the mountains is much modified. Between this and the second range a difference is observable of from 1,000 to 2,000 feet; but the elevation gradually increases again, until 10,000 and 11,000 feet are attained in the spurs directly connected with the Snowy Range. We then meet the peaks of the Trisoul (23,382 feet), Nundee Debi (25,661 feet), and Nundee Kot (22,538 feet); these are all situated to the south of the great central axis of the Himalayas, which probably has a mean height of 18,000 to 20,000 feet. It is nearly uniform at about these elevations throughout a great part of the chain, but gradually diminishes towards both ends. Jounsar Bawur, separated from the Kumaon Division by the Native State of Tehree, comprises a large tract of similar hilly country lying between the upper courses of the Jumna and Tons or Supin rivers. Cultivation all through these hill tracts has, since the British occupation, increased fully 40 per cent., and of late years has still more rapidly advanced. These tracts form also the great timber reserves of the N. W. Provinces, and in a small degree supply the iron used in local manufactures. The development of these industries is now obtaining a full share of attention from Government. The new cantonment of Chukrata lies in Jounsar Bawur, and that of Raneekhet in Kumaon, some 26 miles north of Nynce Tal.

Rivers.—The principal river is the Ganges, flowing with a southeasterly course through the Province, from its source in the mountains of native Gurhwal, to its junction with the Ghogra in the south of the Ghazepore District. It receives numerous affluents on its left bank, which themselves are in a measure the great drainage arteries of the tracts through which they flow,—such are the Ramgunga, Goomtee, and Ghogra. On the right bank near Hurdwar the great Ganges Canal is drawn off, and opposite



Atygarh a second weir is in course of construction, which will largely supplement the lower supply. The principal towns along its banks are Anoopshuhur, Futtehgarh, Cawnpore, Allahabad, Mirzapore, Benares, and Ghazeepore. The Jumna also rises in native Gurhwal to the west of the Ganges, and taking at first a south-westerly course, enters the Dehra Doon near Kalsee. Hence it flows for nearly two-thirds of its course in almost the same direction as the Ganges, until it meets with the outlying spurs of the Bundelkund ranges, and turns at first gradually, and then abruptly, more and more towards the east, until at length it unites with the Ganges at Allahabad. On the right bank the Jumna receives the Ramgunga, Chumbul, Betwa, and Cane,—all rivers of considerable size that drain the eastern portions of the Rajpootana, Central India, and Bundelkhund States. On the left bank, close to its entrance into the plains, the Jumna gives off the Eastern Jumna Canal. The principal towns on this river are Delhi, Muttra, Agra, and Calpee, all situated on the right bank, and Etawah and Allahabad on the left bank.

The discharge of the Jumna as it enters the plains has been estimated at 4,000 cubic feet per second in March, and that of the Ganges at Hurdwar at 7,000 cubic feet per second; at Benares the breadth of the Ganges during the cold weather is set down at 1,400 feet, with an average depth of 35 feet, and a discharge of 19,000 cubic feet per second. During the rains at the same place the breadth is 3,000 feet, and the rise 43 feet.

The Ramgunga, fed by numerous small streams rising in the Terai, waters the plains of Rohilkhund, and eventually joins the Ganges on the left bank near Kunouj. The Goomtee rises in the swamps of Phillibheet, and flowing past Lucknow, enters the Jounpore District of the Benares Division, forming the great commercial highway for midland Oudh to the Ganges. Further east flows the Ghogra, called in the first portion of its course the Kalee, where it forms the boundary between Kumaon and Nepal, then known as the Sardah from its entrance into the plains at Burmdeo, as far as the middle of Oudh, and thence on to its junction with the Ganges as the Ghogra or Sardah. This river vies with the Ganges itself in volume and the number of its tributary streams, while it surpasses the Ganges in velocity. The Sardah receives in Kumaon all the rivers that do not find their way to the Ganges, as well as the whole drainage of the Nepal Himalayas and Eastern Oudh, through four degrees of longitude.

Theets, or natural reservoirs of water, are abundant throughout the whole of the Benares Division to the east of the Ganges,



except the tracts immediately adjoining that river, and in some places attain a size of 20 or 30 square miles. As might be expected to the west of the Ganges in Mirzapore, and to the west of the Jumna in Bundelkhund, owing to the hilly nature of the country, these jheels do not exist. In Bundelkhund, however, immense artificial reservoirs have been formed by the former Chandel rulers, by embanking the mouths of the valleys. These are found in the Muhoba Purgunnah of Humeerpore and in Jhansie. The jheels of the Doab are numerous, though small, to the south, and appear only at great intervals to the north. In Rohilkhund, to the extreme east, large tracts of country are covered with swamps, which form a belt all along the eastern frontier towards the Sardah, covered with dense, and in many cases impenetrable, jungle, that gives cover to large number of tigers, deer, and wild pigs. In lower Kumaon the lakes of Nynee and Mullooa are chiefly remarkable for their picturesque beauty. These jheels or lakes are used for irrigation only.

The Canals of the Province irrigate nearly a million acres annually, and in seasons of drought even more, and yield a revenue of close upon a quarter of a million sterling. The principal canals are those which form what is known as the Ganges Canal system, which draws its head-waters from the Ganges at Hurdwar, and running through the Doab, again joins the Ganges at Cawnpore. It consists of 654 miles of main canal and 3,078 miles of distributories, watering a tract of country in the Doab 320 miles in length and about 50 miles in breadth. In the Moozuffernuggur District a branch is given off to Futtehgurh, and in the Allygurh District a branch to Etawah and the western portion of the Cawnpore District. The Eastern Jumna Canal is taken off from the Jumna in the upper portion of the Seharunpore District, and again joins the Jumna at Delhi. This canal waters a tract about 120 miles long and 15 broad between the Jumna and the Hindun, and consists of 130 miles of main canal and 619 miles of distributories. The Doon canal consists of five small canals, aggregating 67 miles in length, and irrigating about 13,000 acres. The Rohilkhund canals are small, and have not yet been completed. There are also several small canals in the Humeerpore District, with a total length of 33 miles, but irrigating less than 1,500 acres.

