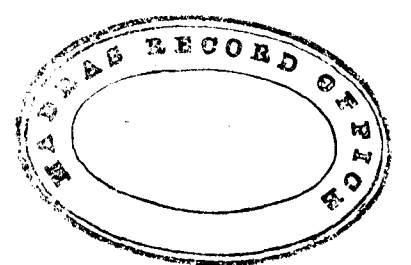


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EAST INDIA (PROGRESS AND CONDITION).

STATEMENT



EXHIBITING THE

MORAL AND MATERIAL PROGRESS AND CONDITION

OF

INDIA

DURING THE YEAR 1877-8.

FOURTEENTH NUMBER.

(PRESENTED PURSUANT TO ACT OF PARLIAMENT.)

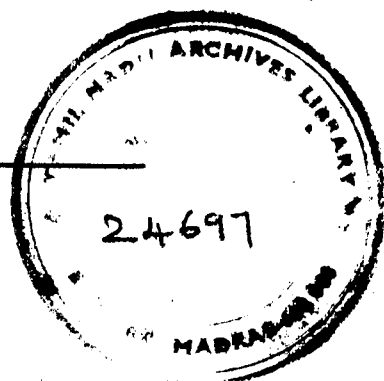
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TABLE OF CONTENTS.

	PAGE		PAGE
I. ADMINISTRATION AND LEGISLATION:		VI. PUBLIC WORKS—continued.	
Administration - - - - -	3	Lighthouses - - - - -	58
Municipalities - - - - -	5	Marine Surveys - - - - -	58
Legislation - - - - -	7	Wrecks and Casualties - - - - -	58
II. JUSTICE AND POLICE:		Calcutta Port Trust - - - - -	58
Crime - - - - -	10	Bombay Port Trust - - - - -	59
Infanticide - - - - -	13	Marine - - - - -	60
Magistrates - - - - -	13	Post Office - - - - -	60
Police - - - - -	14	Telegraphs - - - - -	61
Prisons - - - - -	16	VII. MINERAL RESOURCES - - - - -	62
Civil Justice - - - - -	18	VIII. MANUFACTURES:	
III. FINANCE:		Cotton - - - - -	65
Revenue and Expenditure - - - - -	22	Silk - - - - -	66
Opium and Excise - - - - -	23	Jute - - - - -	66
Salt - - - - -	26	Miscellaneous - - - - -	66
Pandhri - - - - -	26	IX. TRADE:	
Stamps - - - - -	26	Seaborne Trade - - - - -	68
Bengal Road Cess - - - - -	27	Frontier Trade - - - - -	71
Bengal Public Works Cess - - - - -	27	Aden Trade - - - - -	72
IV. LAND ADMINISTRATION:		X. PUBLIC HEALTH AND SANITATION:	
Survey of India - - - - -	28	Health of general Population - - - - -	73
Madras Revenue Survey - - - - -	30	Vaccination - - - - -	76
Bombay Revenue Survey - - - - -	30	Medical Relief - - - - -	78
Statistical Survey - - - - -	30	Lunatic Asylums - - - - -	79
Land Revenue and Settlements - - - - -	30	Medical Schools - - - - -	81
Waste Lands - - - - -	32	Sanitation - - - - -	82
Wards' Estates - - - - -	33	XI. EMIGRATION - - - - -	88
V. AGRICULTURE:		XII. EDUCATION:	
Seasons and Crops - - - - -	35	State of Education - - - - -	90
Famine in Southern India - - - - -	38	Universities - - - - -	93
Horticulture, Experimental Farms, &c. - - - - -	43	Mahomedan Education - - - - -	93
Agricultural Stock - - - - -	45	Female Education - - - - -	94
Cotton - - - - -	46	Science and Art - - - - -	95
Indigo - - - - -	47	Literature and the Press - - - - -	96
Tea - - - - -	47	XIII. NATIVE STATES - - - - -	99
Coffee - - - - -	48	XIV. FRONTIER RELATIONS - - - - -	109
Tobacco - - - - -	48	XV. MILITARY:	
Cinchona - - - - -	49	Strength, Cost, &c., of Army - - - - -	111
Forests - - - - -	51	Superannuation and Promotion - - - - -	115
VI. PUBLIC WORKS:		Pension Rules of Native Armies - - - - -	115
Irrigation and Canals - - - - -	54	Health of British Troops - - - - -	116
Guarantee Railways - - - - -	55	Health of Native Troops - - - - -	116
State Railways - - - - -	55	Army Sanitation - - - - -	118
Roads and Bridges - - - - -	57		
Madras Harbour Works - - - - -	57		
Paumben Channel - - - - -	57		



STATEMENT

EXHIBITING THE

MORAL AND MATERIAL PROGRESS AND CONDITION OF INDIA

DURING THE YEAR 1877-8.

[The respective Paragraphs in each Chapter of this Statement have been written in continuation of the corresponding portions of the Serial Statements for the Official Years since 1872-3.]

I.

ADMINISTRATION AND LEGISLATION.

HER Majesty the Queen and Empress of India was pleased to issue on 31 December 1877 two Royal Warrants for the institution of two Orders of Distinction to be styled *The Order of the Indian Empire* and *The Imperial Order of the Crown of India*. The first of these Orders was for the purpose of rewarding services to Her Majesty and Her Indian Empire, and of commemorating the proclamation of Her style and title of Empress of India in Her Indian Dominions. Twenty-three Councillors of Her Majesty the Queen, for and in Her Indian Empire, were declared to be *ex-officio* and for life Companions and Members of the Order, and fifty other gentlemen, English and native, were nominated Companions. The second Order also commemorated the assumption of the Imperial title, and was to be enjoyed by the Princesses of the Royal House, and the wives and other female relatives of Indian Princes and others.

Throughout the year 1877-8, the Marquis of Salisbury held the office of Home Secretary of State for India. Mr. Robert Staunton Ellis, C.B., was appointed a Member of the Indian Council in April 1877, but died in the following October. The other appointments during the official year were those of Colonel Sir William Lockyer Merewether, K.C.S.I., C.B., Mr. Robert Anstruther Dalryell, and Lieutenant-General Sir Henry Wylie Norman, K.C.B., C.I.E.

Lord Lytton, G.M.S.I., G.C.B., G.M.I.E., was Viceroy and Governor General of India throughout 1877-8. Mr. Whitley Stokes took his seat at the Council of the Governor General on 16 April 1877, in succession to Sir Edward Clive Bayley, K.C.S.I.

The Honorable (now Sir) Ashley Eden, C.S.I., C.I.E., was appointed Lieutenant-Governor of Bengal with effect from 1 May 1877. Few administrative changes took place during the official year 1877-8, but an increase in the secretarial staff was rendered necessary by the readjustment of the financial relations of the Local Government and the Government of India, and by the extension of the system of provincial finance.

Assam continued during 1877-8 under the administration of the Chief Commissioner, Colonel Richard Harte Keatinge, C.S.I., V.C.

Sir George Ebenezer Wilson Couper, Baronet, K.C.S.I., C.B., C.I.E., was N. W. Provinces Lieutenant-Governor of the North-Western Provinces and Chief Commissioner of Oudh throughout 1877-8. During the year the seat of the government of the

ADMINISTRATION. united provinces was made to vary between Lucknow, Allahabad, and Naini Tal. Steps were taken to bring into unison the practice and procedure of the two provinces in the various departments. On the whole, the work of amalgamation progressed favorably; and Sir George Couper considers that it has conducted greatly to the increased efficiency of all branches of the administration. The savings resulting from the measure are to be devoted to the strengthening of the judicial branch, and of the subordinate revenue establishments in Oudh. Although more than one section of the Oudh community looked forward with apprehension to the probable effect of the amalgamation with the North-Western Provinces, yet that measure was accepted almost without demur. The only exception was the presentation to the Secretary of State of a memorial, to which 30,000 signatures were attached, purporting to be on behalf of the nobility, gentry, talukdars, and householders of Oudh, and praying for the restoration of the separate administration. It was ascertained on inquiry that the greater number of the signatures consisted of lists of persons residing in the various quarters of Lucknow, and that only 58 of them represented talukdars. The arguments against amalgamation were mainly the probable interference with existing rights and privileges, and the injury to Lucknow from the change of seat of Government. In forwarding the memorial, Sir George Couper pointed out how little foundation there was for the apprehension expressed, and in his reply the Secretary of State adhered, without hesitation, to the policy he had deliberately sanctioned. It is believed that the memorial was really the work of a very few individuals, to whom the amalgamation was distasteful on personal grounds. With the view of securing a more efficient and intelligent staff of subordinates in the public service, a code of rules was published, to take effect from 1 January 1879, prescribing the tests to be undergone by all candidates. It was arranged that the great middle class (vernacular and Anglo-vernacular) examinations of the Educational Department should constitute the standard, with a few unimportant modifications. In this way the existing arrangements of the Educational Department were turned to practical account, and due provision was made for facilitating the admission of candidates from private schools.

Punjab. Mr. (now Sir) Robert Eyles Egerton, C.S.I., C.I.E., was Lieutenant-Governor of the Punjab throughout 1877-8.

Central Provinces. Mr. John Henry Morris, C.S.I., was Chief Commissioner of the Central Provinces during 1877-8.

British Burma. Mr. Augustus Rivers Thompson, C.S.I., was on 1 May 1877 confirmed in the appointment of Chief Commissioner of British Burma. He retained the office till the close of the year, when he was transferred to the Viceregal Council, being succeeded by Mr. Charles Umpherston Aitchison, C.S.I., on 31 March 1878.

Ajmere. Mr. Leslie Seymour Saunders was the Commissioner of the Ajmere and Mhairwarrá districts during 1877-8. The most important event of the year was the reorganisation of the Ajmere Commission. Ajmere-Mhairwarra has been divided into two districts for all matters of criminal procedure and general executive administration; while in matters of revenue, of civil justice, of superintendence of police, of education, and forest conservancy, the two tracts are still one.

Berar. In Berar, which continued during 1877-8 under the administration of Colonel Sir Richard John Meade, K.C.S.I., the Resident at Hyderabad, several changes took place in the personnel of the Commission.

Mysore and Coorg. Every administrative department in Mysore during 1877-8 was affected by the grievous famine, which reached its height in that year. Mr. Charles Burslem Saunders, C.B., was the Chief Commissioner of the two provinces of Mysore and Coorg until the close of the official year, being succeeded on 1 April 1878 by Mr. James Davidson Gordon.

Madras. The Governorship of the Presidency of Madras was still occupied during 1877-8 by the Duke of Buckingham and Chandos, G.C.S.I., C.I.E. The Government, as a body, remained in Madras during the whole of 1877, the usual transfer of the seat of Government to Ootacamund not taking place that year on account of the famine. Inconveniences caused by former irregularities of recruitment of the Covenanted Civil Service were beginning to be severely felt in the Presidency, in the same way as they have been felt in other administrations. An abnormal number of men were appointed during 1862, 1863, and

and 1864, and a great block has occurred to promotion. It appeared from ADMINISTRATION. careful calculation that the difficulties were likely to increase rapidly.

Since 1 May 1877 the Bombay Presidency was administered by Sir Richard Bombay. Temple, Bart., G.C.S.I., C.I.E. A redistribution of the charges of the Commissioners was made during 1877-8, the appointment of a third Commissioner having been sanctioned. Superintendence of the political work of the less important Native States was transferred to them. The retirement scheme for covenanted civilians, which was to have had effect only up to 31 December 1877, was extended for another year, in consequence of the pressure of work in the famine districts, which prevented any revenue officers from taking advantage of the concessions.

Municipal administration in Bengal is based on two Acts of the Bengal MUNICIPALITIES. Council, namely, Act IV of 1876, which regulates the affairs of the Calcutta Bengal. Municipality, and Act V of 1876, which applies to all other municipalities in the province. Under the former Act was given to the town of Calcutta for the first time an elective system, which came into operation in October 1876. The new corporation is composed of 72 Commissioners, of whom 48 are elected, while 24 are nominated by the local government. The year 1877 was the first working year under the new system, and it was hoped that some progress was made in sanitary improvement; but the municipality was not very successful in the management of its financial affairs, while the elective system scarcely secured for the town the services of the best class of either native or European representatives. In the interior of Bengal the number of municipalities during 1877-8 was 193, of which 25 were first-class municipalities, and 97 second class, while there were 69 unions and two stations. The system of representation by election was in force in only three towns in the mofussil, namely, Burdwan, Serampore, and Kishnaghur. The gross income of all the district municipalities during the year amounted to 200,773 l., and the expenditure to 199,059 l. Great improvements were urgently needed in the sanitation of most municipalities, and though the want of money stands in the way, more was being done in this direction than formerly.

One addition was made to the four existing municipal institutions of the Province of Assam during 1877-8; the station of Dibrugarh having been declared a township under Bengal Act VI of 1868, from the beginning of the year. There was an increase in both receipts and expenditure on account of municipalities, as compared with the previous year, due mainly to the increase in the number of municipalities. No works of any importance were carried out, but the ordinary petty works undertaken by the municipalities received due attention.

During 1877-8 the number of municipalities in the North-Western Provinces. N. W. Provinces. remained at 80; but the octroi was introduced into the Meerut cantonment tentatively for one year, and the measure proved financially a great success. Popular election continued to be the system followed for appointing members of municipal committees. The total income of the municipalities during the year from all sources was 235,900 l., and the expenditure 207,153 l. More was expended on conservancy than in 1876-7, the increase being mainly due to the scarcity, which raised the cost of feeding bullocks, &c. The sewage farm at Allahabad proved a success; it has been suggested to the committee to acquire the land permanently from the landowners, as it will no doubt prove a valuable source of income. Important sanitary works were carried out in many of the municipalities. The municipal free schools were on the whole doing good work, but still some boys who should pay fees were obtaining instruction gratis. No new loans were granted to any of the committees. Altogether the results of the year are said to bear testimony to the growing vigour and success of municipal administration; and the interest taken by the committees in municipal affairs, and to the general introduction of improvements which promote the comfort and well-being of the inhabitants. In Oudh there were 28 municipalities in 1877-8, as compared with 24 in 1876-7. The only two municipalities of any importance are Lucknow and Fyzabad, and these are the only towns in the province in which the non-official members of the committee are elected by the votes of the ratepayers. It was not considered desirable as yet to extend the franchise to the other 26 towns, as the people were

MUNICIPALITIES. were not sufficiently educated to exercise or value the privilege of voting for members to represent them on municipal committees. The total income rose from 50,622 l. in 1876-7 to 51,817 l. in 1877-8, and the expenditure from 42,392 l. to 44,458 l.

Punjab. Municipalities in the Punjab are all constituted under Act IV of 1873. In 1877-8 the number and classes remained the same as in the previous year, viz., 8 of first class, 20 of second class, and 171 of third class. There was a decline in the income from 217,147 l. to 212,229 l., and in the expenditure from 212,445 l. to 196,326 l. In most municipalities the taxation was derived principally from octroi. Under the orders of the Secretary of State the collection of octroi throughout the province was taken under direct management.

Central Provinces. In the Central Provinces during 1877-8 there were 58 towns under municipal government, all being constituted under Act XI of 1873. For the smaller towns, where interest in local government and taxation is slight, the members are nominated. In the larger towns elections are fairly popular. During the year several municipal committees spontaneously proposed that brokers should be brought under some kind of control and supervision. These men had made themselves objectionable by reason of their exactions. Acting for the interests of the public, the municipal committees drew up rules fixing the scale for brokers' charges; and as the Chief Commissioner was advised that the rules were within the provisions of the Act, the rules have been since sanctioned. The income for 1877-8 was 88,714 l., and the expenditure 76,729 l.

British Burma. In British Burma during 1877-8 there were seven municipalities, with a total population of 263,411, and an income of 132,194 l. Per head of population the average incidence of taxation was 4 s. 2½ d., and of municipal income, 9 s. 1 d. The chief sources of income are taxes on houses and lands, liquor licences, rents of houses, gardens and markets, lighting, conservancy and water rates, and grants-in-aid from provincial funds. There is no octroi; but in most towns the markets are municipal property and yield a considerable revenue. The expenditure is mainly on police, conservancy and cleansing, roads, buildings, and water-supply. On education and on sanitary and charitable establishments very little was spent, and the neglect by municipalities of the former object especially led to no little discussion. The two chief requirements of most towns in the province are good drainage and conservancy arrangements and a good water-supply. For a long time to come a heavy outlay will be required to attain these objects. The municipal funds are for the most part sufficient for the purpose. Taxation is perhaps heavy in comparison with that in Indian towns, but the people are wealthy and not overburdened. Rangoon, to which about two-fifths of the total municipal population and revenue of the province belong, has made more progress than any other municipality; conservancy there is, on the whole, well carried out; and during the year waterworks were successfully brought to completion, by which a large quarter of the town, comprising nearly a fifth of the whole population, is supplied with good water. A comprehensive project for the whole town was approaching maturity.

Ajmere. With regard to the two municipalities of Ajmere, the cost of collection is small; the expenses of conservancy during 1877-8 were heavy, owing to the drought and scarcity of fodder; both committees spent large sums on original works, besides paying proper attention to repairs, while educational and medical grants were made as usual. The question of enlarging the municipal boundaries of the town of Ajmere was pending; and the Ajmere Committee has been made more representative of the various interests of the residents.

Berar. There were five towns under municipal government in Berar during 1877-8; in all these there are committees of official and non-official members nominated and elected. Out of 68 members, 26 were Europeans, and 42 natives. The total population within municipal limits was 81,659. The receipts of the municipalities amounted to 7,376 l., and the expenditure to 6,658 l. Some reform was considered to be needed in the constitution of the municipalities to make them more efficient.

Mysore. Mysore contained 77 municipal towns in 1877-8, the same number as in the previous year. Their income was 44,845 l., and the expenditure 35,238 l.

The

The municipal administration of Coorg advanced a step during 1877-8 by the MUNICIPALITIES. formation of three new municipalities, making five in all. Deriving their income Coorg. mostly from octroi and taxes on professions, &c., these municipalities work only in a small way in improving the conservancy and communications in the several towns. The three new municipalities undertook no works and spent no money during the year.

In Madras, during 1877-8, the municipal income of the presidency town, Madras. from rates, assessed taxes, and tolls, was 55,344 l.; the incidence of taxation, including tolls, per head of the population on the basis of the Census of 1871, being 2 s. 9 d. A large increase having been made to the conservancy establishment in the latter part of the previous year, a decided improvement was effected in surface cleansing. Some anxiety felt about the water-supply, owing to the lowness of the water level in the Red Hills Reservoir, was fortunately removed by the cyclone of May, which brought upwards of 11 feet of water into the reservoir. Nothing was done regarding the permanent drainage of the town. The total income of the Mofussil municipalities increased from 104,668 l. to 105,641 l., but the expenditure declined from 108,995 l. to 106,155 l. In Tanjore, a scheme for improving the water supply of the town was matured, and the grant of a loan from Government of 20,000 l. for the purpose was under consideration. Municipal hospitals and dispensaries were, as in former years, most satisfactorily worked, and rendered excellent service during the famine. Orders were issued permitting one half of the Commissioners in ten important towns to be elected under a system of popular voting.

A rise of over 20,000 l. occurred during 1877 in the rateable value of im- Bombay. moveable or real property in the Bombay municipality. This was the first time for ten years that there had not been a falling off in the valuation. The total income of the municipality from all sources, exclusive of loans, was 324,145 l., and the disbursements were 303,653 l. The water-supply from the Tūlsī and Vēhār lakes, sixteen miles distant, was being increased by means of important works, both at the reservoirs and in the city. A large health department was maintained at a net cost of 40,575 l. The land gradually being reclaimed on the flats at Tardeo by the deposit of street rubbish on it, is said to be well appreciated by gardeners and others for cultivation. The drainage scheme was at last accepted, and a loan of 270,000 l. raised to provide for its execution. The year was an exceptionally unhealthy one, and was rendered more so by the number of immigrants from the country above the ghāts that flocked into the city in search of work. Local self-government is being gradually introduced into the rural districts of the Presidency, beginning with the chief towns and commercial centres. Many of the corporations have been established for some time, and have effected very great improvements in the conservancy buildings and general sanitary condition of the towns. On the whole, however, it has been found that the spirit of self-government is of remarkably slow growth outside the principal towns, and that few of these institutions would stand if official management were withdrawn. The sanitary benefits in small places are not all commensurate, in the opinion of the Bombay Government, with the annoyance caused to the inhabitants in collecting the taxes. An important change was effected during the year by the abolition of the system of farming the octroi in favour of departmental collections. For the year 1877-8 the municipal revenues were 368,477 l. as compared with 380,219 l. in 1876-7, the disbursements being 239,424 l. against 261,085 l.

Twenty-two Acts passed by the Legislative Council of India received the LEGISLATION. assent of the Governor General during 1877-8. Certain of these Acts are India. mentioned below in the paragraphs relating to the provinces to which they were specially applicable. Among the general Acts may be mentioned XI of 1877, to facilitate the admission of military lunatics into asylums; XV of 1877, to provide for the limitation of suits; XVIII of 1877, to amend the law relating to salt, and raising from 28 December 1877 the duty on salt in Madras and Bombay from Rs. 1. 13. to Rs. 2. 8. per maund of 82½ lbs.; I of 1878, *The Opium Act*, to amend the law relating to opium; VI of 1878, to amend the law relating to treasure trove; VII of 1878, to amend the law relating to forests,

LEGISLATION.	forests, the transit of forest produce, and the duty leviable on timber; VIII of 1878, to consolidate and amend the law relating to the levy of sea-customs-duties; IX of 1878, for the better control of publications in oriental languages; and XI of 1878, to consolidate and amend the law relating to arms, ammunition, and military stores.
Bengal.	During 1877-8 only three Bills were actually passed into law by the Bengal Council. Of these, the most important was the Bengal Licence Act, which was designed to enable the local government to meet the liabilities imposed upon it by the financial policy of the Government of India. It provided for the levy of a licence fee on trades, dealings, and industries throughout Bengal.
N. W. Provinces and Oudh.	Three Acts, specially applicable to the North-Western Provinces and Oudh, were passed in 1878 by the Legislative Council of India. One of these Acts was a revised edition of the licence tax of 1877, levied to meet the heavy liabilities involved by the provincialisation of the Canal Department; while the two others were passed to legalise the expenditure on railway and irrigation projects of a portion of the 10 per cent. cess levied under two Acts of 1871. Of indirect legislation, in the shape of rules framed by the local government under the provisions of existing law, the more important subjects were land-improvement, licence tax, <i>patwaris</i> in Oudh, custody of attached live-stock, and property of eunuchs.
Punjab.	During 1877-8 three Acts having exclusive reference to the Punjab were passed by the Legislative Council, viz., <i>The Punjab Courts Act</i> (XVII of 1877), the object of which was to consolidate and amend the law relating to Courts in the Punjab; <i>The Punjab Local Rates Act</i> (V of 1878), the object of which was to amend the law relating to the levy of rates on land in the Punjab; and XII of 1878, for the further amendment of the Punjab Laws Act, 1872. Among rules made by the local government during the year may be enumerated those providing for the safe custody of records, for fees for the registration of documents, for the proper preparation and punctual submission of returns required from registered companies, and certain rules under the new code of civil procedure.
Central Provinces.	Considerable inconvenience is stated to have been felt in the Central Provinces from the unsuitableness of the existing laws on certain matters regarding which two draft bills had been for some time under the consideration of the Government of India, but were not yet passed. One was the Tenancy Bill, intended to consolidate and amend the law regulating the relations between agricultural tenants and their landlords, and to amend the law under which such tenants can sue and be sued; the other was for declaring and consolidating the law relating to land revenue and the jurisdiction of revenue officers in the Central Provinces.
British Burma.	Only one Act, relating solely to the Province of British Burma, was passed during 1877-8, namely, XIII of 1877, providing for the execution of works urgently required in connexion with embankments.
Ajmere.	In the substantive law of Ajmere certain novelties of procedure were introduced by new enactments during 1877-8. The agricultural judgment debtor has had secured to him, at the worst, a subsistence allowance, and sufficient grain for his next sowing. The Courts were empowered to use their discretion in the matter of arrests in execution of decrees; the rights of Government in mines, quarries, tanks, and streams, were recited; and a number of local laws, customs, and rules of procedure were, for the first time, included in the Statute Book.
Berar.	The Specific Relief Act (I of 1877) and the Indian Registration Act (III of 1877) were extended to Berar during 1877-8.
Mysore.	Three enactments were during 1877-8 made applicable to Mysore, namely, the Indian Registration Act (III of 1877); the Indian Limitation Act (XV of 1877); and Bengal Act (I of 1869), for the prevention of cruelty to animals.
Coorg.	No more Acts were extended to Coorg during 1877-8.
Madras.	It having been considered undesirable that Malabar should be allowed to remain in a more favorable position than other districts as regards local taxation, Madras Act I of 1878 was therefore passed, raising the maximum amount of cess payable on ryotwari holdings in Malabar from one anna in the rupee to two annas in the rupee, the legality of calculating rent-value in Malabar on this method being at the same time affirmed. Another Act (II of 1878)

1878) was passed to prevent certain fraudulent practices in connexion with the salt revenue. Several Bills were passed by the local Legislative Council during the year, but at its close had not yet received the assent of the Governor General. These were the Bill for amending the Ferries Act, the Bill for imposing a licence tax, and the new Madras Municipal Bill.

Ten Acts and Bills passed the Bombay Council during 1877-8, of which five received the assent of the Governor General within the year. One of these made vaccination compulsory in the city of Bombay; another related to the Bombay municipality; the third affected the manufacture of spirituous liquor on the Island of Bombay; a fourth was for the amendment of the Ferries Act; a fifth provided for the levy of a licence fee on trades, callings, and industries yielding an income above a certain amount. Among the Bills passed were the Land Revenue Code, the Cotton Frauds Bill, one to amend the *abkari* or excise law of the Presidency, and one to amend the Bombay Municipal Act of 1872.

II.
JUSTICE AND POLICE.

CRIME.

RETURNS of the punishments inflicted by the various criminal tribunals throughout British India during 1877 shew that 688 persons were sentenced to death, 2,540 to transportation, 232,333 to imprisonment, of whom 48,838 were also fined. Fines without imprisonment were imposed in 392,645 instances. Whipping was awarded, in addition to other punishment, to 6,203 persons, and, in lieu of other punishment, to 66,447 persons, of whom no less than 28,127 were sentenced by the tribunals in the Madras Presidency, and 11,078 by those in the North-Western Provinces. An explanation of these apparently high figures may be found in the increase of crime consequent on the prevailing scarcity, and the extreme poverty of the prisoners, who were in many cases unable to pay a fine, however small in amount.

Bengal.

In the interior of Bengal there were 108,989 cases of cognisable (*i.e.*, in which the police can arrest without a warrant) crime reported by the police during 1877, against 117,559 in 1876, the decrease being in part the result of the orders of Government prohibiting the wholesale institution of prosecutions for bad livelihood, and in part the result of a change in the instructions for the classification of cases. One of the most satisfactory features in the provincial returns was the sustained decrease in dacoity, there being only 138 cases against 154 in 1876 and 254 in 1875. The police were generally unsuccessful in the investigation of minor dacoities. In the Hazareebagh and Gya districts there was an outbreak of highway robbery. The Mugheya Domes were the only criminal tribe that gave any trouble during the year; they attempted to carry on their robberies among the villages on both sides of the Nepal boundary, but their depredations were promptly suppressed by the local authorities. There was little fluctuation in the number of offences committed in Calcutta and suburbs, the number of cognisable cases reported by the police being 19,526. A large diminution occurred during the year in the number of persons under confinement throughout Bengal. On 1 January there were 21,266 in prison; on 31 December there were only 18,153, the lowest number attained since 1872. Reconvictions were recorded during the year to the number of 4,181, against 3,714 in 1876, and 3,075 in 1875.

Assam.

During 1877 the number of cognisable offences reported by the police in Assam was 10,957, against 10,900 in the previous year. Neither dacoity nor robbery are prevalent crimes in the province. Fifty-six persons were put on their trial for kidnapping, of whom only 18 were convicted. It would appear that the persons kidnapped are generally very young girls, who are taken from their parents or husbands, not for the purpose of prostitution, but for marriage, regular or irregular, and frequently with their own consent. There was an increase of vagrancy cases, but the number is not large; the provisions of the law relating to bad livelihood are, if the district of Sylhet be excluded, but rarely put in force in Assam. The daily average number of convicts in jail was 1,273 in 1877, against 1,383 in 1876. Foreigners amounted to nearly 12 per cent. of the total prisoners, three-quarters of them being imported labourers on tea-gardens. These coolies were convicted chiefly for desertion, and for offences against the person. Only 297 reconvicted prisoners were received into the jails during the year, and only 24 juvenile prisoners under 16 years of age.

N. W. Provinces and Oudh.

An outbreak of lawlessness was the natural sequence of the scarcity that prevailed in the North-Western Provinces and Oudh during 1877. Under the exceptional circumstances cognisable crime largely increased, mostly in thefts of the pettiest description. Altogether 233,812 cognisable offences were reported by the police. Dacoities by organised and professional bands occurred noticeably in the Agra Division, and in the adjoining Aligarh district of the Meerut Division. Vigorous measures were adopted by the authorities to put down the crime, and the gangs were completely broken up, seven of the leaders being shot, while others were captured and hanged. The chief men implicated were Ahirs and Rajputs; the former, members of a thoroughly organised tribe,

CRIME.

tribe, always ready for outrage and plunder; the latter, men of a turbulent and lawless clan, whom a long course of extravagance had impoverished. In Oudh, dacoities are rarely committed by professional bands; those that occurred in that province during the year 1877 were mostly due to the abnormal distress, and rarely rose above the level of ordinary grain robberies. There was a large increase in cases of simple hurt, *viz.*, from 17,647 in 1876 to 33,701 in 1877. Cattle thefts numbered 3,116 in the North-Western Provinces and 986 in Oudh. The number of persons sentenced to imprisonment was 53,983 in 1877, as compared with 43,577 in the previous year.

Punjab.

The criminal statistics of the Punjab for 1877 were affected by the scarcity which prevailed in some districts, giving rise to a large number of offences against property, and in some places to riots directed against the grain merchants, who took advantage of the scarcity to raise their prices, and in some instances to refuse altogether to sell. Severe sentences repressed the tendency to riot; but isolated offences, due to want, were treated leniently. Murders in the Peshawur district again shewed a decrease. Seven tribes continued to be placed under the operation of the Criminal Tribes Act (XXVII of 1871), the Sansis being the tribe most frequently brought under the rules; during the year 1877 about 514 convictions were obtained against them. In the prisons the convict population for the year was 34,016. The number of juvenile prisoners (under 16 years) was 436, or 1.28 per cent. of the total, 28 being girls. Of the entire male population (32,612) there were 18,237 agriculturists, and of the rest, 968 were domestic servants and 846 Government servants. Of the women prisoners 1,300 were married, 38 unmarried, and 66 were prostitutes. Reconvicted prisoners formed 10 per cent. of the total number.

Central Provinces.

Offences were more numerous in the Central Provinces during 1877 than in the previous year, as might have been expected from the high price of food. Serious offences against the person, and against property, such as dacoities and robberies, increased, as also did minor offences against property, such as theft, housebreaking, and house-trespass; but minor offences against the person and public nuisances decreased. There was a great falling-off in breaches of excise laws. No cases of counterfeiting coin occurred. The total convict population of the prisons rose from 11,475 in 1876 to 11,923 in 1877; of 8,361 new admissions into jail, 7,305 were males and 1,056 females. More than 18 per cent. of the convicts had been previously sentenced. Reconvicted juveniles increased very considerably, being 24 out of 256 convicted, or nearly 10 per cent.

British Burma.

British Burma, as a whole, compares singularly ill with other provinces of India in respect to the prevalence of crime. A large and continuous increase of crime occurred for some years up to 1876, but the total number of offences reported in 1877 was about the same as the previous year's total, while the convictions were considerably fewer. There was a slight increase in the more serious classes of crime, but petty offences were less numerous. The increase occurred chiefly under the heads of dacoity, robbery, mischief, hurt, theft, and criminal breach of trust. Cases of cattle-theft, housebreaking, and receiving stolen property, on the other hand, decreased in number. The chief diminution was in offences under the Gambling and Excise Acts and in nuisances. With the influx of foreigners into the country, opium-smoking and other vices are increasing among the Burmese. Lotteries, a form of gambling which was coming much into vogue will, it is hoped, be more efficiently checked under new regulations that have been adopted. The number of convicts imprisoned in 1877 was larger than it had ever been before; but releases were very numerous, and the daily average number in jail was less than usual, chiefly owing to the release of 935 prisoners on 1 January 1877. Children under 16 formed 1.02 of the whole prison population. Only 18.96 per cent. of the convicts, in 1877, as compared with 19.33 in 1876, were known to have been previously convicted.

Ajmere.

Ajmere statistics shew a considerable increase of crime during 1877, due to the dearness of food, which was caused by the scanty rainfall during the latter half of the year, and by the export of grain to the more distressed parts of India. Cognisable crimes shewed the most marked increase under the heads of offences against the Public and Local Nuisances and Cantonment Act, theft, house-trespass, and housebreaking, and dacoity. A slight decrease occurred under offences of grievous hurt, robbery, mischief, criminal breach of trust, vagrancy,

CRIME.

vagrancy, and offences against the Excise and Gambling Acts. There was a marked excess of crime in Ajmere as compared with Mhairwarra, but this is explainable by the preponderance in the former of a town population. Prisoners under confinement increased in number from 968 in 1876 to 1,344 in 1877. Reconvicted prisoners were more numerous than in the previous year.

Berar.

Cognisable offences reported by the police in Berar during 1877 amounted to 10,406, as compared with 9,382 in 1876, the increase occurring in offences against property. The cause of this increase in crime is ascribed to two causes; first, the partial failure of the early rains, which checked the usual growth of weeds in the fields, and thus lessened the usual demand for field labour in the autumn; and second, the rise of prices of grain, due not to any local failure of crops, but to equalisation of prices with those prevailing in less favored parts of the country, brought about by exportation on a very large scale. Formerly the gipsy tribe of Banjaras gave a great deal of trouble to the police; but of late years many bands of Banjaras, whose head quarters are in the Wun District, have ceased to be predatory, and every year the proportion of Banjaras exempted from special police surveillance increases. With regard to convicts, the total jail population rose from 2,940 in 1876, to 3,689 in 1877. The increase consisted almost entirely of convicts sentenced to short terms of imprisonment for petty thefts, which the Resident considers might more suitably have been punished by whipping. Of the whole body of prisoners, 52 per cent. were Hindus, and 16 per cent. Mahomedans. Juvenile prisoners were 94 in number, more than double that of the previous year; and 13 of them were girls.

Mysore.

An enormous increase of crime attended on the distress of the people of Mysore during 1877. The number of cases reported by the police and the number of persons arrested were nearly three times those in 1876, even though crime was steadily increasing throughout that trying year also. The increase was chiefly in offences against property, much of it in the serious forms of dacoity and robbery. There were 196 cases of professional dacoities; the number of persons supposed to be concerned in these was 2,437, while 820 were convicted. In awarding punishments the condition of the people was duly taken into consideration; fines were less often imposed than in 1876, but whipping was inflicted 4,196 times, or at the rate of 13.62 per cent. of the number of persons convicted. There was great overcrowding in the jails, the total prison population of 1877 reaching 54,110, shewing an increase of 237.7 per cent. over the figures for 1876. Hindus formed 81.7 per cent. of the convicts against 75.4 in the previous year, and Mahomedans 6.7, as against 9.5; only 2.6 of the convicts were known to be old offenders.

Coorg.

In Coorg, there were 288 cases of cognisable crime reported during 1877, as compared with 274 in 1876. About 60 per cent. of the persons arrested by the police were prosecuted to conviction; this shews a great improvement on the preceding year. An increase occurred in offences against property, attributable to the scarcity that prevailed; but on the other hand there were fewer cases of breach of contract under Act XIII of 1859, as in consequence of the famine in Mysore the coolies are reported to have come into Coorg more readily during the labour season. The daily average number of convicts rose from 72.41 to 107.66; there were 11 juvenile prisoners in 1877, as against 5 in 1876.

Madras.

Criminal and judicial returns for 1877 shew that the amount of crime in the Madras Presidency was more than double that of 1875, which is the best year to use for purposes of comparison, ordinary averages being entirely disturbed in 1876. Cognisable cases reported by the police numbered 146,140 during 1877. Dacoity increased more than sevenfold; house and field dacoities were the most prevalent forms; highway dacoities were comparatively few, although strings of grain carts were constantly traversing the roads. Out of 1,695 dacoities, 283 were committed by wandering criminal classes; fire arms were used in 68, and swords and spears in 181. In these affairs 54 persons were killed by the dacoits. Dacoits brought into jail were usually in good condition, while thieves were more or less emaciated. There was a large increase of murder cases, and child murder by starving mothers was not infrequent. In housebreaking there was an enormous increase; cattle thefts were very numerous; there were, however, no grain riots during the year. The daily average number of prisoners was 20,678, or 9,752 more than in 1876; while 85,044 prisoners of all classes passed through the jail. Among the convict population, 74 per cent.

cent. were Hindus, and 7 per cent. Mahomedans. The number of convicted juveniles under 16 years of age imprisoned in the Madras Presidency during 1877, was 1,175, of whom 1,033 were boys; and 139 of these boys had been in jail before.

CRIME.

A serious increase of crime, particularly noticeable in offences against property, was the inevitable result of the scarcity and high prices prevailing throughout the Bombay Presidency during 1877. Cognisable cases reported by the police numbered 66,091 for that year. The total number of offences of all descriptions reported to have been committed was 85,542, or 18,052 in excess of the aggregate for 1876. Robbery, gang robbery, theft, and receiving stolen property, increased by 97 per cent. The gang robberies were for the most part small grain robberies committed by hungry villagers suffering from poverty and the actual want of food. In the criminal courts the number of persons brought to trial increased by 33 per cent. Punishment by fine alone declined from 54 to 39 per cent. Whipping was inflicted in 7.7 per cent. of the punishments, against 2.5 in 1876. The convict population rose from 29,059 in 1876 to 50,154 in 1877, and a greater number of women and children were imprisoned.

Bombay.

Infanticide is a subject to which earnest attention continues to be paid in the North-Western Provinces. A proclaimed Rajput population of about 350,000 living in 2,885 villages, was under surveillance during 1877-8. In England the accepted per-centage of births of girls to total births is 49.32; in the proclaimed villages, during 1877-8, it was 48.78. The percentage of deaths of girls under one year to total deaths under one year was 51.44, as compared with the English rate of 44.62. The English rates shew 10.76 in favour of girls, but in the proclaimed villages the rates for 1877 were 2.88 in favour of boys. The percentages of deaths of each sex under one year, calculated on the births of that sex, or, in other words, on the living population of each sex under one year of age, are for England: boys 17.24, girls 14.27; while in 1877 for the proclaimed villages they were: boys 23.71, girls 26.37. From this test we may be able to gather whether girls are or are not killed in the first year of life. Assuming 23.71 to be a normal death-rate for boys, by applying the English rates we get nearly 20 for girls. The actual figures are 26.37, or a difference of considerably over 6 per cent. This is a great falling-off, as in 1876-7 the difference was only 2.60. If we assume the general death-rate 25 to be correct, we get on the English basis a normal death-rate of 27.31 for boys, and 22.6 for girls. It is, however, in girls over one year of age that the heavy mortality occurs. Whatever the cause may be, whether actual murder, or neglect, or want of proper care, there is no doubt that the girl mortality between one and five years is very excessive. Probably a slight improvement instead of the reverse, would have been seen in the returns for 1877, but for the exceptional character of the year, and the prevailing distress, and insufficiency of food among the proclaimed clans.

INFANTICIDE.

N. W. Provinces.

From the Bengal report we learn that the working of the benches of magistrates in the interior was on the whole very satisfactory. Two benches of magistrates for the town of Calcutta were formed under the Presidency Magistrates Act, and their administration during the year 1877 was all that could be wished. Arrangements have since been made for an independent bench to sit once a week under the guidance of a chairman elected by the honorary magistrates from among their own number.

MAGISTRATES.

Bengal.

There were fewer honorary magistrates in Assam during 1877 than in 1876, the number falling from 55 to 46. In the courts over which they presided the results of trials were far from good. They were worst in Sibsagar and Darrang, and best in Goalpara.

Assam.

Honorary magistrates disposed of above 14 per cent. of the criminal cases brought to trial in the various courts of the Punjab during 1877.

Punjab.

Very material assistance is stated to be rendered to the administration of the Central Provinces in the performance of criminal work by honorary magistrates. The one weakness that some of them shew is a failure to apprehend the gravity of some kinds of offences; and they are apt to inflict fines in cases in which that form of punishment is inappropriate. Generally, however, their work is good, and it is willingly done. During 1877 they dealt with 13,652 out of the 47,505 accused persons brought before the courts.

Central Provinces.

MAGISTRATES.
British Burma.

With regard to the native magistracy of British Burma, it is remarked that the small number of appeals preferred from their decisions indicates generally the soundness of their work, and perhaps the lightness of the sentences imposed by them, whatever other causes may be assigned for the fact.

Ajmere.

In the Ajmere and Mhairwarra districts, 900 cases out of a total of 3,102 were brought before the unpaid subordinate magistrates during 1877. On the whole, the work of the bench of honorary magistrates of Ajmere (town) was not favorably noticed, the attendance of certain of the members being very irregular, while the procedure of others was open to unfavorable criticism. The work performed by the honorary magistrates in the interior of the district was reported to have been well done.

Berar.

Eight special or honorary magistrates tried 1,732 persons out of an aggregate of 21,937 brought before the Berar Courts during 1877. Some of these gentlemen also took a share in the work of registering documents, the Registration Act (III of 1877) having been extended to the province.

Madras.

During 1877 the number of persons brought to trial before the unpaid magistrates of the Madras Presidency was 12,347, of whom 9,328 were convicted.

Bombay.

Only 25 out of 506 local and subordinate magistrates who exercised criminal jurisdiction in the Bombay Presidency during 1877 were unpaid.

POLICE.
Bengal.

The gross charge for police in Bengal during the year 1877 amounted to 384,265 l., and the average cost of the purely civil force in the interior was less than 1 d. for each inhabitant. Considerable reductions and changes in distribution were undertaken by the Inspector General, and a yearly saving of 16,505 l. was made without affecting the real efficiency of the force. The conduct of the police was fair, and if there were here and there isolated instances of gross misconduct, there were also cases of conspicuously good service. Of the inspectors and sub-inspectors more than 98 per cent., of the head constables 85 per cent., and of the constables 37 per cent., could read and write, while a large number of men were under instruction. The general health of the force was not so good as in 1876.