Climate.—With the exception of the Terai and the portions of the districts of Seharunpore and Moozuffernuggur near the canals, the districts of the Province are, as a rule, healthy. The cold season commences with the close of the rains in October, and lasts until April in the upper districts. In the Benares Division it may be considered to extend from November till the begin-



ning of March. In the winter months there is ordinarily a fall of rain which is eagerly looked for to improve the spring harvest; but it is very uncertain both in time and amount. The hot weather succeeds, and lasts until the beginning of the rains. During this time the hot westerly winds usually blow during the day. The thermometer during the hot weather months ranges from 86° to 109° in the shade, the average being about 94° . As a rule, the rains set in about the latter end of June, and continue until the beginning of October. The average yearly fall in the plains is from 30 to 45 inches, increasing gradually towards the hills, where Mussoorie receives 90 inches and Nynsee Tal 115 inches. The climate of the Benares Division is more moist and cool than that of the Upper Doab, and partakes somewhat of the character of that of the Lower Provinces.

The prevailing diseases are fever, bowel-complaints, small-pox and cholera. The deaths from fever are, as a rule, twelve to fourteen times as numerous as those from any cause. Fever is particularly rife in the Terai, Bijnour, and those districts of Rohilkhund and the Upper Doab down to Cawnpore, where the natural moisture of the soil and air has been increased by canal-irrigation. In the districts of Bundelkhund, where the black soil known as *mar* prevails, a kind of low fever is endemic, owing doubtless to the soil being peculiarly retentive of moisture. In the jheel tracts of the Benares Division fevers are common, but, owing to the village sites being, as a rule, placed on some rising ground, the mortality is not so great as in the Upper Doab. Deaths from bowel-complaints come next, and are most numerous in the fever districts, increasing in proportion in times of scarcity, when people are obliged to live on inferior and scanty food. Small-pox and cholera are epidemic and irregular in their appearance and in the length of time the outburst lasts.

Ajmeer and Coorg.

These Commissionerships are directly under the Government of India. Ajmeer, formerly part of the North-Western Province, has an area of 1122 square miles.

Coorg is included between $11^{\circ} 55'$ and $12^{\circ} 50'$ north latitude, and between $75^{\circ} 25'$ and $76^{\circ} 14'$ east longitude. The length from north-west to south-east is about 50 miles, and the average breadth of the Province may be put down at 32 miles. The sea is often visible to the naked eye from the summits of the mountains, which form the western boundary and the sides of which slope into the Madras collectorates of South Canara and Malabar. It is bounded on the north by the Hemavatee river; on the south by the Tambacheree pass; on the west by South Canara.



and North Malabar; and on the east by the Mysore country. The total area is estimated at 2,400 square miles, or 1,280,000 statute acres. The ordinary average rainfall is 120 inches. The mean temperature for the year 1871-72 was 65·3 as against 66·2 in 1870-71. The maximum and minimum temperature was 85° and 50° respectively. Easterly winds prevail from October to April.

British Burma.

Area.—British Burma extends along the eastern shore of the Bay of Bengal from Chittagong to the kingdom of Siam in 10° N. Lat. It is geographically divided into Arakan, the valley of the Irrawaddy, the valley of the Salween, and Tenasserim.

Arakan, originally a powerful kingdom, conquered by the Burmese, and taken from them by the British after the first Burmese war in 1825, and having an area of 18,530 square miles, lies between the Naf Estuary and Cape Negrais. It is bounded on the south and west by the sea, and on the north and east by the high chain of mountains which, forming the eastern boundary of Bengal, extends from the south-eastern extremity of Sylhet and Cachar in a south-westerly direction as far as the Fenny river, and from about the 23rd parallel of North latitude turns south-east for 360 geographical miles, when turning again to the westward of south it gradually diminishes both in breadth and elevation till it ends 15 or 16 miles south-east of the rocky promontory of Cape Negrais at Pagoda point, called by the Burmese *Hmaudeng*. This chain, though of considerable height to the north—the Blue Mountain is supposed to be 8,000 feet above the sea level—diminishes in altitude as it reaches Arakan, and none of the passes across it, in that portion of its length, are more than 4,000 feet above the sea; the Aeng pass into the valley of the Irrawaddy is much less. From Combermere Bay, 25 miles south of Akyab, the coast is rugged and rocky, offering few harbours for ships. Kyouk-phyoo harbour, inside the island of Ramree, is safe and easy of approach, and at the mouth of the Gwa river further south there is a fairly sheltered roadstead. The coast is studded with fertile islands, the largest of which are Cheduba and Ramree. The principal streams are the Naf Estuary on the extreme west; the Mroo river, an arm of the sea about 40 miles to the eastward and from 3 to 4 miles broad at its mouth, and extending more than 50 miles inland; and the Koladan or Arakan river, rising somewhere near the Blue Mountain in about 23° N. and navigable for 40 odd miles by vessels of 300 or 400 tons burden. On the right bank of this stream close to its mouth, is situated Akyab. Rivers of little importance



are the Talak and the Aeng, navigable by boats only, and the Sandoway, the Toungoo and the Gwa streams. The latter alone has any importance, owing to its mouth forming a good port of call or haven for steamers or vessels of from 9 to 10 feet draught. The whole coast-line is a labyrinth of creeks, which rise at the foot of the hills and receive the contribution of numerous small streams. There are some small sheets of water, the principal of which are near the old town of Arakan, the capital of the ancient kingdom, formed by bunds placed across different valleys by the former kings. They are now all out of repair and have become marshes, rendering that portion of the country very unhealthy. The soil is mainly alluvial, in many places mixed with sand, and the rocks are composed of a dark brown sandstone, black gneiss, and brown or grey clay slate; towards the southern portion basalt is plentiful. Except a small quantity of iron and of limestone, there are no mineral productions of any value.

The *Valley of the Irrawaddy* at its lower end unites with the valley of the Sittoung to form an extensive plain, stretching from Cape Negrais on the west to Martaban on the east. The watershed between these two streams is the Pegu Yoma range which, running north and south, terminates in low hills at Rangoon. The boundaries are the Anouk-pek-toung-myeng on the west and the Pongloun range, rising to a height of 7,000 feet, it is said, on the east. The northern boundary line, which separates the British possessions from the territory of the King of Ava, and which is marked by a line of stone pillars, leaves the Arakan hills at a point called "the ever visible peak," and running due east passes the Irrawaddy at its 50th mile, and 43 miles further on the Pegu Yoma range; thence, after 33 miles, it crosses the Sittoung, and finally loses itself in a desert of mountains 13 or 14 miles further east. The Irrawaddy valley, which is about 80 miles broad at the frontier line, counting from chain to chain, and is there so rugged that little regular cultivation can be carried on, gradually widens towards its southern extremity, and, about 60 or 70 miles south of the frontier, hills which bound it have receded so far that it becomes a broad level plain highly cultivated and the richest portion of the whole Province. The Sittoung valley, in its northern portion, resembles the valley of the Irrawaddy, and towards the south it gradually widens, leaving on the west a strip of country about 25 or 30 miles broad, covered with dense jungle, which stretches down as far south as Shwe-gyen; thence to the sea on the western side is rice cultivation. From below Sittoung to the sea there is one immense plain stretching from Martaban to Cape Negrais and intersected only



by rivers and tidal creeks. The coast-line, which is low and flat, runs in an easterly direction from Hmaudeng or Pagoda point to Baragou point, and thence in a north-easterly direction to the gulf of Martaban.

The main rivers are the Irrawaddy, the Hleing, or Rangoon, the Pegu, the Sittoung and the Beeling. The Irrawaddy, rising in about Latitude 28° N. and Longitude $97^{\circ} 30'$ E., flows for upwards of 600 miles before reaching the British possessions, and thence its waters roll on for 240 miles to the sea in a S. S. W. direction. As it nears the coast it divides, converting the lower portion of the valley into a net-work of tidal creeks. A little above Henzada, about 90 miles inland, it sends off its first branch to the westward, which, flowing past Bassein, receives the water of the Panmawaddee and of the Penglaygaylay, and bifurcating, enters the Bay of Bengal by two main mouths, the Bassein and the Thekkay-thoung rivers. This branch is navigable for large ships for 80 miles as far as Bassein, a port of some importance. After passing Henzada it sends off a small branch to the eastward which joins the Hleing just above Rangoon. The main river then sub-divides till it empties itself into the sea by 10 mouths. The waters commence to rise in March and continue to rise till September, when, or in October, they begin to fall, having risen from 37 to 40 feet. It is navigable for river steamers as far as Bhamo, 600 miles beyond the British frontier. The velocity of its waters when the river is full is five miles an hour. The Hleing rises close to Prome where it is called the Myit-makat stream, and flowing in a southerly direction nearly parallel to the Irrawaddy, it gradually assumes the name of the Hleing, and finally of the Rangoon river, and flows past the town of that name, having received some of the waters of the Irrawaddy through the Nyoungdon stream. Just below Rangoon it is joined by the Pegu and Poozoondoung rivers, flowing from the east and north-east. It is navigable for vessels of the largest size for some little distance above Rangoon, but vessels of more than 6 feet draught cannot come up at low tide. The Pegu and the Poozoondoung rivers rise close together in the Yoma range, about 58 miles above the town of Pegu, the capital of the ancient Taline kingdom, conquered by the Burmese under Alompra, and which gives its name to all this portion of the country. The Sittoung river rises far north of British territory, which it enters just above Toungoo; here it is narrow and navigable with difficulty for large boats during the dry season. Below Shwe-gyen, where it receives the waters of the Shwe-gyen river from the east, it gradually and slowly widens till at Sittoung it is half a mile broad. Thence it curves backward, and flows



into the gulf of Martaban. The Beeling river rises in the Pongloun hills, and flows southward to the sea, entering the gulf between the Salween and the Sittoung. There is only one canal, connecting the Pegu and Sittoung rivers. There are four lagoons, the Thoo lake in the Myanoun district on the west bank of the Irrawaddy between that river and the Arakan Hills, which is 8 or 9 miles round and $2\frac{1}{2}$ across; the Lahgyin in a large low tract of ground on the opposite bank of the Irrawaddy; the Kandaugyee, or "Royal lake," near Rangoon, about 3 miles round; and the lake of clear water in the Bassein district about 5 miles in circumference.

The *Valley of the Salween* is British territory only in its lower portion. The right bank of that river is a wilderness of mountains drained by various streams, the most important of which is the Yonzaleen; but lower down, and especially below the Thoungyeen river on the east bank, there are large alluvial plains which are drained by the Gyne and the Attaran rivers. The Salween is not navigable owing to its rapids. At its mouth is the town of Moulmein. The Attaran rises in the chain of Hills which forms the boundary between Siam and British Burma, and flows in a south-westerly direction through dense teak forests and an almost uninhabited country. The Gyne is navigable for 180 miles for small boats.