Assam.

In Assam, the working of the police force throughout the year 1877 was satisfactory, and the general conduct of the men was on the whole good. Much improvement was effected during the year in the condition of the village police in Sylhet, and the reorganisation of the village police in Goalpara was undertaken. The river patrol system in Sylhet worked well, as also the system of regular police patrol along the Assam Trunk road. Much attention was paid during the year to the discipline and drill of the force, but no attempt was made to form military battalions among the frontier police. Out of a total sanctioned strength of 3,365 men of all ranks, the actual strength of the force amounted to only 2,731.

N. W. Provinces
and Oudh.

The police departments of the North-Western Provinces and Oudh were amalgamated under one inspector general on 3 March 1877. Considerable divergence in procedure was found to exist; but during the year assimilation proceeded rapidly, and was being nearly completed. Some attention was directed to the general inferiority of the provincial *chaukidari* system in Oudh; and an opinion was expressed by the inspector general that, though the village watchmen reported crime fully, they seldom stirred a finger to aid the regular police in inquiry or detection, and he traced their conduct in this respect to the fact that they were paid by the *zemindars* or landlords and did not look on the local authorities as their masters. It was considered advisable to make any changes in the system as gradually as possible. Endeavours were being made to rearrange the police circles in Oudh, and it was hoped that the redistribution to be effected would admit of more thorough investigation of cases in the provinces.

Punjab.

As regards the Punjab police, their working, in 1877, was generally considered good; and on occasions when they were employed on hazardous and difficult duties, such as during the Jowaki expedition, the spirit and discipline of the force were proved to be excellent. The total strength of the police was 20,226, including 10,822 Mahomedans, 6,207 Hindus, and 3,058 Sikhs; while the cost for the year was 304,620 l. Among the railway police the dismissal shewed a large increase, and the percentage of resignations was nearly doubled. It is explained that this was owing to the men not being provided with proper shelter.

During

POLICE.
Central Provinces.

During the year 1877, the police in the Central Provinces had much to do, and on the whole did their work well. Offences were more numerous, and the influx of bodies of poverty-stricken immigrants into the northern districts added to their duties. In tracing out the perpetrators of dacoities the police shewed much zeal and success. Including the municipal police, the aggregate strength of the force was 8,587 men of all ranks, and the annual cost, 132,709 l. In some districts there was an excess of mounted police, who, now that the railway traverses so many districts, and that roads have been opened, are hardly required. A reduction in this body was, therefore, feasible, and it was intended that any money set free by their reduction should, on necessity shewn, be devoted to augmenting the foot force, which in some parts had been represented to the authorities as inadequate. Only one very serious case of misconduct among the police was reported during the year; it was promptly brought to trial and the offenders were punished.

British Burma.

British Burma maintained, during the year 1877, a police force numbering 6,871 men of all ranks, at a cost of 149,567 l. As in previous years, the number of men who left the service was very large, being nearly one-third of the whole. The elements of which the force is composed are very various, comprising some nine or ten different races. The want of a well-organised rural police, such as exists in other provinces of India, was beginning to be felt, and measures for remedying it were under consideration. With few exceptions, the police appear to have worked efficiently and well throughout the year.

Ajmere.

Considering the difficulties with which the police of Ajmere and Mhairwarra always have to contend, from the fact of the districts being completely surrounded by foreign territory, and considering more particularly the difficulties of 1877, when for several months the province was hanging on the brink of a severe famine, the Chief Commissioner has stated as his opinion that all was done that could have been expected from a police force so situated. Its sanctioned strength for the year was 582, and the total cost for maintenance was 9,132 l.

Berar.

No changes occurred during the year 1877 in the Berar police force, which consisted of 2,678 men of all ranks, and was maintained at a cost of 53,771 l. Favorable reports were made of its conduct, equipment, discipline, and supervision. It was hoped that service in the police was getting more popular. Resignations, &c., were fewer than in 1876, and the number of men of over 10 years' service increased from 763 to 925.

Mysore.

In Mysore, during 1877, the efficiency of the police was put to a very severe trial consequent on the enormous increase of crime which attended on the distress of the famine-stricken population. To meet the press of work the force was strengthened, and the siledar horse were employed on patrol duty. With every energy concentrated upon repression of crime, no time could be spared for education in the police schools, nor for instruction and reorganisation of the village police; still the success achieved was not inconsiderable, and the aid given by the village police was favorably mentioned.

Coorg.

A scheme for strengthening and improving the police force in Coorg was sanctioned and carried out during 1877. Good results were at once apparent in its working, as the per-centage of persons convicted to those arrested by the police rose from 36.43 in 1876, to 60.61 in 1877.

Madras.

The heavy strain on the police of the Madras Presidency, which begun in 1876 continued through 1877 with some slight relief towards the close. Government dealt liberally with the police in the way of famine batta, and they believe that the extra labour and exposure were cheerfully accepted. No extra officers of superior grade were employed at any period of the famine; but in the lower grades 15 inspectors and 4,393 men were specially added to the force at different times. Police were furnished to every relief work and relief camp. Thefts of grain from railway station-yards and from trains *en route* became so frequent and daring that it was necessary to supply a large number of police to protect railway premises and to travel with trains. No special railway police force having been established in Madras, the necessity for it became apparent during the famine. Out of the additional force sanctioned from time to time, 1,731 were disbanded by the end of 1877, and the process of reduction was subsequently rapid. Land preventive forces were established in Malabar and South Canara, for the prevention of salt smuggling, under the Excise Act, No. VI of 1871. Improved travelling allowances were granted to police officers above the rank of inspector.

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Abnormally

POLICE.
Bombay.

Abnormally heavy work was performed in 1877 by the police of the Bombay Presidency. Exclusive of five commissioners and 28 officers of the highest grades, the strength of the force was 21,648; its cost was 306,262 l. to provincial, and 54,866 l. to municipal or local revenues. Greatest efficiency in obtaining convictions was shewn by the police of Sind; the police in the Southern and Central divisions stood next; while those of the Northern division, though last, yet had greatly improved since the previous year. As regards discipline, the conduct of the force was not quite so satisfactory as in 1876; although the general average of education was better. A commission was appointed after the famine was over to investigate a systematic plundering of loaded grain wagons along certain sections of the Great Indian Peninsula Railway; and about 40 men belonging to the railway police were prosecuted, and found guilty of complicity, or misconduct in connexion with this special kind of offence.

PRISONS.
Bengal.

Some difficulty was experienced in Bengal in carrying out the central jail system to its full extent, as although the existing central jails could accommodate more than the number of convicts sentenced to the longer terms of imprisonment, their distribution was such that those situated in the Western Districts were never filled, while the Alipore Jail always had more prisoners than it could properly accommodate. It was therefore decided to convert the Dacca District Jail into a central prison for the Eastern Districts. The number of offences against jail discipline during the year 1877 was greater than in 1876. No less than 27,112 had reference to insufficient task work or petty breaches of rule. Escapes were fewer than in any previous year. A great waste of money in the expenditure of each jail is said to have resulted from the want of efficient central control. Jail manufactures gave the average earnings of each prisoner as 17 rupees; but in some of the jails the results were still very unsatisfactory. At Alipore, the profit from the manufacture department was 14,390 l. It was found necessary to make arrangements for conducting the printing business of the Bengal Government at the Presidency Jail. The bulk of the secretariat printing apparatus was transferred there, and employment was at once provided for more than 600 prisoners in the various branches of this industry. During the year arrangements were in train for the establishment of a woollen factory at Bhagulpore, and considerable progress was made in the development of coir manufacture at Midnapore. The health of the prisoners was not so good as in the previous year; but the sickness, though more general, was of a less severe type. Cholera appeared in 29 out of the 48 jails in the Province. The construction of the reformatory building at Alipore was nearly completed during the year. The Reformatory Schools Act has since been extended to Bengal, and about 68 young criminals were placed under confinement in the institution.

Assam.

The state of the jail buildings in the Province of Assam underwent little improvement during 1877, though a considerable sum was expended upon their repairs. A step was made, in the reduction of the Goalpara jail to the condition of a lock-up, towards the policy of abolishing the smaller jails and massing the prison population in large central jails. Considering the insecure state of many of the buildings, there were very few escapes. Much attention was paid to the development of the mark system. There was an improvement in the health of the prisoners, both the percentage of sick on average strength, and the percentage of deaths, being lower than in the preceding year. Manufactures yielded a profit of 1,344 l.

N. W. Provinces
and Oudh.

With regard to the North-Western Provinces and Oudh, the amalgamation of the two provinces into one government permitted the jails of both to be placed during 1877 under the management of one officer and administered on the same principles. There were altogether 52 jails; of these, seven were central prisons, six being in the North-Western Provinces, and one in Oudh. The remaining 45 were district jails, and of these, 33 were in the North-Western Provinces, and 12 in Oudh. Vital statistics shew that the health of the prisoners was extremely good in spite of the crowded state of the jails. Attention was directed in 1876 to the sickly appearance of many of the boy convicts in the prisons, and efforts were made in 1877 to give them sufficient physical exercise and food; good results followed the issue of these instructions, and there was an evident improvement in the general health of the boy convicts. The financial results

results of convict labour were extremely good. Carpet manufacture in the Prisons. Agra central prison yielded a net profit of 5,856 l.

During 1877 the number of jails in the Punjab was increased to 35 by the Punjab. completion of the new district jail at Lahore. There were in the province three central jails, three divisional jails, and 29 district jails, besides 18 magisterial lock-ups for under-trial prisoners not admitted to bail. Prison offences were committed during the year to the number of 2,700, and 28 escapes occurred. The age at which the attendance of prisoners at school was compulsory was reduced from 35 to 25 years. Although this will cause a considerable decrease in the per-centage of prisoners attending school, it will avoid the waste of labour in vainly attempting to educate men too old to profit by instruction. From convict manufactures, &c., the net profits for the year were 14,923 l. Ninety-seven individuals were confined in the Thaggi School of Industry at the close of the year. The earnings of this institution for the year from the manufacture of tents, its sole industry, amounted to 3,449 l., giving a clear profit of 455 l., which more than covered the outlay on the school.

Generally the jails in the Central Provinces contain sufficient accommodation Central Provinces. for the convicts confined in them, and though in one instance during 1877 there was some overcrowding, it is not said to have had any injurious effect on the health of the convicts. Out of 2,546 prison offences more than two-thirds related to work. The convicts are said to be well housed, well fed, and well cared for; but it is considered essential that jail life should be made distasteful to them, and that when able they should be made to work hard. The bulk of the prisoners are employed in manufactures, such as oil-pressing, aloepounding, stone-breaking, &c., in building and repairing jails, in working in the gardens attached to jails, and as jail servants. On the whole, the health of the prisoners was good, but the per-centage of deaths was higher than in 1876.

Considering the insecurity of some of the jail buildings in British Burma, British Burma. there were very few escapes during 1877. Only five prisoners succeeded in making good their escape. Of 21 that actually escaped, 16 were shortly after recaptured. An outbreak that occurred on 29 May 1877 in the Rangoon Jail was got up by two men who had been severely wounded in a similar rising in the Moulmein Jail in 1876. Prison punishments were more numerous than in 1876; and in some of the smaller jails an excessive severity seems to have prevailed, of which due notice was taken by the Government. Less than half of the convicts received into jail were returned as illiterate; and more than one-tenth could read and write well. A considerable number were under instruction throughout the year. Manufactures yielded a profit of 9,342 l. The death-rate was 55 per 1,000, against 26 in the previous year, the increased mortality being due mainly to cholera.

Compared with the preceding year, there was an increase in the number of prisoners in the Ajmere Jail from 968 to 1,344, which favors the idea that Ajmere. the prison is looked upon as a place of refuge in times of need. The jail was consequently somewhat overcrowded, but so far without any injury to the health of the prisoners. Discipline was well maintained, and the conduct of the prisoners on the whole was good. In the majority of prison offences the punishment inflicted was solitary confinement instead of flogging.

There was no overcrowding during 1877 in the jails of Berar, and the health of their inmates, notwithstanding a great increase in the number, Berar. was good, the daily average of sick and the number of deaths being considerably reduced. The conduct of prisoners was generally orderly; offences against jail rules fell from 387 to 256. Nearly two-thirds of the prisoners were employed in manufactures, such as making jail clothing and other articles for prison use, in building and repairing jails, and in working in the gardens. Altogether 7,552 l. was expended on the prisons, as compared with 9,676 l. in the previous year. Towards the close of the year the administrative charge of the jails was transferred from the Sanitary Commissioner to the Inspector General of Police. A new lock-up was opened at Ellichpur. There are now two central jails at Akola and Amraoti, and four lock-ups at the headquarters of the other districts, all built within 12 years.

In Mysore the number of jails in 1877 remained the same as in 1876, but Mysore. the lock-ups increased by one. The prisons were generally overcrowded throughout the year, while the general health of the prisoners was greatly affected.

PRISONS.

affected by the famine. The number admitted into the hospitals was 6,622, being a daily average sick of 232 prisoners, as against 1,686 and 50 respectively in 1876. Deaths rose in number from 88 to 1,335. Fewer prisoners were under instruction than in 1876.

Coorg.

Out of a daily average strength of 107 in the jails and lock-ups of Coorg during 1877, about 93 convicts were under instruction every day in the jail school. The health of the prisoners was very good, although 18 deaths occurred in the Mercara jail.

Madras.

In the famine districts of the Madras Presidency, during 1877, gangs of half-famished people crowded into the jails, and for all practical purposes the temporary jails became famine relief camps. For this large influx of prisoners (nearly 15,000) additional temporary accommodation had to be provided by means of camp jails and other measures. Another noteworthy fact in connexion with the jails was the great mortality due to the miserable condition of the people on admission. Numbers were admitted in that stage of emaciation from which recovery is impossible under any circumstances. Every care was taken to provide wholesome food, good water, and ample sleeping accommodation; it was impossible, however, to shew anything like the normal death-rate. In 1871 the death-rate per 1,000 was as low as 18.4; in 1876 it was 42.4; but in 1877 it reached no less than 173.7, the total deaths among all classes of prisoners rising from 464 in 1876 to 3,593 in 1877. Considerable attention continued to be bestowed on jail manufactures, both with the view to recoup the cost of the prisoner's custody and maintenance in prison, and to afford the prisoner himself a means of livelihood on leaving jail. The gross expenditure during the year was 232,852 l. Upwards of 90 per cent. of convicts received into jail during the year could neither read nor write. It does not appear that education, in the sense of reading and writing, made much progress, but a great deal was done in the way of training prisoners to habits of industry and order by instruction in the common useful handicrafts. Foreign convicts are said to shew great capacity for labour and to be useful in the manufactories. A central reformatory for juvenile offenders, to contain 100 boys, was about to be established in the neighbourhood of Madras. The bulk of the juveniles received into jail during 1877 was composed of starving children who, in the hope of finding food and shelter, committed offences through which they obtained admission into prison.

Bombay.

Altogether there were 148 prisons at the close of 1877 in the Bombay Presidency, 46 subordinate jails having been established during the year. Escapes, especially from gangs working outside prison limits, were more frequent than usual. The health of the prisoners was by no means so good as it was in 1876, which seems to have been an exceptionally healthy year. There were 654 deaths, at the rate of 58 per 1,000, while the average number of sick was 323, against 254 in 1876. A good deal of the sickness arose from the overcrowding of some of the jails, but the impoverished condition of many when first admitted into prison was a cause of the great part of the excessive mortality. Discipline was fairly maintained, the number of punishments not having increased in anything like the same proportion as the number of admissions. More convicts were employed on building and repairing jails, as well as in manufactures. Expenditure on the prisons in the Presidency reached 101,214 l. in 1877, an increase of 20,095 l. as compared with the previous year. Ninety-five boys were confined in the juvenile prison attached to the district jail of Poona, or more than in any year since the institution was first established. In 1876 there were only 70. It is stated that the workshops in this institution seem to afford the boys a good practical education, particularly in carpentering and blacksmiths' work. At Shirkarpur the number of juvenile delinquents was 28. From a reformatory point of view the arrangement of the premises of this institution is inconvenient, there being only a single room for all the boys.

CIVIL JUSTICE.
Bengal.

In Bengal, during 1877, the total number of original suits disposed of in all the civil courts, inclusive of the High Court, was 389,277. There were 2,848 regular and special appeals pending before the High Court at the close of the year, shewing the necessity often urged by the local government for providing new machinery for the rapid disposal of civil appeals of this class. At the close of the year there were 11,423 civil and 8,055 revenue appeals pending before

before district judges, and 4,451 appeals pending before subordinate judges. CIVIL JUSTICE. The Small Cause Court of Calcutta decided a larger number of suits of high value than in any previous year. This was the result of the great stimulus given to trade by the scarcity in Southern India. The sudden collapse of trade in the last quarter of the year also produced the same effect, numerous suits being laid for damages on account of failure to ship goods. With regard to the registration department, the extraordinary expansion which its operations have for some time exhibited was specially marked during 1877-8, when the total number of registrations was 550,269, against 465,574 in 1876-7, and nearly double the number effected in 1872-3. Registration was rapidly becoming more popular in Behar. The Mahomedan Marriage Registration Act was in force in 14 districts of Bengal, but had not gained much popularity, while in places it was unpopular. Only 9,390 ceremonies were registered during the year among a Mahomedan population of over ten millions.

As compared with the figures for 1876, relating to civil business in Assam, there was an increase from 19,429 to 21,282 in the number of suits instituted during 1877, but a marked decrease from 350,538 l. to 167,775 l. in the value of the amount in litigation. Though the number of registration offices remained unaltered, the number of documents registered rose from 9,004 in 1876-7 to 12,342 in 1877-8. No extension of the rural sub-registry system was in contemplation.

The civil courts of the North-Western Provinces and Oudh fall into three classes:—(1) The courts of the North-Western Provinces (excepting Kumaun); these are subordinate to the High Court of Allahabad. (2) The courts of the non-regulation division of Kumaun. (3) The courts of Oudh, which are immediately subordinate to the Judicial Commissioner of Oudh. With regard to civil courts subordinate to the High Court, there was a considerable decrease during 1877, as compared with 1876, in the institution of original suits, caused partly by the operation of the new procedure code and limitation Act, and partly also by the circumstance that the districts in which the decrease began and was most conspicuous were those in which the greatest dearth prevailed. There was, however, an increase in the number of appeals, clearly attributable to the unusually heavy number of original suits instituted in 1876. Taken altogether, the original suits and appeals in 1877 numbered 101,420, as compared with 106,197 in the previous year; and the total value of suits and appeals disposed of in 1877 was 2,432,684 l., against 2,225,070 l. in 1876. Courts subordinate to the Commissioner of Kumaun shewed an increase in the suits instituted from 4,913 in 1876 to 5,230 in 1877; financially, the working of these courts was satisfactory. With regard to the ordinary civil courts in Oudh, only 34,099 suits were instituted in 1877, shewing a decrease of 1,426 cases on the figures of 1876. Altogether 225,558 documents were registered in the North-Western Provinces and Oudh during 1877-8, the total increase being 31 per cent. compared with the numbers for 1876-7. There were 29,757 more mortgages and 9,890 more sales of immoveable property registered, while the value of property mortgaged and sold rose from 2,502,330 l. and 1,624,809 l. to 3,072,345 l. and 1,994,834 l. respectively. As 1876-7 was a normal year, it would seem, therefore, that some 30,000 registered mortgages of the value of 570,000 l. and some 10,000 registered sales of the value of 370,000 l. were the direct result of the drought and consequent failure of the harvest.

Original institutions in the civil courts of the Punjab somewhat diminished in 1877, the decrease being attributed to the scarcity. This was the first year in which the effect of the changes made in the constitution of the civil jurisdiction of the province, relieving Deputy Commissioners by the creation of Judicial Assistants, and relieving *tahsildars* by the creation of *munsifs*, could be fairly observed, and the results were generally satisfactory. Deputy Commissioners have now far more time than before to attend to the due control and working of the revenue system of their several districts. The area of small cause court jurisdiction was restricted by the abolition of the courts at Ludhiana, Simla, and Peshawar. Small cause court jurisdiction is now confined to the large cities where the procedure is popular and effective. Registration returns shew a large increase as compared with 1876-7. In that year the numbers had fallen to a minimum, the figures being lower than in any previous year since the Registration Act came into force. The increase in 1877-8 occurred both in compulsory and optional registrations, the respective numbers rising from 30,931 to 366. 366. c 2 39,895, Punjab.

CIVIL JUSTICE. 39,895, and 30,150 to 45,057. Plentiful harvests in the previous year had placed agriculturalists, to some extent, above the necessity of borrowing money or of selling or mortgaging their lands. During 1877-8, on the contrary, scarcity and distress prevailed in many districts of the province, especially among the agricultural classes, who were thus thrown, to a large extent, into the hands of the money-lenders, and the number of sale and mortgage deeds and bonds brought to the registry offices in places where the distress was greatest was unusually high; so that the increased activity in registration was not altogether a subject for congratulation.

Central Provinces. The suits instituted in the civil courts of the Central Provinces during 1877 were 88,486, the highest figure hitherto attained. Except in 1872, there has been a marked yearly increase of litigation since 1862, the increase being attributed to the progressive condition of the country, the increase of population, the accumulation of capital, and the development of trade. Registration operations were rather more numerous in 1877-8 than in either of the preceding years; receipts were also larger, while expenditure diminished. A little more than half the registrations were compulsory; thus, the total registrations of the year were 17,754, of which 9,039 were compulsory and 8,715 optional. Optional registrations are falling off, and as this decline has been continuous for many years, and is not confined to any special districts, it is possible to ascribe the diminution in numbers only to a better knowledge of the law; the people now know what they *must* register, and what they *may* register, and they seem to have arrived at the conclusion that either the inconvenience or expense, or both, attendant on registration, counterbalance the profits derived from the operation. Inconvenience is no doubt felt owing to the paucity of offices; but to increase the offices is at present impossible, for there is no trustworthy agency on which dependence could be placed.

British Burma. In the civil courts of British Burma 31,715 suits, valued at 302,848 £, were instituted during 1877, the number of suits being $3\frac{1}{2}$ per cent. greater than in 1876, and the aggregate value 6 per cent. higher. There were 37 registration offices open during 1877-8 as in the previous year; 4,091 documents were registered, the value of property to which they related being 577,076 £. The increase occurred almost entirely under the head of compulsory registration. As the people are less careful than formerly in recording and registering their affairs, it has been suggested that the method of rural registration which is in use in Bengal should be introduced into British Burma.

Ajmere. There was a slight decrease in litigation during 1877 in Ajmere; but it is noticeable that even with this diminution the number of suits had increased since 1871 about 34 per cent. On the whole the work of the civil courts of Ajmere and Mhairwarra was fairly conducted, their popularity was maintained, and cheap and speedy justice was administered. During the year 1877-8 the registration rules were revised, and a new office was opened at Deolee, bringing the total number of offices to seven. These offices registered 1,083 documents, or 72 less than in the previous year. The total aggregate value of the property transferred was 37,403 £, against 41,269 £ in 1876-7.

Berar. With the development of the trade of the province litigation increased during 1877 in Berar. There were altogether 21,775 suits instituted, or 438 more than in the previous year, the bulk of them (namely, 82 per cent.) being for money due; the average value of each suit was very nearly 10 £. The new Registration Act, III of 1877, was extended to the province, and new rules in accordance with its provisions were duly framed and published. There were 45 offices which registered 13,485 documents, the largest number that came under registration since the creation of the department; 62.5 per cent. of the registrations were compulsory, and 37.5 per cent. optional; both descriptions of registrations were on the increase. Results attained by the experimental introduction in October 1876 of rural registration were generally disappointing.

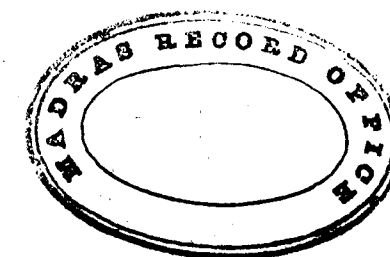
Mysore. Frequent recourse to the civil courts has always been a favorite pleasure of well-to-do persons in the province of Mysore. The year 1877, however, was one in which few persons had either leisure or means for such amusement; besides, many courts were closed during several months; consequently the number of suits instituted was only two-thirds of the number in 1876, the falling-off being most conspicuous in tracts where the famine was most severe. On the other hand, there was great activity in the Registration Department, the

the records of which prove how largely land was sold and mortgaged, especially in the case of small properties. Registration of deeds of sale and mortgages of immoveable property of less than 10 £ value increased by 100 per cent. The aggregate value of immoveable property affected by the 17,002 documents registered was 473,024 £, which gives a lower average value than in 1876-7; while the registered documents affecting moveable property were fewer in number and higher in average value.

In the Coorg civil courts 2,299 suits were instituted during 1877, as against 2,022 in the previous year; the value of the property in litigation amounted to 34,773 £. Fewer documents were registered during 1877-8 than in 1876-7, the decrease being ascribed by the Inspector of Registration to the decline in the value of coffee estates.

The number of suits instituted in 1877 in the Madras High Court on the original side was upwards of 100 in excess of the number instituted in 1876, the increase being mainly due to the impetus given by the famine to the trade in rice and other food grains. The headings under which the increase is chiefly remarkable were "money due on written promise for sum certain," "damages for breaches of contract," "suits to settle partnership and other accounts," and other suits to declare or establish personal rights. Seven of the suits for damages were against railway companies and ships' agents for non-delivery of rice entrusted to them for carriage, and 34 were for breaches of contracts relating to the sale of grain. In the lower courts the total number of suits instituted during 1877 was 189,729, which is less than the average of the six previous years. A very large increase took place in the registration of documents, the number registered in 1877-8 being 289,059, or 38,183 more than in 1876-7. Much of this increase was due to the pressure of the famine which induced the well-to-do classes to pledge or sell their lands. Sales increased by 10,578, and mortgages by 21,567. In some places money-lenders insisted on the registration even of optional documents to a far greater extent than before known. The aggregate value of the transactions of the year was 8,546,724 £, and the value of land sold or mortgaged exhibited an increase of 550,000 £.

There was a considerable decrease during 1877 as compared with 1876 in the number of suits instituted in the civil courts of the Bombay Presidency, more particularly in the case of claims of small amount in the subordinate tribunals of the rural districts. Out of 1,557 suits on the files of the High Court in its ordinary general jurisdiction, 758 were brought before it during the year, and 799 remained in arrears; in its Admiralty jurisdiction, no suits were decided out of seven on the files; 434 insolvency suits were settled out of 1,579. Satisfactory mention was made of the working of the Bombay Small Cause Court, where the number of suits greatly increased, particularly in the case of small claims connected with the grain trade. Of 144,412 suits instituted in the rural districts, 128,261 were for money. A decrease in both civil and revenue suits of small value was noticeable, while suits involving larger sums increased. Taking the civil courts of the rural districts as a whole, the average duration of contested suits was 211 days. Several of the arbitration courts were closed during the famine. None of these courts have been at work for more than a few years; but those at Poona appear to be well constituted, and to have acquired the confidence of litigants in their neighbourhood. In 1877-8, for the first time, the Registration Department shewed an excess of receipts over expenditure, the surplus being 6,987 £. There were 90,297 registrations effected during 1877-8, or 18.22 per cent. more than in the previous year. Optional registrations increased by about 40 per cent. The value of property affected by instruments registered was stated to be 4,513,605 £, as compared with 3,653,781 £ in 1876-7.



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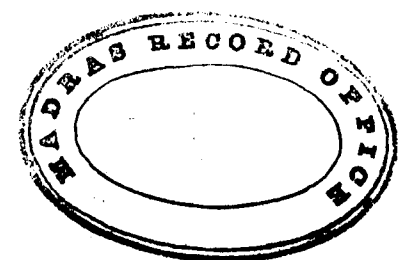
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III.

FINANCE.

REVENUE AND
EXPENDITURE.
India.

ACCORDING to the Finance and Revenue Accounts for the official year ending 31 March 1878, the total amount of the "imperial" revenue, both ordinary and from "productive public works," was 58,969,301 *l.* For the preceding year the amount was 55,995,785 *l.*; the increase in the receipts was therefore 2,973,516 *l.* Excluding capital outlay on "productive public works," the total "imperial" expenditure both in India and in England amounted during 1877-8 to 62,512,388 *l.*, as compared with 58,178,563 *l.* in 1876-7, the increase in the expenditure being 4,333,825 *l.* The deficiency in revenue for 1877-8 was 3,543,087 *l.* As in the previous year, the deficiency was entirely due to the heavy charges for famine relief entailed on the Government. During the quinquennial period ending with the year 1877-8, the deficiency in the imperial revenue was 5,545,391 *l.*; the expenditure on famine relief during this period was 14,102,293 *l.*; excluding famine charges, the surplus of revenue for the five years would have been 8,556,902 *l.* With regard to the several sources of revenue, the following are the total receipts during 1877-8, under the principal heads, in order of their importance: land, 20,026,036 *l.*; opium, 9,182,722 *l.*; salt, 6,460,082 *l.*; stamps, 2,993,483 *l.*; customs, 2,622,296 *l.*; excise, 2,457,075 *l.*; while under "productive public works," 495,142 *l.* was credited to irrigation, 548,528 *l.* to State railways, and 6,129,765 *l.* to guaranteed railways. Turning to the expenditure side of the account, we find that the total of the direct claims and demands upon the revenues, including charges of collection and cost of salt and opium, was 10,013,736 *l.*; the army cost 16,639,761 *l.*; "productive public works" are debited with 791,601 *l.* for working and maintenance, and 6,572,955 *l.* for interest and surplus profits; "ordinary public works" entailed an expenditure of 3,676,274 *l.*; famine relief cost 5,345,775 *l.*; interest on debt and obligations amounted to 5,028,318 *l.* As regards the outlay of capital on "productive public works," the total amount for the year 1877-8 was 4,791,052 *l.*

Bengal.

Imperial receipts in Bengal amounted during 1877-8 to 17,055,273 *l.*, as compared with 16,006,392 *l.* in the previous year. The increase was general, but especially noticeable in the case of the opium, customs, stamps and salt revenue collections. Most satisfactory results were seen to have been gained by the extension of the provincial services scheme. Receipts under the chief heads of revenue were largely increased, while unnecessary expenditure was cut down, and the money thus saved was devoted to improving those branches of the administration which most required an increased outlay, to public works of general or local utility, to the advance of education, the reform of prisons, and other similar objects which had for some years past been obliged to stand over for want of funds.

Assam.

Assam has enjoyed an increasing revenue for some years. Imperial collections rose from 568,405 *l.* in 1876-7 to 632,943 *l.* in 1877-8, and the expenditure from 380,510 *l.* to 391,916 *l.* At the close of the official year all the local funds were solvent, the aggregate balance being about 19,000 *l.*

N. W. Provinces
and Oudh.

For the North-Western Provinces and Oudh the respective amounts of imperial revenue collected in 1877-8 were 5,498,642 *l.* and 1,609,085 *l.*, and of expenditure 2,237,938 *l.* and 570,422 *l.* With regard to provincial finance, the final balance of the united provinces at the close of 1877-8 amounted to nearly 300,000 *l.*, forming a safe reserve for unforeseen or extraordinary charges.

Punjab.

In the Punjab the gross amount of the imperial revenue collections declined from 3,837,599 *l.* in 1876-7 to 3,050,470 *l.* in 1877-8, while the expenditure advanced from 1,945,858 *l.* to 2,011,471 *l.* It should be pointed out that the decrease of revenue was solely caused by transference of the salt receipts from the accounts of the local to those of the Supreme Government. In 1876-7 these receipts amounted to 830,172 *l.*

Central Provinces.

As compared with the amount for 1876-7, the imperial revenue collections in the Central Provinces during 1877-8 shewed a slight fall from 1,104,138 *l.* to 1,078,662 *l.*, while the expenditure decreased from 769,568 *l.* to 743,188 *l.*

In

In British Burma the gross collections of imperial revenue increased from 1,771,743 *l.* in 1876-7 to 1,847,147 *l.* in 1877-8, and there was a rise in the expenditure from 896,508 *l.* to 944,243 *l.* The falling-off in the receipts was due to uncollected arrears of land revenue.

British Burma.

A further decline occurred during 1877-8 in the yearly amount contributed by the Madras Presidency to the imperial exchequer. The decrease of revenue and the increase of expenditure were continuous for three years. In 1874-5 the total collections amounted to 8,373,826 *l.*; in 1877-8 they were only 6,986,438 *l.*; while the expenditure, which in 1874-5 was 5,897,554 *l.*, had risen in 1877-8 to no less than 10,622,517 *l.* This complete derangement of the finances was caused by the succession of bad harvests followed by a terrible famine. All the chief heads of revenue shewed a diminution since 1874-5, but the decline in the aggregate receipts is mostly owing to the decrease under the head of land. Famine relief during 1877-8 absorbed 4,363,671 *l.* of the total annual expenditure.

Madras.

Revenue collections on imperial account in the Bombay Presidency advanced from 10,076,974 *l.* in 1876-7 to 10,393,992 *l.* in 1877-8, and there was an increase in the total expenditure from 8,146,545 *l.* to 8,512,925 *l.* Of the latter amount 965,146 *l.* was for famine relief.

Bombay.

Opium cultivation in the Behar and Benares Opium Agencies was very profitable in 1877-8. The total amount of revenue realised was 6,432,881 *l.*, as compared with 6,174,170 *l.* in the previous year; and the number of chests sold by auction in Calcutta was 49,500, or 2,260 more than in 1876-7. In the Benares Agency there was some tendency on the part of the cultivators to sow in excess of their engagements, and the clause in the licence which legalised such excess sowing was consequently cancelled. The purchase of Nepal opium at a price uniform with that paid to cultivators in British territory was sanctioned during the year. Poppy cultivation would seem to be on the increase in the Nepal Terai. The question of the export of opium from Nepal through British territory, under passes granted to traders by the Government of the Punjab, was subsequently taken into consideration. Excise is one of the principal branches of revenue which were transferred to provincial management from the beginning of the year. The revenue derived from it advanced from 624,781 *l.* in 1876-7, to 686,789 *l.* in 1877-8. This improvement was partly due to careful administration, and partly to the substitution of the out-still for the central distillery system in tracts to which the latter was inapplicable. The raising of the duty on *ganja*, and the enhanced price of opium, also contributed to produce an increase of revenue. At the same time the restrictions, both direct and indirect, on the consumption of intoxicating drugs and liquors, were made more stringent.

OPPIUM AND
EXCISE.
Bengal.

Excise revenue collections in Assam rose from 144,637 *l.* in 1876-7 to 162,566 *l.* in 1877-8. The system of putting up to auction the licences for retailing opium was introduced into all the districts of the province at the beginning of the year with favorable results. While there was a general falling-off in the consumption of the drug, and in the number of shops for its retail, there was a considerable increase in the revenue. From all other sources also, besides opium and its preparations, the gross excise revenue increased. The bulk of this increase was contributed by country spirits and *ganja*, and is attributable to the further extension during the year of the farming system.

Assam.

Excise receipts from opium and spirits yielded during 1877-8 in the North-Western Provinces 214,880 *l.*, and in Oudh 69,114 *l.* Both these amounts were smaller than those of the previous year. More than half the receipts were from still-head duty.

N. W. Provinces
and Oudh.

In the Punjab the excise collections advanced from 103,868 *l.* in 1876-7 to 104,377 *l.* in 1877-8. More than two-fifths of the revenue is derived from monopolies for the sale of intoxicating drugs, including opium; next come licence fees for the retail of spirits; still-head duty yields a quarter of the revenue.

Punjab.

The total excise collections in the Central Provinces during 1877-8 amounted to 147,240 *l.*, and were derived from an excise on country spirits, on opium, on *tari* and *ganja*, and miscellaneous income, such as fines, &c. That there is a great demand for opium among the population is proved by the number of licences for sale of the drug. During 1877-8 the bids for licences greatly exceeded

Central Provinces.

OPIUM AND
EXCISE.

exceeded the total revenue realised in 1870-1. *Ganja* smoking is very common, and in almost every village a few plants are cultivated in each inclosure. The taste for this drug is quite distinct from the taste for liquor, and the classes which smoke *ganja* and those which consume liquor are quite distinct. An attempt has been made to put down all unauthorised cultivation, and measures have been taken to place everything connected with this branch of the excise under Government control.

British Burma.

Realisations of excise revenue in British Burma continued their steady increase during 1877-8, when they amounted to 176,078 *l.* (Opium yielded about two-thirds of the aggregate receipts.)

Ajmere.

Excise receipts in the Ajmere and Mhairwarra Districts were somewhat less in 1877-8 than in the previous year. The sale of opium was free and unfettered by any rules, but it was in contemplation to extend the Opium Act to the districts.

Berar.

About 10,000 *l.* a year is realised from the excise on spirits and drugs in Berar. (Since the close of 1877-8 the entire cultivation of poppy and the export of opium from Berar have been prohibited in the interests of the opium revenue of the province, and because it was feared that much smuggling went on, which injured the excise revenue of the Central Provinces. A new set of rules for the import and sale of the drug, and for a careful control of the internal opium trade, was under preparation.)

Mysore.

Spirits and drugs yielded a revenue of about 100,000 *l.* in Mysore during 1877-8. The amount has declined during two years, owing to the diminished consumption, especially of liquors, among the famine-stricken population.

Coorg.

Almost the whole of the excise receipts in Coorg are obtained from the still-head duty. The total *abkari* revenue of the province amounted in 1877-8 to nearly 15,000 *l.*

Madras.

Only 471,069 *l.* was realised from excise in the Madras Presidency during 1877-8, against 558,369 *l.* in 1876-7, and 633,901 *l.* in 1875-6. Of the decrease of 25 per cent. which appeared as compared with 1875-6, about two-thirds was likely to be recovered. In the provinces 346,873 *l.* was realised against 442,683 *l.* in the previous year, and an estimated revenue of 527,500 *l.* In some cases the renters were permitted to pay duty on actual issues irrespective of the sum guaranteed. In others the renters actually failed, and when their farms were resold this was done at a loss. In Madras itself the *abkari* revenue was greater than in any preceding year, being 124,196 *l.*, against an average of 116,000 *l.* The increased consumption of liquor resulted partly from the increased wages earned in the grain trade, and partly from the increase of population caused by labourers and others coming in from the districts. In 1875-6 certain restrictions were placed on the brewing of country beer. Breweries existed before that on the Nilgiris and in Bellary, but the brewers, who were practically unfettered, flooded the market with an unwholesome liquor nominally called beer, but in reality a mere spirit-wash waste containing an undue proportion of alcohol and little or no barley malt. It was considered in 1875-6 that beer could not be brewed successfully on the plains; and it was therefore resolved to restrict the manufacture to the Nilgiris, and to require that the materials used in brewing should consist of malt prepared from barley only, hop, and a limited quantity of sugar, the alcoholic strength being fixed at 8 per cent., and the duty being raised from one to four annas per gallon. These measures formed the subject of much complaint, especially the prohibition in regard to the use of malt other than barley malt. It was afterwards resolved to modify them by reducing the duty to the original rate of one anna per gallon, and by putting the maximum alcoholic strength at 6½ per cent.

Bombay.

There was a falling-off of about 200,000 *l.* in the opium revenue of the Bombay Presidency during 1877-8, as compared with the year before. The actual receipts fell from 2,948,290 *l.* to 2,749,841 *l.* China took 6,347 fewer chests than in 1876-7. The crop was comparatively a poor one, and prices rose, on account of both natural and artificial scantiness of supply in the market. A new Act, regulating the sale of opium, came into force at the close of the year; but during 1877-8 the retail sale of the drug for home consumption was conducted under the provisions of the former law of 1827. The administration of the excise revenue in the Bombay Presidency was, towards the end of 1877-8, placed by legislation on a better footing, and it was expected that the system settled by Bombay Act I of 1878 for the town and island of Bombay, would

OPIUM AND
EXCISE.

would be found to work harmoniously with the system settled by Act V of 1878 for the rural districts. Excise receipts declined from 428,812 *l.* in 1876-7 to 405,530 *l.* in 1877-8; but the decrease was mainly due to transactions in excise opium, a large adjustment of which was made in the former year.)

Salt revenue collections for the whole of British India rose from 6,304,658 *l.* in 1876-7 to 6,460,082 *l.* in 1877-8. During a period of ten years the amount has averaged 6,110,257 *l.* Progress was made towards the ultimate assimilation of the Indian salt duties. The Salt Act (XVIII of 1877), which came into force on 28 December 1877, raised the duty on salt imported into the Presidencies of Madras and Bombay (including Sind) from *Rs.* 1. 13. to *Rs.* 2. 8. per maund of 82½ lb. avoirdupois. A notification of 28 December 1877 (Customs, No. 172), issued under the Indian Tariff Act, 1875, reduced from 1 January 1878 the duty on salt imported into Bengal (Lower Provinces) from *Rs.* 3. 4., to *Rs.* 3. 2.* Another notification of 28 December 1877 (Salt, No. 255), issued under the Inland Customs Act, 1875, reduced the duty on salt imported into Upper India from *Rs.* 3. to *Rs.* 2. 12. per maund.†

Receipts from salt in Bengal rose from 2,596,956 *l.* in 1876-7 to 2,693,601 *l.* in 1877-8. Clearances of salt for consumption were greater than in the previous year. As the general prices in 1877-8 were high, the increased consumption bears strong testimony to the prosperity of the agricultural classes. The most marked increase was in Behar, where the average consumption of the population rose to nearly the same standard as that of Bengal generally, being upwards of 10 lbs. per head, after making all allowances for export beyond the province. This seems to shew that even in Behar, where the condition of the cultivators is comparatively impoverished, the profits arising from the sale of their crops at abnormal rates did to some extent reach the agricultural classes and remain with them. Manufacture of excise salt declined from 407,975 maunds to 170,986 maunds, owing to the inability of the Orissa manufacturers to compete with Ganjam salt; but this was only a temporary depression, and relief subsequently given by raising the duty on Ganjam salt, and paying the cost of a preventive establishment at Pooree, has revived the trade.

Salt excise in British Burma yielded 14,603 *l.* in 1876-7, and decreased to 11,767 *l.* in 1877-8. Revenue from locally-made salt continues to dwindle down before the importations of foreign salt. The quantity made in Arakan is used for purely local domestic purposes, and for export to fish-curing districts. In the Pegu division it is used extensively for fish-curing, and its production is stimulated or otherwise by the success or failure of each particular year's fishery operations.