Tenasserim lies between 17° and 10° N. Latitude along the eastern side of the Bay of Bengal, and between it and a high chain of hills about 40 miles inland, and includes the Mergui Archipelago, that is, the chain of islands along the coast and 15 or 20 miles distant from it. The surface of the country is mountainous, thinly populated and much intersected by streams. Between the sea and the boundary range is another lower one, separated from the higher by the Tenasserim river. The grand range is in some places 5,000 feet high; its breadth at Martaban has never been ascertained, but further south, in the latitude of Tavoy, it appears to be 40 miles wide, whence it gradually narrows to 10 miles near Mergui. The whole range is covered with pathless jungle. The coast is very irregular and low for some miles inland, consisting of uncultivated mangrove islands. The Tenasserim, which rises in about 15° N. Latitude, flows through a valley scarcely broader than its bed to the southward, when, after passing the ancient town of Tenasserim, it turns suddenly to the west and empties itself into the sea by two mouths, the northern of which is the more easily navigable for large ships.

The total area of the Province of British Burma is 93,664 square miles, of which 18,530 are in Arakan; 28,404 in Pegu and



46,730 in the Tenasserim division, which includes the valley of the Sittoung, the southern portion of the left bank of the Salween, *i. e.*, the country to the eastward, drained by the Gyne and the Attaran, and the Eastern coast of the Bay of Bengal. Of this area of 93,664 square miles, 3,600 are cultivated. The culturable area is 36,204 square miles, exclusive of the area in Northern Arakan, which is, however, very limited. In Pegu alone there are no less than 13,418 square miles of culturable waste land, which only requires population to become as fertile as any in the world. The communications throughout the Province are mainly by water. There are but 814 miles of road altogether, of which 504 miles are returned as first class and 205 miles as second and third class.

Minerals.—With the exception of iron and limestone, which are found in small quantities, the former in the island of Ramree, there are no mineral productions of any value in Arakan. In Pegu the Arakan range abounds in limestone, and in some portions granite, greenstone and hornblende are met with, and further north granite or greenstone and gneiss; quartz nodules are common. Coal has been discovered in large quantities near Thayetmyo, but it was found to be worthless, both as regards quality and quantity. Coal has been discovered in five distinct localities in Tenasserim and has been reported to be "well adapted for steamers having a low specific gravity, burns with a brilliant white flame, and leaves but a very small proportion of ashes," but owing to the difficulty and expense of removing it the seams are not worked. Excellent tin also is found, and copper ores, gold in small quantities, and ores of manganese and iron in abundance. Lead in the form of galena has been discovered in the hills beyond Toungoo about 24 miles south of the frontier, and on one of the islands of the Mergui Archipelago. The ore is rich in metal and a sample of that from Toungoo yielded, on assay, a produce of silver equivalent to 20 ozs. to the ton.

Climate.—The climate is moist, and depressing for part of the year, but cooler than India; and in some of the forest tracts it is deadly during the monsoons and for some time after the cold weather has set in. On the coast, however, and on the frontier, it is not an unhealthy climate. The most prevalent complaints amongst Europeans are fever, dysentery and hepatic diseases, from which the natives are by no means free. On the whole the climate of British Burma seems much better adapted to the European constitution than any part of India. The rainfall varies considerably from 245·85 inches at Moulmein to 54·85 inches at Thayetmyo.



CHAPTER II.

THE PEOPLE, THEIR LANGUAGES AND CIVIL DIVISIONS.

POLITICAL reasons long operated to prevent a scientific enumeration of the people of British India. Occasionally special statistical inquiries were made, like the very valuable investigations of Dr. Buchanan Hamilton in Northern Bengal, of Mr. Adam when reporting on the indigenous schools of Bengal, and of some of the district officers of the North-Western Province about Mr. Thomason's time. The various Survey and Land Settlement Reports have also, from time to time, attempted to estimate the numbers of the people. But, practically, all enumerations were based on a numbering of the houses by the police and the multiplication of the total number of houses by five. At last the Government of India resolved to take a detailed census in 1861, as part of the decennial census of the British Empire. The Mutiny and its consequences prevented that. But provincial enumerations were attempted, in the North-Western and Central Provinces and in the Punjab and Oudh, with such success that it was resolved to number the people of India at the time of the Imperial decennial census in 1871. Except in the case of Provinces like the Punjab and Oudh, where the population had been reckoned so recently as 1869, a detailed census of all India was taken in the month of January 1872. A census will probably be taken every ten years henceforth, and arrangements have been made in Bengal to keep up to date the population schedules of every town, village and commune.

Bengal and Assam.

The Lieutenant Governorship of Bengal was constituted on 12th October 1853 and the Hon'ble F. J. Halliday was appointed the first Lieutenant Governor on 23th April 1854. Up to that time the Governor General had directly ruled Bengal proper through one of the members of his Council as Deputy Governor. The successive Lieutenant Governors since Mr., now Sir F., Halliday's five years' term of office expired have been, like him, members of the Covenanted Civil Service—Mr. J. P. Grant, now Sir John Grant, Sir Cecil Beadon, Sir William Grey, now Governor of Jamaica; and Sir George Campbell, D.C.L., who took his seat on the 1st March 1871 and was succeeded by Sir R. Temple on the 8th April 1874.



The first census ever made of Bengal was taken in the months of January and February 1872, but to a great extent on the night of 25th January. Perfect simultaneousness was impossible in such a country and over so vast an area, yet the tests show the accuracy of the result for all administrative purposes. Take the floating population who live on the water of the great delta and its thousand rivers and creeks. No fewer than 60,000 boats containing 300,000 souls were counted not only at every ghaut, but by giving a red ticket to those afloat and by patrolling the streams. Night passengers on the East Indian Railway were reckoned on arrival. In jungly places where wild beasts were feared the people were counted during the day. The convicts of Alipore Jail and elsewhere printed upwards of six and a half millions of Census forms and *Sunnuds* in Bengalee, Kaithee and Persian, Nagree, English, English and Bengalee, Oorya, and other dialects. Thus we may form some idea of what it is to number the sixty-seven millions of Bengal. In Bengal, including printing, the total cost of reckoning 67 millions of human beings, scattered over an area of land and water amounting to 250,000 square miles, was only £21,600.