In the Madras Presidency the salt revenue during 1877-8 amounted to 1,142,186 *l.*, against 1,291,953 *l.* in 1876-7, and 1,353,789 *l.* in 1875-6. For the purposes however of comparing the results of the three years, it is necessary to add 160,000 *l.* to the figures of 1877-8; this sum representing the value of salt purchased on deposit of Government securities outstanding at the close of the year under advances recoverable, and adjusted by a deduction from revenue under the orders of the Government of India. Again, owing to the salt consumed in Malabar and South Canara now paying duty in Bombay, the bulk of the salt revenue of those districts no longer appears as a credit of the Madras Presidency. Due allowance being made for these items it appears that the salt revenue of 1877-8 was in excess even of that of 1875-6. The causes of the excess were partly the additional duty levied under Act XVIII of 1877 at the end of December of that year, and partly the abolition of the discount system under which merchants buying an entire heap of salt were allowed to purchase at 95 per cent. of the supposed contents; the latter being an important reform recommended by the recent Salt Commission and carried out during the year. Amounts sold diminished in Chingleput, Kistna, and Madura, and on the West Coast, the diminution being attributable respectively to shortness of stocks, to increased supply of the Nizam's dominions by

* Further reduced, from 1878, to *Rs.* 2. 14., by notification of 31 July 1878 (Customs, No. 100).

† Further reduced, from 1878, to *Rs.* 2. 8., by notification of 31 July 1878 (Salt, No. 236).

SALT. by rail from Bombay, to increased supply of the southern districts by rail from Tuticorin, and to the cessation of sales on account of Government. Amounts sold rose in Vizagapatam, Nellore, and Tinnevely, the increase being due respectively to increased trade with parts of the Central Provinces, to shortness of stocks in Chingleput, and to increased sales for transport by rail into the southern districts. The salt department was in 1877-8 placed under a Commissioner, subordinate to the Board of Revenue but independent of collectors. The control of collectors over the manufacture and sale of salt ceased a little later, on 1 July 1878.

Bombay. The principal events during 1877-8, in connexion with the salt revenue department of the Bombay Presidency, were the raising from 28 December 1877 of the duty on each Indian maund of salt by 11 annas, and the abolition from 1 January 1878 of the railway mileage duties. Although the increased duty was levied only for three months of the year, yet the revenue from the actual salt tax was enhanced by about 100,000*l.* In 1876-7 the collections from all sources of salt revenue amounted to 930,441*l.*; in 1877-8 they were 1,128,274*l.* Cambay salt works were closed during the year, so that the consumption of crystallised salt was likely to increase in Gujarat. Kharagora salt occupies an annually increasing market, especially in the direction of Central India and the Central Provinces.

PANDHRI. *Pandhri* is a tax on traders and artisans in the Central Provinces. It was a well-known impost under Maratha rule, and has been continued by the British Government. During 1877-8 the tax was more productive than in former years, and the number of persons assessed was also slightly greater. Altogether 21,356 persons were taxed, and the total demand was 16,286*l.*, of which 15,792*l.* was realised.

STAMPS. Stamps under the General Stamp Act and the Court Fees Act yielded a revenue of 2,993,483*l.* for the whole of British India during 1877-8, as compared with 2,838,628*l.* in 1876-7. The average revenue for the decennial period ending with 1877-8 was 2,640,690*l.*

Bengal. More than a third of the entire stamp revenue of British India during 1877-8 was contributed by Bengal, where the collections amounted to 1,081,452*l.*, as compared with 954,788*l.* in the previous year. The greater portion of the increase in Bengal was due to the operations under the Land Registration Act; but apart from this there was a general increase under all heads, attributable to the greater activity of trade.

Assam. The stamp revenue of Assam during 1877-8 amounted to 55,709*l.*, or 5,795*l.* in excess of the average for the three previous years. Improvement took place in the sales of both revenue and judicial stamps, while better measures were adopted to prevent evasions of the stamp law.

N. W. Provinces and Oudh. Realisations from stamps in the North-Western Provinces during 1877-8 amounted to 378,342*l.*, the average for 10 years being 347,914*l.* More revenue stamps were sold than in any previous year, in consequence of the unusual number of loans and mortgages contracted during the period of distress. Since 1869-70 *hundi* (bill of exchange) stamps have been greatly displaced by the use of currency notes and money orders for remittances, and in some measure by the increasing tendency to settle transactions by ready money payments or bills payable on demand. Increased facilities were afforded to the public for the sale of stamps. In Oudh there was a rise in the stamp revenue from 94,372*l.* in 1876-7 to 101,115*l.* in 1877-8.

Punjab. Under the head of stamps, the revenue collections in the Punjab for 1877-8 amounted to 274,162*l.*, against 245,586*l.* in the previous year. Every source of stamp revenue contributed to the increase, which has proved continuous.

Central Provinces. A larger revenue was obtained during 1877-8 from stamps in the Central Provinces than during any former year. The collections rose from 97,614*l.* in 1876-7 to 103,518*l.* in 1877-8. Trade was brisk, and the sale of general stamps consequently increased, while the large amount of litigation caused a corresponding sale of court fee stamps.

British Burma. As compared with those of 1876-7, the receipts of 1877-8 from judicial and revenue stamps in British Burma shewed a very great improvement, rising from 62,992*l.* to 70,220*l.*

Ajmere. In Ajmere there was an increase during 1877-8 in the sales of general stamps, but a heavy falling off in those of court fee stamps, due to the decline in litigation

tion throughout the districts. The total stamp revenue is given in the STAMPS. Administration Report as 15,735*l.* in 1876-7, and 14,429*l.* in 1877-8.

Sales of stamps in Berar shew a yearly progressive increase. The total Berar amount contributed by them towards the provincial revenue in 1877-8 was 51,419*l.*, as compared with 44,762*l.* in 1876-7.

A falling off in the total stamp revenue of Mysore from 50,725*l.* in 1876-7 to 49,687*l.* was principally due to lessened receipts from court fee stamps. Litigation was temporarily suspended on account of the impoverished condition of the people.

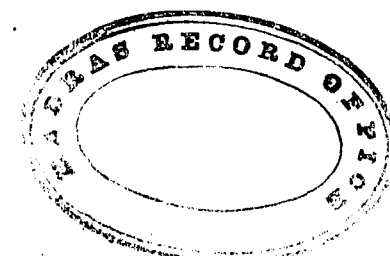
Fewer transactions involving the purchase of stamps occurred during 1877-8 in Coorg than during the previous year, and the revenue from this source consequently declined from 2,430*l.* to 2,019*l.*

In the Madras Presidency stamps yielded 501,971*l.* in 1875-6, 499,336*l.* in 1876-7, and 489,221*l.* in 1877-8. The revenue from court fee stamps in 1877-8 shewed a falling off of 20,000*l.* compared with the reduced revenue of the previous year; but on the other hand general stamps yielded 10,000*l.* more. These results were owing to the impoverishment of the people, which caused on the one side a decrease of litigation and on the other an increase in the number of property transfers.

Only 416,272*l.* was realised from stamps in the Bombay Presidency during 1877-8, as compared with 440,066*l.* in the previous year, and with an average of 482,084*l.* for the ten years ending with 1877-8.

The District Cess Act (X of 1871) was in force in all the districts of Bengal except the Chittagong Hill Tracts, Sonthal Pergunnahs, and Singbhoon, where there are special local reasons which have rendered the introduction of the measure undesirable. The rate of cess was not the same in all districts; in seven districts it was half the maximum rate fixed by law, in two districts it was three-fourths, and in the remaining 28 districts the maximum rate of half-an-anna in the rupee was levied. Returns for the year ending 30 September 1877 shew that the demand on account of land cess was 286,551*l.*, while the collections amounted to 250,491*l.* As regards the cess on houses, the total demand was 19,410*l.*, and the collections were 14,068*l.* As the house cess is not suited to the circumstances of the country, its abolition was contemplated, all collections on account of it having been meanwhile suspended.

The Provincial Public Works Cess Act (II of 1877) came into force in June 1877 in all the districts in which the District Road Cess Act was in operation. The rate of taxation was half-an-anna in the rupee. According to the original estimate, the contribution to be paid to the Government of India on account of interest on capital expenditure on public works in the province was 257,500*l.*; but it was subsequently fixed at 200,000*l.* for the year 1877-8. Receipts under the Act up to 31 March 1878 amounted to 210,504*l.*



IV.

LAND ADMINISTRATION.

SURVEY OF INDIA. ON 1 January 1878, the Great Trigonometrical, the Topographical, and the Revenue Branches of the Survey Department were amalgamated into the "Survey of India." The time had come for the fusion of the three branches of the survey into a single department, because each branch had in great measure completed its own special work, and because for the future survey officers and survey parties would often have to be transferred from one kind of survey work to another. The amalgamation of the three departments was attended with some reduction of expenditure.

The several descriptions of survey that are being conducted under the Government of India are, (I) the Great Trigonometrical Survey, which fixes stations by great triangles and astronomical observations, and thus furnishes the basis on which all surveys of interior details and all geographical material rest; (II) the Topographical Survey, which delineates the features of the country and furnishes material for maps of all tracts in British and native territories, where detailed survey for revenue purposes is not required; (III) the Revenue Survey, which furnishes for revenue purposes, either village maps on a scale of four inches to a mile, or cadastral (field) maps on a scale of 16 and 32 inches to a mile.

Besides these several descriptions of survey, there are, under the Surveyor General of India, officers and parties employed on geodetic observations, on tidal observations, and on exploration surveys beyond the frontiers of British India; and there are also great map-drawing and map-producing establishments at Calcutta and at Dehra Dún.

During the year 1877-8, there were employed five survey parties on triangulation; 12 on topographical work; and 12 on revenue survey work. Of the 12 parties last-mentioned, four parties were engaged on village (four inches to the mile) surveys; while eight were employed on cadastral (16 and 32 inches to the mile) surveys. The cadastral surveys were begun only in the year 1871; but for purposes of the people, and also for revenue purposes, in the thickly peopled parts of India, they are extremely useful. The cost of these field surveys is, however, considerably larger than the cost of the other surveys. Thus, the average cost of the topographical survey for several years back has been about 2 l. per square mile; of the village survey about 5 l.; and of the field (cadastral) survey about 16 l. The costliness of the cadastral survey varies inversely as the size of the field to be surveyed; and it has in special tracts cost 30 l. to 40 l. a mile.

The triangulation parties during the year 1877-8 effected some difficult and intricate work in the Tanjore district, among the channels of the Cauvery. They laid down correctly the position of important points at the mouth of the Irrawaddy and of the upper islands of the Mergui Archipelago, advanced the Indian triangulation 148 miles, and fixed important points on the Siam border. They settled a large number of new points in Baluchistan, about the Bolan Pass, Quetta, and Khelat. They extended our geographical knowledge into hitherto unknown land round the upper waters of the Brahmaputra; and shewed that, of the great affluents of that river at the northern head of the Assam Valley, the Dihong river has twice to three times the volume of the Subansiri, which had previously been regarded as the possible continuation of the great river of Tibet. On the Burma and Assam frontiers the officers of the survey had to encounter much difficulty and some risk from the unhealthiness of the forests.

The area for which final topography was completed by the twelve topographical parties amounted to 25,118 square miles, of which 10,540 were in the Bombay Presidency, 4,612 in the Central India States, 4,281 in Assam, 2,325 in Mysore, 1,870 in the North-Western Provinces, and 1,490 in Rajputana and in the Simla hills. In Central India and Rajputana the drought of 1877 impeded the work of the survey, as the surveyors could not work in the waterless deserts. In Mysore severe fever greatly crippled the surveyors during the

SURVEY OF INDIA. the whole of the field season. The Garhwal party penetrated into the trans-Himalayan valleys of Hundes; and fixed peaks near the head waters of the Sutlej and the Indus, and near the western sources of the Ganges. Colonel Depree's adaptation of Lieutenant Leach's plan for drawing contour maps appears to have been very successful, in that it enables native surveyors, unskilled in hill drawing, to turn out hill maps with contour lines faithfully delineated.

The four revenue survey parties engaged on village survey completed 5,611 square miles of country in the trans-Indus districts, in Sirsa, in Saharanpur, and in Budaon. The first party did specially useful work in triangulating 350 square miles of the Jowaki country during the campaign of 1877-8. In the districts of Bannu, Dera Ismail Khan, and Sirsa the demarcation work was well forward and accurately done by the Settlement Department. Without a good and punctually executed village boundary demarcation, revenue survey parties cannot work either rapidly or economically. The permanence of the trijunction platforms erected many years before in Saharanpur and Budaon materially facilitated the survey operations in those districts.

Of the eight cadastral survey parties, the small party in the Agra and Hamirpur Districts were engaged solely in revising and completing the cadastral record; the small Assam party were employed in surveying revenue-free lands in Kamrup; the Jaunpur party only began work in the district late in the year, and consequently completed but little (only 150 square miles of) field survey; while the Cuttack irrigation and the Chota Nagpore parties were not working full strength. The whole area completed cadastrally by these eight parties during the year was 1,572 square miles, besides a small area of uncultivated land which was surveyed topographically. The largest area was done by the survey party in Banda, which had been engaged on cadastral work for a series of years; this party was employed in a district where village boundaries were fully and properly demarcated, and where the average size of fields exceeded one acre. In Jaunpur also the boundary demarcations were done punctually, and the trijunction marks of the old demarcation were standing.

The cadastral survey in Khurda has been extraordinarily costly. A 32-inch survey must necessarily be dearer than a 16-inch survey; but the expenditure has been enhanced by the imperfections of the demarcation work done by the Settlement Department. Twelve annas per acre is a prohibitive rate for cadastral surveys in a tract like Khurda. The outturn and cost in the Soane irrigation tract, where the fields are as small as in Khurda, would seem to shew that the great outlay in Khurda must have been partly due to inefficient demarcation. The Burkagarh survey in Chota Nagpur and the Cuttack irrigation work (where the fields were even smaller than in Khurda) appears also to have been impeded by delays in demarcation. Permanent boundary-marks were being erected in all the cadastrally surveyed tracts of Bengal. The absence of such marks in past years has very greatly detracted from the permanent usefulness of the revenue surveys previously executed in Bengal.

Levelling operations by revenue survey parties appear to have been confined to the Banda and Budaon Districts.

There was much activity in the several establishments, where maps are prepared and published from the hand-drawn maps furnished by the field parties. Fair progress was made with the new map of India on the 32 miles to an inch scale; and 11 more quarter-sheets of the Indian Atlas were published. The production of cadastral survey maps was expedited. The photographic and lithographic branches of the Calcutta Office were well and efficiently managed. Besides turning out its ordinary work, the Great Trigonometrical Office at Dehra met the wants of the frontier army by producing in one week a new edition of the Afghanistan map, several hundreds of which were distributed to the forces. The work done by the map-drawing and publishing offices amounted to 481,031 copies of maps, plans, and diagrams struck off during the year, including 162,913 by the Lithographic Office, Calcutta; 296,329 by the Photozincographic Office and otherwise for the cadastral survey, and 21,789 by the great Trigonometrical Office at Dehra. The issues of maps, which are apart from the copies of cadastral and other survey results supplied to local officers, were 20,869 in number, and 3,090 l. in value. Maps sold to the public realised only 782 l. during the year. The main work of the survey is thus for the different

SURVEY OF INDIA. administrative departments of the State; and its maps are, as yet, little utilised by the outside public.

MADRAS REVENUE SURVEY. During 1877-8 the Madras Revenue Survey Department carried on operations in Ganjam, Godavari, Kurnool, Bellary, Cuddapah, North Arcot, South Arcot, Salem, the Nilgiri Hills, Coimbatore, Madura, and Malabar. The total area of the Presidency is estimated at 141,133 square miles; of this 47,360 square miles had been surveyed on the cadastral scale of 16 inches to a mile, and 40,007 square miles on smaller scales suitable to the production of topographical maps. According to the programme, the cadastral survey would extend over a further area of 11,822 square miles. The expenditure during 1877-8 was higher than usual, but a considerable portion of it went to paying survey officials employed on famine relief duty.

BOMBAY REVENUE SURVEY. With regard to the Bombay Revenue Survey, the drain upon survey establishments, in common with others, caused by the necessity of having numerous inspecting officers accustomed to revenue work in the famine districts, prevented the operations of the department during the year 1877-8 from being as extensive as usual. Considering, however, the comparatively small number of survey parties available, the outturn of work was most satisfactory. In Sind, where the operations were not disturbed by famine, the work of classification made great progress. Altogether there were 35 field establishments employed during the year, and they were spread over the Poona and Nasik, Ratnagiri, and Gujarat districts, the Southern Mahratta country, Sind, and certain Native States. The operations comprised the measurement of 1,826,209 acres, the classification of 1,538,414 acres, and the settlement of 598,578 acres. The total cost was 76,722 l., of which sum 6,017 l. was recoverable from the Native States of Sawant Wari, Bhor, and Kolhapur.

STATISTICAL SURVEY. At the close of June 1878 the number of volumes published of the Statistical Survey of India amounted to 78. These volumes contained 25,440 pages, and represented about four-fifths of the entire work. Six more volumes have been subsequently issued. The Bombay statistical accounts will not be completed till 1881, and those for the North-Western Provinces and the Madras Presidency till a still later date.

LAND REVENUE AND SETTLEMENTS. According to the Finance and Revenue Accounts the total amount of land revenue collected in British India during each of the three years 1875-6, 1876-7, and 1877-8 was respectively, 21,503,742 l., 19,857,152 l., and 20,026,036 l., and the average for the 10 years ending with 1877-8, was 20,722,765 l. As compared with the previous year, there was during 1877-8 an increase in the collections in Bengal, Assam, Madras, and Bombay, but a decrease in those in the North-Western Provinces, Oudh, Punjab, and the Central Provinces.

Bengal. In Bengal the number of estates on the revenue roll in 1877-8 rose from 142,528 to 146,380, mainly on account of the numerous partitions of estates which took place in Behar. The current demand amounted to 3,689,597 l., as compared with 3,673,724 l. in the previous year; and 94.34 of the total demand was collected. According to the Finance and Revenue Accounts, the collections were 3,663,559 l. in 1876-7, and 3,696,210 l. in 1877-8. During the year 1877-8 733 settlements were effected, yielding a net increase of revenue of 4,322 l.; while 11,187 settlements, involving a revenue of 97,708 l., were pending at its close. Settlement work throughout the Province was much facilitated by the passing of the Bengal Act III. of 1878, which lays down a procedure to be followed for bringing the under tenants and ryots to an early decision with respect to the settlement officer's rates, and giving *à priori* validity to these until they are set aside by a decree of court.

Assam. During 1877-8 progress was made in Assam in the resettlement of *ilam* estates in Sylhet, the resettlement of other petty scattered estates in that district, the resettlement of the Jaintia Pergunnahs, the settlement of waste lands in Cachar, the resettlement of the Eastern Duars in Goalpara, petty resettlements in that district, and the ordinary annual settlements in Assam proper. A completion was made of the resettlement of the Eastern Duars; the system adopted was that of direct settlement with the cultivator; and this has

has been approved by the Government of India in the case of three out of five of the Duars. Ordinary annual settlements in Assam proper resulted in an increase of revenue of 7,209 l. over the revenue of the previous year. This increase was due to the extension of cultivation. On account of ordinary land revenue the current demand was 315,045 l., against 303,099 l. for 1876-7. Miscellaneous land revenue also shewed an increase on the current demand, mainly under the head of Elephants, Fisheries, and House Tax. The aggregate land revenue collections for the Province rose from 329,637 l. in 1876-7 to 362,972 l. in 1877-8.

Revision of assessments up to the close of 1877-8 resulted in a net increase of 451,315 l. to the revenue of the North-Western Provinces, of which 12,257 l. represents the increase obtained in 1877-8. In Oudh the assessments made at the regular settlement of certain villages of the Sitapur District were revised, and the revised settlement of the entire district was afterwards formally sanctioned. Formal sanction was also accorded to the revised settlements concluded in previous years of the Rae Bareilly, Sultanpur and Bahraich Districts; these settlements, having effect for 30 years from the dates on which they were introduced, were after the close of the year confirmed. In the Kheri and Fyzabad Districts alone were regular settlement operations in progress. The current demand on account of land revenue in the North-Western Provinces during 1877-8 was 4,255,328 l., of which 4,222,085 l. was realised. According to the Finance and Revenue Accounts, the land revenue collections in the North-Western Provinces amounted in 1876-7 to 4,298,908 l., and in 1877-8 to 4,063,647 l.; while in Oudh the respective amounts were 1,403,843 l., and 1,283,112 l.

Settlements of land revenue in the Punjab were approaching completion during 1877-8. The assessments have been accepted by the people in most cases willingly, while full advantage has been taken of the peculiar circumstances of border villages exposed to attack from independent tribes to insist in the settlement papers, and in the rates of assessment upon those obligations of service in border defence which the Government desires to maintain on the frontier. Under the head of land revenue there is but little to notice; the demand increased by about 10,000 l. on account of the revision of assessments in the Bannu District; while the collections fell below those of previous years from the necessary suspension of the demand in Gurgaon and Karnal, owing to the extreme drought, which not only injured the crops, but caused great mortality among the cattle, for which no pasturage was available. The collections in 1876-7 amounted to 2,005,814 l., and in 1877-8 to 1,993,174 l. At the close of 1877-8, the total area of land in the Punjab and its dependencies, of which the revenue was assigned to individuals and institutions, was 5,204,919 acres, on which the assessment was 293,954 l.

Some fourteen villages in the Chanda District of the Central Provinces were settled on a ryotwari tenure during 1877-8. As the land revenue of these Provinces is practically fixed for a term of years, variations in it are very slight. During 1876-7 the collections were 604,419 l.; during 1877-8 they were 601,955 l. Everywhere the Government demand was realised without difficulty.

In British Burma the area of land under settlement leases for fixed periods amounted in 1877-8 to only 465,868 acres, or 23,200 acres less than in the previous year. The greater portion of the land under settlement leases in Arakan reverted to Government in 1878-9, when the period of settlement expired. In Pegu renewals of expired leases will only be granted after the professional survey work has been completed in the districts concerned. Land under settlement leases in Amherst and Toungoo reverted to Government at the end of 1878-9, and that in Tavoy will revert in 1884-5. Realisations from land revenue, capitation tax, land assessments in lieu of capitation tax, fisheries, and miscellaneous items, aggregated 785,648 l. in 1877-8, against 835,376 l. in 1876-7; this decrease of 49,728 l. was due to a large portion of the demands of the current year not having been realised at its close, and to heavier remissions in 1877-8. Extensive remissions of land revenue were rendered necessary by the damage to crops from inundations in the deltaic districts.

Realisations of land revenue in the Ajmere and Mhairwarra Districts during 1877-8 amounted to 31,931 l., leaving a balance of 1,189 l. uncollected. Almost all

LAND REVENUE
AND SETTLEMENTS.

Berar.

Mysore.

Coorg.

Madras.

Bombay.

WASTE LANDS.

Assam.

all the suspensions were granted in Ajmere, where the scarcity and want of rain was more severely felt than in Mhairwarra. Notwithstanding these drawbacks, the revenue was collected without difficulty, and no severe coercive measures were anywhere required.

In Berar the assessment of integral waste villages was completed during 1877-8, and the labours of the survey and settlement department were concluded. Land revenue receipts advanced from 613,387 *l.* in 1876-7 to 616,348 *l.* in 1877-8.

The revenue settlement was introduced during 1877 into four *taluks* of Mysore, bringing the number under settlement up to 26½. Settlement of *inams*, though seriously impeded by the transference of officers to famine duty, made appreciable progress. Realisations of land revenue rose from 643,569 *l.* in 1876-7 to 727,065 *l.* in 1877-8. Arrears of land revenue amounted at the close of the year to no less than 573,553 *l.*, the cause being the impoverishment of the people during a long period of scarcity.

The demand on account of land revenue in Coorg rose from 39,149 *l.* in 1876-7 to 39,489 *l.* in 1877-8, the increase being principally under the heads of wet and dry land assessment and coffee assessment. Under the former the increase was chiefly owing to the reduction in the number of remissions, but some waste lands were also brought under cultivation by the ryots, who were stimulated to do so by the prevailing high price of food grains. The increase in coffee assessments was principally due to a difference found upon survey between actual and recorded area of estates.

For the official year ending 31 March 1878 the collections on account of land revenue in the Madras Presidency amounted to 3,494,884 *l.*, against 3,296,575 *l.* in 1876-7, 4,545,013 *l.* in 1875-6, and 4,693,469 *l.* in 1872-3. The decrease, as compared with 1872-3, is therefore 1,198,585 *l.* Not one bad season, but a succession of bad seasons, had grievously affected the circumstances of the ryots. Owing to the suspension of coercive measures in consequence of the famine, the outstanding arrears at the close of the year were very heavy, but much of the amount has since been collected. The settlement of the Tinnevely and Nellore Districts was finished during 1877-8 by the Revenue Settlement Department. Some of the settlement officers were lent to famine relief.

Land revenue collections in the Bombay Presidency rose from 3,344,664 *l.* in 1876-7 to 3,662,346 *l.* in 1877-8. The increase was due partly to fewer remissions, especially in Sind, partly to larger receipts under miscellaneous headings, and still more to the large arrears left outstanding on account of the famine at the end of the previous year. Alienated land revenue (that is the assessed value of land, the proprietary right in which has been parted with by Government) was 661,859 *l.*, as compared with 665,086 *l.* Great caution was exercised in realising the assessments of the year, as well as the previous year's arrears, the collection of which had been temporarily suspended. Distraints were more numerous; but the increase was chiefly due to operations in a single collectorate, where the landholders resolutely withheld payment of the usual instalments. Over 400,000 *l.* was left outstanding at the close of the year; but a great part of this was likely to be ultimately recovered. Settlement operations were carried on during the year in several districts.

By waste land is implied land which the Survey Department have assessed as arable, but which is not for the present taken up by anyone for cultivation.

As regards waste lands in Assam, 161 leases, covering an area of 71,646 acres, were sold during 1877-8, against 63 leases comprising 24,414 acres in the preceding year. It is plain that the new lease rules have allowed full scope for the extension of the tea industry of the province. In Cachar the planters still seemed to prefer taking up the land they required for extending their operations under the ordinary settlement rules in vogue in the district, an area of over 20,000 acres having been thus taken up during 1877-8. The desire to avoid competition at auction, which may necessitate a large initial expenditure in purchasing the land, appears to be the principal cause of this preference for the ordinary ryotwari title. In two cases only, one in Nowgong and the other in Lakhimpur, was there any competition at the auction sale, and the result of this competition was that the two leases sold for 70 *l.* more than what they would have fetched at the usual fixed upset price of one rupee per acre.

In

In Saharanpur, the only district in the North-Western Provinces in which waste lands were disposed of during 1877-8, two pieces of land, with an aggregate area of 689 acres, were sold for 200 *l.* No waste lands were sold in Oudh during the year. A balance of 1,160 *l.* remained due to the Government on account of lands sold in previous years in the Kheri district.

Orders permitting the breaking-up of waste lands in the Central Provinces, and suspending the rules regarding the alienation of the proprietary right in Government lands, continued in force during 1877-8. It is stated that the scheme for colonising the Charwa waste lands, so far as it contemplated the establishment of villages of cultivators under their own leaders, failed. Most of the persons who were located on the tract were driven from their native villages by poverty, and were not really cultivators. Even those of the settlers who were cultivators were not of the substantial class of ryots whom it was desired to attract to the lands; they were settled there in opposition to the principles laid down in the rules for the guidance of officers in carrying out the scheme; there were, however, grounds for anticipating that the other part of the scheme, namely, the settlement of blocks of land by single colonists of capital and energy, might eventually prove successful. Two blocks had already been allotted, and other applications had been received.

In British Burma during 1877-8 there were 45,816 acres of waste land granted by district officers for paddy and other cultivation under the local revenue rules. Of the 20 waste land grants in the Rangoon District remaining to be re-surveyed, 17 were being dealt with during the year by an officer of the local survey department.

Lands have been granted in Berar under the waste land sale rules only in Wun, Basim, and the Melghat tract in the Ellichpur district. Owing to the liberality of rules framed some years ago, a large number of villages in the Wun district were leased out on terms not favorable to the interests of Government, and further prejudiced by a concession that admits of the lessees obtaining an undeserved proprietary status. The question of a remedy for the evil has since been under consideration.

At the end of 1876-7 the available extent of culturable waste land in Mysore was 2,710,376 acres; 150,815 other acres were resigned during the year, while 86,036 acres were taken up for cultivation and building sites, the balance at the close of 1877-8 being 2,775,155 acres.

Waste lands to the extent of 491 acres were taken up in Coorg during 1877-8 for cultivation in food grains, only 67 acres being resigned during the year. About 1,000 acres of coffee land were planted.

With regard to waste lands in the Bombay Presidency, it may be stated in a general way that, except in the districts of Khandesh and the Panch Mahals, land not already in occupation, is of inferior quality, or inconveniently situated with reference to water supply or communications. In Sind the available area is not clearly ascertained, and in almost every part of the province depends entirely upon artificial irrigation or the inundation of the Indus. In the surveyed districts of the rest of the Presidency the arable area returned as still available in 1877-8 for cultivation was 2,238,272 acres, or less than in the previous year by 72,733 acres.

With regard to the properties under the management of the Court of Wards in Bengal, the number of estates administered by Government officers was 440 at the close of the year 1877-8. These properties included wards' estates managed under Bengal Act IV of 1870, estates of lunatics placed under the charge of the collector by order of a civil court, estates of minors similarly made over to the collector, and a large number of attached estates.

Estates under the management of the Court of Wards in Assam were three in number during 1877-8, as in the previous year. None of these properties were of much value.

On 30 September 1877 there were 97 estates, as against 90 on 30 September 1876, under the superintendence of the Court of Wards in the North-Western Provinces. These estates were scattered over all the districts of the Provinces except Garhwal, and comprised the entirety of or shares in 3,224 villages, yielding a rental of 240,000 *l.* and paying 122,500 *l.* to Government on account of land revenue cesses and *patwari* rate. The general question of making loans from the surplus funds of one estate to another estate under the

366.

E

Court

WASTE LANDS.
N. W. Provinces
and Oudh.

Central Provinces.

British Burma.

Berar.

Mysore.

Coorg.

Bombay.

WARDS' ESTATES.
Bengal.

Assam.

N. W. Provinces
and Oudh.

WARDS' ESTATES. Court engaged the attention of Government. It was decided that in ordinary cases the terms on which such loans might be made should be those of the open market. In Oudh 76 estates with an annual gross rental of 356,117 *l.*, and assessed to a land revenue demand for 195,418 *l.*, were under management, either on behalf of the Court of Wards, or with reference to the special provisions of the Oudh Talukdars Relief Act (XXIV of 1870). Up to the close of the year State loans aggregating 244,646 *l.* had been sanctioned for estates of the last-named class. The progress made in disencumbering the estates in charge was generally satisfactory.

Punjab. In the Punjab during 1877-8, as in the previous year, forty estates were under the management of the Court of Wards, and their total income was 45,377 *l.*, chiefly derived from landed property; while the total expenditure amounted to 35,581 *l.*, of which 1,908 *l.* was expended in the education of the wards.

Central Provinces. Thirty-two estates were under the Court of Wards in the Central Provinces at the end of 1876-7, and three were brought under the Court during the year 1877-8, while two were made over to wards on their attaining their majority. At the close of 1877-8, therefore, there were under the Court 33 estates, comprising 631 villages, with a total area of 646,120 acres. The annual revenue of the estates was 58,086 *l.*, and the expenditure 34,367 *l.*

British Burma, Berar, Mysore, Coorg. No estates in either of the provinces of British Burma, Berar, Mysore, or Coorg, were under the superintendence of the Court of Wards during the year 1877-8.

Ajmere. Management of estates under the Court of Wards in the Ajmere and Mhairwarra districts involves heavy work, which during 1877-8 was considerably increased. Of the various estates under management the income was 9,003 *l.*

Madras. According to the accounts of the Madras Court of Wards for the *fasli* year ending 30 June 1877, the most important of the estates under the Court's management was Ramnad, in the Madura district, with a gross annual revenue of nearly 80,000 *l.* Parla Kimedi, in Ganjam, stood next, with a revenue of 37,500 *l.* Ettiapuram, in Tinnevely, had 27,500 *l.*, and Salur, in Vizagapatam, 10,000 *l.* Three of the other estates had a revenue of between 5,000 *l.* and 10,000 *l.*, and 14 had over 1,000 *l.* and below 5,000 *l.* The estate that suffered the most in consequence of the recent famine was Ramnad. Its gross revenue in the year ending 30 June 1877 was only 45,000 *l.* The extent of actual cultivation in all the estates, so far as could be ascertained, was 599,577 acres against 670,642 acres in the previous year. The total debts due to the estates at end of the year were only 20,190 *l.*, while those due by them amounted to 163,258 *l.*, and of the latter, 136,780 *l.* belonged to Ramnad. The outlay on agricultural and other works was 24,039 *l.* against 21,730 *l.* in the previous year. A great portion of the former sum was spent on irrigation works undertaken in Ramnad as famine relief works. The demarcation of the boundaries of villages in Ramnad was sanctioned as a preliminary to field survey, which will be undertaken hereafter. An experimental farm was established in the Ettiapuram estate at the request of the minor *zemindar*, and the demarcation and survey operations in that estate were completed with satisfactory results, the increase in the area cultivated being 7,910 acres, and the increase of revenue 1,118 *l.* The educational progress of the wards, with two or three exceptions, was good, and their conduct throughout excellent.

Bombay. Collectors in the Bombay Presidency were during 1877-8 in charge of 121 estates during the minority of their occupants. Of these estates the receipts were 19,677 *l.*, and the balance at the end of the year was 33,676 *l.*, of which 18,170 *l.* was invested in Government of India securities. The financial position of the *talukdars* or landlords of Gujarat, and the *zemindars* of Sind, had been so deeply insolvent for many years that legislation was taken to provide for the administration of their property; but the Act relating to Sind was so recently brought into operation that its effects could scarcely yet be appreciated. In Ahmedabad and Broach the official administration of the estates of indebted landlords was successful in diminishing considerably the load of debt; but so little improvement took place in the character and habits of the indebted classes, that in several instances applications were made for the benefit of the Act by persons whose estates had already once been handed back to them free from debt.

V.

AGRICULTURE.

IN 1877-8 the mean rainfall of the whole province of Bengal was 58.87 inches, which may be regarded as a fair average. Harvests were on the whole good, but very high prices prevailed, owing to the large quantity of grain exported to the famine-stricken provinces of Madras and Bombay. The rise in prices was a source of gain to the cultivators and to those who shared in their profits, but caused some distress among people dependent on small fixed incomes or on charity, and also probably among day labourers in places where the unusual amount of export did not lead to an additional demand for labour. In consequence of the permanent settlement there is no official agency for the collection of statistical information regarding the actual areas under cultivation in the province with the different kinds of crops.

The year 1877-8 was on the whole a favorable one to the agricultural classes in Assam. In some districts, owing to an unseasonable rainfall, the early rice crop partially failed; but this partial failure was counterbalanced by the abundant yield of the later crop. In the aggregate both these crops gave a fair outturn, and the yield of the other crops, such as jute, mustard, sugarcane, pulse, &c., was not below the average. The rainfall during the year was somewhat unequally distributed. In the Brahmapootra Valley it was below, while in the Surma Valley and in the Hill districts it was above the usual amount. The general condition of the people throughout the year appears to have been prosperous. High prices of food grains were the result of extraneous circumstances. With regard to the area under cultivation, rainy-season crops occupied 2,895,749 acres, of which 2,096,389 were under rice, 186,908 under tea, 127,218 under fibres, and 35,580 under potatoes. Dry season crops occupied 1,261,179 acres, of which 871,584 were under rice.

A severe drought afflicted the North-Western Provinces and Oudh during 1877-8, accompanied by a serious failure of the crops over a great part of the country. This failure, following immediately on a period when exportation of grain to the famine districts in Southern India had been unusually brisk and had drained the hoarded stores of food, led, as was to be expected, to great scarcity, especially of the coarser grains, and produced considerable distress among all classes of the people. The rainfall of 1877 was peculiarly capricious and abnormal. From January to April, when but little is usually needed, there was an excessive downfall, which damaged very considerably the spring crop in the fields, and rendered useless a large amount of grain stored all over the country in the village threshing floors. From April to December, when every drop is precious, the heavens were almost as brass. The total year's fall averaged about 20.3 inches all over the North-Western Provinces and Oudh, and of this only one-half fell during the rainy season proper. Of crops cultivated by means of irrigation, the aggregate area was 1,461,428 acres, of which rice occupied 221,670, cotton 105,309, indigo and other dyes 210,349, wheat 415,659, other food-grains 262,867, sugar 139,374, opium 10,072, and other drugs 1,154.

The unseasonable weather during 1877-8 caused considerable injury to the crops in many districts of the Punjab. From the failure of the summer rains the autumn crop was in many districts destroyed, and prices rose to an exceptionally high rate, while general fears of famine prevailed. However, a very heavy fall of rain late in the year came in time to save the country from famine, and an unusually large breadth of land was sown for the winter crop, which in the Punjab comprises most of the more important food grains. Unseasonable weather again prevented the promise of a large crop being realised, and the spring harvest was probably not above the average. The total area of the spring crop was 12,393,917 acres, of which wheat occupied 6,983,904, barley 2,114,547, grain 1,898,421, poppy 12,424, tobacco 78,390, oilseeds 689,828, tea 10,046, and sugarcane 43,253. The autumn crop aggregated 6,627,572 acres, of which cotton occupied 656,609, indigo 106,956, sugarcane 340,161, tobacco 2,165, rice 403,387, while the remainder, about 5,000,000 acres, was cultivated almost entirely with other food-grains and pulses.

SEASONS AND CROPS.

Central Provinces.

In the Central Provinces the year 1877-8 was one of considerable anxiety and difficulty to the people, and towards its close there were apprehensions of scarcity in several parts of the country. Fortunately this was tided over, and the plentiful rainfall of 1878 brought with it relief from anxiety. The general character of the year may be said to be heavy falls of rain followed by long breaks, with further heavy falls in the usually rainless months. There were estimated to be 15,744,594 acres under cultivation during the year; rice occupied the largest area, namely, four and a-half millions of acres, wheat came next with three and a-half millions, and other food grains occupied over five millions. Oil-seeds, cotton, and sugarcane were the next in importance.

British Burma.

In British Burma the hot season of 1877 was unusually protracted, and towards its close inconvenience was caused by a drought of water. The rain set in about the end of May, and continued into November; the rainfall was exceptionally heavy, and the rise of the Irrawaddy was high. Extensive floods ensued in various parts of Pegu and Tenasserim, and the crops suffered somewhat in consequence. At Sandoway 242 inches of rain was registered. The lightest rainfall was only 49 inches at Prome. The average of all the stations where records are kept was 141 inches. During 1877-8 there were 2,951,265 acres of land under cultivation, an increase of four per cent. on the previous year. Of the whole area about 86 per cent. was under rice cultivation; the harvest was abundant, notwithstanding much damage done by floods; for late rain enabled a great part of the loss to be repaired by fresh planting. Only about 30 per cent. of the acreage yielded cotton, tobacco, sugarcane, and other produce, the *rabi* or cold weather crops of India being almost unknown in British Burma. Experiments were made with tea and coffee planting, but with little result; for although in some parts of the province the soil and climate are no doubt favorable, the difficulty of obtaining labour has hitherto proved insuperable.

Ajmere.

In the Ajmere and Mhairwarra districts the year 1877-8 was one of drought and high prices; the *rabi* or spring crop was probably above the average; but the *kharif* or autumn harvest failed entirely, except in lands irrigated from deep wells or along the banks of large nullahs. However, there was never any sign of stocks running short. The cotton crop was excellent in many parts, but the pods are said to have been small and the cotton short in grain. Only 8.73 inches of rainfall were recorded for the whole district, as against 25.9 in the previous year. No statistics have been given of the actual areas under cultivation with different crops.

Berar.

In Berar the chief feature of the year 1877-8 was not a deficient aggregate rainfall, but an insufficient fall in the months in which it was particularly needed. Crops were cultivated on 6,470,307 acres. Jowari (the greater millet) occupied 2,604,812 acres, or about 40 per cent. of the whole area under cultivation. Cotton came next with 32 per cent., namely, 2,078,273 acres. Of jowari, the staple produce of the province, the harvest was splendid in the Morsi and Northern Talukas; it failed in the Amraoti and Pusad Talukas, but elsewhere it was an average one. In respect to wheat, the outturn of the 524,456 acres planted with that cereal was little more than one-half the average. Gram totally failed, owing to the seed having been eaten in pods by insects. Oil-seeds gave only a moderate crop. The yield of cotton was much above the average. Tobacco was cultivated on 17,064 acres, opium on 1,858, and lac on 65,157.

Mysore.

In Mysore the average rainfall during 1877 was 35.92 inches against 16.74 inches in 1876. During the year the great famine which had been growing in intensity since the monsoon of 1875 reached its height. Early in the season good and almost general rain fell, but the prospect of a good monsoon and a plentiful harvest was not fulfilled. June, July, and August were rainless, but on 1 September the rain came copiously; and agricultural operations were at once begun. Extensive sowings were made for the late paddy harvest. The rain, however, which continued till the end of October, was too heavy for some crops, especially in the Nagar Division, where jowari is very extensively grown; the excessive moisture when the crops were coming into ear caused the grain to rot and sprout as it stood. In this way fields of the most promising and luxuriant corn were damaged beyond all hope of recovery. Vast flights of locusts during the last months of the year added to the calamities of the season. The total production of the year 1877-8 was nearly half an average crop. In the

SEASONS AND CROPS.

the previous year the production was rather more than one-third, and in 1875-6 it was nearly two-thirds of an average crop. According to the returns the aggregate areas of the various crops amounted to 4,384,766 acres, of which rice held 539,138, wheat 11,008, other food-grains 3,374,370, oil-seeds 129,895, cotton 14,410, tobacco 18,324, coffee 128,438, cocoanut and arecanut 120,658, pepper 7,000, and lac 171.

Coorg.

In Coorg the rainfall registered at Mercara during 1877 was 110.85 inches, or 3.90 inches more than in the previous year. The temperature was a little lower than in 1876, but the season was extremely feverish and unhealthy. Rice, which occupied 72,684 acres, is the staple crop of the province; the cultivation of other grains is insignificant. The rice crop of 1877-8 was exceptionally plentiful. Cardamoms also did well, and the crop, which engaged 273 acres, realised a high price. Owing to the long drought before the rains set in, the coffee berries did not form properly, and the crop, which occupied 45,150 acres, was poor and small. Many estates suffered from the ravages of the borer insect.