Under careful supervision the people numbered themselves. The happy idea was hit on of issuing honorary letters of appointment to the most intelligent and respectable inhabitants, after they had satisfied the authorities of their ability for the task. So coveted was the honorary office of enumerator that many who were rejected as unfit, or had been passed over as not required, petitioned Government to remove the insult. These *Sunnuds* will in many cases be handed down as heirlooms. Under a brief penal Act these enumerators counted the country people, while in towns the municipal commissioners and their friends divided the wards among them. In Hooghly the district officer would not send out his special head constables to select enumerators until the first one had been at work for some weeks in the interior without any complaint from the people. When the other eleven went forth in a Bengal September their work was most laborious, wading in the mud from village to village under the heat of the sun or in the drenching rain. One of them died after completing his work and five others have been invalided. The enumerators in Burdwan were heads of villages and landholders' agents; in Bancoorah, village *Punchajets* besides these; in the wilder tracts of Midnapore, the police. In the 24-Pergunnabs around Calcutta and its suburbs no fewer than 1,173 of the 4,732 enumerators were substantial ryots, 587 were small and 317 large landholders, 117 were students and teachers and many were priests, pleaders and doctors. In hilly districts each chief took the census of his own clan or dependants.



Total Population.

CSL

In Behar the still existing *putwarcees* were employed. In Sonthalistan the village head-men knotted strings of four colours, black for male adults, red for female adults, white for boys and yellow for girls. In some villages three people were told off to keep the reckoning, which was done by so many seeds or small pieces of gravel, one person keeping count of the men, another of the women and the third of the children. Here it was pleasing to see the pride of the simple village elders in their work. In one instance, in which one male adult had slept away from home and had not been entered in any return, the enumerator walked nine miles to the station to report the missing man. In Orissa the Commissioner preached the census from village to village for months before, so that even the rude hill chiefs were prepared for it. In Darjeeling the garden moonshees filled up the returns, the planters supervising them. In Assam the wild frontier tribes alone were omitted. Except in Behar and the non-regulation districts the people thus counted themselves, their self-respect and honour having been wisely appealed to. The cases of extortion discovered were singularly few, and there was only one serious riot, in a Ferazee village, thanks to the fact that the intelligence of the people was awakened and enlisted against corrupt practices.

Area and Population of Bengal.

	Area in square miles.	Total Population.	Average number of persons to the square mile.	Proportion per cent. of the area of the several Provinces.	Proportion per cent. of the population in the several divisions.
The entire Territory under the Lieutenant Governor of Bengal,	248,231	66,856,859	269	100	100
Bengal	94,539	36,769,735	389	38-08	55-00
Behar	42,417	19,736,101	465	17-9	29-52
Orissa	23,901	4,317,999	181	9-63	6-46
Chota Nagpore ...	43,901	3,825,571	87	17-69	5-72
Assam	43,473	2,207,453	51	17-51	3-30



Bengal.

CSL

Abstract of the Area and Population of each District in Bengal arranged according to Provinces and Commissioners' Divisions.

DIVISION.	DISTRICT.	Area in square miles.	Number of villages, mouzabs or townships.	Number of houses.	Total population.	Averages calculated from preceding columns.				
						Persons per square mile.	Villages, mouzabs, or townships per square mile.	Persons per village, mouzab, or township.	Houses per square mile.	Persons per house.
BENGAL.										
Western Districts.	Pardwan	5,623	5,191	435,416	2,034,745	578	147	392	124	47
	Bancoorah	1,346	2,023	104,687	626,772	391	157	260	78	50
	Peerbhoom	1,344	2,471	159,940	695,921	518	184	282	119	43
	Midnapore	5,082	12,962	446,045	2,540,963	500	255	196	88	55
	Hooghly with Howrah	1,424	3,190	322,798	1,488,559	1,045	224	467	227	46
	Total	12,719	26,842	1,468,791	7,286,937	573	203	292	115	50
Central Districts.	24-Pergunnahs	2,788	4,980	303,737	2,210,047	793	175	443	141	56
	Calcutta	8	1	38,594	447,601	55,950	12	447,601	4,858	110
	Nuddea	2,796	4,981	432,601	2,657,618	950	178	534	155	81
	Jessore	3,421	3,691	352,017	1,812,765	530	108	491	103	52
	Total	3,658	4,247	313,680	2,075,621	567	116	489	86	66
	Total	9,876	12,910	1,098,278	6,545,464	663	131	507	111	60
Rajshahye.	Moorshedabad	2,378	3,735	303,561	1,553,626	525	146	361	118	45
	Dinapore	4,126	7,108	264,526	1,501,924	364	172	311	64	57
	Maladah	1,813	2,100	129,579	676,426	372	116	322	71	53
	Krishahya	2,234	4,228	246,371	1,310,729	587	189	310	110	53
	Rangpore	3,476	4,206	331,079	2,149,972	619	121	511	95	65
	Bogra	1,501	2,666	127,009	689,437	459	178	259	84	55
Pabna	1,960	2,792	195,220	1,211,594	616	142	434	101	61	
Total	17,694	26,453	1,600,435	8,893,738	503	152	331	90	66	
Cooch Behar...	Darjeeling	1,234	...	18,864	94,712	77	...	...	15	50
	Jalpigore	2,906	...	69,648	418,665	144	...	...	24	60
	Cooch Behar	1,307	...	81,820	532,565	407	...	...	63	65
	Total	5,447	...	170,332	1,045,942	192	...	...	21	61
Eastern Districts.	Dacca	2,897	5,016	290,593	1,552,993	540	173	329	100	64
	Farradpore	1,496	2,807	157,518	1,012,589	677	154	439	105	64
	Backergunge	4,955	4,269	321,657	2,377,438	482	87	557	65	74
	Mymensing	6,293	7,601	308,008	2,319,917	373	121	309	49	76
	Sylhet	5,383	5,589	286,594	1,710,539	319	104	303	53	90
	Cachar	1,285	389	37,311	205,027	160	3	527	29	55
Total	22,269	26,171	1,401,681	9,517,498	427	113	378	63	68	
Chittagong...	Chittagong	2,498	1,062	197,104	1,127,402	451	143	1,062	79	57
	Nonkally	1,557	2,034	142,155	718,934	459	131	351	91	50
	Tipperah	2,655	6,160	307,011	1,533,931	578	262	210	118	50
	Chittagong Hill Tracts	6,882	...	15,354	69,607	10	...	...	2	52
	Hill Tipperah	3,867	...	6,329	35,262	9	...	...	2	56
	Total	17,459	...	665,953	3,480,136	199	...	...	33	62
Total for Bengal*		85,483	...	6,405,470	36,769,735	430	...	...	76	57

* Excluding Sanderbuns and Cachar Hills.

Abstract of the Area and Population of each District in Bengal arranged according to Provinces and Commissioners' Divisions.—(Continued.)

DIVISION	DISTRICT.	Area in square miles.	Number of villages, mouzas, or townships	Number of houses.	Total population.	Averages calculated from preceding columns.				
						Persons per square mile.	Villages, mouzas, or townships per square mile.	Persons per village, mouza, or township.	Houses per square mile.	Persons per house.
BEHAR.										
Patna...	Patna	2,171	3,412	269,814	1,559,698	742	1.62	457	128	5.8
	Gya	4,718	6,530	827,845	1,949,750	413	1.33	299	69	5.9
	Shahabad	4,355	5,110	275,041	1,723,974	393	1.16	337	83	6.3
	Tirhoot	5,243	7,337	642,087	4,344,706	391	1.10	598	161	6.4
	Sardh	1,654	4,350	293,324	2,063,860	778	1.04	474	111	7.0
	Chumpran	3,531	2,200	242,228	1,440,815	408	.65	327	65	5.9
	Total	23,732	29,033	2,050,539	13,122,743	553	1.22	452	86	6.4
Bhanguiopore.	Monghyr	3,913	2,457	328,174	1,812,986	463	.63	728	84	5.5
	Bhanguiopore	4,327	2,739	329,372	1,826,290	422	.63	687	76	5.5
	Puridiah	4,957	4,179	313,447	1,714,795	346	.84	410	65	5.5
	Sonthal Pergannahs	6,488	9,872	230,504	1,259,287	229	1.80	128	42	5.4
	Total	18,685	19,247	1,201,497	6,613,358	354	1.03	344	63	5.5
	Total for Behar	42,417	48,280	3,252,036	19,736,101	465	1.14	409	77	6.1
ORISSA.										
Orissa...	Cuttack	3,178	5,500	281,430	1,494,784	470	1.73	271	68	5.2
	Pooroo	2,473	3,175	143,920	769,674	311	1.28	242	68	5.2
	Palasore	2,066	3,286	128,913	770,232	373	1.58	236	67	5.5
	Tributary Mehals	16,184	10,178	333,284	1,263,309	79	.62	126	16	5.1
	Total for Orissa	23,901	22,139	817,547	4,317,999	180	.92	193	34	5.2
CHOTA NAGPORE.										
Chota Nagpore.	Hazarébaugh	7,021	6,703	150,433	771,875	110	.95	115	21	5.1
	Lohardugga	12,044	6,486	240,842	1,237,123	103	.74	191	20	5.1
	Siugbhoom	4,503	3,268	84,416	415,023	92	.71	129	19	4.9
	Munbhoom	4,214	6,388	195,665	995,570	203	1.30	156	40	5.1
	Tributary Mehals	15,419	3,001	80,379	405,980	26	.19	135	5	5.0
	Total for Chota Nagpore	43,201	25,766	752,257	3,823,571	87	.59	148	17	5.1
ASSAM.										
Cooch Behar ...	Goalpara	4,433	...	72,655	444,761	100	...	...	16	6.1
	Kamroop	3,631	1,649	103,908	561,681	155	.45	347	29	5.4
	Durrang	3,413	137	43,558	236,009	69	.04	1,723	13	5.4
	Newgong	3,645	1,293	44,050	256,390	71	.36	198	12	5.3
	Socobatzor	2,418	203	55,604	296,589	123	.08	1,461	23	5.3
	Luckimpore	3,145	125	26,398	121,267	39	.04	970	8	4.6
	Naga Hills	4,900	...	...	68,918	...	...	...	...	...
	Khasi and Jynteah Hills	6,157	...	...	141,838	...	...	...	...	...
	Garo Hills	3,390	...	...	80,000	...	...	...	...	...
	Total for Assam*	35,130	...	...	2,207,453	63	...	...	...	...

* Excluding tracts not cleared.



Bengal.

CSL

General Statement of the Result of the Census

PO.