Madras.

The peculiarities of the year 1877 in the Madras Presidency as regards climate were: first, the intensity of the sun's heat during the early months of the year; secondly, a cyclonic storm on 20 May, giving in the south-eastern coast districts a plentiful, and in the neighbourhood of Madras a copious, downpour of rain; thirdly, a delayed south-west monsoon, with breaks so prolonged that in many of the districts depending on the early rains the early crops either failed or were greatly delayed on account of the deficient moisture; fourthly, a very copious and general rainfall in September and October, lasting till the arrival of the usual season of the north-east monsoon; and fifthly, violent storms and floods in the southern districts of Tanjore, Tinnevely, and Madura during the north-east monsoon, with partial or complete failure of the north-east rains in the coast districts north of Nellore. The rainfall of 1877 was remarkable more for the peculiarity of its distribution than for actual deficiency. Taking the official year 1877-8, the outturn of crops in all districts was about two-thirds of an average crop. Considerable damage was done by locusts in many districts. The locusts appeared in immense swarms, and made for the time a complete devastation of the fields. Collectors were authorised to incur any necessary expenditure for the destruction of the locusts, but the special measures adopted had little effect. In Tanjore, Trichinopoly, Madura and Tinnevely, the crops were much injured by excessive rains in the north-east monsoon. Coimbatore and Salem suffered to some extent from the same cause. The crops in the remaining districts failed from drought. South Canara was the only district in which the outturn was satisfactory, and even there the second rice crop was injured by insects. The aggregate area of the different crops cultivated in the Presidency was 19,592,617 acres, of which wheat held 15,916, rice 4,584,935, other food-grains 10,618,733, pulses 1,552,190, orchard and garden produce 526,624, tobacco 59,069, tea 3,160, coffee 58,988, cinchona 2,011, condiments and spices 144,938, potatoes 2,714, sugars (cane, palm, date, and others) 53,995, oilseeds 824,759, indigo 117,401, and cotton 967,665.

Bombay.

In the Bombay Presidency during 1877 the rainfall in Sind, Gujarat, the Konkan, and along the Ghats was deficient, particularly in July, which is usually the wettest month. In Gujarat and Sind there was practically no rain in August. In the Deccan excessive rain fell in June; but in July and August there was a considerable deficiency. In September and October the fall was excessive in the south, and average in the Northern Deccan. October was also unusually wet in Gujarat, the Konkan, and on the Ghat range. In addition to these fluctuations from the normal rainfall, the temperature was extraordinarily high, and the air drier than usual at the time immediately following the sowing of the early crops. The total area under food-grains during 1877-8 was 14,212,498 acres, or more than 81 per cent. of the whole area cultivated, namely, 18,160,095 acres; 68 per cent. of the grain grown consisted of the greater and lesser millet (jowari and bajri). Rice occupied the next largest acreage (1,414,394 acres), and then wheat (1,080,414 acres). Pulses were grown on 1,235,698 acres; and oilseeds, now becoming, like wheat and rice, an important article of export, covered 911,073 acres. Cotton was grown on 1,477,020 acres, indigo on 17,704, and tobacco on 40,702.

The following particulars are given of the scarcity in Southern India that began in 1876, and continued to affect the Province of Mysore and the Madras and Bombay Presidencies during the greater part of 1877-8.

The summer rains (south-west monsoon) of 1876 were extremely scanty over tracts belonging to the Presidencies of Madras and Bombay, to the State of Hyderabad, and to the Province of Mysore. Over these tracts, which contain a population of about 26 millions, the summer rains yield the main rainfall of the year; they fill the irrigation tanks, and on them depends the safety of the main food crops. In the above-mentioned districts, therefore, the chief food crops of 1876 failed by reason of the shortness of the summer rains. But in the rest of the Madras country the main rainfall comes with the October rains (north-east monsoon); these rains were also very deficient, and so the irrigation tanks of the Madras districts remained dry, and the chief food crops failed. The fate of the Madras crops was thus partially in doubt until the middle of November. Failure of the crops of a single year might not have caused a famine if it had been confined to only one province or to a few districts; for inter-communication, by railway and by road, is easy and cheap all over Southern India, and the surplus of one province would have supplied the deficiency of another. But in 1876 the area of failure was so vast that famine prices were inevitable; and by the month of December food-grains in the markets of Southern India were three times as dear as in ordinary years. The calamity pressed with special weight on some of the stricken districts (notably Bellary, Sholapore, parts of the Carnatic, and of Mysore), because the crops of one, or even two, preceding years, had been short. In such districts food stocks were lower than usual, and the people had less money to buy food brought from a distance. In Bengal, Burma, Central and Northern India, the crops were happily good; food stocks were large; and there was plenty of grain to supply the stricken districts, if it could be carried thither, and if the people could afford to pay for it. In the autumn of 1876, no general instructions were issued by the Government of India for the management of serious and widespread famine; nor until November was it certain, from the reports received by the Supreme Government, that positive famine was impending in the Madras districts. From the month of September 1876, a large importation of grain from Northern India and Bengal into the distressed tracts began; and this traffic rapidly increased till, in the month of December, grain was landed by sea at Madras, and was also consigned by railway, from the west, through Raichore (the westernmost limit of the Madras Railway), in much larger quantities than the railways could distribute, to the districts of the Madras Presidency and of the Mysore Province. From December private traders kept consigning, month by month, into the interior of the famine districts more grain than the railways from Madras, Beypore, Negapatam, and Raichore were able to carry. This grain came from Bengal, Burma, the Punjab, the North-Western Provinces, Central India, and Sind. Government did much to facilitate the traffic; and on one occasion only was there any interference with private trade, namely, when 30,000 tons of grain were bought by the Madras Government at the beginning of the famine, and were carried into the interior of the country. To this extent the railway and cart power of the country was temporarily occupied by Government to the exclusion of private trade. Prices continued dear; but it was not till nearly the end of July 1877, that the first reports were received that food could not be had in the bazaars by those who could afford to pay for it. In some of the worst districts the imported food sufficed for the needs of about one-third of the total population. The remaining two-thirds in such districts, and a much larger proportion in the less severely afflicted tracts, subsisted on old stocks and on the yield of the petty crops that had been harvested even during the year of famine. Imports of grain by railway averaged 2,200 tons a day into the interior of Madras and Mysore, and 1,000 tons a day into the interior of the Bombay Presidency. These figures do not include the large quantities of grain distributed into the interior by road, or canal, from the port of Madras, and from the lesser ports on the Coromandel, Malabar, and Southern Mahratta coasts. In August 1877 there were in Central and Northern India and in Bengal large stocks of food ready to go forward to the famine districts as soon as the railways could carry them.

During November and December 1876 hundreds of thousands of people sought and obtained relief wages on works which were not of the highest utility, and on which there was no adequate professional supervision. In the

the Government Despatch, conveying instructions for Sir Richard Temple's mission to the famine country, it was mentioned that small and well-supervised local relief works might properly be opened at the beginning of a period of distress, so long as there was doubt regarding the extent of scarcity; but that, when measures of relief on a large scale became clearly necessary, great public works of a permanently useful type should be opened for the employment of relief labourers. However, before the new orders reached the local officers, 1,050,000 persons in the Madras districts, and 266,000 in the Bombay districts, were, in the beginning of January, receiving relief wages for labour that was generally inadequate, on works that were often of little value. During January the manner of employing relief labourers changed greatly for the better in the Bombay districts, where the local government utilised to the full its staff of engineers, and possessed a number of excellent irrigation schemes and other projects. In the same month Sir Richard Temple was deputed by the Government of India to visit the famine districts, and to confer with the local governments and their officers as to the best means of enforcing economy and system in relief operations. It was found that vast numbers were in receipt of relief who, for a time at any rate, could support themselves. The relief wage-rate was lowered, the number of petty relief works was reduced, and the supervision of relief labour was increased. In consequence of these measures the numbers of people on the relief works were, at the end of April, 716,000 persons in the Madras districts, and 62,000 in Mysore. In Bombay, at the same time, the numbers had risen to 287,000. In Madras, 11 per cent. of these labourers were employed on useful works under professional supervision. In Bombay, 90 per cent. were so employed. In Mysore, 47 per cent. were on useful public works, but in Mysore the numbers on relief works were reduced as the pressure of the famine increased, and large sums were spent on infructuous alms, instead of being devoted to improving by relief labour the many irrigation works of the province. It is not intended to be implied that the relief works managed by revenue officers were absolutely useless or wholly unsupervised, but much of the roadwork was not of lasting value, while its cost was from twice to twenty times the ordinary rates; whereas, on the other hand, the irrigation and railway works executed under professional supervision, will be of permanent good in improving the country and averting future famines, and some of them were executed at only from 20 to 50 per cent. above ordinary rates.

Gratuitous relief on a large scale began early in the famine. By the end of December 1876 there were in the receipt of gratuitous relief, 110,000 persons in the Madras districts, 3,000 in Bombay, and 30,000 in Mysore. These numbers were somewhat reduced in January and February 1877; but from the end of February they increased enormously, and rose by the end of July to 839,000 in Madras, 160,000 in Bombay, and 151,000 in Mysore, in which province the number of persons in receipt of gratuitous relief was more than three times higher than the number of the relief labourers.

For convenience of reference, the principal events of the famine during 1877-8, the year under review, are recorded below separately for Mysore, Madras, and Bombay.

After a complete failure of the rains in June, July, and August 1877 the distress throughout Mysore increased rapidly, and in alarming proportions. The feeding places for the destitute were crowded with miserable wretches; prices rose to such a height that in some places during July only seven and eight pounds of grain were sold for a rupee; indeed, grave fears were entertained in Chitaldroog that it would soon be impossible to get grain at all to feed the paupers collected in the different kitchens, and considerable purchases were effected in Bangalore for the supply of that remote district. As prices reached their climax in July, so did the numbers charitably relieved in the end of August, when there were nearly 250,000 persons receiving food in the different kitchens. At that time the system of large relief works under the public works department had not been organised, and the labourers on civil relief works, who numbered 29,000, were dispersed over 1,746 works. The department of public works was employing 24,000 labourers. It was at this stage of the famine that the Viceroy visited Mysore, and the policy was introduced whereby all works under whatever agency carried on, were made subservient to the one pressing need of succouring the destitute. Under this system labour was concentrated, the 1,746 civil works were contracted to 293 in less than two months, and every

effort was made to confine gratuitous relief to those whose condition was too low to expect any work from them at all. Shortly preceding these extensions and improvements of relief operations, there happily occurred a most welcome change in the character of the season. Copious floods of rain enabled agricultural operations to be resumed, and sensibly diminished the numbers of those employed in famine labour and in receipt of gratuitous relief. During the severity of pressure, namely, from December 1876 to October 1877, the average number of persons relieved in each of the 11 months was about 150,000, at a cost of about 700,000 *l.* for the period. Nearly two-thirds of the entire number of persons were fed gratuitously. In October and November 1877, the numbers on relief works increased rapidly, through the relegation of paupers from kitchens and relief camps. In December and January the attraction of the harvest made itself felt, and the numbers rapidly fell from 65,000 to 45,000. After the occupation thus given was over, they rose again in February and March, partly influenced by the opening of some new relief works. In May the rice harvest came on and rain began to fall, the effect of which was that the people dispersed in order to plough their fields, and to sow. About 10,000 persons were still in the relief camps at the close of the official year.

In the afflicted districts of the Madras Presidency from the month of April 1877 onwards prices continued to rise, distress became more aggravated, and the numbers seeking State relief shewed a steady increase. In May the rates of wages on relief works introduced in January were enhanced, an extensive organised system of village inspection and relief was instituted, under which money-doles were issued to the destitute in their own villages, and it was arranged that children too young to work should be gratuitously relieved on works by a money payment, and that in extreme cases clothing should be supplied to the destitute. Advances were at the same time made under the Land Improvement Act to cultivators for sinking wells and making improvements to lands, and weavers who could not earn their livelihood owing to the depression of trade were relieved by advances of money and materials. Between May and July the prospects of the season did not improve. The monsoon set in about the middle of June, but the rains were partial and inadequate. By the middle of July the position of affairs had become so critical that Government were forced to contemplate the probability of a serious prolongation of the famine, and to adopt measures accordingly. These measures were briefly, that all who could perform 50 per cent. of an ordinary task should be relieved on works; that those who could not do this should be relieved in their own villages; that village relief should be such as to tempt residents to remain at home unless able to work profitably for Government; that wanderers should be sent to closed camps and kept there to such labour as they were fit for; that camps should be divided into two portions, one for sick paupers needing medical treatment and relief, and the other for relief of paupers too weak to work, with two different scales of rations; that village relief, camp relief, and the rate of wages should be maintained on similar scales throughout; that in relief-works the principle of family union and support should be kept up, and that the larger works should with this view be allowed to be performed by piece-work; that those in camp who had become fit to travel should be relegated to village relief; that no foreigners, as for instance, people from Mysore, Hyderabad, or Bombay, should receive relief further than being detained in camp until they could be relegated; and that a large scheme of important relief works, such as the Coast Canal completion and extension, the improvement of the Palar Anicut channels, the Kistna Delta works, &c., should be forthwith put in hand. The difficulty of procuring grain for relief purposes became at this period so great that Government authorised district officers to advertise for supplies in each taluk sufficient for a month's consumption. By August upwards of two millions of people were entirely dependent on State aid. At the close of August 1877 the Viceroy visited Madras for the purpose of conferring with the Government as to modifications of famine arrangements. It was determined after some discussion: that all famine questions should thenceforward be laid before the Governor and disposed of by him; that collectors should address Government direct, instead of through the Board of Revenue, on famine matters; that Government should abstain from importing grain on its own account, and from any measure which might interfere with the activity of private trade; that a large scheme of useful public works under departmental supervision should be regarded as the principal feature of the relief

relief system, all other forms of relief being subsidiary to the main scheme; that large works under professional agency should not be limited to remunerative works alone, or those that could be finished during the continuance of the famine; that gratuitous relief should be, as far as possible, temporary and subsidiary to the main object of sending distressed people to the works, or relegating them to their homes; and that village relief, other than casual relief to famine-stricken travellers, should be confined to resident villagers who were house-ridden or otherwise unfitted for labour. These principles were formulated into a set of general instructions for the guidance of district officers. The Government of India undertook at the same time to strengthen the engineering staff of the Presidency and to furnish an adequate number of European officers for the supervision of gratuitous relief. Favorable rains in September 1877 afforded agricultural employment to the poor, and in the same month there was a fall of prices. This, combined with the improvements in organisation and supervision, resulted in a rapid decline in the number of persons dependent on State relief. Measures were also taken by Government to encourage the return of the people to their homes, by authorising collectors to make advances to needy ryots for the purchase of seed-grain, by directing the closure of petty works for which it was difficult to provide professional supervision, by the concentration of labourers on larger works, and by enjoining a firm application of the tests and limitations already laid down. The north-east monsoon set in towards the third week of October, and heavy rain fell in all districts excepting Ganjam and Vizagapatam. The total reduction in the numbers on relief in September and October amounted to nearly a million, and might have been larger but for the continued high state of prices. In November and December the numbers steadily decreased, and considerable reduction was effected in the strength of extra officers and establishments. In January 1878 and the following months prices began again to rise, and checked the more rapid diminution of persons on relief. Towards the beginning of March fresh works had to be started in North Arcot and Bellary. The continued high tendency of prices was followed by a revival of distress in parts. Some of the camps which had been closed in the Bellary district had to be reopened and new works had to be started. The pressure began to be felt also by the people in parts of the North Arcot, Coimbatore, Salem, and Chingleput districts. The numbers benefiting by State relief from first to last in 1877-8 can be seen as follows, dividing the year into four quarters. On 1 April 1877, there were 662,671 on works, and 175,665 gratuitously fed; total, 838,336. On 30 June 1877, there were 813,030 on works, and 542,579 gratuitously fed; total, 1,555,609. At the end of September 1877 the corresponding numbers were 634,581; 1,617,319; and 2,251,900. At the end of December 1877 the corresponding numbers were 199,136; 271,300; and 470,436. At the end of the official year 1877-78, the numbers were 128,745; 103,096; and 231,841. Taking only cases where the numbers on relief exceeded 100,000, the districts stood at the beginning of the year in the following order: Bellary, Kurnool, Cuddapah; at the end of June 1877 in the following order: Bellary, Kurnool, Cuddapah, Salem; and at the end of September 1877 in the following order: Salem, Bellary, Cuddapah, Kurnool, Coimbatore, North Arcot, Madras, Chingleput. At the end of 1877 the highest figure touched was 80,000 in North Arcot; Nellore, Kurnool, Chingleput, South Arcot and Salem also continued to shew high figures. At the end of the official year the only districts with high numbers were North Arcot, Salem and Coimbatore. There was no Government relief throughout the year in either Ganjam, Vizagapatam, the Godavari, or South Canara. The numbers were very trifling in Malabar and the Nilgiris.

With regard to the famine in the Deccan and Western Carnatic, the period during which operations for the relief of distress were carried on by Government, began early in September 1876, and ended on 30 November 1877. The rainfall of 1876 up to the middle of August was scanty throughout the Deccan and Western Carnatic, and after this date there was none, except in Khandesh and three of the more southern districts, and nowhere in sufficient quantity to save any but a small portion of the harvest. Distress first manifested itself in Sholapur, and, in a minor degree, in Khandesh. Measures of relief were set on foot in the former district early in September, and similar steps were soon taken also in Satara and the Western Carnatic, as well as in the adjacent native states. Throughout the whole of the winter and spring the distress continued with

FAMINE IN
SOUTHERN INDIA.

unabated severity, but heavy showers towards the end of April 1877 in the southern parts of the tract affected gave promise of an early and favorable rainy season. The rain, however, after setting in without marked irregularity towards the middle of June failed almost entirely throughout the affected parts in July and August. This partial failure of rain, instead of being localised, as in 1876, in a certain portion of the Presidency, was universal, and for a short time it was feared that the usually fertile province of Gujarat would fall within the drought-stricken area. The prospect, however, changed in September, when plentiful rain fell over the districts regarding which these gloomy anticipations had been entertained. Ploughing began again where it had been stayed by the long spell of dry weather, and wherever the fields had been already sown, weeding and other employment was soon found for the numbers that had been compelled to have recourse to the State for subsistence. The relief works were rapidly deserted, and by the end of November 1877 the labourers employed on them were only $2\frac{1}{2}$ per cent. of the numbers mustered in the beginning of June. The famine affected 34,183 square miles of country, and a population estimated at 5,018,992, and distributed among nine districts, covering an area of 54,355 square miles, and containing a population of 7,963,927 souls. As regards the numbers of people supported by Government, it appears from the returns that 98,422 were mustered daily in November 1876. This number rose to 339,129 in January 1877, after which it suffered a slight fall till April, from which month it increased till June, when the culminating point was reached, there being 528,951 persons on the hands of Government. The decline was rapid till September, when a slight increase again took place, which, however, was temporary, and lasted only for the first few days of the month. As soon as the season declared itself the numbers fell off by one-half in October, and during November only 59,107 persons were on the daily rolls. As by this time field operations were in progress, the government considered it unnecessary to continue any longer measures of special relief for people who had the opportunity of maintaining themselves in their ordinary avocations. The works were therefore closed. As soon as it became certain in 1876 that the cold weather harvest would fail, the prices of food grains rose most suddenly. The holders of local stock declined to sell, either from anticipation of higher profits, or from a desire to retain a supply in hand in case of a still greater scarcity. In these circumstances, it became necessary for the Government to decide whether the importation of sufficient grain for the supply of those on the relief works should be undertaken by the State or left to private enterprise. It was finally determined to abstain from all interference with the ordinary trade, as it appeared that the latter might safely be trusted to do all that was needed. This policy, announced from the first to all local grain dealers, was adhered to consistently and successfully, except on the few occasions when a special strain was temporarily placed upon private resources with which they were unable to cope. Throughout the greater portion of the affected districts, the grain trade is in the hands of a professional class widely spread over India, whose business enables them to maintain a complete organisation for negotiating transactions in all parts of the country. Reassured by the declaration of Government that trade was to be left to its ordinary course, every dealer set his agency in motion from Bengal and the Punjab to the market of his own district, so that the railway stations were soon crowded with grain for delivery at the famine centres, and while the extraordinary demand lasted, the supply continued to be tendered as fast as the railway companies could furnish vehicles to convey it. During the period between October 1876 and November 1877 inclusive, 267,863 tons of food grain were conveyed by rail and 166,137 tons by sea along the coast into the famine districts. It may be said that the food supply was abundant, but owing to its having been imported from a distance, the price at which it was sold placed it beyond the reach of those to whom the unfavorable season had closed their ordinary means of livelihood. In dealing with the question of relief labour Government laid down the principles, first, that relief in the shape of wages should be granted in return for a fair amount of labour proportionate to the capabilities of the applicant; and secondly, that relief should be granted to none but those who were unable to support themselves in any other way. It was ensured that none who were willing to do a moderate task need remain without the means of subsistence; while the funds, administered by the State, were not squandered in the support of idlers or persons with resources of their own. There was, in addition,

FAMINE IN
SOUTHERN INDIA.

addition, the delicate, yet onerous task of relieving those unable to work. Gratuitous relief was administered to none in their own houses, except in the case of persons unable to move, owing to sickness or infirmity, who were provided for by the village headman. For others, there were two establishments organised. At relief centres food was distributed to those living in the neighbourhood. At relief camps lodging as well as board was provided. The latter institutions were for the worst cases. The proportion of persons on gratuitous relief to those on the works was at first small, and except at the very end of the famine, when the able-bodied had been discharged, the number of those labouring for their subsistence was always larger than that of those receiving aid gratuitously. The maximum number of the latter class was touched in September 1877, when it reached 95,674; the numbers on the works in that month being 222,894. In May, when there were 361,349 persons on the works, only 30,146 were in receipt of gratuitous relief. The children under seven years old of those on the works, were most numerous in May and June 1877, when they numbered 106,309 and 111,050 respectively. The Bombay Government have shewn the cost of the famine to be as follows: total expenditure on public works, exclusive of those executed out of local funds, 1,001,800 £.; gratuitous relief, 120,374 £.; measures for preserving agricultural stock, 13,824 £.; remissions of revenue, 25,581 £.; loss of ordinary traffic on guaranteed railways, 320,000 £.; additional cost of administration, 110,000 £.; total debits, 1,591,579 £. On the credit side appear the following: value of works of permanent utility, 390,000 £.; sale proceeds of Government hay and corn, 4,313 £.; extra profits on guaranteed railways, 670,000 £.; total credits, 1,064,313 £. The net cost, as above calculated, was therefore 527,266 £.

Considerable additions were made during 1877-8 to the herbarium of the Royal Botanical Garden at Calcutta. This building, as well as the library, was shortly to be enlarged so as to facilitate scientific work. The project for the formation of a branch botanical garden at Rungaroon was abandoned, and in its stead a branch botanical garden was to be established at Darjeeling. The soil and climate of Rungaroon are not suited for such a garden, but in Darjeeling a good site has been secured through the liberality of a private gentleman. Many useful experiments can be undertaken there, more especially in connexion with the proposal of the Home Government to grow in India as many as possible of the drugs used as medicine, and now imported from England at great expense. A series of experiments with vanilla and ipecacuanha has shewn that these plants cannot be grown successfully as a crop in any part of Bengal. Experimental cultivation of the carob of the Mediterranean and the baobab, and various species of eucalyptus, also proved unsuccessful. Specimens of several kinds of grasses were sent to England for the purpose of ascertaining whether they could be utilised in the manufacture of paper. A favorable opinion was given of some of these fibres, and it was proposed to try experiments with them in the jails where paper-making has been adopted as a regular industry. A scheme which had been put forward by an English paper manufacturer for growing bamboo stocks as material for paper was tested during the year.

Experimental sowings of wheat, barley and oats were made during 1877-8 at the Shillong model farm in Assam, and sowings were also made at a lower elevation. The agricultural experiments at the Shillong farm have mostly been unsuccessful, and, financially speaking, the institution was a failure.

Three botanical gardens in the North-Western Provinces were, during 1877-8, under Mr. Duthie's charge: one at Saharanpur, and two at Mussoorie. The object of the gardens is to collect North Indian products for examination and arrangement, and to ascertain what useful products from other parts of the world can be successfully grown. Vegetable gardening is carried on to a considerable extent; seeds are brought from England and multiplied in Saharanpur for distribution to British regiments and the public, gratis to the former and at a low price to the latter. Fruit trees are also raised for distribution. Rhea cultivation is a prominent feature in the work of the gardens. Mussoorie gardens provide a botanical collection and a distributing centre for hill productions, and are supplementary to those at Saharanpur for the collection of hill products which will not thrive in the plains. A system for training hill gardeners, who are much wanted, has been introduced. Cawnpore Farm was practically

HORTICULTURE,
EXPERIMENTAL
FARMS, &c.
Bengal.

Assam.

North-Western
Provinces and
Oudh.

HORTICULTURE,
EXPERIMENTAL
FARMS, &c.

the only State farm retained for experimental purposes. A few experiments were still conducted at Allahabad farm, which is kept chiefly for the purpose of proving the agricultural value of the sewage of an Indian city. It was found that land manured with latrine sweepings brings, without irrigation, about 2 $\frac{1}{2}$ L. and, with irrigation, about 4 $\frac{1}{2}$ L. an acre more than the ordinary rent on leases of not less than five years. At Cawnpore, where canal water and latrine manure are practically unlimited in supply, some land was let at more than 20 $\frac{1}{2}$ L. an acre. Lucknow Gardens are maintained chiefly for horticultural objects. Acclimatised flower seeds have been produced with success. Similar experiments were being made on vegetable seeds. Some attention was also paid to arboriculture; the greatest success in this line was obtained in the case of the eucalypti and carobs.

Punjab.

In regard to agricultural experiments in the Punjab during 1877-8, the cultivation of cuzco maize was carried on in the Hazara and Kangra districts on a small scale, but sufficient to demonstrate that this product could be successfully grown on the outer hills of the Punjab. Oat cultivation was extending with the demand; this cereal seems to do well in every part of the province where its growth is attempted. Sorgho was cultivated successfully in several localities.

Central Provinces.

During 1877-8 the Agri-Horticultural Society at Nagpore, in the Central Provinces, distributed comparatively few seedlings, cuttings, plants, and seeds, the public demand for such things being still very apathetic. Successful experiments were made in the case of the mahogany tree, edible date, and one kind of eucalyptus. Very successful experiments were also made in the cultivation of Carolina rice and cotton. Eleven native scholars were under training to become good practical gardeners.

British Burma.

Potato cultivation continued during 1877-8 to be actively carried on in the hilly portion of the Toungoo district of British Burma by a few missionaries and private persons. Fair crops were obtained, but the potatoes were of small size. They met with a ready sale both locally and in Rangoon. Phayre Museum, which is situated in the gardens of the Agri-Horticultural Society of British Burma, at Rangoon, was visited during 1877 by 211,351 persons, of whom 138,575 were Burmese and Chinese.

Mysore.

At the *Lal Bagh*, or horticultural gardens of Bangalore, the result of experiments in Liberian coffee shew that it will not thrive unshaded at the elevation of that city. Seven hundred plants of the carob tree had been raised from seed by the close of 1877-8, and a number of them were ready for distribution. At the Bangalore experimental farm the season was very unfavorable, but some useful experiments were conducted with various kinds of fodder, potatoes, and other crops.

Madras.

The school of agriculture at Sydapet, which was opened in October 1876, was in full work during 1877-8, but no second class was taken in. From this cause a break in the continuity of out-going students will occur in 1890. It is stated that the institution is likely to prove very successful. In the Sydapet Government experimental farm the nature of the season prevented much work of investigation. Experiments were conducted for the cultivation of cotton, sunn hemp, jute, rhea, Manilla hemp, indigo, and several other crops. At Ootacamund Botanical Garden a good crop was obtained from potatoes imported from Australia; Liberian coffee was tried with success, and many other useful experiments were conducted; a medicinal garden was formed during the year, and specimens of all the medicinal plants grown in the garden were supplied for transmission to the Paris Exhibition.

Bombay.

Experimental and model farms are established in two districts of the Bombay Presidency, one in Sind and the other in Khandesh. The former has to contend against climatic difficulties, but it appears from the report for 1877-8 to be doing good work, both indirectly, as an example to the neighbouring cultivators of the advantage of careful attention to the soil, and directly, in the way of arboriculture, since plantings and shoots from it are in much request among the neighbouring gardeners. In Khandesh the work is conducted more extensively, and in a more favorable climate. Horticulture is carried on in several places on a small scale, and with the most successful results at the botanical gardens of Ganesh Khind. The results of experiments with mahogany trees, the seed of which was sent from Kew Gardens and planted in 1874, shew that these trees can be acclimatised and established, if their watering be well attended to for the first two years after planting.

No

No information is given in the Administration Reports as to the amount of agricultural stock during 1877-8 in Bengal, the North-Western Provinces, and Oudh.

AGRICULTURAL
STOCK.
Bengal, N. W.
Provinces, and
Oudh.
Assam.

According to an estimate given for 1877-8, there were in Assam 1,531,870 cows, bullocks, and buffaloes, 235 horses, 6,006 ponies, 63 donkeys, 302,353 sheep and goats, and 105,651 pigs. These figures do not include the stock in four districts, for which no establishments had been ever sanctioned to collect the information.

Statistics are prepared only quinquennially regarding agricultural stock in the Punjab. The return for 1873-4 shewed that there were in the province 6,570,212 cows, bullocks, and buffaloes, 84,639 horses, 51,395 ponies, 288,118 donkeys, 3,849,842 sheep and goats, and 165,567 camels. Cattle disease appeared in several districts of the province during 1877-8, and was severely felt in some parts. There was, moreover, great loss of cattle, owing to the failure of the summer rains, and the consequent scarcity of fodder. In the Umballa district the deaths of cattle from starvation were estimated at two-thirds of the stock of the district, while in the Delhi and Hissar divisions, it was calculated that over 200,000 head died from the same cause. Efforts to improve the breed of sheep and horned cattle by means of rams and bulls obtained from the Hissar farm were still continued. Fairly good results were obtained in some districts. The usual cattle-fairs were held during the year, and the number of animals exhibited amounted to 186,899, against 183,027 in 1876-7. The steadily increasing attendance at these periodical assemblages proves their advantages to the community and their growing importance. At the horse-fair held in Rawalpindi in March 1878, there were exhibited 2,250 horses and 490 mules and donkeys. Some very fine fillies were shewn. Prizes were given for foreign horses from Kabul, Persia, &c., and 85 such horses were shewn, many of them fine animals. A special set of prizes was offered for mules over 13 $\frac{1}{2}$ hands in height, and many very handsome and powerful animals, ranging up to 15 hands in height, were exhibited. Sales effected at the fair realised 7,895 $\frac{1}{2}$ L. The average price for native cavalry remounts was 17 $\frac{1}{2}$ L., or 7 $\frac{1}{2}$ L. less than in 1877. Floods in the Indus somewhat interfered with the Dera Ismail Khan fair of 1877-8, at which upwards of 200 mares and fillies and 100 colts competed for the prizes. The stock of Government stallions shewed a marked superiority. At the close of the year there were 133 Government stallions and 49 donkey stallions in the Punjab.

Punjab.

According to the settlement records of the Central Provinces, the estimated agricultural stock during 1877-8 was as follows: 5,196,681 cows, bullocks, and buffaloes, 11,862 horses, 82,098 ponies, 21,779 donkeys, and 640,642 sheep and goats.

Central Provinces.

Cattle shows were held during 1877-8 at four places in British Burma, prizes being given for horses, buffaloes, bullocks, and other live stock. Not much interest in the shows is yet displayed by the people. Buffaloes in the province numbered 661,542, and cows and bullocks 713,715. Many cattle perished in the floods of August 1877, particularly in Pegu. There were 5,758 horses and ponies against 6,191 in 1876-7. It was thought that the importation of two stallions from Dharwar about three years before would have led to good results, by inducing the Burmese to improve their stock by cross breeding; but the anticipation has not been fulfilled. Elephants numbered 1,324. There were 19,690 sheep and goats, principally owned by natives of India; and there were 102,458 pigs, chiefly reared by Chinese settlers.

British Burma.

Among horned cattle in Ajmere, the severe drought during 1877-8 caused very great mortality. No return has been supplied regarding the numbers of agricultural stock in the province.

Ajmere

Estimates of the agricultural stock in Berar during 1877-8 give the following figures: 1,385,874 cows and bullocks, 6,522 horses, 26,048 ponies, 17,024 donkeys, 385,657 sheep and goats, and 2,726 pigs.

Berar.

In Mysore, the numbers of live stock were computed for 1877-8 to be as follows: 2,297,550 cows and bullocks, 4,917 horses, 13,632 ponies, 37,070 donkeys, 1,592,268 sheep and goats, and 32,329 pigs.

Mysore.

The number of live stock in Coorg during 1877-8 was estimated at 135,327; of which 118,163 were cows and bullocks, 266 horses, 534 ponies, 290 donkeys, 4,546 sheep and goats, and 11,528 pigs.

Mortality among cattle and sheep was very high in the Madras Presidency during 1877-8.

Madras.

AGRICULTURAL
STOCK.

during the whole of the famine period; 1,319,204 deaths were recorded in 1877-8, against 922,628 in 1876-7, and 514,390 in 1875-6. Cattle suffered from disease and from want of pasture and fodder down to the autumn of 1877, and even after that they were so much reduced in strength, that many died from general debility, though pasture was available. A very severe form of rinderpest was prevalent among the cattle in some of the coffee estates in Malabar. According to the returns of the numbers of agricultural live stock in the Presidency, there were 2,938,010 cows, 3,507,593 bullocks, 1,331,820 buffaloes, 21,497 horses, 17,896 ponies, 127,784 donkeys, 109 mules, 4,572,264 sheep, 2,724,175 goats, 246,468 pigs, 604 elephants, and 45 camels.

Bombay.

The production of horses of stronger make and higher breed than those of indigenous stock has been one of the objects of the Bombay Government. In the valleys near Poona, Ahmednagar, Kathiawar, and Khandesh, there were 59 stallions kept for the purpose, at a cost of 2,395 l. during 1877-8. The number of mares covered was 1,957. Four horse shows were held, at which 436 animals were exhibited. The operations of the year were somewhat interfered with by the famine, which also increased the expense of maintaining the stud. With regard to the stock possessed by the agricultural population, there was a large decrease during the year in almost every sort of cattle; but the loss of stock is said to have been not enough to seriously embarrass the landholders in their usual operations after the close of the year; the estimated numbers of live stock in the Presidency (with the exception of three districts in Sind for which there are no returns) were 2,810,293 bullocks, 1,844,918 cows, 387,010 male and 1,003,482 female buffaloes, 45,545 horses, 36,002 mares, 19,270 foals, 84,615 asses, 2,627,532 sheep and goats, and 18,607 camels.

Cotton.
Bengal.

There were 162,245 acres in Bengal under cotton cultivation during 1877-8, yielding 138,824 cwt. of cleaned cotton. The largest area (31,159 acres) under cotton was in the district of Sarun. Next in order of extent came the Chittagong Hill districts with 28,000 acres, but though Sarun had the largest area under cultivation, the outturn was not sufficient even for local requirements. The largest outturn was in the Chittagong Hill districts, where it amounted to 50,000 cwt. Cotton cultivation is not of much importance in Bengal, except in the Chittagong Hill districts, in Cuttack and parts of Julpigoree. There is said to be no attempt on the part of cultivators to extend or improve the industry, which is gradually languishing, owing to the introduction and increasing use of foreign twists and cloths.

Punjab.

Only 656,609 acres were under cotton cultivation in the Punjab during the season of 1877.

Central Provinces.

In the Central Provinces, 837,083 acres were cultivated with cotton in 1877-8. The average production per acre in Nagpur was 60 lbs., and in the Warda district, 57½ lbs. Two fields under cotton in the Commercial farm yielded 47 and 77 lbs. of cleaned cotton per acre respectively. One acre sown at the experimental farm with Hinganghat cotton yielded 204 lbs. of cleaned cotton, which result, though good as compared with ordinary results, did not approach those previously achieved.

Berar.

In Berar, there was an increase during 1877-8 of 39,155 acres under cotton cultivation as compared with the previous year. The yield was much about the average everywhere; but the quality was injured by the rain which fell in December. The total outturn of cotton was estimated at 1,244,976 cwt. Exports of cleaned cotton amounted to 1,296,693 cwt., and were despatched in 355,838 full pressed bales. The average yield per acre was 67 lbs.

Madras.

The area in the Madras Presidency cultivated with cotton in 1877-8 was 30 per cent. less than in 1875-6. The great rise in the price of food probably induced the ryots to devote their land rather to the production of grain than to that of special crops. In Kurnool, Bellary and Kuddapah, cotton cultivation fell off by nearly 30 per cent. Altogether 1,086,032 acres were under cotton in the various districts of the Presidency.

Bombay.

In the Bombay Presidency the most important crop, from a commercial point of view, is cotton, which covered in 1877-8 an area of 2,812,651 acres (including 988,973 acres in native states), as compared with 3,223,237 acres in 1876-7. There was an increase of nearly 550,000 acres in the southern division, but a serious falling off in the northern and in native states, particularly Kathiawar.

Kathiawar. The total contraction of this cultivation amounted to about 12 per cent. on that of the previous year, which in its turn was 28. per cent. worse than in 1875-6. Failure of rain in July 1877, and the stimulus given by high prices to the growth of cereals account for the results. The decrease was in the indigenous variety grown in Gujarat and the north, while the Dharwar-American, or exotic, staple, the cultivation of which is confined chiefly to Khandesh and the Western Carnatic, was sown more largely, owing to the failure of the crop in the previous year. Statistics as to outturn shew an increased yield of both staples, but more particularly of the exotic cotton; the gross outturn, however, was far below the average of the previous five years. At the average Bombay market rate the estimated value of the crop was over 3,500,000 l. It was suggested that by careful preparation the indigenous variety of cotton in the southern districts might, as in Broach, be improved, so as to excel in quality the exotic staple introduced from New Orleans. Experiments in Chinese and Bamieh cotton, that were carried on, did not have a fair chance of success, but were to be resumed in subsequent seasons.

Owing to a favorable season the indigo crop of 1877-8 was a very good one, amounting to 113,201 maunds, or 83,166 cwt. In the previous year the crop had been remarkably large, namely, 155,149 maunds, or 113,997 lbs. Prices obtained in 1877-8 for dye of the previous year's crop, were rather lower than the prices of 1876-7. Next to the United Kingdom, France is the largest consumer. Indigo is now sent direct to France by the Suez Canal instead of being obtained by French merchants from England. Altogether 99,402 cwt. (i.e., 135,297 maunds, of an average value of 225 rupees) was exported from Bengal during the year 1877-8, or nearly 25,000 cwt. above the average export of the last 30 years.

Indigo cultivation in the Punjab occupied only 106,956 acres during 1877, as compared with 129,409 acres in the previous year; but in the Dera Ghazi Khan district, where this crop is of considerable importance, there was an increase from 23,999 acres to 26,765 acres.

Very little indigo cultivation is carried on in the Central Provinces. During 1877-8 only 243 acres were under indigo.

In the Madras Presidency, indigo cultivation suffered terribly during 1877-8 owing to the falling off in the demand for the article, in addition to other causes which operated prejudicially. The decrease in the area was altogether 54 per cent. compared with the cultivation of 1875-6. The total area under indigo was 137,420 acres. Cultivation of the indigo plant is not restricted to any one district, but is most extensively carried on in Kuddapah, South Arcot, Kistna, Nellore and Kurnool.

No statistics for the whole of India have been received of the tea cultivation in 1877-8. It was estimated that the total area under tea in Assam, Bengal, the North-Western Provinces, Punjab, Madras, and British Burma, was 145,000 acres in 1876-7, and that the approximate yield was 29,500,000 lbs. During 1876-7 the quantity exported from British India was 27,784,124 lbs., valued at 2,607,425 l. In 1877-8 the quantity exported rose to 33,459,075 lbs., and the value to 3,044,571 l. As regards the quality of the tea produced, there was a decided falling-off, and the prices realised in London were less than they had ever been. The increase in quantity was mainly due to the circumstance that three years previously there was a great extension of cultivation, and the plants were coming in 1877-8 into full bearing, and greatly increasing the supply. Owing to high prices in former years, a tendency was developed in the manufacture to sacrifice quality for quantity. This, in the face of the large competing crop from China, depressed the value, and the general result was that, although the export of tea shewed an increase in quantity, the result was not so satisfactory as in previous years. Almost all the tea exported from Bengal goes to the United Kingdom, the exports elsewhere being trivial in comparison.

Tea in Bengal is cultivated to a greater or less extent in the Cooch Behar, Dacca, Chittagong, and Chota Nagpore divisions. In 1877-8 there were in the entire province of Bengal 2,211 tea gardens, situated in altitudes varying from 13,000 to 5,000 feet above the level of the sea, covering an area of about 63,000 acres, and producing about 6,000,000 pounds of tea.

Great difficulty continued to be felt in Assam in getting information from the planters as to the state of tea culture in the province. Altogether 1,718

TEA. estates with a total area of 736,082 acres were held for the purpose of tea cultivation under different kinds of tenures, but only about a seventh of the entire area was actually planted. The total outturn of tea during the year was returned at 23,352,298 lbs. Owing to the widest divergence of opinion in the matter among the planters, it was found impossible to give figures shewing the cost of cultivation and manufacture. Prices received for tea during the year were generally low, owing to the London market having been flooded with coarse tea during previous years. Machinery of all kinds was being introduced into all the large gardens in the province.

Punjab. Further extension of tea cultivation in the Punjab was made during 1877-8, the area planted increasing from 8,060 acres to 10,046 acres, while the yield of tea rose from 766,560 lbs. to 1,113,106 lbs. The average yield of all the land planted was calculated at 111 lbs. an acre.

British Burma. There is one small tea estate in the Akyab district of Arakan in British Burma, and, when the resources of that district are better known, tea planting will, doubtless, be extensively introduced. The area under cultivation during 1877-8 was 150 acres, on 120 acres of which there were mature plants. The yield for the year was 25,000 lbs. of tea, mature plants producing about 209 lbs. an acre. Wild tea plants are found in part of the Tenasserim division, where there is little doubt the cultivation of the plant would succeed well.

Coorg. A little tea is grown in some of the coffee estates in Coorg.

Madras. The extent of land under cultivation of tea in the Madras Presidency was 3,142 acres in 1876-7. In 1877-8 the season was favorable for the cultivation of the plant throughout the Neilgherry district, and the exports consequently increased by about 36,000 lbs. in quantity and 2,600% in value over those of the preceding year.

COFFEE. Complete returns for 1877-8 of the coffee cultivation in British India have not been received.

Bengal. It is understood that coffee of very good quality is produced in Chittagong, where the land and climate are said to be well suited to the cultivation of the plant; but no particulars have been supplied to the Bengal Government by the planters. There are no coffee plantations in any other part of the province of Bengal, though a few plants are sometimes seen in private gardens.

British Burma. In British Burma the Roman Catholic Missionaries at Toungoo have a successful coffee plantation, but no information has been given with regard to it.

Mysore. Beyond the fact that 128,438 acres were under coffee cultivation in Mysore during 1877-8, there is scarcely any other information available on the subject. The season was a bad one for the production of coffee, and the value of the quantity manufactured is estimated to have been only 158,952 l. in 1877-8, as compared with 317,143 l. in 1875-6.

Coorg. About 45,150 acres were under coffee cultivation in Coorg during 1877-8. In coffee lands there was an increase during the year of 2,658 acres of assessed land in occupation and 1,000 acres of planted land. The actual area of planted and unplanted land in occupation by European and Native planters respectively, was:—for Europeans, 26,469 acres, and 21,757 acres; for Natives, 18,681 acres, and 20,086 acres. Labour was plentiful, but owing to the reduced condition of many of the coolies, who were mostly emigrants from the neighbouring famine-stricken province of Mysore, there was a general complaint on the part of the employers that the work turned out was poor.

Madras. As regards the Madras Presidency, the year 1877-8 was very unfavorable to coffee, except in the Ouchterlony valley and the South-east Wynad; the crops there were singularly good. In the greater part of the coffee area the rainfall of March and April 1877 brought out heavy blossom, but this was destroyed by the succeeding drought. It is understood that coffee sold during 1877-8 at over 100 l. a ton, if of the best quality. Over 33,000,000 lbs. of coffee were exported from the Presidency in 1877-8.

TOBACCO. Ghazipur tobacco farm remained under the management of Messrs. Begg and Sutherland. The drought, which was extreme in Ghazipur in 1877, prevented the growth of good crops, only 50,000 lbs. of inferior quality being obtained from 60 acres. A second professional curer and manufacturer arrived from America in time to raise an excellent crop of more than 150,000 lbs. on 200 acres at the branch farm at Pusa in Bengal. Of this amount 15,000 lbs. were sent to England and valued at prices varying from 2½ d. to 5½ d. Experiments made

made in the hills of Ranikhet were not yet successful. Measures were taken for the constitution of a tobacco plantation in Kumaun from the surplus proceeds of the Ghazipur tobacco farm, and a mulatto curer was provided to supervise the work.

Tobacco of excellent quality grows freely all over British Burma, but little fit for the European market is produced, owing to the ignorance of the natives as to the proper mode of drying and curing the leaf. Not enough, however, is grown for home consumption, and enormous quantities have to be imported from India. It was expected that the experimental tobacco farm at Myouktoung on the Kolodan river would have been useful as a means of instructing the natives; but the season of 1877-8 was bad; the superintendent was in ill health, and died shortly after assuming charge; labour could not be procured to keep the farm in order; and when a successor was obtained the farm was found in a backward state. The operations of the year were therefore confined to the cultivation of a few acres only of tobacco.

There were 18,324 acres in Mysore devoted to the cultivation of tobacco during 1877-8.

In the Madras Presidency the tobacco plant is extensively cultivated in the Godavari district, and the port of Cocanada is the principal seat of trade. The leaf is also grown in all the other districts, especially South Kanara and Malabar. More than three-fourths of the raw produce goes to British Burma, where it is converted into cheroots. A portion is also taken by Mauritius and Bourbon for the consumption of the Indian coolie immigrants there. Most of the remainder is manufactured into cigars, and sent partly to Bengal and Bombay, and partly to the United Kingdom. Exports from the Presidency increased from 5,792,808 lbs. valued at 101,730 l. in 1876-7 to 6,411,051 lbs. valued at 111,684 l. in 1877-8.

In the Bombay Presidency during 1877-8 there were 40,702 acres planted with tobacco, which grows more or less in almost every district.

Although the progress of the cinchona plantations in the Darjeeling district of Bengal has for some years been considerable, the results of 1877-8 were better than any which had previously been attained. These plantations consist of two parts, an older portion lying in the valley of the Rungjo, and a newer portion, begun in 1875, on the Sitong Spur and the adjacent valley of the Ryang. Both are, however, under one management. With the view of practically testing the cost at which, with the experience already accumulated by the officers in charge, this valuable medicinal tree can be grown, the accounts of the younger plantation have from its beginning been kept distinct. Sitong plantation was during 1877-8 extended by 152 acres at a cost of 1,021 l. Its area has thus been brought up to 242 acres. It was as yet too young to yield a crop. On the older plantation 97 acres of new ground were planted out, bringing up the area to nearly 2,000 acres. The total working expenses for the year were 5,774 l., against which has to be set the value of a crop of bark amounting to 344,225 lbs., the whole of which was made over to the quinologist. The bark yielded in former years amounted to 529,017 lbs., so that up to the end of 1877-8 there had been taken from these plantations since their beginning no less than 873,242 lbs. of dry bark, and a future annual yield of from 300,000 lbs. to 400,000 lbs. was to be expected. The species under cultivation being chiefly *Cinchona succirubra*, produce has hitherto consisted, and for some time must consist mainly, of red bark, a sort which, though rich in its total yield of alkaloids, is, by comparison with yellow bark, poor in quinine. Efforts, however, have steadily been made to increase the cultivation of the yellow bark tree (*C. Calisaya*), but owing to the difficulty of propagating the best varieties of this species, progress has been, and apparently must continue to be, slow. The manufacture of "cinchona febrifuge" from the red bark yielded by these plantations has become one of some practical importance. During 1877-8 this preparation was largely employed in substitution for quinine in all the Government hospitals and dispensaries throughout the Presidency, and a saving of from 20,000 l. to 30,000 l. has thereby resulted. About 2,000 lbs. was in addition sold to the public, realising 3,500 l. *Cinchona febrifuge*, as issued by the Government Quinologist, is in the form of a white, or nearly white, powder, and contains the alkaloids naturally present in the bark of *C. succirubra*, namely, quinine, cinchonidine, cichonine, quinamine, and the substance or

CINCHONA.

substances known as amorphous alkaloid. Although quinine is the best known of these, it has been fully proved that the others possess in a greater or less degree the same febrifugal properties. Early trials of the preparation by Drs. Chevers, Ewart, Bird, and French gave results that were entirely favorable to it; but experiments which followed by other officers led to some variety of opinion, and while many pronounced it as useful as quinine, it was considered by others to produce an undue amount of nausea and sickness. Further experience, however, tended to confirm the favorable view of its efficacy, and at the beginning of 1877-8 Dr. Beatson, the Surgeon General, in a circular memorandum, stated that the extensive experiments carried out during the previous autumn in every circle of the Presidency had left no shadow of doubt of its being a perfectly safe and efficient substitute for quinine in all cases of ordinary intermittent fever. He accordingly ordered that in all indents made by officers attached to native military charges three-fourths of the sanctioned amount of quinine should be replaced by cinchona febrifuge. On his recommendation the Bengal Government adopted the same course for all civil hospitals and dispensaries under its control. The result was perfectly satisfactory, and by thus reducing the expenditure of quinine to one-fourth, the large saving already mentioned was effected.

At the same time, in consequence of the objection which some officers had at first made to this preparation, namely, that it occasionally produced disagreeable nausea, a committee was appointed to ascertain whether the febrifuge would be improved by eliminating any of its constituents.

At the end of 1876 sanction was given for the sale of febrifuge to the general public, and Dr. King undertook to issue it from his office at the Botanical Gardens. The medicine was advertised in several newspapers, and also in some local Government gazettes. Repeated demands were received, not from Bengal only, but from all parts of the three Presidencies, and from native States. A good deal was disposed of to Government officials in the Punjab, the Central and North-Western Provinces, to planters and other employers of labour in Bengal, Assam, and Travancore, and to medical missionaries all over the country. Druggists in Calcutta and Bombay, both native and European, and private medical practitioners, also made purchases in some quantity. It is believed that progress has thus been made in putting this remedy within the reach of the poor, who are the chief sufferers from the commonest of tropical diseases.

Manufacture of the febrifuge was still conducted in the temporary factory at Mongpoo; the quantity made during 1877-8 was 5,162 lbs., the total amount issued since the factory was started being 10,901 lbs. Exclusive of the price of the bark, the cost of production was Rs. 4. 1. 1½. per lb., but this includes the cost of erecting a brick drying house and the selling charges. If these be deducted, the actual manufacturing expenses were only Rs. 3. 3. 2½. per lb.

Expenditure on the plantations, excluding the Sitong section, was 5,790 £., and the quinologist's expenditure was 2,764 £., making a total of 8,554 £. The revenue derived from the sale of febrifuge to the public was 3,519 £., and the amount debited against the Medical Departments of Bengal and Bombay for febrifuge and bark supplied was 6,188 £., making a total revenue of 9,707 £. Receipts, therefore, exceeded expenditure by 1,153 £. As 1876-7 was the first year in which the febrifuge entered into general use by the Government or the public, the financial result was satisfactory. Doubtless the consumption of the febrifuge will rapidly increase, and when it reaches about 8,000 lb. a year, the quinologist calculates that the annual profit (which represents interest on capital) will amount to 4,000 £.

British Burma.

In the cinchona plantation at Thandoungyee, in British Burma, during the rainy season of 1877, 20,300 seedlings and cuttings of *Cinchona succirubra* and a few *C. Calisaya* were put out where the yellow bark variety had died. All the trees of the *condaminea* species were expected to die in a few years. A good number, which were found in a perishing state in October, were cut down and barked. The bark thus obtained, 320 lbs., was made over to the principal medical officer in Rangoon for use in hospitals; but it is doubtful if the bark obtained from diseased, dying, or dead trees can be of much or any medicinal value. The diseased trees were, in the autumn, attacked by a beetle, which accelerated their death. So unsatisfactory were the results obtained from the plantation, that it was decided to reduce the future expenditure.

No

No successor having been appointed to Mr. McIvor, who died in June 1876, the cinchona plantations belonging to the Madras Government on the Nilgiris, were during 1877-8 without a special superintendent, and continued under the control of the Commissioner. The season during 1877-8 was, on the whole, unfavorable, but better than that of the previous year. The fall of rain at Neddivattum was 116.89 inches against 96.64 in 1876-7; at Dodabetta the fall was 61.33 compared with 27.70 in the previous year. During the months of June and August the rains were very heavy at Neddivattum, the fall being 41.80 and 31.02 inches respectively. The appearance of the plantations at the end of the year was not very satisfactory owing to the high winds that prevailed during the months of December and February, which stripped the trees of a great portion of their foliage. The year was very favorable for the collection of crop, and a larger quantity of bark than usual was taken, amounting in all to 138,808½ lbs., of which 132,951½ lbs. was shipped to England, 5,330 lbs. was supplied to the Madras and Bombay Medical Departments, and 527 lbs. was detained in store. The plantations were as usual thoroughly weeded, and the weeds buried at the roots of the trees; 14,876 cuttings of the *Lanceolata* and *Pitayensis* varieties were propagated at the propagating houses above the Government Botanical Gardens. A small number of plants of these varieties were planted out at Dodabetta in place of failures, and 400 were sent to a gentleman in Ceylon for experimental planting. The propagating-house at Neddivattum was completed in April 1878, and stocked with cuttings of *C. Calisaya*, *pubescens*, &c. Altogether 142,000 plants were distributed to the public in 1876-7, and 187,350 in 1877-8, the price charged being two pies (about a farthing) each. Much more seed was distributed than in 1876-7, the quantity rising from 143 oz. to 326 lb. The supply of moss was becoming yearly a greater source of anxiety. Several extensive private cinchona plantations have been opened out adjacent to the Government plantations, and when these estates begin to yield crop, the supply of moss will certainly fail unless a substitute is found or coppicing is resorted to more than hitherto. The difficulty in procuring labour is also stated to be yearly increasing. During the year sickness broke out among the coolies at the Neddivattum plantations. Several of the men died, and others absconded from fright. Receipts during the year amounted to 35,875 £. and expenditure to 6,977 £., the net profit being, therefore, 28,898 £. A special officer was employed during the year in making an enumeration of the trees and in reporting on various detailed points. Only 569,031 plants were found in permanent plantation. Of these there were 226,936 at Dodabetta, 208,780 at Neddivattum, and 133,315 at Pykara. There were 305,432 crown barks, 260,837 red barks, 1,874 grey barks, 552 yellow barks, and 336 of other species. Arrangements were being made at the close of the official year for appointing a committee to investigate the questions of the management of the plantations, the reemployment of a quinologist, and the resumption of the local manufacture of the febrifuge.

Forty square miles of forest were added to the Government reserves in Bengal during 1877-8, and the total area was thus raised to 3,430 square miles. Further extensions were in contemplation. It was expected that at the end of 1878-9 there would be 4,406 square miles of State forests in Bengal. Of this area 823 square miles are situated in the lower Himalayas and the adjoining *terai* and *duars*, and the rest in Chittagong, the Sunderbuns, Chota Nagpur, and Shahabad. During the year good progress was made in the demarcation of boundaries, the opening out of roads, and the extension of plantations. The financial working of the forest department was thoroughly successful, and the cash surplus rose from 1,071 £. to 17,125 £. According to the Finance and Revenue Accounts the collections rose from 22,240 £. in 1876-7 to 42,623 £. in 1877-8.

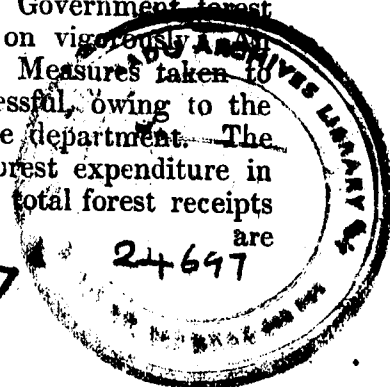
Much activity was displayed by the forest department in Assam during 1877-8. An area of 72 square miles was added to the Government forest reserves. Demarcation of forest boundaries was pushed on vigorously. An area of 690 square miles was gazetted as "open forests." Measures taken to protect the forests from jungle fires were specially successful, owing to the cooperation of the country people with the officers of the department. The experimental plantations made much real progress. Forest expenditure in Assam must continue to be heavy for some time, but the total forest receipts are 366.

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FORESTS.

N. W. Provinces
and Oudh.

are increasing every year. The collections rose from 8,157 l. in 1876-7 to 13,433 l. in 1877-8.

The forest branch of the North-Western Provinces and Oudh hitherto under the Public Works Department, was transferred to the Revenue Department as being intimately connected with the important question of revenue and settlement. During 1877-8 about 84,170 sleepers were supplied to State railways. On 31 March 1878 there were 2,360 square miles of reserved and nine square miles of unreserved forests in the North-Western Provinces, and 1,113 square miles of reserved forests in Oudh. Extensive conservancy operations were carried on during the year, and progress was made in the construction of roads, bridges, and buildings. Good work was continued to be performed by the nursery at Ranikhet. Eight cases occurred in the North-Western Provinces, and three in Oudh, of wilful injury being done to the forests by fire. There has been a steady falling-off some years in the forest revenue collections of the North-Western Provinces. In 1872-3 they amounted to 164,286 l., and in 1877-8 they were only 80,015 l. The revenue from the Oudh forests improved during 1877-8, the collections being 40,295 l. as compared with 33,545 l. in the previous year.

Punjab.

Tracts and woodlands under the control of the Punjab forest department at the end of 1877-8 comprised a total area of 6,858 square miles, of which 3,791 square miles were reserved and 3,067 unreserved, but in the reserved area are not included tracts in districts which are under settlement. Forest demarcation, settlement, and preservation work, was successfully carried on. Considerable delay, however, unavoidably occurred in the demarcation of many forest tracts which the Government desired in whole or in part to reserve. The causes of the delay were two-fold, the paucity of forest officers, and the desire of awaiting the passing of a measure which subsequently became law, namely, the Indian Forest Act (VII of 1878). Many useful experiments were carried out in the planting of various kinds of trees. The amount of forest revenue collected during the year 1877-8 was 68,371 l.

Central Provinces.

In July 1877 a rearrangement and distribution of forest charges in the Central Provinces was effected, having for its object the better management of forests in ten of the districts. The area of the reserved forests was during the year 1877-8 increased from 2,392 to 2,548 square miles, and that of the unreserved forests from 16,442 to 16,952 square miles; the latter addition was caused by the inclusion of Government waste lands in the Sambalpur district. The collections of forest revenue were 68,391 l. during 1877-8, as compared with 72,618 l. in 1875-6.

British Burma.

A greater amount of revenue is received from the forests in British Burma than from those in any other province in India. During the ten years ending with 1877-8 the total collections were 1,129,739 l., of which 160,308 l. belongs to the last year of the period. Payments in realisation of the revenue amounted in 1877-8 to 85,823 l. The girdling of teak trees in British Burma has been suspended since 1875, and the only teak brought to market from forests in British territory is either obtained from trees previously girdled or found otherwise dead in the forests, or is drift timber. Forest operations are at present chiefly confined to the formation of reserves and the conservation and improvement of the existing timber supplies of the country; large quantities of timber have nevertheless continued to be extracted from the forests of the province. In 1877-8 the outturn was 39,081 tons of teak and 3,138 tons of other timber, against 46,437 and 2,608 tons respectively in the previous year. Part of the outturn in 1877-8 was due to exceptionally high floods, which allowed 5,301 logs neaped in former years to be floated down. Teak timber does not, however, as a general rule, reach the market until two or three years after it has been girdled. Importation of teak from Upper Burma, Siam, and Karennee, did not slacken, and 211,813 logs were during 1877-8 brought down the rivers from beyond the frontier. In the formation of reserve forests not much progress was made. A total area of 68,198 acres was protected from fire in the Pegu and Tenasserim divisions. In Tenasserim the protection was very effective, and the cost trifling. In Pegu, notwithstanding a much larger expenditure, fires occurred both in the reserve tracts and in the plantations.

Ajmere.

In the Ajmere and Mhairwarra districts the year 1877-8 was a bad one for forest conservation, and the reboisement of the hills was at a standstill.

During

During the year 1877-8 two square miles were added to the area of the reserved forests in Berar, bringing up the total to 1,402 square miles. With one exception all the state reserves had been permanently demarcated. In the matter of conservancy and improvement steady progress is being yearly made. Up to 31 March 1877 there were 610,142 acres successfully protected from fire. During the dry season of 1877-8 attempt was made to protect 633,937 acres in all, and actual protection was given to 554,577 acres. The area under plantations increased from 2,528 to 2,993 acres, 1,449 of which were fully and the remainder partially stocked. Conservation of unreserved forests (the area of which remained as in the previous year, namely, 2,758 square miles), was receiving a fair amount of attention.

At the close of 1877-8 the area of the State forests in Mysore was 442 square miles. Boundary lines were in good order, and their total length was 212 miles. In consequence of the long-continued drought, the experiment of raising casuarina trees to form boundary lines was delayed. No extension of plantations was made during the year. Their area amounted to 3,504 acres, of which 2,420 were fuel plantations. Sales of sandal wood realised 38,934 l., or at the rate of over 38 l. a ton.

In Coorg the area of State forests at the end of 1877-8 was 295 square miles. The chief work done during the year was in clearing old demarcation lines and trying to keep out fires.

As in 1876-7, the distress prevailing in the country diminished the forest operations throughout the Madras Presidency, by checking the demand for timber. There was also much sickness among the officers of the department. Receipts were less even than in 1876-7, the collections declining from 41,476 l. to 40,434 l. No forest Act having been passed, the forests were not strictly conserved, excepting a few teak forests in Coimbatore, and the Nilgiris and Malabar, and some fuel reserves in the different districts. A commission was appointed during the year to consider what tracts should be reserved in the Nilgiris as Government forests for the supply of timber and firewood. Most of the remaining forests will probably be reserved, and the tracts available for planting tea and coffee, or other cultivation, will be limited then to land outside the forest. Preservation of land in the Nilgiris for communal grazing purposes also formed the subject of discussion.

The area reserved for forests in the Bombay Presidency was increased by nearly 700 square miles during 1877-8, bringing the total to 6,234 square miles. In Sind, however, almost 5,300 acres were lost by erosion. Demarcation made considerable progress in many districts, but several of the special demarcating officers had to be transferred to famine duty. Some progress was made in opening out the woods of Kanara and the Dangs by means of cart roads. The scarcity and general cost of living tended to restrict the demand for timber in all divisions. The departmental collection of gallnuts used in dyeing and tanning operations was successful in the Southern division, where this description of forest produce constitutes an important item in the revenue, and one which is expected annually to increase. Apart from its financial advantages this system of collection seems to have ensured the cooperation of forest tribes in suppressing fires and in procuring for the State the full amount of produce available. Roadside tree planting is undertaken both by the Forest and by the Public Works Department, under the general supervision of the district revenue officers, with good results in most collectorates. The preservation of wood and vegetation was attentively considered in connexion with the prominence given by the late famine to the need of ensuring regularity in the water supply. According to the Finance and Revenue Accounts, the collections rose from 122,666 l. in 1876-7 to 126,163 l. in 1877-8.

VI.

PUBLIC WORKS.

IRRIGATION AND
CANALS.
Bengal.

CAPITAL outlay on irrigation works in Bengal, which has been steadily diminishing for some years past, was again lower in 1877-8 than in the previous year, and amounted to about 240,000 L., of which nearly three-fourths was expended on the Soane Canals, and the remainder on those in Orissa and in Midnapore. The head works and main canals of all three schemes were for the most part finished, and only the distributaries remained to be completed. Two new irrigation schemes of a somewhat novel financial character were introduced during the year; one for the district of Sarun, on the basis of a local guarantee of the interest on the capital outlay; the other in Hooghly, on the basis of local contribution to the capital amount. An important project was submitted to the Government of India during the year for a navigable canal to connect the existing tidal canal in Hidgellee with the estuary of the Brahminee and the Cuttack system of canals. Its cost was estimated at 350,000 L., and it will form part of a larger scheme for connecting the whole of the tidal channels of Orissa, the Chilka Lake, and the Ganjam district of the Madras Presidency with Calcutta. The total length of navigation from the Hooghly to Ganjam will be 400 miles. The cost is roughly estimated at 750,000 L., of which 200,000 L. has already been spent on the Hidgellee Canal. Until such a canal is constructed, Orissa will never be safe from such calamities as that of 1866. No navigation scheme has yet been brought forward in Bengal of similar importance or calculated to yield such returns both direct and indirect.

N. W. Provinces.

Up to the end of 1877-8, the total capital invested on canals in operation in the North-Western Provinces amounted to 4,346,649 L., of which 145,367 L. was expended during the year. The total area irrigated was 1,461,429 acres, which was larger than that of any previous year. The increase was caused by an enormous extension of the kharif area, owing to the complete failure of the monsoon. Unusually heavy rains decreased the rabi area, which was slightly less than half the total area of the two seasons. Work on the Lower Ganges Canal was being pushed on vigorously throughout the year.

Punjab.

Work on the Sirhind Canal, in the Punjab, was energetically carried on during 1877-8, as also was the work on the new line of the Western Jumna Canal, the remodelling of which had been determined. The Ravi and Sobraon branches of the Bari Doab Canal were prepared to receive the supply of water which was to be given to them so soon as the distribution channels should have been completed. Political reasons prevented much progress being made with the Swat Canal.

British Burma.

The Rangoon and Sittang Canal, by which the water route to Toungoo is rendered materially shorter and safer, was opened for traffic during 1877-8, but the lock gates were not quite completed.

Ajmere.

It was calculated that the total capital sunk in irrigation works in the Ajmere and Mhairwarra districts amounted at the close of the year 1877-8 to 133,027 L. The gross revenue derived from the tanks during the year was 5,630 L.

Berar.

Dry crops occupied about 99·8 per cent. of the cultivated area in Berar during 1877-8. About 50,000 acres were irrigated from wells. Work on the scheme for the water supply of Shegaon was begun in August 1877, but was afterwards stopped, owing to further information regarding details being required by the Government of India.

Mysore.

Owing to the famine in Mysore, all ordinary irrigation works not adapted for famine labour were stopped in September 1877. The outlay for 1877-8 was slightly less than that for 1876-7, but largely in excess of that for any previous year since 1869-70.

Madras.

It has not yet been practicable to present a satisfactory statement of the actual area under irrigation in the Madras Presidency, and of the amount of enhanced land revenue which, according to the best available means of calculation, ought fairly to be placed to the credit of irrigation works.* On the Godavari Delta system, which when completed will irrigate about 610,000 acres, the sum of 22,999 L.

* Approximate returns have recently been furnished by the Madras Government, and more accurate statistics are shortly expected.

IRRIGATION AND
CANALS.

22,999 L. was expended during the season of 1877-8, making a total expenditure of 787,778 L. from the beginning of the works. Of the 518 miles of canal in the Delta that will be ultimately navigable, 442 miles had been completed. On the Kistna Delta, which, when completed, will irrigate about 470,000 acres, the total expenditure up to the close of 1877-8 was 484,055 L., of which 7,789 L. was spent during the year. Out of 321 miles of canal proposed for navigation in this Delta, 267 were open for traffic. The Cauvery Delta system, which is the largest in the Madras Presidency, irrigated nearly 800,000 acres during the year. The Buckingham Canal, under construction from famine labour, gave employment to large numbers of the distressed people of Nellore. Through communication with Cocanada, *via* the Commanur Canal, was likely to be established about June 1879. The Junction Canal, passing through the Presidency town, and linking the Buckingham Canal with the Southern Canal, was also under progress as a relief work, and at the end of the year was all but ready to be opened for traffic. The Madras Irrigation and Canal Company had up to 1875 been unable to obtain sufficient revenue from their canal to cover the working expenses; but the impetus given to irrigation by the failure of the monsoon rains in 1876-7 raised the revenue to 24,743 L. in that year. In 1877-8 the demand for water fell again, though the area irrigated, viz., 5,918 acres, greatly exceeded that of any year prior to 1876-7, and the revenue amounted to 14,913 L.

In the Bombay Presidency, 15 of the most important irrigation works undertaken or continued during 1877-8 were, in great measure, executed by means of relief labour. The operations of the year in the Deccan comprised the maintenance of 21 new works open for irrigation, and commanding an area of 244,137 acres. Extensions of these works, commanding an area of 77,602 acres, were taken in hand, as well as 15 new projects, designed to command 590,000 acres, and two storage tanks. The experience of the seasons in 1876-7 and 1877-8 will probably stimulate the cultivators of the Deccan to avail themselves more rapidly of the facilities for irrigation within their reach than has hitherto been the case. In Sind, the work of repairing and strengthening embankments and cleaning out beds, was particularly costly in 1877-8, owing to the fluctuations in the Indus. New works were carried out to a considerable extent on the more important systems of canals.

Bombay.

As regards the eight Guaranteed Railways in India, the principal statistics relating to each line are given in the following Table:—

GUARANTEED
RAILWAYS.

NAME OF RAILWAY.	Length open on 31 Dec. 1877.	Passengers (excluding Season Ticket-holders) in 1877.	Goods Traffic in 1877.	Gross Receipts in 1877.	Gross Expenses in 1877.	Net Earnings in 1877.	Capital Outlay during Year ending 31 March 1878.	Total Capital Outlay to 31 March 1878.	Persons Killed during 1877.	Persons Injured during 1877.
	Miles.	No.	Tons.	£.	£.	£.	£.	£.	No.	No.
East Indian - - -	1,503½	7,318,901	3,008,304	4,065,563	1,205,053	2,770,510	157,080	30,730,068	92	111
Eastern Bengal - - -	159	1,864,490½	453,522	399,301	157,442	241,859	17,581	3,111,894	15	7
Oude and Rohilkhand - -	549½	2,753,772	634,007	434,180	227,420	206,760	160,864	5,074,301	21	16
Scinde, Punjab and Delhi	663½	2,754,709	639,615	902,584	518,680	383,945	-34,578	10,333,468	28	26
Madras - - - -	837	2,625,139	980,089	919,902	545,179	374,723	412,131	10,487,076	78	45
South Indian - - -	599½	4,047,615	387,571	309,858	150,482	150,421	220,053	3,988,674	15	24
Great Indian Peninsula -	1,280½	3,906,292	1,514,727	2,909,025	1,381,303	1,527,632	342,930	23,134,537	88	102
Bombay, Baroda, and Central India.	421½	4,435,101	583,683	714,900	300,055	414,845	-7,800	7,760,745	15	24
TOTAL - - -	6,028	29,799,010½	8,412,528	10,656,308	4,584,613	6,070,695	1,278,170	96,490,868	364	359

Further information about the operations of these lines is contained in the Annual Reports of the Government Director of the Guaranteed Indian Railway Companies that have been presented to Parliament. The only additions made to the length of the lines during the year 1877 were 125½ miles opened for traffic on the northern extension of the South Indian Railway, and 4½ miles of the branch to Pali from the Bombay, Baroda, and Central India Railway.

As regards State Railways in the several provinces of India, the following particulars may be given:—

STATE RAILWAYS.

In May 1877 the Northern Bengal, Tirhoot, Nulhattee, and Calcutta and South-Eastern State Railways were made over to the control of the Government 366.

Bengal.

STATE RAILWAYS. of Bengal, in pursuance of the policy by which the local government becomes responsible to the Imperial Government for interest on the capital expended on reproductive works. The Northern Bengal State Railway, which runs, with only a break at the crossing of the Ganges, from Poradah on the Eastern Bengal Railway to Julpigoree, was formally opened in January 1878. An extension from Julpigoree to Siligoree, near the foot of the Darjeeling Hills, was opened for goods traffic in June 1878. The railway serves some of the richest districts in Bengal, and is expected to carry a heavy traffic in tobacco, seeds, jute, and tea.

N. W. Provinces. Considerable progress was made during 1877-8 with the scheme for a light railway system in the North-Western Provinces, to connect important centres, facilitate trade, and be a means of throwing supplies into the remoter districts in case of need. The Hathras-Muttra line was in full working order, and realised a profit during the year of more than four per cent. on the capital (about 100,000 *l.*). The Dildarnagar project was under construction; and work in connexion with the rest of the network of lines was in progress.

Punjab. The Indus Valley (State) Railway was nearly ready within the year 1877-8, and the exceedingly difficult and important work of the bridge over the Sutlej was successfully completed. The broad gauge line of the Punjab-Northern (State) Railway was opened to Jhelum since the close of the year, and the extension to Rawalpindi was being vigorously pushed forward.

Central Provinces. On 7 November 1877, the whole line of the Wardha Valley (State) Railway, from Wardha Junction on the Great Indian Peninsula Railway to Warora Colliery, was opened to the public. Only 18 miles had been in working order at the beginning of the year. The addition brought the total length to 45 miles. The line was worked throughout the year by the Great Indian Peninsula Railway Company. Surveys for the extension of the Nagpur and Chhattisgarh line to Kaliampur (121 miles) were completed, and the construction of the line has since been begun.

British Burma. In British Burma, on 1 May 1877, the railway from Rangoon to Prome was opened. Its length is 163 miles. Suburban lines, estimated to cost 40,000 *l.*, are still required to enable goods to be carried direct to warehouses, mills, and wharves; and the extension of the line to Ailanmyo, on the frontier, was under consideration, as also was the important project of a railway from Rangoon to Toungoo. The need of this line for military purposes cannot fail to be duly recognised, when it is considered that at present a journey from Toungoo occupies from 15 to 20 days; that it is only practicable in boats of very light draught, and that the cost of carriage is consequently enormous, while the length of the proposed line of railway is only 176 miles, 60 miles of which will pass through fertile, cultivated tracts of country, at present without any good means of communication either by land or water. The trade with Karennee and the Shan States, which the railway would stimulate and attract, rose from 239,310 *l.* in 1875 to 317,264 *l.* in 1877, and is said to be capable of indefinite extension.

Berar. From 1 April 1877 the Khamgaon line was handed over to the Great Indian Peninsula Railway Company to work and maintain on a scale of graduated percentages of gross receipts. During the calendar year 1877 the net profits were about $4\frac{2}{3}$ per cent. on the capital outlay of 48,000 *l.* The Amraoti line was kept open throughout the year, and worked and maintained by the Great Indian Peninsula Railway Company agreeably to the terms of the new agreement for working the Berar lines. Its net profit during 1877 was equivalent to 12 per cent. on the capital outlay of 43,000 *l.*

Mysore. The Mysore State Railway had long been projected, and was even partially laid out ready for a beginning; but it was not till 1 September 1877 that this extensive work was actually started. During the rest of 1877-8 it continued as the main famine-relief work of the province.

Bombay. During 1877-8 the Dhond and Manmad chord line (145 miles long) was undertaken and completed, thereby saving 115 miles of distance, and two journeys up and down the Ghat passes of the Sahyadri range. The Great Indian Peninsula Company work the Nizam's branch lines, the three Berar State railways, and the Dhond and Manmad line. The maintenance of the first-named railway was also undertaken by this company. The Berar State railways were worked on the same system as in the previous year, with the exception of the Wardha Valley line, for which a graduated scale of percentages

centages on receipts was substituted as the mode of remuneration for the former **STATE RAILWAYS.** plan of payment by the mileage open and train miles run. Both the Dabhoi line belonging to the Gaekwar and the Patri State line were worked by the Bombay, Baroda and Central India Railway Company. The Ahmedabad and Palanpur section of the Western Rajpootana line was begun. Surveys were made of alternative routes between Sind and Bombay, Baroda and Central India Railway, as well as of proposed lines in Kathiawar. As the latter form a system connecting the interior of the Peninsula with Bhaunagar and Wadhwan, they will probably be carried out to some extent by the chiefs. The survey of the Hubli and Belari line was completed, as was that of the Carwar and Hubli Railway.

Outlay on district roads in Bengal amounted during 1877-8 to 316,674 *l.*, less than $2\frac{1}{2}$ per cent. of which was expended by officers of the Public Works **ROADS AND BRIDGES.** Department. These works consisted chiefly of ordinary repairs to roads, and Bengal. metalling and bridging the existing main lines of communication. Measures were taken to ensure that the district road committees should expend a fair proportion of their funds on village communications, as the improvement of village roads brings home to the people the benefits which they derive from the levy of the road cess.

Considerable progress was made during 1877-8 in effecting permanent **Assam.** improvements on the Assam trunk road, more especially of a section on the Bengal side of the Brahamapootra. This section connects the Dhubri with the main line through Cooch Behar.

Roads maintained by the Public Works Department in the Central Provinces **Central Provinces.** in 1877-8 measured 1,260 miles, namely, 715 miles of bridged and metalled roads, 374 miles of road bridged but not metalled, and 171 miles of road neither metalled nor bridged. Expenditure on the principal roads under construction during the year amounted to 37,382 *l.*

Owing to want of funds in British Burma, but little progress was made in the **British Burma.** construction of feeder roads and of a supplementary road to take the place of 108 miles of the old Prome road now occupied by the railway.

In consequence of the long-continued drought, the heavy traffic, and the **Mysore.** heavy rain that afterwards fell, the condition of many of the roads in Mysore was extremely bad during 1877-8. Advantage was therefore taken of the necessity for extensive repairs by employing destitute people on road work.

Thirty miles of the new Pulney Ghat in the Madras Presidency were, during **Madras.** 1877-8, made passable for cattle traffic.

In the Bombay Presidency the number of roads taken in hand during 1877-8, **Bombay.** either as new works or for improvement, was 143. In nearly every collectorate of the Deccan and Western Carnatic some road of importance was completed. A system of railway feeders in Kaira, the Panch Mahals, and Rewa Kanta, was being pushed forward, to the great advantage of the trade in these districts. Work on the Krishna bridge at Udgaon, which, when finished, will be the longest stone bridge in India, was advanced. The iron bridge across the Tanna creek was opened for traffic, and the Hope bridge at Surat was raised a little higher than was indicated in the original design.

Construction of the Madras harbour made good progress during 1877-8, **MADRAS HARBOUR.** notwithstanding the vexatious difficulties by which the works were for several **WORKS.** months retarded. These difficulties were chiefly caused by accumulations of sand. From January 1878, however, progress was very satisfactory. The works were severely tried by the cyclonic storm of May 1877, but they suffered no damage that was of any importance; scarcely any settlement afterwards occurred in the work at either pier.

Paumben Channel was used for the first time by a vessel of the Royal Navy, **PAUMBEN** H.M.S. *Rifeman*, of 600 tons; she passed through on 21 October 1877, on **CHANNEL.** her way from Bombay to Trincomallee. The British steamer *Annie*, also passed through subsequently on three occasions. Several years ago a vessel of over 1,000 tons went through the channel, but it requires a very favorable combination of weather and tide for ships of such a size to attempt the passage.

LIGHTHOUSES.
British Burma.

During very severe weather in August 1877, the Krishna Shoal Lighthouse on the south coast of Pegu in British Burma, was swept away, seven men losing their lives by the accident. Not a vestige of the structure was ever found; nor has the real cause of the calamity been discovered. This lighthouse was of iron, standing on seven piles, and was built in 1868-9 at a cost of 16,000 l. Its place has since been occupied by a light-vessel. A special and minute examination was made in January 1878 of all the eight lighthouses of the province, and they were reported to be in a highly satisfactory and efficient condition.

Madras.

Lights on the coasts of the Madras Presidency underwent no changes, and were maintained in the state of efficiency during 1877-8. The erection of the lighthouse at Vakalapudi, in substitution for the light at Cocanada, advanced nearly to completion.

MARINE SURVEYS.

Owing to the want of an efficient sea-going steamer, marine survey work in 1877-8 had to be carried on by means of boat parties, two of which were employed during the year. The new steamer was being constructed as rapidly as possible in the Bombay dockyard, but was not likely to be finished till the end of 1880. A survey of Ratnagiri, including Mirya and Kalbadevi bays, was begun in November 1877 and completed in March 1878; and during the six months from October to April a detailed examination and a survey were made of the Paumben Pass and its approaches. Cochin, Beypore, and Calicut were visited, and important additions and corrections were made in the existing charts of those ports. An inspection was made of the ports on the Malabar and Coromandel coasts visited by the steamers of the British India Steam Navigation Company, and reports were submitted regarding the requirements of the principal ports. Many new charts were issued during the year, and also many hydrographic notices and notices to mariners, new editions of the list of lighthouses and light vessels, and of the catalogue of original documents in the Marine Survey Office, and the annual return of wrecks and casualties. An examination of 11,787 charts in store at the Bombay dockyard proved that 10,243 were useless; they were therefore destroyed, while the remaining 1,544 were made suitable for issue by corrections up to date. The cost of the department during the year 1877-8 was 13,829 l.

WRECKS AND
CASUALTIES.

The return of wrecks and casualties in Indian waters for the year 1877 shews that 25 British vessels were wrecked, 5 French, 2 American, 4 Arabian, and 29 Burmese and Indian native craft, or a total of 65 ships of 26,847 tons, and a loss of 138 lives. Casualties occurred to 80 British vessels, 5 French, 1 American, 1 Austrian, 1 Spanish, 1 Portuguese, 2 Arabian, and 7 Indian native craft, or, in all, to 98 ships, with a loss of 4 lives. There were four cases of total loss by fire. Four wrecks occurred on the east coast of Africa, within the limits generally included in the wreck review. Two of these wrecks took place five miles south of Cape Guardafui on the north-east coast of Africa, involving the total loss of the *Meikong* and the *Cashmere*. The *Meikong*, a French mail iron-screw steam, of 2,123 tons register, belonging to the Compagnie des Messageries Maritimes de France, while on a voyage from Galle with 1,000 tons of general cargo, bound to Aden, stranded at midnight on 17 June 1877, and vessel, cargo, and 4 lives were lost. The British Indian Steam Navigation Company's screw-steamer *Cashmere*, of 676 tons register, while sailing from Zanzibar to Aden, with a cargo of 450 tons of ballast, coals, and stores, stranded at 9 p.m. on 5 July 1877, close to the wreck of the *Meikong*, and vessel, cargo, and eight lives were lost. The wreck that involved the greatest loss of life was that of a native vessel, which was stranded at the mouth of Onjal Creek in the Gulf of Cambay, owing to the master's gross ignorance of the coast; 48 persons were saved, while 63 perished. Native craft are represented to be, many of them, totally unseaworthy, and ill-found in every way; condemned ships are purchased by natives, patched up, and sent to sea; in some instances there are no charts or compasses on board, while the men in command have no knowledge of their use.

CALCUTTA PORT
TRUST.

The Administration Report for 1877-8 of the Commissioners for making Improvements in the Port of Calcutta, deals (1), with the carrying out of the works of port improvement, and (2), with the conservancy and management of the

the port within port limits. A separate Report has been submitted on the management and control of the Hooghly Floating Bridge. CALCUTTA PORT TRUST.

(1.) *The Port Trust.* Up to 31 March 1878, the Commissioners had spent upon works of port improvement 793,165 l., and the debt to Government amounted to 493,048 l., while the gross profits of the works were 297,901 l. During 1877-8 the expenditure on improvements was 71,939 l. More work was done by the dredging vessels than in any preceding year at very little more cost, the quantity raised being 3,076,000 cubic feet, and the net cost, after deduction of the earnings of the barges in towing, being only 1,086 l. From jetties the net revenue was 37,462 l., or more than double the previous year's amount, the increase being due entirely to the number of vessels discharging import cargo. So great was the demand for accommodation that vessels wishing to load at the jetties could not always be allowed to do so, and there was an actual falling off in the receipts on account of exports. A reduced scale of jetty charges was proposed and sanctioned, taking effect from 1 August 1878. Jetty accommodation is being rapidly extended. Complaints as to the alleged discouragement of the building of cargo-boats by reason of the construction of jetties and other port works were proved to be groundless, the number of such boats actually plying in 1877 being greater by 894 than before the jetties were built, while many more boats were under construction. Gross receipts from the inland vessels wharves (including the tramway), reached 54,914 l., and those from the Strand Bank lands 14,381 l.