DISTRICTS.	Area in square miles.	Inhabited houses.	Men.	Women.	Total adults.
BEHGAL.					
WESTERN DISTRICTS.					
<i>Burdwan Division.</i>					
Burdwan	2,523	435,416	661,104	774,895	1,435,999
Bankura	1,846	104,687	166,124	183,732	349,856
Beerbhoom	1,344	159,940	218,730	258,815	477,545
Midnapore	6,082	446,045	799,161	919,157	1,718,318
Hooghly with Howrah	1,424	322,703	478,159	575,715	1,053,874
Total	12,719	1,468,791	2,323,578	2,712,504	5,035,882
CENTRAL DISTRICTS.					
<i>Presidency Division.</i>					
24-Pargunnahs	2,788	293,737	777,679	748,583	1,526,261
Calcutta	8	38,364	263,077	118,974	381,051
Naddea	2,421	262,017	546,109	675,213	1,216,322
Jessore	3,658	313,650	675,307	721,348	1,406,655
Total	9,875	1,098,278	2,261,172	2,269,117	4,530,289
<i>Rajshahy Division.</i>					
Moorsheadabad	2,578	303,551	408,615	510,149	918,764
Dinapore	4,126	264,596	482,736	492,367	975,103
Maldah	1,513	129,579	203,749	238,480	442,229
Rajshahy	2,234	246,371	385,571	449,533	835,104
Bangore	3,476	531,079	708,302	750,440	1,458,742
Bogra	1,501	127,099	216,700	235,822	452,522
Pubna	1,966	198,220	369,918	415,454	785,372
Total	17,694	1,600,435	2,773,891	3,092,245	5,866,136
<i>Cooch Behar Division.</i>					
Darjeeling	1,234	18,864	36,585	27,873	64,458
Julpigoree	2,966	69,618	133,584	134,457	268,041
Cooch Behar	1,307	81,820	176,396	178,613	355,009
Total	5,447	170,302	346,565	340,943	687,508
EASTERN DISTRICTS.					
<i>Dacca Division.</i>					
Dacca	2,897	290,593	549,442	644,070	1,193,512
Furreedpore	1,496	157,518	318,818	371,784	690,602
Backergunge	4,935	521,657	738,019	789,134	1,527,153
Mymensing	6,293	308,068	727,618	790,087	1,517,705
Sylhet	5,383	286,594	526,706	552,766	1,079,472
Cachar	1,235	37,311	69,536	61,781	131,317
Total	22,289	1,401,681	2,929,637	3,209,622	6,139,259
<i>Chittagong Division.</i>					
Chittagong	2,498	197,104	287,648	380,501	678,149
Noakhally	1,557	142,155	209,942	230,880	440,822
Tipperah	2,655	307,011	482,644	492,863	975,507
Chittagong Hill Tracts	6,882	13,354	27,994	17,788	45,782
Hill Tipperah	3,867	6,329	.....	.....	.....
Total	17,459	655,953	1,008,228	1,132,032	2,140,260
Total for Bengal	85,483	6,405,470	11,643,071	12,756,263	24,399,334



CSL

The Population.

of Bengal arranged with reference to Age and Sex.

PULATION.

Children under 12 years.			Total males.	Total females.	Total of all classes.	Number per square mile.
Male.	Female.	Total.				
334,714	234,032	568,746	995,818	1,033,937	2,634,745	578
95,566	81,360	176,926	261,090	265,082	526,772	391
116,820	102,556	219,376	331,550	361,371	695,921	518
457,733	364,612	822,345	1,257,194	1,283,769	2,540,963	500
244,607	189,935	434,542	722,856	765,700	1,488,556	1,045
1,243,530	1,002,545	2,246,075	3,572,108	3,714,849	7,286,957	573
378,080	305,706	683,786	1,155,759	1,054,288	2,210,047	793
37,780	28,770	66,550	299,857	147,744	447,601	55,950
331,016	265,457	596,473	877,125	936,670	1,812,795	590
375,819	292,547	668,366	1,051,126	1,023,895	2,075,021	567
1,122,695	892,480	2,015,175	3,332,867	3,161,597	6,494,464	663
236,720	198,142	434,862	645,335	705,291	1,350,626	525
293,695	233,126	526,821	776,431	725,493	1,501,924	364
127,338	106,869	234,207	331,087	345,339	676,426	373
292,015	210,610	502,625	850,586	660,143	1,510,729	387
331,424	304,500	635,924	1,095,026	1,054,946	2,149,972	610
131,164	105,781	236,945	347,864	241,603	589,467	459
232,596	192,626	425,222	602,514	600,080	1,202,594	616
1,674,952	1,352,650	3,027,602	4,448,843	4,444,895	8,893,738	593
16,472	13,782	30,254	53,057	41,655	94,712	77
83,309	67,315	150,624	216,893	201,772	418,665	144
102,189	75,367	177,556	278,685	253,080	532,565	407
201,970	156,464	358,434	548,535	497,407	1,045,942	192
356,333	302,143	658,476	905,775	947,218	1,852,993	640
179,536	142,061	321,597	497,854	514,735	1,012,589	677
466,218	394,062	860,280	1,204,237	1,172,196	2,376,433	382
460,346	371,868	832,214	1,187,962	1,161,955	2,349,917	373
353,624	286,443	640,067	880,930	839,209	1,720,139	319
40,937	32,873	73,810	116,373	94,654	211,027	160
1,866,894	1,521,345	3,388,239	4,786,531	4,730,967	9,517,498	427
248,411	200,842	449,253	536,059	591,245	1,127,402	451
162,125	130,987	293,112	362,067	251,994	614,061	459
299,747	238,677	538,424	782,391	751,540	1,533,931	678
12,889	10,936	23,825	40,883	20,724	61,607	10
...	...	...	...	...	35,263	9
713,172	591,442	1,304,614	1,721,400	1,723,474	3,444,874	199
6,818,213	5,516,926	12,335,139	18,461,284	18,273,189	36,734,473	430



Bengal.