(2.) *The Port proper.* At the close of 1877-8, the value of the mooring, boats, &c., made over by Government, stood as a permanent loan to the Commissioners of 176,500 l., carrying 4½ per cent. interest. Income during the year was 69,087 l., and expenditure 47,084 l., giving a net revenue of 22,003 l., from which must be deducted a sum of 7,979 l. remaining to be paid for sales of cargo recovered from the wreck of the "Asia." Thus the true balance was 14,024 l., against 8,674 l. in 1876-7, and 562 l. in 1875-6. This favorable result was due to the extraordinary influx of vessels to the port in connexion with the Madras famine. No fewer than 1,372 vessels, of a gross tonnage of 2,056,944, entered; while 1,322, with a tonnage of 1,988,987, left. Of the 726 steamers that entered 171 were engaged in the Suez Canal trade, 331 in coasting and Eastern trade, and 224 were famine transports. Only eight casualties occurred in the performance of 9,710 operations of mooring, hauling, docking, &c., the 1,372 vessels that entered. Two fires occurred on shipboard and three on the river bank, but all were got under without serious loss. The Commissioners realised for Government, on account of pilotage fees, buoyage, and lightage, hospital dues, &c., the sum of 147,534 l., the payment to them for this service being only 350 l. Attention was drawn by the health officer of the port to the increasing number of corpses floating in the river within the precincts of the port. It was found that this evil was due to the practice of poor Hindus, above and below port limits and along the nullahs that fall into the Hooghly, throwing their dead into the water to avoid the cost of cremation. Measures for the prevention of this offence were accordingly adopted in the Burdwan and Presidency Divisions. Various proposals by the Commissioners for improving and maintaining the channel of the river within port limits, for reclaiming the Howrah foreshore, and for carrying out a scientific survey of the Hooghly bed, remained under consideration after the close of the year.

It appears from the Bombay Port Trust Report for 1877-8, that owing in part to competition and to consequent reduction of rates, the receipts from wharfage and tonnage did not rise in the same proportion as the quantities of goods, and were in fact less than they were in 1875-6. The figures since 1874-5 are respectively 61,885 l., 69,249 l., 62,555 l., and 67,297 l., shewing a very marked fall in 1876-7. But this was partly due to the great increase of tonnage having occurred in grain, seeds, and coal, the articles on which the rates were specially low. The average charge in 1877-8 works out only about 6½ annas per ton, against 8½ annas in 1874-5. The gross revenue from all sources rose from 148,444 l. in 1876-7 to 172,088 l. in 1877-8, the expenditure from 72,842 l. to 76,449 l., and the net profits from 75,602 l. to 95,639 l. BOMBAY PORT TRUST.

BOMBAY PORT TRUST.

95,639 l. A large increase of 167,255 tons in the imports of the year points to a large increase in the number of vessels entering the port, and it is accordingly found from the Master Attendant's Report that 1,018 vessels, aggregating 1,093,828 tons, came into the harbour in 1877-8, as against 815 vessels, aggregating 870,284 tons, in 1876-7; the number of sailing vessels rose from 265 to 305, and of steamers from 550 to 713. The condition of the pilot service was not altogether satisfactory; the men were, generally speaking, tolerably steady, but apparently from carelessness or ignorance they allowed too many accidents to occur; none of which, however, resulted in any serious damage. With a view to improving the service, probationers were employed in learning their duties under the running pilots, instead of serving as mates of the pilot schooners. In previous years a Government steamer had always been ready during the monsoon to render assistance to any vessel in distress outside the harbour, but it having been decided that the charge must be met by the Port Trust, the steamer *Dromedary* was therefore held in readiness for this duty during the monsoon. So great an improvement has, however, been made in recent years in lighting the approaches to the harbour, that it was doubtful whether it was absolutely necessary to incur the cost of this precaution. The Prince's Dock was advancing rapidly to completion, and the work was being well done. Under a contract made with Messrs. Sir William Armstrong and Company, amounting to 42,723 l. for the supply of hydraulic machinery, such as cranes, capstans, gates, swing bridge, sluices, &c., the first consignment was expected in Bombay in July 1878. The excavation of the interior of the dock progressed favorably, and was about half completed; the work was stopped several times during the last monsoon on account of the rain. Heavy pressure of work, brought about by the very large importations of grain, and by the arrival in the port of many vessels carrying railway materials, which had to be landed and sent up country with quick dispatch, necessitated on several occasions the employment of some of the officials by night and on Sundays.

MARINE.

In July 1877, it was decided that the whole of the marine establishments afloat and ashore, employed under the several governments and provinces, should be amalgamated into one Imperial service, to be designated Her Majesty's Indian Marine, and to be placed under two superintendents of marine, one at Calcutta and the other at Bombay.

The only Marine Act passed during the year was Act XIII of 1878, which provides for the recovery in British India of wages due to, and expenses incurred in respect of, certain seamen and apprentices. It amends the Indian Merchant Shipping Act, 1875; and the Indian Ports Act of 1875 is also amended, so far as the salvage clauses are concerned.

Bengal.

At the end of 1877-8, the Bengal Pilot Service numbered 68 members, or two below the sanctioned strength; 43 belonged to the covenanted service, and 25 were licensed pilots. The scheme for the reorganisation of the service is said to have worked well. Seven leadsmen apprentices, selected from the training ships *Conway* and *Worcester* under the new system of recruiting the service, arrived in India during the year, and were posted to pilot brigs to learn their profession.

Madras.

Arrangements previously in force regarding the working of the Marine Department of the Madras Presidency were left undisturbed during 1877-8. The Native Passenger Ships Act, which came into force during the year, was soon well understood, and there was very little difficulty in carrying out its provisions. Attempts were made by the shipowners at Negapatam to evade the law, by resorting to the French Port of Karikal for carrying out the passenger traffic with British Burma.

Bombay.

The vessels attached to the Bombay station were, as usual, employed during 1877-8 on miscellaneous duties. The *Amberwitch* was engaged on telegraph service in the Persian Gulf, the *Dalhousie* on transport and relief duties, and the turret ships were in or near Bombay Harbour.

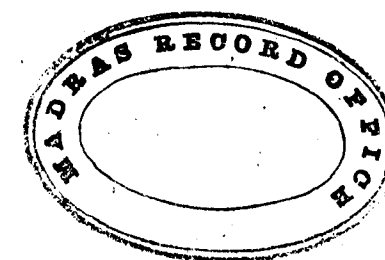
POST OFFICE.

Several additional postal facilities were provided in India during 1877-8. The total number of letters, &c., carried by the Post Office was 128,826,080, of which 115,089,336 were letters, 10,999,758 newspapers, 909,962 parcels, and 1,827,024 books, patterns, and packets. Only 667,170 out of the entire number

number remained finally undisposed of in the Dead Letter Office. The number of post offices was increased by 225, of letter-boxes by 120, and of village postmen by 363. At the close of the year there were altogether 4,107 post offices, 5,574 letter-boxes, and 2,313 village postmen. The numerical strength of the establishment was 28,992, against 27,496 in the previous year. Postal lines aggregated 57,963 miles, on 7,338 of which the mails were conveyed by railway, on 3,781 by mailcart horse and camel dāk, on 33,157 by runners and boats, and on 13,687 by sea. Evidence of the general appreciation of the conveniences of the overland parcel post is afforded by the fact, that the net revenue from this source rose to 9,728 l. from 7,888 l. in the previous year.

For the first time since the establishment of the telegraph system in India, the receipts of the Indian Telegraph Department in 1877-8 more than covered the working expenses, exclusive of the interest charges. A large increase occurred in the business of the department under every head, state and private, inland and foreign. The increase in both classes of inland messages was largely attributable to the famine in Southern India, and to the activity of the grain trade. During the year an important benefit was conferred on the public in the redemption of inland messages from forwarding charges. Paid telegrams increased from 1,109,036 in 1876-7, to 1,357,014 in 1877-8, of which 1,169,954 were inland, and 187,060 foreign. The miles of lines and wires (including cables) increased, respectively, from 17,840 and 39,780, to 18,210 and 42,796; and, in addition, 10,749 miles of wire, not the property of Government, were maintained by the department for the service of railway companies. Departmental offices rose in number from 234 to 239, and at the close of the year 484 railway telegraph offices were technically supervised by the department. Major General D. G. Robinson, R.E., the Director General, died at sea, near Aden, on 27 July 1877, and Colonel R. Murray, of the Staff Corps, has been appointed his successor.

At the end of 1876-7 the system of the Indo-European Government Telegraph Department embraced (1) the Persian Section of 792 miles of land line, and (2) the Persian Gulf Section, which included 1,716 nautical miles of submarine cable, and 676 miles of land line on the Mekran coast. The year 1877-8 was one of remarkable commercial depression and consequent diminution of telegraphic traffic. The Russo-Turkish war, and especially the long-continued interruption caused by the Turkish raid on Sookhoum Kaleh, materially affected the prosperity of the lines worked by the department. The interruption at Sookhoum Kaleh lasted for 126 days, but was at length overcome by the erection of an alternative line, 513 miles in length, between Ekaterinodar and Tiflis. The break occurred beyond the limits of the Indo-European Telegraph Department's lines; but that Department shared in the cost of renewing communication. On the departmental lines the interruptions were mostly caused by severe weather, and aggregated 3 days 9 hours 55 minutes, traffic being stopped on the Tehran-Bushire Section by all three wires being broken at the same time for 3 days 5 hours 55 minutes, and on the Persian Gulf Section by a 4 hours' interruption on the Mekran coast land line. As compared with 1876-7 the earnings in 1877-8 fell off by 25,000 l., and amounted to 40,000 l. The working expenses were 80,000 l., the net loss being, therefore, 40,000 l. To this loss must be added the interest on capital, the capital at the end of the year being about 1,150,000 l. It must, however, be remembered that the lines are maintained quite as much for political and administrative as for commercial purposes.



VIII.

MINERAL RESOURCES.

MINERAL
RESOURCES.
Bengal.

THE year 1877-8 was one of renewed prosperity for coal mines of Ranigunge in the Burdwan division of Bengal. Of the success of the Bengal Iron Works, so far as the production of iron goes, the Lieutenant Governor satisfied himself by personal inspection. The Susunia stone quarries in Bankoora are said to be now turning out an admirable quality of hard stone. No mines exist in the Chittagong division, though mineral soil is probably to be found in the hill districts, as it has been already found in Arakan. The demand for stone from Monghyr and the Sonthal Pergunnahs was still on the increase, and the development of this industry was largely due to the return of the main stream of the Ganges to Rajmehal. In the latter district leases of hills, on which it was proposed to form quarries, had been taken by the Calcutta Municipality and the East Indian Railway Company. Slate quarries are worked to a small extent in Monghyr, and talc is found in the hills of the Jamoe subdivision and in the Sonthal Pergunnahs, but at present no one is disposed to invest money in working it, and it is believed that the market is fully supplied from the mica mines in the north of Hazareebagh. There are no mines in the Orissa division. In the Chota Nagpore division, coal is found in each of the districts, but the mines of Singhbhum and Lohardugga were not worked during the year. There are seven coal mines in the Pachumba subdivision of Hazareebagh, but in only four mines were operations carried on. Of these four, by far the most important was the Kurhulhari mine, leased by the East Indian Railway Company from Government. The average number of men employed in this mine during the year was 4,500, and the total yield of coal was 308,386 tons. The shafts are, for the most part, shallow and entirely free from damp, and torches are used by the miners at their work. The coal fields of Ranigunge extend some few miles west of the Burrakuru river. Mica appears to have been worked at a profit in the Hazareebagh district. No successful attempt has been made in recent years to work the copper mines of Singhbhum and Hazareebagh.

Assam.

The limestone quarries in the Khasi and Jaintia Hills of Assam, which had for many years been held on a monopoly by Messrs. Inglis & Co., by whom the trade was first developed, were about to be thrown open to the public. Most of the leases held by the company terminated at the close of September 1878. In June 1877 the Chief Commissioner submitted to the Government of India a proposition for breaking up the existing monopoly, and putting up the quarries to public auction, on such conditions as would prevent them being again secured by a single firm, and would restore the lime trade to the healthy footing of open competition. An application was received in January 1878 from a newly formed association, called the Assam Mineral Oils Company, for the grant of a concession of land and right to dig for petroleum in the neighbourhood of Jaipur, in the Lakhimpur district, where large deposits of this oil are known to exist, and where Mr. Goodenough's attempts to work it were made in 1868. This application was forwarded by the Chief Commissioner with a favorable recommendation to the Government of India. Many coal and limestone mines exist in the province, but there is no information regarding their production during 1877-8.

N. W. Provinces.

With regard to the Kumaun ironworks in the North-Western Provinces, there were many interruptions to continuous working during 1877-8, but the working in 1878, while it lasted, was an improvement on that of 1877. Cost of pig iron for materials only had been reduced from Rs. 2. 9 a. 3 p. per maund to Rs. 1. 13 a. (i.e., from 7 l. per ton to 4 l. 18 s. 6 d.)

Punjab.

Very little information has been supplied regarding mines and quarries in the districts of the Punjab during 1877-8. Auriferous sand is obtained from the Kabul river, Nowshera, and the annual yield of gold is valued at 58 l.

Central Provinces.

At the Warora Colliery, in the Central Provinces, 40,786 tons of coal were raised during 1877-8. Three-fourths of the entire yield consisted of large coal suitable for locomotive engines. Much more coal might have been raised if the

MINERAL
RESOURCES.

the working had not been impeded by the presence of faults, the existence of which was not expected. The long-wall system was abandoned in November, owing to difficulty in keeping the workings open when a surface break occurred, and on account of the great friability of the coal generally. During the year 31,274 tons of large coal were sold to the Great Indian Peninsula Railway Company, realising, at 10 s. per ton, the sum of 15,637 l. For the balance of small and large coal, 2,862 l. was received from other railway lines and private companies. The year's operations gave a profit of 6,406 l., or over 9 per cent. on the total capital outlay of 69,507 l. at the end of 1877-8. Samples of coal, iron-ore, limestone, and slack were sent to England in the previous year, and the mining engineer at Warora, Mr. Ness, while on leave in England, conducted a number of experiments for the conversion of the Lohara and Pipulgaon ores with Warora coal and Khandalla limestone into iron and steel. Some of the experiments turned out successfully, and further ones were still being prosecuted.

British Burma.

Little activity or success attended mining operations in British Burma, during 1877-8. The failure of a Rangoon firm to work the Mergui tin mines to any advantage necessitated the abandonment of the work early in the year. In 1876-7, only 458 cwt., valued at 1,082 l. were produced. It is doubtful whether, after the disappointing experience of Messrs. Steel & Co., European capital will again be risked in the district. Only 12 small tin mines were worked by the Chinese during the year at ground rents varying from 10 l. to 2 l. 10 s. each; but judging from the quantity of smelted tin exported, they seem to have met with some success. To Penang they sent 205 cwt., valued at 725 l., and to Rangoon 482 cwt., valued at 1,737 l. Of these quantities, however, a portion belonged to the workings of the previous year. Besides the ground rent, the Chinese pay to Government a royalty of 5 per cent. on the market value of the tin exported. In the Akyab district explorations for petroleum was rewarded by the discovery of a flowing well, after boring had been carried to a depth of only 66 feet. The attention of capitalists had never been drawn to the subject of oil-wells until 1877, when several Europeans applied for prospecting grants, tenable for one year, over one square mile of country selected by each applicant. The deposits of coal in the Thayetmyo district again underwent a scientific examination, the result of which was only to confirm the opinion long ago reached that they are of little or no value.

Berar.

No soda was gathered from the Lonar lake in the Buldana district of Berar during the year 1877-8, as the deposits that had already formed were considered likely to be augmented in quantity and improved in quality by being a year longer in the lake.

Mysore.

In consequence of the famine, the production of iron in the Chitaldroog district of Mysore was stopped during 1877-8. The mines and smelting-furnaces are worked in a primitive way, and simply to meet local demands. Almost all the men who labour in them are very small cultivators, who grow about enough in a year of good harvest to supply only their own actual food, and who look to the extra earnings at the furnace as a help to make both ends meet. But just when their own crop failed, their furnace stopped too, and the places where iron mines and furnaces exist were generally worse off than the purely agricultural villages.

Madras.

Gold mining in the Madras Presidency became a subject of much interest during the year 1877-8. Attention was paid to the matter by private adventurers, more especially as regards the Wynad division of the Malabar district, where gold has been known to exist, and has been more or less profitably worked from time immemorial; and Mr. King, of the Geological Survey of India, sent in an official report on the gold prospects of the Wynad with a key map of the country. Nothing was settled as to the conditions on which leases should be granted, or sales conducted, for auriferous tracts of Government land; and there was also the question as to the claim of Government to demand payment by landholders, whether ancient Malabar hereditary proprietors, proprietors under the waste land rules, or ordinary ryots, in respect of gold found in their lands. It was considered necessary that a distinct policy on the subject of mineral rights and royalty with reference to the peculiar conditions of the Madras Presidency should be laid down by proper authority. The Government would at any rate have to protect themselves against loss. In the event of gold mining in the Wynad or elsewhere succeeding, a considerable

number of people will be attracted to the gold-fields, and the consequent police and other expenses will be necessarily large. Permission was given to certain projectors to prospect pending the assignment of a definite area in due course, and pending decision as to terms of rent and royalty. Mr. King's opinion on the profitableness of exploration was somewhat unfavorable as regards alluvial deposits, but very hopeful in the case of quartz-mining. The Government of India had determined at the close of the official year to appoint a competent mining engineer to examine into the whole question of gold-mining prospects in Southern India. A company got up at Madras were understood to have entered into an agreement with the Raja of Kalahasti and the Zemindars of Kangundi and Punganur, all in the North Arcot district, for the purpose of introducing iron-smelting operations on their estates. No other mining industry of any great importance was being carried on in the Presidency. Iron and copper are found in several districts, but the quantity annually produced is insignificant. A little coal of inferior quality exists in the Godavery district.

VIII.

MANUFACTURES.

EXCESSIVE importations of Manchester goods were accompanied by the accumulation of the stocks of Indian mills, which had to be disposed of at any price, and most of the mills were compelled to work on short time, while some were closed, and wages were generally reduced. The fact that the mills have survived the crisis is considered a proof that the industry is essentially sound, and will eventually be prosperous. It still, however, has difficulties to combat. A native spinning and weaving mill has been set up at Shanghai, and will very likely be succeeded by others. This threatens serious competition, China being the principal foreign consumer of Indian twist. The exports of twist form about three-fifths of the total exports of cotton manufactures; the remainder consist chiefly of colored piece-goods sent from Madras to Ceylon and the Straits. Of 53 mills working in the country, 41 were in the Bombay Presidency, and three-fourths of these in the Island of Bombay. There are reasons for considering the higher numbers of yarns as unsuitable for Indian manufacture. The commoner kinds of short-stapled cottons can only be employed for the lower counts of yarn, say up to twenty-twos. For higher counts, a larger stapled cotton is required, and for counts above thirties an admixture of Egyptian or American is necessary. This of course enhances the proportionate price of the higher qualities considerably, and places it beyond the means of Indian mills. The outturn of the higher counts is also proportionately slower than that of the inferior kinds; and the inefficiency of the operatives is, further, a serious obstacle to the production of the finer yarns. The numbers generally spun in the Bombay mills range from fours to thirties. It will be long before any active competition with Manchester arises in regard to forties and higher counts. Should the import duty be taken off the finer English yarns, there probably would not be a greatly increased consumption in the Indian mills, though these yarns would probably be extensively used by handloom weavers. The cost of a mill is much greater in India than in England. With regard to the coarser qualities of goods, it is said that the Indian industry, if judiciously managed, must inevitably in time supersede Manchester goods in the Indian markets, and that, whatever may be the prospects of the export trade, there is a demand for internal consumption sufficient for double the mills now in existence.

Native cotton cloth merchants in Calcutta are adopting the system of selling on credit by means of travelling agents to consumers in the country. These agents correspond very closely to the travelling drapers who, in the Midland and other districts of England, drive a considerable trade, and succeed in selling their goods at very high rates, payable generally by instalments.

Cotton manufactures in the Punjab for 1877-8 were estimated to be valued at 1,653,924 l.

The Empress spinning and weaving mills at Nagpore in the Central Provinces were steadily working throughout the year 1877-8, and were the most costly and ambitious industrial undertaking in the province, employing a large number of factory hands, and a staff of European engineers, &c. There were 550 looms and 30,000 spindles at work; and during the year above a million and-a-quarter pounds of cotton were worked up into 718,550 lbs. of yarn, valued at 31,437 l., and 420,584 lbs. of cloth, valued at 21,029 l.

In Mysore the cotton weavers were among the first to feel the pressure of want during the period of the famine, and among the last to recover.

There are stated to have been 23 cotton mills during 1877-8 in the Madras Presidency, and the number of workmen employed on them was over 1,300. Private looms, or small works, employed 353,522 workmen. The estimated annual outturn of all works was 1,016,628 l.

During 1877-8 there were 41 cotton mills at work in the Bombay Presidency, and 31 of these mills were in Bombay and its neighbourhood. Only one mill was in course of erection. The total number of spindles at work was 1,104,134, together with 11,681 looms. Cotton to the amount of 220,656 bales was

COTTON.

Bengal.

Punjab.

Central Provinces.

Mysore.

Madras.

Bombay.

COTTON.

was consumed. Steam-gins have been introduced into three districts. There were also nine steam-gins in Bombay, making altogether 2,531 in the entire Presidency. In the Native States, the number of steam-gin factories was the same as before, namely, 5 in Kathiawar, 2 in Rewa Kanta, and 15 in Baroda territory, where 646 gins were at work.

SILK.

Bengal.

Silk is the chief manufacture in most of the districts of the Burdwan division of Bengal. The year 1877-8 was rather a better one for this industry than 1876-7. In Midnapore, Messrs. Watson and Messrs. Payen & Co. have extensive establishments. In Burdwan, a certain amount of revival was awakened both in the silk and *tasar* markets, but in Bankoora and Beerbhoom the industry was declining. A new steam silk filature was opened at Plassy in the Presidency division, but silk in Moorshedabad had again fallen back to a depressed condition. With regard to silk manufacture in the Rajshahye and Coogh Behar division, there were 57 large silk filatures in Rajshahye, and 100 small private looms. The largest works employed 19,450 men and 500 women; the private looms about 3,000 persons. The annual out-turn of silk was about 4,000 maunds. The year 1878 was a better one for trade than the previous, but the market had again become dull at its close. It is calculated that 80,000 acres were under mulberry in this district. There is still a little silk manufacture in Bogra, where 60 looms employ some 480 workmen. There is a small export of *tasar* silk from Manbhoom in the Chota Nagpore division.

N. W. Provinces.

Sericulture in the Dun continued, during 1877-8, to be prosecuted by the Government of the North-Western Provinces, not as a commercial venture, but as fostering an enterprise that might be profitable to the country. Owing to change of officers, and the want of a skilled resident manager, not much progress was recorded. The acclimatised worms kept healthy, and the weight of good silk obtained from the cocoons was considerable.

Punjab.

Most favorable progress is recorded of sericulture in the Punjab during 1877-8. The silkworm is now being reared in the Gurdaspur, Kangra, and Hoshiarpur districts, and at an exhibition held in Gurdaspur in April 1878, the cocoons displayed were superior to any previously exhibited, while the exhibitors were more numerous than on any former occasion. Every inducement is being held out to extend the cultivation of the Chinese mulberry in these districts, as a means of assisting in the further development of the silk industry. Mr. Halsey (who has since died) distributed during the winter many hundreds of thousands of cuttings of the tree to all applicants. Arrangements have been made to carry on the factory established by that gentleman at Madhopur. Success attended experiments in the rearing of the *tasar* silkworm, although the drought of the summer unfavorably affected the worm. Some experiments were also carried on with Japanese silkworms sent to the Punjab from Bombay, but the result was entire failure.

Central Provinces.

Altogether, there were 4,685 silk looms in the Central Provinces during 1877-8, employing nearly 10,000 workmen or independent artisans; and the estimated value of the silk manufactures was 53,684 l.

Bombay.

Some Bengali silk reelers, who were engaged for a year at the Khandesh Farm in the Bombay Presidency, fulfilled their contract to instruct apprentices and farm-servants in the art of winding and reeling fibre. As they had no practical knowledge of silkworm rearing their services were dispensed with. The heat of the weather in April and May 1877 destroyed numbers of the eggs reserved by the superintendent for experiments. A few worms of the Bengal *madras* species were obtained, and a small sample of good silk got from them. At Ganesh Khind the superintendent met with no success in his efforts to get silk in any great quantity from the ordinary *tasar* moth. The first lot of native cocoons seems to have been fruitful, but about 5 per cent. only of the caterpillars lived to spin; the second generation did not come to maturity.

JUTE.

Bengal.

The Calcutta jute mills during 1877-8 were not as flourishing and successful as they should have been, owing to discreditable management in many cases.

MISCELLANEOUS
MANUFACTURES.
Bengal.

In 1875, at the instance of the Government of India, measures were set on foot in Bengal for the collection of information as to the various kinds of dye-drugs produced in the province. Reports on the subject were forwarded in 1877 to the Economic Museum at Calcutta, together with samples of dyes; and

and it was understood that a full report on the dyes of Bengal was being prepared. Lac manufactories in Paremba and Shahbazar, in the Burdwan Division, supply lac bangles to every part of Bengal. There are several lac factories in the Manbhoom district of the Chota Nagpore Division; *palar* and *kussum* trees, both of which yield lac in large quantities, are very abundant in the district. The industry, however, is a declining one, and the large lac factory at Dorundah in Lohardugga was, in 1877-8, the first to suspend operations. With regard to sugar, its manufacture is said to be increasing in the Jessore district of the Presidency Division. Improvements in the manufacture of sugar were effected during the year by Messrs. Thomson & Mylne, of Beheea, whose hand-mills are now used by the natives, not only in Behar, but in Jessore and other parts of Bengal. At Palamow, in the Chota Nagpore division, the local sugar manufacturers were using these hand-mills extensively, and their industry shewed signs of a rapid increase. A noticeable development occurred in the fish-curing trade at Goalundo in the Dacca Division. A special bonded enclosure was formed within which curing is conducted upon an improved system; from 1,362 maunds of fish in 1875, and 4,835 maunds in 1876, the outturn of the depôt rose to upwards of 11,000 maunds in 1877. In the year 1877 there were 28,502 maunds* of salt fish despatched by rail from Goalundo to Calcutta; and the Calcutta health officer considered the fish turned out from the curing depôt at Goalundo was far superior to that cured on the old native method.

Manufactures in Assam are quite insignificant, and very little information is able to be procured regarding them. Assam.

Efforts were being made to improve the system of registration of trades and manufactures in the towns of the Punjab. The returns for 1877-8 give the number of manufactories in the province as about 450,000, employing a million and a quarter of workmen. Under pashmina shawl goods there was a further decline, in keeping with the diminished imports of the raw material. Punjab.

The industry of British Burma is almost exclusively devoted to agriculture, and the manufactures are comparatively insignificant, though in some respects increasing, and, in many instances, by no means devoid of artistic merit. Cutch is almost the only article manufactured for export; but there was a slight falling off in its manufacture during 1877-8. At Rangoon, Mulmein, Akyab, and Bassein, there are numerous steam rice-mills and saw-mills for cleaning rice and converting timber for export. British Burma.

In Mysore and Coorg, manufactures are on a small scale and mostly produced to meet the demand of the local market. Mysore and Coorg.

Experiments were made during 1877-8 in the Madras Presidency, as to manufacturing paper from the prickly pear plant. Collectors of the districts in which country paper was known to be manufactured, were asked to make experiments, and to report on the suitability of the plant for the purpose. Inquiries went to shew that the preparation could be effected, but not with a prospect of profit. Madras.

* 1 Indian maund = 82½ lbs.

IX.

T R A D E.

SEABORNE TRADE.

A PROMINENT feature of 1877-8 was the great importation of silver, which was partly caused by the low rate of exchange, and partly connected with the suspension of Council drafts during a portion of the year, and which had the effect of making the excess exports of the total trade unusually low.

The following Table gives a comparative view of the private trade for three years:—

	1875-6.	1876-7.	1877-8.
	£.	£.	£.
IMPORTS:			
Merchandise - - - - -	37,112,668	35,367,177	39,326,003
Treasure - - - - -	5,300,722	11,436,118	17,355,460
TOTAL IMPORTS - - - - -	42,413,390	46,803,295	56,681,463
EXPORTS:			
Merchandise - - - - -	58,045,405	60,961,632	65,185,713
Treasure - - - - -	2,115,144	3,942,580	2,155,136
TOTAL EXPORTS - - - - -	60,160,549	64,904,212	67,340,849
TOTAL TRADE - - - - -	102,573,939	111,707,507	124,022,312
Excess Exports of Merchandise - - - - -	20,932,737	25,594,455	25,859,710
Excess Imports of Treasure - - - - -	3,185,578	7,493,538	15,200,324
Net Excess Exports of Private Trade - - - - -	17,747,159	18,100,917	10,659,386
Net Excess Exports of Total Trade (including Government transactions).	16,099,353	16,167,038	8,613,679

The next Table shews how far, during 1876-7 and 1877-8 (since the exchange became seriously disordered), the net export trade has been adjusted by importations of treasure and by Council bills (the latter being taken at 2 s. the rupee, as the trade figures are converted at that rate):—

	1876-7.	1877-8.
	£.	£.
Excess Exports of Merchandise (including Government transactions).	23,573,260	23,758,148
Excess Imports of Treasure - - - - -	7,406,222	15,144,464
Council Bills (at 2 s.) - - - - -	14,857,512	11,698,500
Total Treasure and Council Bills - - - - -	22,263,734	26,842,964
Surplus or Deficiency of Exports - - - - -	+1,309,526	- 3,084,821

The distribution of the trade among provinces and the chief ports during 1877-8 was as follows:—

PROVINCES.		PORTS.	
	£.		£.
Bengal - - - - -	55,614,368	Calcutta - - - - -	55,366,684
Bombay - - - - -	49,912,228	Bombay - - - - -	49,908,055
Sind - - - - -	2,055,036	Kurrachee - - - - -	2,054,760
Madras - - - - -	9,487,936	Madras - - - - -	5,059,011
British Burma - - - - -	6,953,624	Rangoon - - - - -	5,140,057
£.	124,022,312	£.	117,526,567

In the first three cases the port specified absorbed nearly the whole of the trade of its province, and in the case of Rangoon the greater proportion, while in the Madras Presidency nearly half the trade belonged to ports other than the principal one. The above five ports together monopolised 94·76 per cent. of the total trade. Contrary to precedent, the trade of Rangoon exceeded that of Madras. The commercial importance of the former is increasing, while Madras is not well situated for commerce. Kurrachee had not begun to realise the expectation of its ultimately becoming a considerable port.

The

The value of the trade carried on with different countries in 1877-8 was as follows: United Kingdom, 75,933,542 l.; China, 16,821,971 l.; France, 6,597,230 l.; Straits Settlements, 4,084,369 l.; Ceylon, 3,567,088 l.; Italy, 2,304,945 l.; United States, 2,212,445 l. Next in order came Mauritius, Austria, Persia, Arabia, Turkey in Asia, Egypt, Australia, Aden, and the East Coast of Africa. England took 61·22 per cent. of the trade. The relations with England, in respect to merchandise alone, were for two years: 1876-7, imports 29,752,443 l., exports 28,020,105 l.; 1877-8, imports 32,211,303 l., exports 29,613,606 l. India, therefore, receives more goods from England than she exports to that country. Imports from China increased by nearly 320,000 l., of which increase more than half occurred under the head of raw silk. The export trade to Italy appears to be enlarging steadily. An increase of about 100,000 l. took place in the imports from Persia of cotton, wheat, pearls, and dates; and a large amount of English chintz was exported to the Gulf. Exports to Australia also rose considerably, especially under the heads of castor oil and gunny bags.

The imports of cotton twist and yarn were as follows for five years: Imports: 37,097,260 lbs., valued at 3,157,779 l. in 1874-5; 31,927,340 lbs., valued at 2,794,769 l. in 1875-6; 33,270,208 lbs., valued at 2,733,514 l. in 1876-7; and 36,194,125 lbs., valued at 2,850,403 l. in 1877-8. Thus, in 1876-7 and 1877-8 an increasing quantity was accompanied with a decline in value. Grey piece goods constitute the largest proportion of cotton manufactures. Colored piece goods shewed a material decline, but white goods a moderate increase; the former are subject to great competition with goods printed in India. Altogether, the imports of cotton manufactures, compared with those of the preceding and following years, were valued at 18,725,233 l. in 1876-7, and 20,172,716 l. in 1877-8. The quantity of raw silk imported into India is now in excess of the exports; it amounted in 1877-8 to 2,102,930 lbs., valued at 678,069 l. Including silk manufactures, the total silk imports were valued at 1,482,952 l. The consumption is principally in Burma, where the high prices obtained by agriculturists stimulated importation during the year. Imports of metals increased in 1877-8, owing apparently to a great fall in prices. The depressed condition of industrial enterprise affected the imports of machinery. The value of railway materials imported increased from 691,908 l. to 907,002 l., the increase being chiefly due to the demands for rolling stock in connexion with the famine. Coal was imported to the extent of 601,257 tons, a greater quantity than in any previous year. The average price was more than a rupee a ton less than in 1876-7. A great quantity of grain and pulse was imported in consequence of the special demands of the year, principally rice and wheat from the Persian Gulf. Provisions also increased from 661,059 l. to 858,797 l.; a great proportion of these are dates from the Persian Gulf. Imports of salt have been as follows for a series of years: 835,354 l. in 1873-4; 755,771 l. in 1874-5; 600,934 l. in 1875-6; 430,890 l. in 1876-7; 401,365 l. in 1877-8. The trade in sugar is a very fluctuating one, as here shewn: 558,978 l. in 1873-4; 516,564 l. in 1874-5; 895,927 l. in 1875-6; 403,556 l. in 1876-7; and 798,036 l. in 1877-8. The cause of the rise in 1877-8 is believed to have been the high price of Indian sugar relatively to European quotations, coupled with a considerable demand for export to Europe, the cheaper Mauritius sugar being, in consequence, largely imported into India; the trade was also helped by the remission of the transit duty on the sugar produced in the North-Western Provinces. The declared value of liquors imported increased from 1,303,592 l. in 1876-7 to 1,401,559 l. in 1877-8. The increase of 1877-8 occurred under all heads. Spirits were not at all affected by the raising of the tariff in 1875. The reduction of the duty on still wines other than clarets may be expected to lead to a still further increase under the head of wines. Imports of hops, though small, are steadily increasing, and will do so with the increased production of beer in the Punjab and North-Western Provinces. The cultivation of hops in India has not so far been a practical success, except in Cashmere. The trade in oils consists mostly of kerosine oil from the United States. The quantity imported advanced from 439,123 to 2,817,969 gallons. This extraordinary increase appears to be attributable to the collapse of a combination of oil merchants in America, which had controlled the markets and prevented shipments abroad; but there was also

SEABORNE TRADE. increased production in that country, together with a large demand in India, where a greatly improved style of lighting in native houses and shops has lately prevailed.

Exports: The number of chests of opium exported in 1877-8 was less by 4,050 than the number in 1876-7, but the decrease of value was proportionately much less, viz., 30,393 *l.* Exports of raw cotton exhibit a steady decline for some years past, as follows: 15,257,342 *l.* in 1874-5; 13,278,963 *l.* in 1875-6; 11,746,184 *l.* in 1876-7; 9,383,534 *l.* in 1877-8. The decay of this trade is due to the decreased consumption of the United Kingdom, the principal importing country, which during 1877-8 received less than 1½ million cwt., as compared with over 5 millions in 1871-2. From other countries of Europe there is a slightly increasing demand. On the other hand, the exports of cotton manufactures have been on a rising scale: 512,374 *l.* in 1874-5; 663,424 *l.* in 1875-6; 812,382 *l.* in 1876-7; 1,142,732 *l.* in 1877-8. Exports of raw wool fell off a little in quantity, but more in value, owing to a reduction of prices in England; in 1876-7 they were 24,056,767 lbs., valued at 1,077,372 *l.*; in 1877-8 they were 23,075,323 lbs., valued at 943,645 *l.* The trade in raw silk presents no encouraging prospects; it is less than it was 20 years ago, and, as already stated, the imports exceed the exports. There was a slight recovery in 1876-7 and 1877-8, owing to the failure of crops in Europe. China and Japan are formidable rivals to India in this trade. The export of oil-seeds was considerably stimulated in 1877-8 by the effect of the war on Russian trade, combined with good crops and the favorable rate of exchange; the value rose from 5,319,124 *l.* in 1876-7, to 7,360,284 *l.* in 1877-8. The Calcutta jute mills are, owing to discreditable management in many cases, not as flourishing and successful as they should be. The price of jute, however, advanced in 1877-8, in consequence of the unusual demand for bags for both the foreign and the coasting trade; and the export figures of the raw material and manufactures combined were 3,356,124 *l.* in 1876-7, and 4,289,241 *l.* in 1877-8. The enhanced value of rice consequent on the famine demands is apparent from the following statistics of the export trade: in 1876-7 there were 19,548,741 cwts., valued at 5,742,540 *l.*; in 1877-8 there were 18,211,388 cwts., valued at 6,889,362 *l.* Considerably more than half of the exports are from Burma; and the greater part of this rice is used for distillation or for conversion into starch. Of the 18 million cwts. exported in 1877-8, the United Kingdom took nearly 10½ millions. Of the whole quantity of rice imported into England all but half a million cwts. came from India. A great deal, however, of the rice imported into England is reexported. India has no cause to fear the competition of Saigon or Bangkok in the European markets, though they have monopolised the Eastern trade. Europe is practically supplied from India; the United States now import more rice than they export. The opening of the Northern Bengal State Railway will probably help to stimulate the rice trade of Bengal. The wheat trade expanded for some years up to 1877-8, but suddenly collapsed to about 500,000 *l.* in 1878-9; the values of the exports were 490,435 *l.* in 1874-5, 901,025 *l.* in 1875-6, 1,956,332 *l.* in 1876-7, 2,856,990 *l.* in 1877-8. In 1877-8 the trade was encouraged, among other causes, by the bad harvest in England; but as that deficiency was supplied by other countries as well as India, prices fell, and shipments became unprofitable; meanwhile the combined effect of the exhaustion of stocks and the occurrence of a drought in Northern India was to raise Indian prices to a level much higher than those ruling in England. The exports of Indian tea have risen in the following manner: 1,742,926 *l.* in 1873-4; 1,937,429 *l.* in 1874-5; 2,166,417 *l.* in 1875-6; 2,607,425 *l.* in 1876-7; 3,044,571 *l.* in 1877-8. The bulk of the trade is with England. No effort is made to secure the Australian trade; Australia at present draws her supply of tea altogether from China, and its value is nearly half that of the total exports from India. Injury from drought and disease affected the coffee plantations. The export of coffee in 1877-8 amounted to 1,338,499 *l.* England and France are the principal consumers; in the former the trade is weighted with an import duty of about 15 per cent. *ad valorem*, and in the latter with a duty equivalent to 3 *l.* 5 *s.* 5 *d.* per cwt., or nearly 100 per cent. *ad valorem*, which is still further increased by a heavy *surtax* when the coffee is imported indirectly. In the United States, strange to say, coffee in the berry is admitted free of duty. Under this head, again, there appears to

to be room for enterprise in opening a trade with Australia. With respect to the trade in raw sugar, the failure of crops in Cuba and in France led to speculation and high prices, followed by a reaction in prices and failure of crops in the North-Western Provinces. The exports were as follows:— 253,937 *l.* in 1875-6; 925,196 *l.* in 1876-7; 745,851 *l.* in 1877-8. One effect of the scarcity is seen in 1877-8 in the increased export of hides, which represented the death of 9,300,955 head of cattle, or two millions more than the annual average. The total exports of hides and skins amounted to— 2,998,683 *l.* in 1876-7, and 3,756,888 *l.* in 1877-8. Under the head of tobacco, a falling-off occurred for some years, the values having been 228,201 *l.* in 1874-5; 169,511 *l.* in 1875-6; 89,140 *l.* in 1876-7, 93,037 *l.* in 1877-8. It is anticipated that this trade will before long become one of importance. The experiment in growing and curing tobacco at Poosah appears likely to be successful, and the example was followed by another firm in Bengal. Indigo has fallen off in price during the last two years: the exports were 100,384 cwt., valued at 2,962,785 *l.* in 1876-7, and 120,605 cwt., valued at 3,494,334 *l.* in 1877-8. The foreign exports, on the whole, increase annually, but those to the United Kingdom appear to be diminishing. The trade has not apparently been affected by the competition of aniline dyes. Attention has lately been given to improvement in the manufacture.

The gross sea customs revenue of 1877-8 amounted to 5,042,850 *l.* Of this, 4,477,206 *l.* was duty on imports, being 306,259 *l.* more than the revenue of the preceding year. About a third of the increase occurred under the head of cotton duties, which advanced from 743,049 *l.* to 841,972 *l.* Nearly an equal amount of increase took place under salt, and under liquors there was an increase of about 25,000 *l.* The export duties (on indigo, rice, and lac) produced 565,644 *l.* against 605,080 *l.* in the previous year. The total drawbacks and refunds amounted to 96,083 *l.*

The number of vessels entered and cleared at Indian ports does not vary very greatly year by year; in 1877-8 the figures were 6,353 and 6,184. The average of entrances for six years (6,283) was identical with that of clearances. But the expansion of the carrying traffic appears from the steady annual increase of the aggregate tonnage, and also from the increased employment of steamers. During the period from 1874-5 to 1877-8 the average tonnage of ships entered in each year was respectively 2,434,929 tons, 2,629,923 tons, 2,791,884 tons, and 2,877,649 tons. Steamers entered have, during the same period, risen from 819 in 1874-5 to 1,123 in 1877-8. As might be expected from the nature of the trade, the number of vessels which enter in ballast considerably exceeds that of clearances in ballast. In 1877-8 there were 2,705 vessels entered with a tonnage of 712,781 tons, while 1,324 vessels cleared with a tonnage of 180,434 tons. Of the vessels entered at Indian ports the following adopted the Suez Canal route: 317 of 434,152 tons in 1873-4; 413 of 575,892 tons in 1874-5; 483 of 704,325 tons in 1875-6; 504 of 744,215 tons in 1876-7; 569 of 815,033 tons in 1877-8. The tonnage employed in the trade with the United Kingdom is half of the total tonnage engaged in the foreign trade of India. The nationalities of the shipping engaged in the foreign trade (taking entrances and clearances together) may be thus classified: British, 3,853 vessels of 4,352,380 tons; British Indian, 3,017 vessels of 418,774 tons; foreign, 1,517 vessels of 771,994 tons; native, 4,150 vessels of 211,231 tons; total, 12,537 vessels of 5,754,379 tons.

The coasting trade was unusually active in 1876-7 and 1877-8, owing to the special circumstances of those years. Imports of merchandise alone rose from 13,592,851 *l.* in 1875-6 to 19,534,007 *l.* in 1876-7, and 28,223,220 *l.* in 1877-8, and exports of merchandise rose from 14,794,549 *l.* to 21,258,514 *l.*, and 29,971,480 *l.* The total quantity of food grains transported to the famine-stricken districts by the coasting trade during the year 1877-8 was 1,161,990 tons, and the value 12,427,222 *l.* In the coasting shipping a decrease in the number of vessels was accompanied with a great increase in the tonnage, which was due to the employment of large steamers between Calcutta and Madras.

Frontier trade continued during 1877-8 to be registered at numerous stations along the 5,000 miles of border between British and Foreign territories, from Baluchistan on the west to Siam on the east. Particulars of the traffic are, however, very scanty. No information has been supplied regarding the land trade of Sind

FRONTIER TRADE. Sind with Baluchistan and Afghanistan. The total value given for 1877-8 of the registered frontier traffic of the other border provinces of India with adjoining foreign countries is 7,738,199 *l.*, composed of 4,165,344 *l.* imports, and 3,572,855 *l.* exports. More trade was registered with Burma than with any other country, the value being 3,425,926 *l.*; Nepal came next with 1,687,126 *l.* Afghanistan trade is returned at 1,159,401 *l.*, but this amount represents only that carried on with the Punjab, no figures for the Sind portion having been furnished. The values of the trade with other countries were as follows:—Cashmere (including Ladak) 900,952 *l.*; Tirah and Bajaur 140,007 *l.*; Siam 126,693 *l.*; Tibet 102,025 *l.*; Sewestan 89,102 *l.* (but most of this trade was actually with Baluchistan); Munnipoor and Hill Tribes 74,116 *l.* The Bengal Government pointed out the difficulties in the way of efficient registration of external land trade, as the traffic crosses the border at a thousand different spots, and the exactions of registering officers are liable to have the effect of simply diverting the traffic into other routes. These objections, however, have since been overruled by the Government of India, the registration being of general, not local importance; and the authorities of Bengal and the North-Western Provinces have been ordered to concert the best scheme for registering the Nepal trade as accurately as possible.

ADEN TRADE. Aden Port is the centre at which European and Indian goods are exchanged for those of Arabia, Abyssinia, and East Africa. The settlement, being only eleven square miles in extent, has little trade of its own. With regard to the private trade during 1877-8, the imports were valued at 1,900,042 *l.*, including 189,815 *l.* in treasure, while exports were declared to the value of 1,405,888 *l.*, of which 169,168 *l.* consisted of treasure. Transhipment trade is not registered, but is calculated to have been about 2,000,000 *l.*, or about 300,000 *l.* more than that in 1876-7. Shipping increased both in number and weight of vessels. Out of 920 ships touching at this port, 693 belonged to Great Britain. As regards the internal trade with Yemen, imports and exports both increased over those of the previous year, but there was a decrease in the demand for water and fuel. Water can now be procured nearer the settlement, than formerly was possible. The coffee trade also will probably continue to decrease as more convenient outlets become available elsewhere. During the year 239,969 camel loads of produce from the highlands of Yemen were brought into the settlement.

X.

PUBLIC HEALTH AND SANITATION.

GENERAL registration in the province of Bengal was, with some exceptions, carried on energetically during 1877 by district officers. The birth-rate arrived at was 18·20; the local government have directed that the attempt to register births, except in a few selected municipalities, be discontinued, and that all efforts be concentrated on conducting the system for the registration of deaths on an improved and matured plan. The average death-rate for 1877 was 17·96, against 16·40 in 1876; the increase was the more satisfactory from a statistical point of view, as in the preceding year a mortality of 34,173 was caused by the results of the cyclone; the greater portion of the increase occurred in the rural circles, where improved registration was most needed. Cholera as usual prevailed generally throughout Bengal, but the number of deaths declined from 196,590 to 155,305. Smallpox shewed less severity even than in the preceding year, the deaths numbering 8,088 against 10,746; as compared with other parts of India, Bengal suffers extremely little from this disease, in consequence apparently of the general protection of the people by either inoculation or vaccination; although the latter is gaining ground, the former is still extensively practised. The recorded deaths from fever increased from 561,530 to 711,037. While some part of the increase is doubtless due to improved registration, it was principally occasioned by increased prevalence and severity, which in many cases was attributed to the defective and impeded natural drainage of the country. In Burdwan and Beerbhoom the mortality from this cause was greater than in 1876; in the former a local inquiry shewed that the fever was a mild form of malarious intermittent, identical with the mild form of the so-called Burdwan fever, having a tendency to implicate the spleen and liver. During the last four months of the year a widespread outbreak of malarial fever prevailed in Midnapore. Its early appearance, rapid development, and long continuance were attributed to the September rainfall being much below the average, and to the sudden and great variations of temperature for which the cold season was remarkable. A medical officer who visited those parts of the district from which the most unfavorable reports were received, described the fever as an aggravated form of the ordinary intermittent common in autumn, and as differing widely from the epidemic fever, which invaded a large portion of the alluvial tracts of the district between the years 1871 and 1876. The statistics of bowel complaints are much invalidated by deficient registration, or the probable classing of many instances of this death cause under fever; there were recorded 58,962 deaths against 58,701 in the preceding year. The death-rate of Calcutta was 31·9 per 1,000, exceeding that for the previous year by 1·8. As usual, however, the rate is lower than it would be but for the number of sick persons who leave the town to die. Fever was abnormally prevalent in the city in the latter part of the year, but there was a decline in cholera mortality. The statistics continue to shew that the conditions of life in Calcutta are remarkably favorable to European residents.

The vital statistics of Assam are so obviously incorrect that the ratios of mortality are not worth producing. Of 41,716 registered deaths 11,377 were attributed to cholera. In proportion to population Nowgong and Dibrugarh suffered most. Every district was afflicted with smallpox, and chiefly Luckimpore and Darrang. While the indigenous population of Assam suffer most severely from this disease, the imported coolie population on the tea-gardens are entirely exempt from it, owing to the care with which vaccination is carried out among them. The Government of India hope that under the energetic supervision of Dr. De Renzy sanitary affairs will make much more progress than they have yet done in Assam.

This was the first year of the amalgamation of Oudh with the North-Western Provinces. Registration having been far more efficient in the latter than in the former, the aggregate result for 1877 possesses no value for comparison with past statistics, but the Sanitary Commissioner hoped that this disadvantage would be rectified in future. The united ratio of mortality per 1,000 was 19·67; in the North-Western Provinces alone it was 20·6, against 23·39 in 1876, and in Oudh

HEALTH OF
GENERAL
POPULATION,
Bengal.

N. W. Provinces
and Oudh.

HEALTH OF
GENERAL
POPULATION.

17.1 per 1,000. In the 97 town circles the results were apparently much nearer the truth, giving a death ratio of 29.43, and a life expectation of a little more than 34 years. Cholera prevailed more mildly than in the preceding year. The disease appears to be endemic in the Benares division of the North-Western Provinces and the adjoining division of Fyzabad in Oudh. In 1877 the epidemic prevalence was principally confined to the country north of the Gogra river; of the total of 31,770 deaths 22,020 occurred in that region. The aggregate smallpox deaths declined from 40,730 to 36,022. The greatest mortality was in Mozuffernuggur, Moradabad, Bijnour, Bareilly, and Budaon, in all of which districts the disease shews persistent prevalence year after year. It was almost absent in any severe form from the eastern districts. The ratio of fever deaths was less than the mean of the previous five years, which is attributed by the Sanitary Commissioner to the unusual dryness of the season. This, combined with improved land drainage, led to a remarkable diminution of fever in the northern districts of the Doab. Cawnpore district still held the second place (next to the Tarai), which Mr. Planck can only account for by its having been brought most recently under the permanent operation of changed climatic conditions resulting from canal irrigation. In Lucknow city, of a death-rate of 45.27, 23.10 was due to fever. Mr. Planck thinks that as registration becomes more accurate, it will prove that there is a large fever mortality in the crowded cities of the province, and that some considerable portion of this mortality results from the prevalence of continued forms of fever. Deaths from bowel complaints were recorded in highest ratio in the Himalayan country of Kumaon and Dehra Doon, in Rohilkhund, and in the southern country of Hamirpur and Jhansi. This localisation is consistent with the experience of all former years.

Punjab.

The average rate of mortality in the Punjab during 1877, calculated on the census of 1868, was 20 per 1,000; but the Sanitary Commissioner estimates that 18 per 1,000 would more nearly represent the actual result of registration. For 50 of the principal towns the registration gave 33 per 1,000, according to a census taken in 1875-6. The year was an unusually healthy one; there were only 29 deaths from cholera. Smallpox deaths, numbered 12,296 against 10,254 in the preceding year; of the total deaths 2,394 were among children under one year of age, 9,385 among those between one and twelve, and only 517 in the case of adults. Statistics of several years past make it evident that in those districts where vaccination has been readily accepted the mortality from smallpox has steadily declined. The Civil Surgeon of Umritsur states that a dangerous custom prevails in that city of taking through the streets in procession to some temples cases of smallpox on the ninth day of the eruption. Fever deaths fell from 351,286 to 219,281. This is attributed to the very greatly diminished rainfall of the monsoon, coupled with the absence of the usual river floods and lodgments of rainwater on the surface of extensive tracts of country. In deaths from bowel complaints there was also a great falling-off, from 27,271 to 17,664. Of 35,246 villages only 6,672 returned deaths from this class of diseases.

Central Provinces.

The birth-rate given for the Central Provinces in 1877 was 39.26, and the death-rate 23.91; the latter was 6.47 less than that of the previous year. The seasons were abnormal, and the year could scarcely be considered a healthy one, yet the climatic features were favorable in respect of diseases connected with extreme variations of cold and heat. Some Civil surgeons reported that they had seen no severe fever cases during the year. Deaths from cholera were only 3,418, being less by 16,706 than in 1876. The disease prevailed among the famine refugees who poured into the Saugor district from the North-Western Provinces and Gwalior. There were still fewer deaths from smallpox (2,768) than in the preceding year, but at its close, and subsequently, the mortality again increased. Fever deaths numbered 131,123; the fevers were invariably of malarious origin. Bowel complaints caused 14,867 deaths.

British Burma.

Registration of vital statistics in British Burma continued in a very backward state; but a good example to other district officers was set by Major Plant, Deputy Commissioner of Thyetmyo, who entered into the matter with great energy, and elaborated a plan which the Chief Commissioner has prescribed for general adoption. Cholera is always more or less prevalent in this province; the deaths from this disease in 1877 were 7,276. Though cholera was specially prevalent during the year, yet 13,936 villages out of

14,276

HEALTH OF
GENERAL
POPULATION.

14,276 escaped, a fact very adverse to the theory of importation, and suggestive of local causes. The prevalence was, as in the previous year, very severe in the town of Akyab.

Ajmere.

In the Ajmere and Mhairwarra districts 13,944 births were registered during 1877, or 1,800 more than in 1876. On a total population of 396,331, as enumerated in April 1876, the birth-rate equalled 35.18 per thousand. The number of boys born alive has in every year been reported to be much greater than that of girls. There were 9,057 deaths registered during the year, against 8,290 in 1876, the increase being attributed entirely to improvement in reporting. Cholera caused only twelve deaths. Smallpox committed terrible ravages, numbering 1,638 victims. Deaths ascribed to fevers were very numerous.

Berar.

Registration in Berar has attained a very creditable position of accuracy, except in the Wun district, which is a very wild region, with small and scattered villages. In 1877 the average death-rate was 28.1, against 31.9 in 1876. Cholera deaths fell from 22,465 in 1875 to 3,583 in 1876 and 842 in 1877. There was a decided decline in the deaths from fevers and from bowel complaints, which in the first case numbered 34,453, and in the latter 10,543. On the other hand, the year was marked by a new epidemic of smallpox, which caused 6,380 deaths against 415 in the preceding year. There was a rise in the mortality from January to May, which was greatest in the two hottest months; a marked decrease in June, continuing throughout the monsoon season, and again an increase in November, when the cold season began.

Mysore.

In Mysore the registered birth-rate during 1877 was 4.75 per 1,000 of the population, according to the census of 1871. The death-rate was 4.10. These rates, however, are far from accurate, as the registration could not be properly carried out, owing to the famine. The year was one of terrible sickness and mortality. Of the total registered deaths 58,648 were ascribed to cholera, 55,934 to fevers, 33,781 to bowel complaints, 5,922 to smallpox, and 88,881 to other causes. On 19 January 1878 a partial census was taken with the special object of testing the loss of population from the famine. From the results obtained it was calculated that the population of the Province had diminished from 5,050,000 in 1871 to 4,100,000 at the beginning of 1878.

Coorg.

Coorg was overrun in 1877 by emaciated wanderers from Mysore, among whom, very few of the 1,742 registered births occurred, but the greater number of the 8,108 deaths. Cholera carried off 1,066 persons, small pox 214, and fevers 5,845.

Madras.

The terrible effect of the famine was seen in a death-rate among the native population of the Madras Presidency of 53.2 per 1,000. The number of deaths registered was 1,556,312, nearly three times the average of the preceding five years. The cholera epidemic of the two preceding years continued to rage during 1877; the greatest mortality, however, was in the two first months, after which, with two interruptions, it declined to its minimum in December. There can be no doubt that the famine-stricken condition of the people made them peculiarly susceptible to this, as to other diseases. There was a serious rise in smallpox mortality. The crowding of the people together, combined with their recklessness of danger, tended greatly to the spread of infection. As was to be expected, the increased fatality of fevers and of bowel complaints was most marked. The deaths attributed to the former cause numbered 469,241, about double the mortality of any of the previous eleven years.

Bombay.

In the Bombay Presidency the rate of mortality in 1877 was greatly increased by the famine which raged throughout a large area. Besides the losses by death, the general health of the survivors was permanently deteriorated by the insufficient and indigestible food; and an indirect influence was also exerted, through the dearth of provisions, on the health of populations not immediately affected by the scarcity. Relief measures were greatly impeded by caste prejudices: in one case labourers refused to occupy some very good huts which had been erected for them, simply because they were made of the branches of a certain palm. As in Madras, the vital statistics were affected by a diminished birth-rate as well as by an increased death-rate. The former was 19.26, or 2.9 less than that for 1876. The latter was 38.79 per 1,000. The actual number of deaths increased from 366,660 to 627,708. Apart from the famine the year seems to have been a very unhealthy one. The cholera mortality (57,252) was the highest ever recorded, but its prevalence was probably to a great extent

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HEALTH OF
GENERAL
POPULATION.

connected with the physical condition and circumstances of the people. It reached its maximum in June, and after August it rapidly declined to the end of the year. Smallpox continued to rage epidemically, causing 27,369 deaths. Again the maximum was attained in March. Under fevers and bowel complaints, the two classes of disease most directly promoted by the famine, a vast mortality occurred, 336,865 in the former case, and 60,257 in the latter. In the capital the number of deaths rose from 20,783 in 1876 to 33,511 in 1877; and there were 2,550 fatal cases of cholera. The majority of the deaths occurred among those who were not permanent residents in the city; the crowding would not have been so injurious to health but for the insanitary condition of the town itself.

VACCINATION.
Bengal.

The number of persons vaccinated in Bengal during 1877-8 was 1,284,027, which was less by 225,007 than the number in 1876-7. Of the total number, 52,861 belonged to Calcutta, and 294,613 were dispensary vaccinations. The latter being considered by the Government to be untrustworthy, all vaccinators attached to dispensaries and paid for by Government have been discharged. In the percentage of success there was likewise a falling-off. It was, in primary operations, 98·04, as compared with 98·18 in the previous year. Excluding dispensary statistics, the average ratio was 97·89. As far as age was recorded, 9·06 per cent. only of those vaccinated were infants under one year of age. The people object to have their children inoculated before they are at least six or seven years old, and they unfortunately apply the same principle to vaccination. At Pooree vaccination is strongly opposed, while inoculation is favored, and in many other localities opposition continues. In the districts of Hazareebagh, Sonthal Pergunnahs, and Monghyr, ex-inoculators and circle vaccinators worked in the same villages, and it is reported that the people to whom the former were known, had much greater confidence in them, and accepted vaccination more readily from them than from the latter. It is stated that Bankoora has enjoyed perfect immunity from smallpox for the last two years. This result is ascribed to the systematic way in which vaccination has been carried on since 1874, in which year the Act prohibiting the practice of inoculation was introduced into the district, and to the conversion of almost all the inoculators into vaccinators. Nearly every village has its ex-inoculator, who renews his licence every year, and practises vaccination under the same Hindu formalities and ceremonies as were used in the days of inoculation. Vaccination is now generally appreciated, and the district is almost completely protected.

Assam.

Vaccination labours under peculiarly great difficulties in Assam, owing to the strong objections dictated by superstition and ignorance, and also to the sparseness of the population. A large amount of work which does not appear in the returns, is, however, done among the coolies by the medical officers attached to the tea-gardens, and the beneficial consequences are so striking that, as Dr. De Renzy remarks, "even the dull apathetic Assamese intellect has yielded to its force, and the people have voluntarily brought their children to be vaccinated." There is no special establishment in the province. The work is done by native vaccinators attached to the dispensaries, and acting under the orders of the civil surgeons. The results shew what a very small fraction of the population is as yet protected. Of the total 17,085 persons reported to have been successfully vaccinated, no less than 7,667 belonged to one district, Kamrup. The success of vaccination in that district, Dr. De Renzy reports, is truly surprising, and does immense credit to Dr. Russell, the civil surgeon of Gowhatty. The Deputy Commissioner, referring to Dr. Russell's efforts in the cause of vaccination, reports that, "all the inoculators have been converted, "and an incalculable benefit has, through his energy and well directed zeal, "been conferred on the population of the district in all parts where too strong "religious prejudice has not barred the door." The Sanitary Commissioner was about to draw up a pamphlet on vaccination for dissemination among the people, and for use in schools.

N. W. Provinces
and Oudh.

In the two provinces which have been recently combined under one administration the position of vaccination differs greatly. Among populations of 30½ millions in the North-Western Provinces, and 12 millions in Oudh, the primary vaccinations were respectively 672,241, and 41,762. Infants vaccinated under one

VACCINATION

one year old numbered 198,074 and 13,010. The per centages of success were 93·21 and 85·94. Successful vaccinations per 1,000 of population, were 19·40 and 2·74. In the Kumaon, Gurhwal, Tarai, and Dehra Doon districts the work continued to be thoroughly effected. In the rest of the North-Western Provinces the proportion of vaccination to the birth-rate is estimated at 48 per cent.; but in these provinces, apart from Oudh, there was a great advance on the operations of 1876-7. Several municipal committees have unanimously passed bylaws by which the practice of inoculation has been made a public nuisance. The deputy superintendent in the Benares division (Pandit Bishan Datt) is mentioned most highly for the energy and efficiency of his work. He has written a treatise, and delivers addresses on vaccination, and as he is himself a Brahmin, and has great influence among all classes, the cause is making great progress. The number of high caste Hindus who accepted vaccination in this division rose from 12,275 to 17,357. There is reason to hope that the new deputy superintendent in Oudh, who has long successfully superintended the Rohilkund division, will bring up the vaccination in that province to the standard of the North-Western Provinces. The Government of India have directed that an investigation be instituted in the North-Western Provinces with a view to determine the relation between smallpox deaths among children and the statistics of vaccination. The demonstration to the people of the value of the prophylactic must depend on the results shewn, which it is hoped will not prove unsatisfactory, whether owing to carelessness on the part of the working staff, or from any other cause.

During 1877-8 there were 373,577 persons vaccinated in the Punjab; the primary cases were 371,821, against 284,771 in 1876-7. The percentage of success was 98·81. Efforts to extend vaccination met with fair success, except in Rohtak, where much harm was done to the cause by the worthless nature of the work of incompetent local vaccinators in former years creating mistrust in the minds of the people. Great assistance was received from the Maharaja of Cashmere and the Raja of Mandi.

With some exceptions no active opposition was manifested in the Central Provinces, but only in Sambalpur, Chindwara, and Betul could the people be said to welcome the vaccinators. The chief difficulty is in the larger towns and among the better educated natives. The number of primary operations during 1877-8 was 288,688; those performed on children under one year were 92,477, against a registered birth total of 290,859. The percentage of success was given as 94·53, but this is believed to be above the truth. Sores caused by bad lymph, or by the application of irritating substances or rubbing, are sometimes set down as true cowpox marks, and hence smallpox is erroneously said to follow successful vaccination.

The work of vaccination is not in a flourishing condition in British Burma; district officers shew little interest in it. The number vaccinated during 1877-8 was 24,276, which was a falling-off from the number of the preceding year; and the percentage of success was only 82. Of the total number, 3,813 only were under one year of age.

Owing to the extreme superstition of the people, the Ajmere and Mhairwarra districts are still scarcely at all protected against the ravages of smallpox. There was a falling-off in the number of vaccinations from 11,264 in 1876 to 8,419 in 1877, but the percentage of recorded success rose from 54 to 77.

The number of persons primarily vaccinated in Berar during 1877-8 was 97,010, and the percentage of success 81·7. It is estimated that of 88,907 children born during the year 38,721 remained unvaccinated. An inquiry has been ordered into the results achieved by vaccination in this province, with reference to the common assertion of the natives that when an epidemic of smallpox breaks out the vaccinated and unvaccinated suffer almost alike.

In Mysore the total number of vaccinations performed during 1877 was 101,980, against 96,242 in 1876; but the number of successful operations was only 84,558, or 84 more than the number in 1876. The increased number of vaccinations took place in the Nagar Division, where advantage was taken of the collection of many persons in relief camps, and where the vaccinators were not diverted to other duties as in the remaining divisions. The indifferent state of health of the people, and the fact that the lymph received from the depôt in England proved inert, are the causes to which a lower percentage of successful operations is ascribed.

VACCINATION.

Coorg.

Only 1,016 persons were vaccinated in Coorg during 1877-8, or 343 less than in 1876-7. The new vaccination establishment, although sanctioned, did not come into operation before the close of the year.

Madras.

The circumstances of the famine in Madras gave a great stimulus to vaccination, both by the increased necessity for protection, and by the facilities afforded through the massing of people in towns and relief centres. Operations in 1877-8 aggregated 787,730; of which 776,705 were primary, against 478,727 in 1876-7. Only one civil dispensary made any return. The percentage of success in primary cases was 82.28. Only 68,110 children under one year of age were vaccinated. The prejudice against infantile vaccination appeared, however, to be subsiding, at all events in the town of Madras, since fully half the children born there were vaccinated, as compared with less than a third in former years.

Bombay.

Contrary to the experience in Madras, the famine interfered with vaccination work during 1877-8 in the Bombay Presidency. There were 670,055 persons primarily vaccinated, against 732,184 in 1876-7. The percentage of success also fell from 95.35 to 94.11. The number of infants unable to walk who were successfully vaccinated was 317,982. An Act, making the system compulsory in the capital, came into operation in September 1877.

MEDICAL RELIEF.

Bengal.

At the various medical institutions in Calcutta and the suburbs, 325,562 persons were treated in 1877, and 25,358 of them were indoor patients. The death-rate per 1,000 patients was 133.26, but by deducting moribund cases, it would be reduced to 118.24. With regard to other charitable medical institutions in Bengal, twelve new dispensaries were opened during 1877, and three were closed, leaving a total of 239. The registered attendance, 833,254, was not much in excess of that for 1876; but the returns of nine institutions had not been received. The diseases which caused the principal mortality were dysentery, cholera, diarrhoea, fevers, dropsy, debility, and spleen diseases. The mortality from fevers was higher than in 1876, while that from cholera was considerably less.

Assam.

Dispensaries are said to be not popular in Assam, nor to be as useful there as in other provinces. Eighteen institutions were open during 1877, and the number of patients treated in them was 27,724.

N. W. Provinces and Oudh.

At the 201 hospitals and dispensaries open at the close of 1877 in the combined North-Western Provinces and Oudh, 36,499 indoor and 1,032,401 outdoor patients were treated during the year. A falling-off in the number of outdoor patients arose from the healthiness of the season; while the increase of in-patients in the North-Western Provinces was, to a considerable degree due to operations of an important character, which rose in number from 2,934 to 4,255. Of the total number of in-patients 75 per cent. were cured or relieved, and 9 per cent. died. The systems of local support of dispensaries are different in the North-Western Provinces and in Oudh. In the former municipalities contribute liberally; in the latter they give little or nothing, but the local rates provide 23 per cent. of the total income.

Punjab.

During 1877 the addition of five new dispensaries in the Punjab raised the number from 161 to 166. The cost to Government of these institutions was still further reduced during the year. Owing to the exceptional healthiness of the season, there was a decline in the number of outdoor patients from 1,175,034 to 1,114,420, but the increasing popularity of the institutions was indicated by an increase of in-patients from 30,428 to 31,627.

Central Provinces.

In the Central Provinces there were 77 dispensaries open on the last day of 1877. The in-door attendance again slightly decreased, but this was in most cases satisfactorily explained, and was more than counterbalanced by a rise in the number of out-patients from 369,065 to 401,309, or 8.7 per cent. This increase was the more satisfactory as 1876 was an unhealthy year, and 1877 a healthy one. Women resort comparatively little to the dispensaries; the number of children, however, largely increased during the year. It was a general complaint that hospital assistants were lazy and careless, and in consequence vaccination work was very much neglected. The Chief Commissioner pointed out that such results also reflect unfavorably on the superintendence of the Civil surgeons concerned. Another unsatisfactory feature was

was the low rate of private subscriptions; those of Europeans shewed a falling off during the year. The duty of endeavouring to interest the community in these institutions has been enjoined on Civil officers. The cost of dispensaries was less, notwithstanding the great attendance. MEDICAL RELIEF.

The number of dispensaries open in British Burma during the year 1877 was twenty. A large and commodious hospital was opened at Moulmein, and one was begun at Akyab. A new hospital was also erected at Bassein. As compared with the previous year the in-patients increased from 5,917 to 6,834, and the out-patients from 63,758 to 65,750. British Burma.

Dispensaries are fairly popular in the Ajmere and Mhairwarra Districts. At the seven institutions open during 1877, the number of patients treated was 26,426. Ajmere.

There were in Berar during 1877, as in the previous year, six civil hospitals and 24 dispensaries. An offer has been received from certain native gentlemen to establish a new dispensary at their own cost, provided that Government will pay for the native doctor, and supply European medicines. In the out-door attendance (105,668) there was an advance, which was the more satisfactory as the year was by no means an unhealthy one. In-patients numbered 1,855. The Commissioner of the Assigned Districts remarks that "scientific medicine, working through hospital assistants, wages an unequal war against the hakims. The latter, urged by self-interest, address themselves to the mind of the patient. It may be that they attribute his complaint to unseen powers, and profess to cure it by similar means; but at all events they supply him with a theory in which he can thoroughly believe." Berar.

Nineteen dispensaries were in operation in Mysore during 1877, the same number as in the previous year; but the patients treated rose from 137,663 to 162,272. Temporary hospitals and sheds were also erected for the reception of sick paupers, but the numbers of patients relieved, and the number of deaths that occurred in them cannot be stated with accuracy. At the leper asylum 101 patients were treated during 1877, and 43 remained at the end of the year. Mysore.

At the two dispensaries in Coorg 9,971 patients were treated during 1877, being an increase of 218 on the numbers of the previous year. Coorg.

The year 1877-8 closed in the Madras Presidency with an addition of ten to the number of hospitals and dispensaries, bringing the total to 165. The circumstances of the year led to an enormous increase in the resort to these institutions; the number of in-patients rose from 37,835 to 79,288, and of out-patients from 729,616 to 932,593. Government contributions increased by 895 £., those from municipal and local funds 6,370 £., European subscriptions 192 £., and Native subscriptions 374 £. Madras.

The total number of civil hospitals and dispensaries open on 31 December 1877 in the Bombay Presidency was 176, and the numbers of in-door and outdoor patients were 43,595 and 908,582 respectively. Malarious fevers held the foremost place among the causes of sickness; as compared with 1876, there was a remarkable increase under this head in the Konkan and the Deccan, with a decrease in Gujarat, while in Sind the amount of fever remained nearly stationary. In the famine-stricken districts of the Poona division, the cases of ulcers treated increased from 9,157 to 13,921. Syphilitic affections continued to increase. In the two native hospitals in the City of Bombay, the cases amounted to 7.3 per cent. of the total treated. The net income of all the institutions, excluding floating balances, was for the year 101,517 £.; of this Government contributed 81,387 £., local and municipal funds 15,387 £., European subscriptions were 174 £., native subscriptions 1,209 £. (of which 1,064 £. was given by the late Sir Cowasji Jahanjier, to be invested for the benefit of the Bandora dispensary), 1,095 £. was interest on invested capital, and 2,265 £. was derived from miscellaneous sources. The Surgeon General testifies to the zeal and ability with which the civil medical officers and subordinates, with a few insignificant exceptions, carried out the unusually arduous duties of the year. Bombay.

As regards the lunatic asylums of Bengal, the year 1877 opened with 1,131 patients; the admissions numbered 247, and readmissions 38; the number discharged cured was 147; and 96 were made over to relatives and friends as improved. LUNATIC ASYLUMS. Bengal.

LUNATIC
ASYLUMS.

improved. The asylums are reported to be well managed by the medical officers in charge, who do all in their power to obviate faults of construction in the buildings, and to keep pace with the modern ideas as to the treatment of insanity. Phthisis and diarrhoea were the principal causes of death. It was demonstrated by Dr. Payne at the Dullunda Asylum, that a great diminution of cases of dysentery and diarrhoea, and of intestinal worms, followed on the compulsory use of pure water. Surgeon Major Birch alludes to the total absence of a form of insanity very common and invariably fatal, examples of which are to be found in every asylum in Great Britain, and which is known as the "general paralysis of the insane." The narcotics which are most used in Bengal would seem to be much less likely to cause madness than strong drink in Europe. *Ganja*, no doubt, often gives rise to insanity, but not so frequently, it would seem, as drink in Britain, and the attacks of insanity produced by it as a rule soon pass off. Opium, both in China and India, claims very few victims among the insane when we consider the numbers who use it.

Assam.

At the Tezpur Lunatic Asylum, the only one in Assam, the buildings were still only of a temporary nature, and underwent little change during 1877; but attention was paid to improving the drainage of the site. Most of the inmates were natives of other provinces. At the close of the year 34 patients were in the asylum.

N. W. Provinces
and Oudh.

More patients were treated during 1877 at the four lunatic asylums of the North-Western Provinces and Oudh than in any previous year; at its close there were 878 persons in confinement, of whom 200 were criminal lunatics. At the Benares Asylum the registered accommodation was considerably exceeded.

Punjab.

In the Punjab the lunatic asylums at Delhi and Lahore were well managed during 1877. An idea is given of the cost of maintenance in India by the fact that the Government found it necessary to comment on the extravagance of the expense of diet per head at the latter asylum, having been at the rate of $2\frac{1}{2}$ d. per day, whereas at the Lahore jail it was under $1\frac{1}{2}$ d.

Central Provinces.

Results during 1877 at the two asylums of the Central Provinces were very similar to those of the preceding year. A great proportion of the admissions was in both cases from the district in which the asylum was situated; this fact, together with the large number of "cures," appeared to indicate a tendency to bring to the asylums persons suffering from temporary causes (*ganja* or opium), which, as the Inspector General observes, should properly be treated in dispensaries or jails.

British Burma.

Since its first establishment the number of inmates in the Rangoon Lunatic Asylum has steadily increased. The daily average strength in 1871 was 81, and in 1877 it was 183. The increase is due to the growing number of incurable cases. The total number under treatment during the year was 220, of whom 197 were males and 23 females. The causes of insanity were in 82 cases physical, in 79 moral, and in the rest unknown. The management of the asylum was on the whole satisfactory; the superintendent reported very favorably on the subordinate staff of the institution.

Berar.

In April 1877 the lunatics of the province of Berar, who had previously been confined in a special department of the Amraoti central jail, were removed to the new asylum that had been built at Amraoti for their accommodation. Though the asylum was constructed to contain only 20 patients, yet this number was exceeded during the year. At the end of December the patients numbered 21, of whom four were criminal lunatics. Rope and twine making formed the chief occupation of the patients. Their health was fairly good.

Mysore.

During 1877 there was a daily average number of 140 lunatics in the Mysore Asylum. Deaths were very numerous, chiefly from dysentery and diarrhoea, diseases which followed in the wake of famine all over the province. Criminal lunatics numbered 11, all hopeless cases. There was no separate accommodation for them, but they were more carefully guarded than the others. Weaving, rope-making, tailoring, and the like occupations gave employment to five-sevenths of the inmates.

Madras.

There were 150 admissions to the Madras asylums, against 172 in 1876-7. The aggregate population of the asylums is, however, stated to be on the increase. While in the percentage of recoveries to admissions there was great improvement (64.66 against 32.55), the percentage of deaths to daily average strength rose from 19.90 to 22.86. By far the greater number of deaths was due

due to atrophy, appearing to indicate a connexion in the progressive decline of mental and bodily powers. Next in order of fatality came diarrhoea. The Surgeon General apprehends that with the increase of drinking habits in the Presidency, intemperance will gradually assume a more important position than at present among the physical causes of insanity.

The five asylums under Government control in Bombay and Sind began the year 1877 with 582 patients; the admissions during the year numbered 287; 240 patients were discharged, 99 of them as cured. It is said that the experience of each year shews more and more conclusively the value of suitable employment as an agent in the amelioration of the mental condition of the patients. Some important improvements were carried out at Colaba, which will not only lessen the notorious unhealthiness of the building by rendering the floors of the old wings drier and the ventilation of the rooms freer, but will also give accommodation for 15 additional patients. Lunatic labour was employed to rectify some imperfections in the main drains of this asylum. Conservancy appears to have been effectively carried out in all cases. Water-supply was good and sufficient, except at Colaba, where the deficiency has been a constant source of complaint. It is hoped that the new waterworks now in course of construction will increase the supply.

Medical education in Bengal suffered a general decline during 1877-8. Pupils in the Medical College of Calcutta fell from 176 to 146, and in the four vernacular medical schools at Sealdah, Bankipore, Dacca, and Cuttack, from 862 to 686. Fewer students now enter the Medical College than in former years, owing to the substitution of the First Arts for the Entrance Certificate as the qualification for admission. The novelty of the vernacular medical schools has to a certain extent worn off; new pupils are admitted in smaller numbers than before, and many of the old pupils have ceased to attend.

No medical students from the North-Western Provinces or Oudh presented themselves at any of the Calcutta University examinations during 1877-8. There were at the close of the year only 86 scholars on the rolls of the vernacular medical school at Agra.

Six candidates during 1877-8 passed the junior, and 11 the senior examination in medicine at the Punjab University College. At the Lahore Medical School the number of students in the upper or English department rose from 46 to 56, and in the lower or Hindustani department from 84 to 99. Students are received into both departments from the North-Western Provinces as well as the Punjab. Since the establishment of the school in 1870, altogether 65 of its students of the upper class had obtained the rank of assistant surgeons, while 256 students of the lower class had been admitted into Government service as hospital assistants with regiments or in civil dispensaries. The weekly lectures of a midwife class attached to the school were attended by 17 women practising midwifery in Lahore.

A very unfavorable report was again received from the Central Provinces of the general character and abilities of the pupils in the Nagpore School of Medicine. The Principal attributes this to the pre-collegiate year of training at a civil hospital; and the Chief Commissioner has now, in deference to his opinion, altered the system. The standard of preliminary examination will also be raised, and will embrace a knowledge of English. The general conduct of the students who remained after dismissals was satisfactory, but their deficient education was a great drawback. Five Mahratta Brahmins were among the new admissions. The prejudice among this class generally against medical pursuits is very strong; one young man prosecuted his studies under violent opposition on the part of his relatives and friends.

No regular medical instruction appears to be carried on in British Burma, Ajmere, Berar, Mysore, or Coorg, and no students from any of these provinces are stated to have presented themselves at any of the medical examinations of the universities.

The progress and conduct of the students at the Madras Medical College during 1877-8 were reported to be generally creditable. The Principal thinks it is to be regretted that the medical degrees of the Madras University are not sought, and that students should sever their connexion with the college and proceed to Europe to complete their education. They do so, not from any impression that the character of the education imparted at Madras is inferior, but because the degrees have not the same value attached to them as those

MEDICAL
SCHOOLS.

granted in Europe, not qualifying for registration in Great Britain, or for admission to the competitive examinations for medical appointments in the Army. The Government, however, approve of the continuance of the present system, and consider that it is only necessary that the people at large should learn by experience that the possessor of a degree possesses also a special and useful knowledge for the services of each graduate to be equally required and amply rewarded.

Bombay.

From the Grant Medical College at Bombay six students obtained commissions in the covenanted medical service, after passing the prescribed examinations in England, and were likely to proceed ultimately to the degree of doctor of medicine. The institution continued to grow in popularity, the numbers on the rolls increasing from 286 to 326, of whom 231 attended the English classes, and 91 the vernacular classes, while four women joined the class for midwives. Former students, now employed under Government, shewed during the famine the advantages of the sound and practical training received at the college.

SANITATION.
Bengal.

The discussion of the question of sickness caused in Bengal by obstructed drainage, partly through roads, railways, and embankments, but still more through natural silting up or destruction of old watercourses, led Government to issue instructions to local officers to improve drainage as far as possible. It was pointed out that existing laws give ample power to deal with obstructions, that very often the expenditure of a few hundred rupees might afford relief to thousands of sufferers, and that district road committees ought to be able to render assistance by diverting their funds to the purpose, or, if not able to do so, by causing their engineering staff to devise and lay out village drainage schemes. The Lieutenant Governor stated that he would be always willing to assist district officers and public bodies by grants-in-aid, as far as possible, to enable them to improve the condition of the people. The subject of providing good drinking water was taken up at the same time, and district magistrates were requested to try and induce such native gentlemen as wish to dig tanks or wells, always considered a meritorious action, to place them where the need for water is greatest. Government also promised to assist district officers and public bodies by grants-in-aid whenever a really useful scheme to improve drainage or provide pure drinking water is projected. A scheme for draining the extensive swamps in and around Rungpore was approved by Government. Drainage works for Darjeeling town were completed, and the water-supply scheme was finally settled. Considerable progress was made with the waterworks at Dacca. Sanitary and conservancy arrangements were actively attended to in that municipality. The insanitary condition of Sunker Bazaar, the worst and most filthy part of the town, was rectified. All the cesspools in it were closed and the privies cleaned, and a monthly fee of five annas was levied from each house to defray the expenses of attending to its conservancy. It is intended to similarly deal with other parts of the town; and it is proposed, after the water-supply arrangements are completed, to close all the private wells along the waterworks lines, as they are fouled with soakage from innumerable cesspools. At Patna, a swamp which was used as a latrine and receptacle for refuse and filth was drained by cutting through it an eight feet deep drain, and the land on both sides of the drain was sold to people for the construction of houses. The obstructions to the Bankipore Canal, which forms the communication between the river and low lands to the south of the town, were removed, and its bed levelled so as to prevent stagnation of water. In the town of Purneah bylaws were sanctioned and strictly enforced; two latrines were built and ground taken up for trenching nightsoil; the conservancy staff was strengthened, and carts were provided; the main roads were repaired; two large masonry wells for drinking water were taken under municipal control, declared public, repaired and improved; the drains were cleared and jungle cut. A survey is proposed in connexion with a scheme to improve the drainage. The Bazaar at Kishengunge, pronounced by Dr. Coates "the filthiest place he had ever seen," was improved. A broad metalled road, with side drains and several broad byroads was opened out, and the residents have built a few masonry houses. Jute-steeping in, and fouling the banks of the river have been stopped; arrangements have been made to provide latrines and keep the place clean; strict measures have been adopted to prevent the water of the

Ramzam

Ramzam from being fouled by tanners, paper manufacturers, elephants, &c.; a notification has been issued to the effect that any one fouling a public or private well will be dealt with according to law; a stone drain and a masonry well, for which the tradespeople have subscribed 492 rupees, were about to be constructed; and the improvement of the drainage was under consideration. Several good wells have been provided for the large trading mart of Raneegunge, near the Koosi river; the old ones were repaired, some roads constructed, and others widened. Much was done during the year for the sanitation of Pooree town. It was divided into three circles, and a health office *jemadar* placed over each to look after sanitary matters and to report defects. Conservancy arrangements were placed on a more systematic footing. A large drainage channel, running from the principal road and passing through the sand to the sea, was constructed. This channel is to have feeders connected with it which will complete the system of surface drainage. Three tanks were cleared, and two of them reserved and protected for drinking purposes. Several wells were cleaned and repaired, and two new ones dug. Supervision was exercised over the temple, and watch was kept to prevent nuisances; but it is difficult effectually to control the temple authorities. The health officer of Calcutta was much hampered in the important sanitary work of filling up the polluted tanks in the *bustees* (or hamlets inhabited by persons of the very lowest castes) of that town. Unfortunately the health officer stands to the Corporation in the relation of a sanitary adviser only, and they object to entrusting him with any executive power. This is the cause of much friction, and is necessarily most obstructive to the progress of sanitary work. The Government of India have called for a full report on the work to be done, the difficulties in the way of progress, and the resources and intentions of the municipality. The health officer of the port inspected 701 vessels during the year. Careful inquiries were made in each case as to the health of the crew during the voyage; the accommodation provided for them was inspected; whenever sickness was reported to have occurred, the crew were mustered, and each man was minutely examined; if there was any reason to suspect that bad or insufficient diet had been provided, the provisions were inspected; and whenever the hospital reports shewed that there was sickness on board any vessel, she was at once visited, and advice tendered to the captain as to the sanitary precautions to be adopted. The supply of water to the shipping from the municipal hydrants was much appreciated; several of the captains pumped out all the water they had remaining in the tanks, and refilled them with Calcutta water. There are no quarantine regulations for the port, but pilgrim vessels arriving from the Red Sea and Persian Gulf were required to telegraph from Saugor the state of health of the passengers and crew. The pilgrims were all found in good health. At the beginning of the period under review there existed a great number of nuisances from the deposit of sewage on the banks and its discharge into the river; but they are reported to have been for the most part abated. The Government had not yet found it possible to carry out the connexion of the fort drains with the municipal sewer.