CSL

General Statement of the Result of the Census

DISTRICTS.	Area in square miles.	Inhabited houses.	PO-		
			Men.	Women.	Total adults.
BEHAR.					
Patna Division.					
Patna ...	2,101	269,814	491,394	557,358	1,048,752
Gya ...	4,718	327,845	609,553	678,861	1,288,414
Shahabad ...	4,383	275,041	522,657	615,324	1,137,981
Tirhoot ...	6,843	642,087	1,377,765	1,495,326	2,873,091
Saran ...	2,654	293,524	606,897	713,643	1,320,540
Champaran ...	8,531	242,225	466,874	467,028	933,902
Total ...	23,732	2,050,539	4,075,140	4,527,550	8,602,690
Bhaugulpore Division.					
Monghyr ...	3,913	328,174	553,983	614,778	1,168,761
Bhaugulpore ...	4,327	329,372	565,131	668,266	1,233,397
Purneah ...	4,987	313,447	548,569	583,320	1,131,889
Sonthal Pergunnahs ...	5,488	230,504	359,965	386,735	746,700
Total ...	18,685	1,201,497	2,027,648	2,191,089	4,218,737
Total for Behar ...	42,417	3,252,036	6,102,788	6,718,639	12,821,427
ORISSA.					
Orissa Division.					
Cuttack ...	3,178	281,439	453,357	525,376	978,733
Pooree ...	2,473	143,950	250,820	266,482	507,302
Balasore ...	2,066	133,913	232,933	269,707	502,640
Tributary Estates ...	16,184	263,284	389,185	400,294	798,479
Total for Orissa ...	23,901	817,547	1,326,295	1,460,859	2,787,154
CHOTA NAGPORE.					
Chota Nagpore Division.					
Hazaribagh ...	7,021	150,493	233,750	257,539	491,289
Lohardugga ...	12,644	240,943	347,612	390,211	737,823
Singbhoom ...	6,503	84,416	119,309	129,840	249,149
Maunbhoom ...	4,914	195,665	295,433	330,264	625,697
Tributary Estates ...	15,419	80,870	120,742	121,284	242,026
Total for Chota Nagpore ...	43,901	752,287	1,116,846	1,229,138	2,345,984
ASSAM.					
Assam Division.					
Goalpara ...	4,433	72,655	145,919	145,859	291,778
Kamrup ...	3,631	103,908	185,461	173,091	358,552
Darrang ...	3,413	43,558	82,770	75,260	158,030
Nowgong ...	2,648	44,050	83,490	78,413	161,903
Seebsangor ...	2,413	55,664	99,718	90,245	189,963
Luckimpore ...	3,145	26,398	42,023	36,299	78,322
Naga Hills ...	4,900	.....	.....	.....	.....
Khasi and Jynteah Hills ...	6,157	.....	30,882	44,208	84,280
Garo Hills ...	3,390	.....	.....	.....	.....
Total for Assam ...	35,130	346,173	679,333	643,470	1,322,803
Total country included in Census ...	330,932	11,573,513	20,865,333	22,808,569	43,673,902
Waste and country not censused ...	17,399	.....	.....	.....	.....
Grand Total ...	243,231	.....	.....	.....	.....



The Population.

CSL

of Bengal arranged with reference to Age and Sex.—(Continued.)

POPULATION.

CHILDREN UNDER 12 YEARS.			Total males.	Total females.	Total of all classes.	Number per square mile.
Male.	Female.	Total.				
270,483	240,403	510,886	761,877	787,761	1,559,638	742
344,576	316,760	661,336	954,129	995,621	1,949,750	413
312,717	272,276	585,993	835,374	888,600	1,723,974	303
813,999	697,616	1,511,615	2,191,764	2,192,942	4,384,706	691
389,786	353,524	743,310	996,683	1,067,177	2,063,860	778
270,655	236,258	506,913	787,529	793,286	1,440,815	408
2,402,216	2,117,837	4,520,053	6,477,366	6,645,887	13,123,253	553
343,091	301,134	644,225	897,074	915,912	1,812,986	483
354,092	302,851	656,943	917,183	909,107	1,826,290	422
327,751	256,155	583,906	876,820	833,475	1,710,295	346
269,751	242,838	512,589	629,716	629,571	1,259,287	229
1,292,646	1,101,976	2,394,622	3,320,293	3,293,065	6,613,358	354
3,694,861	3,219,813	6,914,674	9,797,649	9,938,452	19,736,101	465
271,978	244,078	516,056	725,336	769,454	1,494,790	470
138,629	123,743	262,372	369,449	380,225	749,674	311
146,144	121,448	267,592	379,077	391,155	770,232	373
257,020	227,810	484,830	646,205	637,194	1,283,399	79
813,766	717,079	1,530,845	2,140,061	2,177,938	4,317,999	180
163,295	117,291	280,586	397,045	374,836	771,881	110
273,936	225,364	499,300	621,548	615,575	1,237,123	103
88,617	77,257	165,874	207,926	207,097	415,023	92
206,503	162,370	368,873	500,936	494,634	995,570	203
85,183	78,771	163,954	205,925	200,055	405,980	26
816,534	663,053	1,479,587	1,933,980	1,892,191	3,826,171	87
82,453	69,528	152,981	229,374	215,287	444,661	100
107,227	95,902	203,129	293,088	268,093	561,181	155
40,067	37,912	77,979	122,837	113,172	236,009	69
49,647	44,866	94,513	133,167	123,283	256,450	70
75,222	51,404	126,626	164,940	141,349	296,289	123
22,669	20,276	42,945	64,692	56,675	121,367	39
25,611	28,947	54,558	63,593	73,245	136,838	68,918
386,898	348,834	735,732	1,068,231	992,304	2,060,535	63
12,530,272	10,465,705	22,995,977	33,328,605	33,274,074	66,602,679	290
.....	.....	.....	.....	.....	.....	269