In Assam the only sanitary work of importance undertaken during 1877-8 was the drainage of the town of Gauhati. Swamps in the rear of this town had been for years a source of serious injury to the health of the community. In other places the means available were mainly devoted to keeping up the scavenging establishment and maintaining surface cleanliness. The water-supply of some of the larger towns was in a very unsatisfactory state, but the scarcity of funds was the great obstacle to the carrying out of any improvements.

The North-Western Provinces are conspicuous for energy in sanitary administration. While the Sanitary Commissioner (Mr. Plank) and other officers display great zeal and ability, the municipalities, out of a gross income of 200,000 £, spend annually nearly 35,000 £ in conservancy, and over 75,000 £ on works of public utility; and this does not include charges for dispensaries and vaccination. In the opinion of the Chief Commissioner, Sir G. Couper, the towns generally act as most useful examples to the rural population. The most important work of the year was the continuation of the long drainage channels in the canal-irrigated districts of Bulandshuhr and Alighurh, the object of which is the removal of excessive moisture from the lower-lying portions of land to the natural drainage channels of the country. The drainage works at

366.

L 2

Meerut

SANITATION.

Meerut were in course of completion during the year. In many villages of Kumaon and Gurhwal that were visited during the year 1876-7 by a severe outbreak of *mahamari* (a highly contagious pestilence, stated to be similar in many respects to malignant typhus fever), rules have been enforced for the removal of cattle to a distance from human habitations, and for the maintenance of general surface cleanliness. Drainage was extended in all the municipal towns of Bareilly, and their conservancy was improved. Important works, costing 816 £, were carried out at Saharunpur for the further improvement of the drainage of the city site. At Agra drainage and paving works were carried on. All the covered drains of the city were opened out and cleansed, and so fashioned as to remain open drains, which can be effectually inspected and kept perfectly clean; the plan of burying latrine impurities in trenches was introduced in place of the old plan of burying it in deep pits; and many uneven and unsightly places within the city site were levelled and planted with trees and shrubs. In Banda district it was determined to adopt systematic measures for the improvement of village sanitation. The large villages containing more than 1,000 inhabitants were first taken in hand, and the people there informed by proclamation that manure or refuse heaps must be located at a distance of at least 200 paces from the inhabited site, and only to the north or south of the site; that no nuisance should be permitted within a circle of 200 yards radius around the village site, or within 20 yards of any village road or path way; that unwholesome trades should not be carried on within the inhabited site; and that all wells of water used for drinking should be kept clean. The local *tahsildar* and police inspector were to report upon ten villages weekly in each police circle; and cases of persistent neglect of the above rules would be punished under the Indian Penal Code. A special report requested by the Secretary of State on the arrangements for the drainage and conservancy of Cawnpore was received in July 1878. The drainage scheme was carried out some years ago on principles deemed unscientific by sanitary authorities, large sewers being constructed for the removal of storm waters, and the disposal of solid sewage being left to hand labour and carting. The scheme was locally considered to be suited, on the one hand, to the position of the city, and on the other to the native habits of life. Cawnpore is built on the two sides of a high ridge, involving two distinct systems of drainage, both of which begin from or near the Ganges Canal, and terminate in the Ganges River. It now appears that the western main channel is, for about two-thirds of its course, not properly flushed at all, and abounds in noxious impurities; moreover, there are some populous portions of the city which are not connected with either system, and the side drains of which deposit much impurity. The Government of India hope that these defects will be remedied as soon as the municipal finances permit.

Punjab.

The work of sanitary improvement continued to make satisfactory progress in both the districts and the municipalities of the Punjab. In the latter the expenditure for sanitary purposes mounted to 68,448 £, or 33·7 per cent. of the receipts. Projects of water-supply and drainage for Delhi have long been in hand, but seemed as far as ever from completion. The roads, however, were daily swept and watered, and measures were carried out for the prompt removal of filth. In the municipal towns of Gurgaon district all wells used for drinking purposes were thoroughly cleaned and repaired, and considerable sums were spent for conservancy and paving. In Hissar district the wells were kept clean, drainage was good, and cleanliness was strictly maintained in the large towns by the municipal sweepers. A large drain in the town of Hoshiarpur, which had been under construction for the last two years, was completed, and is pronounced to be "a valuable sanitary work." In all the towns of this district great attention appears to be paid by the authorities to conservancy and sanitary arrangements. Umritsur city is also favorably mentioned in this respect. The preliminary operations for a supply of pure water to Lahore were taken in hand. The drainage of Rawalpindie was good, and great attention was given to conservancy, but after the discussion of various schemes for a water-supply nothing appears likely to be done at present owing to special difficulties presented by the situation of the town. Extensive measures were adopted for the improvement of the towns in Shahpur district, wells and tanks were cleaned, holes were filled up, streets paved and drained, and sewage channels kept clean. The civil officers were reported to take a very practical interest in these matters. The

SANITATION.

The improvements at Simla have been progressing; various alterations have been made in the bazaar, roads have been widened, the market was nearly completed in May 1878, and the reservoirs for the water-supply had been begun. A committee appointed in October 1877 to advise as to the details of the works found some difficulty on the question of the disposal of excreta. They recommended that in the dry season cremation should be the method employed, and that in the wet recourse should be had to agriculture; and they urged the prohibition of the promiscuous defilement of all lands in the station, and the supply and regulation of latrines. The whole cost of the improvements, according to a revised estimate, is put down at 160,000 £, of which the water-works would probably absorb 110,000 £. The Government of India have promised a grant of 50,000 £, and an examination of the municipal finances shewed that they could bear a loan of 70,000 £: how the remaining 40,000 £ was to be raised was, in May of last year, under the consideration of the Imperial in communication with the Punjab Government. The Lieutenant Governor of the Punjab has determined, at the first favorable opportunity, to amalgamate the Departments of Sanitation and Vaccination, placing both under the direction of the Sanitary Commissioner. In intimating his intention to the Government of India in September 1878, he observed that by this measure the former department would be beneficially strengthened, while the latter would be most usefully employed at a time when ordinarily it has little to do.

Some sanitary progress is said to have been made in every district of the Central Provinces, especially in the matter of a pure water-supply. Rules regarding public health, published under authority, are supplied to every town and village, and the heads of these communities are charged with the duty of seeing that these rules shall be acted up to as far as practicable. The large lake which supplies part of Saugor city with water received much attention; accumulations of weeds and other matter were removed, and men were employed for the purpose of preventing it from being polluted. The surface drainage was extended, and defective drains were put in repair. Many wells in the district were deepened, cleaned, and repaired during the hot weather. Systematic conservancy arrangements came into operation at Damoh; and drainage was much improved in that and other towns of the district. In Jubbulpore three large tanks, which were fouled by sewage and other offensive matter, were in process of being filled up. The drainage of the station of Hoshungabad was found to be defective by a committee which assembled in July to inquire into the alleged prevalence of fever there; the recommendations made by this committee to remedy the defects brought to light have since been carried out. A beginning was made at Chindwara towards systematic conservancy similar to that at Nagpore; and the same system was brought into force during the year at Seoni, and was working satisfactorily. At Nagpore itself conservancy arrangements continued satisfactory; about 30 public latrines were maintained in the city and suburbs, and the dry earth system was thoroughly carried out in them. This city is in great need of efficient drainage; but as the municipality is burdened with its debt on account of the waterworks, it was determined for the present, before attempting expensive works in another direction, to devote any funds it can spare towards completing the water service. Several densely populated parts of the town are still without water, and the people petition for extension. In the Chanda district it is stated that the constant endeavours which have been made to get the people to refrain from washing and bathing in tanks from which water is drawn for drinking purposes are beginning to have some good effect; the people, it is also reported, are ceasing to defile the immediate vicinity of their villages. There was in 1876 a considerable outbreak of cholera at Ramtek fair in the Central Provinces. The tank in which the people bathe is considered sacred, and although the water was described as "stinking," yet the people drank it in preference to going a short way to wells for a purer supply. Large new wells were therefore constructed at convenient spots during the subsequent dry weather, efficient conservancy and other sanitary arrangements were carried out under police control; eight latrines were constructed, and great care was taken to keep clear the ground on the hill sides between the temple and the area occupied by the assemblage. The result was that, although more than 125,000 people gathered at the fair in 1877, no sickness occurred. The scheme for employing vaccination officers in general sanitary work in the Central Provinces was strongly discredited by the

SANITATION.

Local Administration. It was represented that, while their services were found useful in such work as distributing cholera medicines, they were as inefficient a body of men as it would be possible to place on sanitary work, having little or no education, no influence with the people, and the same conditions of life and prejudices as the rest of the population. Should they attempt such work, their proper duties would be obstructed by the opposition that would be arrayed against them. To this the Government of India replied that in other provinces the scheme had been generally accepted, and was being gradually acted upon; that it was deemed very desirable that the vaccination staff in the Central Provinces should be utilised in the Health Department under judicious management; that their status and education should be gradually raised; in short, that the risk that the measure may be badly carried out did not seem sufficient cause for abandoning it.

British Burma.

Much attention appears to have been given to sanitary improvements in the municipal towns of British Burma. Water was supplied from the Royal lakes to the Poozoondoung quarter of Rangoon; and a comprehensive scheme for supplying the whole town by the formation of a new lake was under consideration. When this has been accomplished it is to be hoped that it may be followed by a drainage scheme, for at present the mode of disposing of the night-soil appears to be most objectionable. It is placed in barrels, and conveyed by bullocks to the river. Sanitary progress in this town is greatly retarded by the opposition which any measures involving the slightest expense encounter from the residents, many of whom are speculators from Madras, who have no interest in the welfare of their place of temporary sojourn. The action of the municipality of Bassein in regard to the drainage of low sites, the erection of public latrines, &c., is reported to have been very creditable; and some good work was also done at Akyab.

Ajmere.

Conservancy was fairly well managed during 1877-8 in the municipal towns, Ajmere and Beawur. The question of a water supply for the former town was still under discussion. A reservoir for the water-supply of Nasirabad was finished during the year. As the centre of an important system of railways, Ajmere town bids fair to become populous and wealthy; but better water, better conservancy, and better drainage are still necessities.

Berar.

Scarcely any allusion being made by Dr. Abbott to sanitary work in Berar, his attention has been called to the principle distinctly laid down by the Secretary of State that sanitary measures are to be regarded as forming the most important part of the duties of a Sanitary Commissioner. No works of importance were undertaken in the province during 1877-8. The Government of India have suggested to the Resident whether a larger amount could not be allotted to sanitary purposes from the surplus revenues of Berar.

Mysore.

Among miscellaneous public improvements carried on in Mysore during 1877-8, the chief work was connected with the water-supply of Bangalore and Mysore, and the drainage of the latter town. The two water schemes were from 1 September 1877 made mainly subservient to famine requirements, and gave employment to numbers of distressed persons. The Mysore drainage scheme was carried out to the extent originally proposed, but some additional improvements were projected.

Coorg.

In Coorg no sanitary works were taken in hand during 1877-8 by the municipal authorities, but a certain amount of attention was directed to conservancy.

Madras.

No sanitary work of any importance was carried on in the Madras Presidency during 1877, both the attention of Commissioners and the resources of the municipalities being claimed by the exigencies of the famine. In the capital an unfortunate resolution was passed that Mr. Clark's scheme of drainage was too costly to be carried out from municipal funds. Thus it appears that Madras must, for the present at least, continue in its filthy and unwholesome condition, while the two other great capitals of India have been energetically taken in hand. A good amount of work appears to have been done in the capital in the way of conservancy, and in the improvement or removal of the *parcherries* or quarters inhabited by persons of the very meanest castes. The usual effective sanitary and police arrangements were carried out at the annual festivals held in the Madras Presidency with most satisfactory results. At Mylar there were as many as 66,000 persons present, and among the precautions taken, 461 sweepers and 76 scavengers were employed

employed under strict supervision; although the weather was exceedingly oppressive, no sickness whatever appeared among the pilgrims. At the Humpy feast cholera carried off 12 victims; the disease prevailed in the neighbourhood, and the outbreak was attributed solely to the unusually hot weather. The Inspector of Vaccination in Madras has been authorised to take a part in the sanitary inspection of towns and villages, and has been constituted a Deputy Sanitary Commissioner. With a view to utilise in general sanitary work the services of Deputy Inspectors of Vaccination, who are at present for the most part unqualified by their education and training for such work, arrangements have been made to ensure that future candidates shall have some knowledge of elementary hygiene.

On the subject of sanitary works in the interior of the Bombay Presidency, Bombay. no information has been supplied for 1877-8. A scheme has at length been sanctioned for the drainage of Bombay, which, including 100,000 l. for additional waterworks, is estimated to cost 600,000 l. It consists in the construction of a series of large sewers, which shall carry off the nightsoil and sewage of the whole city to the western shore of the island, at a point known by the name of Love Grove, where it will be thrown by a powerful pumping apparatus into the sea in a locality where no harm will arise. By this measure, among other benefits, the waters of the harbour and of the Back Bay will be free from pollution. The old superseded sewers will be used for carrying off rainwater only. The main drainage is intended to be followed up by a system of house connections as soon as the question of payment for such connections has been decided. With regard to the water supply of Bombay, it has been reported that the proposed reservoir on Bundarwada Hill will, by affording a constant supply, make it possible to do away with the dipping wells, while the scheme will include the filtration of the Vehar water; and that the question of elevating all water-pipes above the level of the sweepers' passages and drains was under consideration.

XI.

EMIGRATION.

EMIGRATION.
Bengal.

In consequence of the scarcity in Oudh and the North-Western Provinces, and the active operations of the emigration agents, the number of emigrants despatched from Calcutta to the Colonies rose from 7,734 in 1876-7 to 18,488 in 1877-8. Of these, 8,288 proceeded to British Guiana, 2,336 to the Mauritius, 1,092 to Natal, 4,087 to the British West Indies, 2,361 to the French West Indies, and 324 to Surinam. Nine emigration agencies were at work, employing 461 licensed recruiters. The larger proportion of the emigrants came from the North-Western Provinces, Oudh, and Behar. Colonial emigration has never been popular in Bengal proper, and there was a positive decrease during 1877-8 in the number of Bengal emigrants. Thirty-seven sailing ships and one steamer were employed in the conveyance of emigrants, the average number conveyed in each vessel being 486. Altogether 2,544 emigrants returned from the Colonies in 1877-8, bringing with them acknowledged savings in money amounting to 47,293 l., or an average of 18 l. for each person. Many also possessed valuable jewelry. Evidence of the material prosperity of immigrants in Demerara is afforded by the fact that three Indian coolies run thoroughbred horses in the local races, frequently winning prizes. In the town of San Fernando 22 of the burgesses were originally Indian coolies; one died lately, leaving a fortune of 13,400 l. On the other hand, among the great mass of coolies, there is much drunkenness, with want of cleanliness, and with a tendency to imitate the lazy habits of Creole or Negro labourers.

Inland emigration also received a marked impetus during 1877-8. The number of persons registered as willing to emigrate to the tea districts amounted to 36,209, of whom 27,879 arrived at their destination. There were 26 licensed contractors at work, employing 780 recruiters. Several large Calcutta firms who are interested in tea estates have established depôts under the supervision of Europeans, and it is hoped that this may have the effect of stopping the malpractices prevailing in the recruitment of emigrants. Efforts were made to reduce the mortality among the coolies during the voyage from Goalundo to Assam, but no great success was attained. It is, however, not unlikely that the main stream of emigration will be diverted from the river route to the Northern Bengal State Railway. This will convey emigrants from Calcutta to Rungpore, whence they will march to Dhubri, and there embark for Assam. Complete arrangements have been made for providing shelter and medical treatment for emigrants on the line of road from Rungpore to Dhubri.

Assam.

There was a considerable increase during 1877 in the immigrant population of Assam. At the beginning of 1877 there were 135,807 immigrants in the provinces. During the year 86,712 others were added, and 65,300 removed from the books. Thus the total number remaining in the province at the end of the year was 157,219, shewing an increase in the immigrant population of 21,412. A very large number of immigrants as compared with previous years entered the province *via* the Dhubri and Rajmehal route. The labourers are said to be well treated and well cared for by their employers, and are in the main contented with their lot.

N. W. Provinces
and Oudh.

Owing to the distress prevailing in the North-Western Provinces and Oudh, whence the larger proportion of the supply of colonial emigrants is usually drawn, the numbers (13,254) of persons from these provinces who emigrated during 1877-8 to the colonies was nearly treble that (4,279) of the previous year.

Punjab.

Only 69 of the persons who proceeded during 1877-8 from Calcutta to the colonies were recruited from the Punjab and its dependencies.

British Burma.

No emigration takes place from British Burma to other countries, but there is considerable immigration. From Upper Burma labourers arrive every year, especially at harvest time, in large numbers, and some settle permanently. Shans from the Burmese and Chinese Shan States also come down. These Shans are in many instances provided with free passages by steamer at Government expense, as they are found to be thrifty and industrious persons whom it is

is desirable to encourage. They often move down by whole villages at a time. Labourers come over in considerable numbers from Madras to the southern ports during the rice-shipping season, but few remain after its close. Labourers from Chittagong visit Akyab in like manner, but few of them settle annually in the district. There are many Chinese in the towns, some of whom are permanent residents, but probably most of the Chinese who come into the country return when they have amassed some little wealth. Nearly all of them come *via* Singapore and Penang from the southern seaboard provinces of China. Attempts have been made by Government to promote immigration from India, but without success, and the project has been finally abandoned. Between November 1877 and the close of the financial year, 758 immigrants, including women and children, were brought over from Cocanada under the provisions of the Burma Labour Act of 1876.

During the year 1877-8 there were 41,113 persons reported to have immigrated into Berar, of whom 18,846 are stated to have remained. However, whether they found employment in Berar or retraced their steps, all signs of the immigration soon disappeared.

Only 54 persons, most of them belonging to Bangalore, emigrated from Mysore during the year. Eight embarked from Karikal and nine from Pondicherry for Martinique; 37 embarked from Madras for the Mauritius and Natal. Twenty-three returned during the year from Natal to Madras, and one returned from the Mauritius. The number who returned from French colonies cannot be ascertained.

Numbers of immigrants from Mysore and other parts flocked into Coorg during 1877-8 in search of work and food.

Emigration from the Madras Presidency to the British colonies of the Mauritius and Natal was resumed during 1877-8. Emigration to Cayenne ceased to be recognised from 24 July 1877, as the climate of that place was found to be prejudicial to the health of the Indian coolies. From the port of Madras 1,500 emigrants embarked to the Mauritius, and 23,901 to Natal; while 1,072 embarked from French ports to Réunion, and 1,232 to the French West Indies. About 150,000 coolies proceeded to Ceylon during the year. Rules were sanctioned for working the British Burma Labour Act of 1876 at Cocanada, from which port alone emigration was for the present permitted. The Straits Settlements Emigration Act of 1877 was also brought into working operation. During the year there was no registered emigration from the North Arcot district. This is a noteworthy fact, as shewing the tenacity with which the natives cling to their villages even under the stress of a severe famine.

There was no general emigration from the Bombay Presidency during 1877-8. The colony of Talavias, a description of whose settlement was given in the last statement, continued to work upon some of the waste lands in the Pauch Mahals, and received the aid of Government in procuring grain and means of cultivation. The progress of this curious and interesting movement was being carefully watched. Temporary emigration took place to a large extent in parts of the Deccan, the movement gravitating towards the Ghats or beyond them to the towns on the coast.

XII.

E D U C A T I O N .

EDUCATION.

EXPENDITURE on education in British India absorbed no less than 738,020 *l.* of the revenues of the Imperial Government. Fees and fines, income from endowments in land, contributions, sale proceeds of books, &c., and miscellaneous receipts, amounted to 108,994 *l.*, and reduced the charges on the "imperial" revenues to 629,026 *l.*, which was apportioned to the respective provinces as follows:—Bengal, 200,500 *l.*, among a population, according to the last census, of 60·5 millions; Bombay, 110,500 *l.* among 16·3 millions; Madras, 89,500 *l.* among 31·6 millions; North-Western Provinces, 73,500 *l.* among 30·7 millions; Punjab, 58,750 *l.* among 17·6 millions; Central Provinces, 32,500 *l.* among 8·2 millions; Oudh 22,000 *l.* among 11·2 millions; British Burma, 18,750 *l.* among 2·7 millions; Assam, 14,000 *l.* among 7·8 millions. From these figures it appears that the actual contributions from "imperial" revenues to each head of population in the several provinces were respectively,—British Burma 1·68 *d.*, Bombay 1·62 *d.*, Central Provinces 0·95 *d.*, Assam 0·81 *d.*, Punjab 0·80 *d.*, Bengal 0·79 *d.*, Madras 0·68 *d.*, North-Western Provinces 0·57 *d.*, Oudh 0·47 *d.*. In Ajmere, Berar, Mysore, and Coorg, taken altogether, the contribution was at the rate of 0·27 *d.*. The average for the whole of India was 0·79 *d.*. Besides "imperial" contributions it is calculated that at least one million sterling was furnished from provincial and private sources.

STATE OF
EDUCATION.
Bengal.

The improved financial position of the Government of Bengal in 1877-8 enabled it to raise the educational grant from 246,724 *l.* to 251,094 *l.*. This stimulated private liberality to such an extent that the departmental receipts advanced from 47,181 *l.* to 51,980 *l.*; consequently the net Government expenditure amounted to 200,006 *l.*, being an increase of about 1,000 *l.* over the net expenditure of the previous year. At the close of the year the number of schools had increased from 21,478 to 26,218, and the number of pupils from 589,351 to 641,400. Primary schools rose from 12,272 with 302,500 pupils to 16,042 with 360,322 pupils, this being mainly due to the fact that many schools hitherto unaided were brought under Government supervision. During the year the lower or intermediate English schools were abolished as a separate class on the ground that they encouraged a defective system of teaching both English and the vernacular. There were seven colleges teaching to the standard of the B.A. examination, and five second grade colleges teaching to the first art standard. The number of pupils in all colleges rose during the year from 1,792 to 2,003. Casualties among the superior officers of the graded service seriously affected the efficiency of all the colleges. In every branch of special instruction except that of law the number of students seriously declined. In the Medical College the number of pupils fell from 176 to 145, in the Engineering Department from 124 to 87, and in the School of Art from 119 to 89. The number at the Vernacular Survey School remained constant at 160. The scope for the Artisans' School of Dehree was enlarged and the standard raised, in the hope of enabling employers of skilled labour to secure in India trained engineers and foremen whom they had hitherto been obliged to import at great expense from England. Normal schools were reduced in number from 31 to 24, and subsequent reductions since the close of the year brought the number down to 17, which is considered sufficient for the requirements of the backward parts of the province.

Assam

Fair success attended the working of the Education Department in Assam during 1877-8. There was an increase of 42 schools and of 2,451 pupils as compared with the preceding year's figures. This increase both in the number of schools and pupils was mainly under the heading "Primary Instruction," but the other stages of instruction exhibited a progressive element. Normal schools are said to have done much useful work. Under the heading of "Technical Schools" are included the Artisans' School at Jorhat, and the survey class attached to the Sibsagar Zila School. Both these schools are supported from the Williamson Endowment Fund. In the Artisans' School the arts of the carpenter, the wheelwright, and the blacksmith are taught, and it is working with tolerable success.

No

STATE OF
EDUCATION.
N. W. Provinces
and Oudh.

No injury is reported to have been done to the cause of education in the North-Western Provinces and Oudh by the reductions of 1877. The abolition of the least useful girls' schools, the withdrawal of grants-in-aid from some of the worst aided schools, and the closing of a few Oriental departments (established experimentally), were measures not only expedient financially, but also beneficial to the true interests of education. The remaining schools have been made more efficient, and the quality of the teaching has been improved. In Oudh the number of schools remained at the close of the year 1877-8 nearly the same as in the previous year, and the attendance somewhat increased. In the North-Western Provinces there were 557 fewer schools than in 1876-7, and 1,053 fewer than in 1875-6, the decrease being chiefly confined to girls' schools and indigenous schools. It was found that the State spent less as a rule per pupil in Oudh than in the North-Western Provinces, but the greater costliness of the educational establishments of the latter province was justified by their greater efficiency. Primary education suffered some interference during the year from the effects of the scarcity that prevailed. Schools maintained by municipalities in the North-Western Provinces were doing good work in giving elementary instruction to the poorer classes of towns. There was a slight increase during the year in the number of scholars under superior instruction. Ample provision for the education of poor Europeans has been made at all the larger stations. It should no longer be possible for any European children to grow up in these towns uncared for in respect of education. If the measures now in full operation are properly supported and maintained, what threatened to become a great evil will be effectually averted.

Punjab.

In the Punjab the number of Government institutions (exclusive of the Punjab University College) declined from 1,601 in 1876-7 to 1,564 in 1877-8, and of aided institutions from 470 to 464. The average daily attendance of scholars during 1877-8 in Government institutions was 72,181, a decrease of 1,364 as compared with the previous year; notwithstanding this reduction the number of pupils rose from 87,725 to 88,692. In aided institutions the average daily attendance was 21,603, an increase of 1,704. Delhi College was closed on 1 April 1877, the object of its abolition being to strengthen the Government College at Lahore by the increase of the professional staff, which could only be done by the withdrawal of professors from Delhi. It was considered better to have at the capital of the province an institution in which the highest education would be afforded to a large number of students than to maintain two institutions both inefficient. A great majority of the Delhi students came without remonstrance to Lahore to complete their education. In the Lawrence Military Asylum at Sanawar there were 410 children. Eleven aided schools were being maintained specially for children of European descent, besides the European training school at Delhi. Forty-seven pupils were at the close of the year on the rolls of the Mayo school of industrial art at Lahore, and the progress of the school was on the whole satisfactory.

Central Provinces

Education progressed very favorably during the year 1877-8 in the Central Provinces; there were at its close 902 Government schools, attended by 53,376 scholars; 341 aided schools, attended by 16,762 scholars; and 165 unaided schools attended by 4,128 scholars. Government schools have been stationary for some years, though the scholars have increased, while the average attendance has increased in a greater ratio. Private schools have decreased largely as regards numbers, less so as regards scholars, the decrease being mainly due to the collapse of a large number of schools in the Sambalpur district. Favorable results were obtained by the single High School in the Province. Middle class schools improved in the number of scholars and in the instruction imparted. Many of the private schools did well, and both the Protestant and Catholic Missionary Schools were doing useful work. Normal schools are stated to have been turning out good masters calculated to improve the schools to which they might be sent. More than 50,000 *l.* was expended on education, about one-half of which was spent on primary education.

British Burma.

As regards middle and higher class education in British Burma, there was but little progress to record during 1877-8, but the influence of the Educational Department continued to extend among the numerous primary schools of the province. More primary schools were inspected than in the former years, and the attainments of the pupils appeared to be somewhat higher. Expenditure shewed an increase over that of 1876-7, costing 366.

M 2

Government

STATE OF
EDUCATION.

Ajmere.

Government 33,134 l., the additional money being the contribution from local funds. Very little was spent on primary education, but the cost of middle and higher class schools was heavy. Various branches of technical education have been from time to time attempted without success. During the year 1877-8 a surveying class was opened, but no good results were attained.

A revised scheme for extending elementary instruction in the Ajmere and Mhairwarra districts was brought during 1877-8 into almost complete working order. Mission schools continued to render gratuitous help to secular education. About eleven of these institutions were closed during 1877-8, leaving 81 open at the end of the year. There was an increase in the aggregate number of scholars under instruction in the province from 4,902 to 5,221, and in the average daily attendance from 3,883 to 4,044. It is stated that the boon of education was still insufficiently appreciated by the mass of the population. Ajmere College offers an excellent education to the boys of Ajmere at an almost nominal cost. Its pupils are mainly children of Government servants, and of well-to-do citizens. The college is undoubtedly popular, but the total number of pupils on the rolls at the close of 1877-8 was only 190.

Berar.

The Education Department in Berar started too ambitiously, and what is now sought is to consolidate the ground covered in former years, and to diffuse primary instruction among the masses rather than to set up high schools and middle class schools, which cannot properly be so graded according to a standard of results. Akola high school did well in 1877-8, but that at Amraoti continued very inefficient. There were 33 middle class schools, most of which improved in efficiency. The total number of educational institutions in the province at the close of 1877-8 was 694, containing 27,177 scholars, the average daily attendance for the year being 17,304.

Mysore.

School attendance in Mysore was adversely affected during 1877-8 by the severe distress prevalent throughout the province. In the Government institutions the numbers fell from 29,373 to 25,781. All classes of schools, Government, aided, and unaided, numbered 1,580, with an attendance of 39,379 boys and 4,233 girls.

Coorg.

A slight decrease occurred in the number of pupils under instruction during 1877-8, in Coorg, bringing the total to 2,719. The decrease in the number was almost wholly confined to those in private unaided schools.

Madras.

Owing to the famine and the changes in the results grant rules, the total number of colleges and schools in the Madras Presidency fell from 10,121 in 1876-7 to 9,143 in 1877-8, and the number of pupils from 287,948 to 255,809. Of these pupils 1,151 were in the college department; 4,317 in the upper department of colleges and schools; 13,432 in the middle department; and 235,038 in the lower department; 395 were normal students; 1,195 were pupils in practising schools; and 281 in technical schools. Altogether 274,690 l. was expended on education during the year, and of this amount 130,300 l. was contributed by Government. School fees collected fell off in all classes of schools. Collegiate schools educating up to the first art standard, and higher class schools increased. The movement for establishing gymnasiums at the principal higher class schools made some progress, apparatus being purchased, and an instructor employed at Salem, Cuddapah, and Kurnool. Arrangements for a central gymnasium at Madras were nearly complete. Owing to the famine, middle class education remained stationary; lower class schools decreased in number, the decrease being mainly due to the famine, and also to the operation of new and more stringent rules for results grants.

Bombay.

The number of educational institutions recognised by Government in the Bombay Presidency was 4,417 during the year 1877-8, or 47 less than in 1876-7. At the 3,607 State institutions, 207,369 pupils were on the rolls at the end of the year, to which were to be added 171,150 at the 208 aided, and 23,621 at the 602 unaided establishments. Excluding miscellaneous expenditure, the cost of Government institutions was 230,452 l., of aided ones 50,969 l., and of inspected establishments 17,155 l. In the 43 high schools the number of pupils declined from 8,527 to 7,735, the decrease being due to the withdrawal of four aided institutions from their connexion with Government. Middle class schools fell in number from 152 to 145. Judging from the inspector's reports this description of schools had not nearly approached the standard expected. A temporary check to primary education was caused by the

STATE OF
EDUCATION.

the famine. A great portion of the falling-off in attendance was in the districts in which the decrease of cess receipts, owing to suspension of collection of land revenue, led to the closing of some of the less frequented schools. There were six training colleges or schools for male and three for female students. Except in Sind, where the progress was not satisfactory, the training institutions are stated to have been doing good work. With regard to special colleges, the number of students in the law school rose from 113 to 128. Good progress was made by the Grant Medical College; three of its students went to England and obtained commissions in the medical service. At Poona Engineering College the pupils increased from 164 to 172; the apprentice classes at this college are largely recruited from Eurasians and Portuguese. For the accommodation of Sir Jamsetji Jeejeebhoy's School of Art at Bombay, a new and permanent building was begun in 1874, and completed at the beginning of 1878, the school being removed into it from its former quarters on 1 April 1878. The number of pupils on the rolls rose during the official year from 132 to 155.

To the various examinations of the University of Calcutta 4,124 students were sent up during the year 1877-8. Of these candidates, 1,674 passed, including 113 Christians, 1,432 Hindoos, 85 Mahomedans, and 44 of other religious denominations. With one exception, all these were natives of India.

On the occasion of Her Majesty's assumption of the title of Empress of India, it was announced that the Punjab University College would be elevated to the rank of a university, but certain objections were afterwards advanced in England against the measure, and the Secretary of State hesitated to confer on the college the full powers of a university, pending the receipt of a further report on the matter. During 1877-8, therefore, the students were compelled in most instances to present themselves for both the examination of the Punjab University College and that of the Calcutta University.

In Madras an important event occurred during 1877-8 in the settlement of the question of affiliation of subordinate institutions to the university. A number of these institutions were affiliated in the various faculties, and as a general rule students will be obliged in future to produce certificates of attendance from the heads of these institutions before they present themselves for examination under any degree. There was a trifling decline in candidates for the matriculation examination, and only 807 passed against 1,250 in the previous year; but the decrease in the number of passes was due to a return to a former and higher standard of examination. Among the successful matriculation candidates was included for the first time the name of a female student. The university was said to have become almost self-supporting. Owing to the reductions recently made in the amount of fees to examiners and other matters, the net cost was only 381 l. against 1,154 l. in the previous year.

Out of 1,437 candidates that presented themselves during 1877-8 at the various examinations of the University of Bombay, only 384 passed. Among those were 14 Europeans, the remainder including 17 native Christians, 258 Hindoos, six Mahomedans, 86 Parsees, and three of other denominations. Three girls appeared at the matriculation examination, and two of them were successful. The standard of the previous year was maintained for this test, but some changes were introduced into subsequent examinations.

In Bengal Mahomedan pupils increased from 106,590 in 1876-7, to 111,645 in 1877-8. Several new scholarships were given from the Mohsin fund to enable Mahomedan students to continue their English studies in the Calcutta Madrasa or at other Government institutions. The total expenditure from this endowment on Mahomedan education was 5,653 l. In Assam rather more Mahomedans attended the schools than in the preceding year. Mahomedans in the districts of Sylhet and Cachar are somewhat apathetic in the matter of State education. With regard to schools not under inspection, it was ascertained that in the Sylhet district there were over 200 independent *maktabs* or private schools attended by more than 3,500 Mahomedan pupils. The education given in these *maktabs* is generally nominal, consisting of the teaching of portions of the Koran to a few of the Mahomedan boys of the village. The teacher is generally an itinerant *mulla*, who settles down for some months in a village,

MAHOMEDAN
EDUCATION.
N. W. Provinces.
Oudh. Punjab.

Central Provinces.
British Burma.

Ajmere.

Berar.
Mysore.
Coorg.
Madras.

Bombay.

FEMALE
EDUCATION.
Bengal.

Assam.

N. W. Provinces.

Oudh.

Punjab.

Central Provinces.

British Burma.

and when he thinks he has performed his mission, he betakes himself to some other village where he starts a new *maktab*. In the North-Western Provinces there were 47,377 Mahomedan scholars on the rolls at the end of the year, and 14,290 in Oudh. In the Punjab the number of Mahomedans under instruction has been stationary for some years; at the close of 1877-8 they numbered 43,088. In the Central Provinces there were 5,844 Mahomedans under instruction in 1876-7, and 5,700 in 1877-8. In British Burma the number of Mahomedan pupils at the end of the year was stated to have been 309. In Ajmere there were 241 Mahomedan pupils in the schools connected with Government. The numbers in the seven missionary schools have not been stated, but were probably greater than those in the Government and aided schools. In Berar there were 3,509 Mahomedans under instruction in 1877-8, as compared with 3,602 in 1876-7. In Mysore the number of Mahomedans fell from 3,797 to 3,491. In Coorg 88 pupils out of a total of 2,719 were Mahomedans. In the Madras Presidency there was a decrease in the number of Mahomedans under instruction from 20,653 in 1876-7 to 18,008 in 1877-8. Among these there were 1,020 girls. The proportion of the Mahomedan population of the Presidency to each pupil was as 103 to 1. In the Bombay Presidency the number of Mahomedans under tuition fell from 27,263 to 26,563, or 10·7 per cent. only of the aggregate number of pupils, whereas the Mahomedans constitute over 15 per cent. of the total population of the Presidency. A satisfactory increase occurred in the numbers of Mahomedan students at the colleges and higher schools.

Native female education in Bengal progressed during the year 1877-8. The number of girls' schools increased from 464 with 10,492 pupils to 519 with 11,964 pupils; but the number of girls in boys' schools decreased from 9,794 to 9,623. Altogether there were 21,587 girls under instruction, against 20,286 in 1876-7. It was found that the Zenana teachers employed by the missionary agencies were in some cases insufficiently qualified for their work, and that the great majority of the pupils had none of that preliminary instruction in school, to complete which is the object of the Government grants-in-aid of the Zenana missions. The time given by the teachers to each house averages, moreover, only two hours a week, including the time devoted to Bible stories and needlework. In the Dacca division the plan, started under native management, of encouraging Zenana teaching by rewards after examination, proved a failure, there being strong grounds for believing that the answers were frequently written by the husbands of the girls under examination. Altogether 1,291 female pupils attended the schools in Assam during 1877-8, or 191 more than in the previous year. Besides those actually at school many girls and adult females are said to devote their leisure hours at home to reading and writing. In the North-Western Provinces there were, besides one normal school for mistresses, 250 girls' schools at the end of 1877-8, containing 6,909 pupils, the average daily attendance being 5,626. The figures for the North-Western Provinces shew a very great decrease in the number of schools owing to the abolition of many that were admittedly worthless, and had entirely failed to realise the hopes upon which they were established. In Oudh there were three female normal schools with 20 scholars on the rolls, and 89 girls' schools, with 2,571 pupils. In the Punjab there were 122 Government female schools, containing 3,147 pupils, and 229 aided schools for natives, containing 7,022 pupils. The female normal schools contained 220 pupils, with an average attendance of 195. Among these is included the European training school for the Delhi Zenana mission, and another for the native schools in the Lahore circle. In the Central Provinces primary girls' schools maintained their position during 1877-8, but the Jubbulpore female normal school, though said to be doing good work, had not yet been able to meet the need for really competent schoolmistresses. The average daily attendance at Government schools increased, but there was a falling-off in the attendance at private aided schools, due to the closing of nearly all the primary private schools of Sambalpur at the end of the previous year. There are no indigenous girls' schools in British Burma, nor are female students allowed in the monasteries. Most of the female pupils in the province are at the lay mixed schools. The only Government girls' school, that at Rangoon, is classed as primary. There

FEMALE
EDUCATION.

Ajmere.

Berar.

Mysore.

Coorg.

Madras.

Bombay.

SCIENCE AND ART.
Bengal.

Punjab.

Central Provinces.

There were 11 aided girls' schools, two of which were middle class schools, and the rest primary; and there were two higher class mixed schools receiving aid from Government. All of these last are missionary institutions. The total attendance of girls in all the schools of the province was 3,938. Of 2,571 who were at the native mixed schools, 442, or 17 per cent., won prizes at the examinations. Five girls' schools were established in the Ajmere and Mhairwarra districts during 1877-8, and were attended by 59 girls. Six stipendiary students were on the rolls of the female normal school, and were making satisfactory progress. The establishment of two more girls' schools was contemplated, it being probable that these schools would meet with success in certain villages. In Berar, girls' schools shewed a decrease of three, and the 13 that were open at the close of the year 1877-8 were in anything but a flourishing condition. The attempt to call girls' schools into existence in Berar must be said to have failed. Until the people are more ready for its reception, it is useless for European effort to foist on to them a growth so purely exotic as female education. There were 4,233 girls attending Government and aided schools in Mysore during 1877-8. A new Government girls' school was opened at Nyamti. Aided girls' schools were said to be doing good work, the Kanarese missionary schools being specially worthy of encouragement. In Coorg 194 girls were under instruction. Little interest continued to be shewn by the Coorg headmen in the matter of female education. In the Madras Presidency the number of girls' schools rose during 1877-8, and the total number of pupils under instruction, including those who attended normal and mixed schools, similarly increased. No new Government or municipal girls' schools were opened; though female education is not, as it once was, almost wholly in the hands of missionary and religious organisations, the number of pupils attending schools of this class shewed a marked advance during the year, while that of pupils attending Government and other schools exhibited a small decline. During three years the number of girls attending schools under inspection rose from 20,000 to 30,000, the latter number not including some hundreds of girls in the schools of Madras supported by the Maharaja of Vizianagram, which furnish no returns. Altogether 30,212 girls were known to be under instruction in the Presidency, of whom 17,335 were Hindoos, 890 native Christians, 1,872 East Indians, 1,017 Mahomedans, 751 Pariahs, 236 Europeans, and 11 Parsees. All classes except Europeans, shewed an increase during the year. The teachers' examination certificate, which has come to be accepted as a sort of test of the efficiency of the more advanced girls' schools, was passed by nearly twice as many candidates as in 1876-7. In the Bombay Presidency there were 243 girls' schools in 1877-8, or seven more than in 1876-7. The attendance was 13,091, an increase of 883 pupils. Besides these there were some girls at mixed schools, and 51 students at the three normal schools for mistresses. The Presidency town, as might be expected, shewed the greatest progress in female education, particularly among the Gujarati-speaking population. Mistresses trained under European supervision are reported to be very successful in attracting and retaining their pupils.

Contributions to the Economic Museum at Calcutta were received during 1877-8 from 43 out of the 56 local committees appointed to collect specimens in district sub-divisions. At the end of the year the museum contained 12,460 specimens, illustrating most of the economic products of Bengal. Attention was given to the important work of having the various classes of products in the museum examined and reported upon by commercial experts. A collection of indigenous dye-stuffs, accompanied by samples of dyed fabrics, was forwarded to the Secretary of State.

Further progress was made during 1877-8 in arranging and classifying the collections at the Lahore Central Museum, and the management of the institution was altogether satisfactory. The number of visitors, 161,216, was largely in excess of that in any previous year. The work of moulding the Yusafzai sculptures by the moulder and pupils of the Lahore School of Art was carried on successfully. Expenditure on the museum amounted to 210 l.

Nagpore Museum continued popular, and was frequented by crowds of visitors daily throughout 1877-8. Out of 257,722 visitors, 114,961 were native women. Nearly 300 new specimens were added to the collection; and a grant of 30 l. was made by the municipality.

SCIENCE AND
ART.
Mysore.

During 1877-8 there were 219,830 visitors to the Bangalore Museum, or 98,857 more than in the previous year. Of these 27,507 males and 628 females could sign their names in the book. Four hundred new specimens were added to the collection. The annual expenditure was 228 l.

Madras.

Owing to the prevailing distress and sickness, fewer persons visited the Government Central Museum at Madras during 1877-8 than in the two preceding years. Out of a total of 180,958 visitors, 107,809 were men and boys, and 73,149 women and girls. The persons who signed their names numbered 47,381, of whom 20,345 signed in English. The unusual number of 14,430 specimens were added to the collections during the year. Additional accommodation was particularly needed for the exhibition of raw products, botanical specimens, insects, &c. There were 2,296 visitors to the public library of the museum, and 1,278 works were added to it during the year. Seven popular scientific lectures were delivered in the museum theatre. The collection and preparation of specimens of raw products for the Paris International Exhibition were begun in October 1877, and over 800 articles were shipped in February 1878. In addition to the series sent to Paris, two other sets were sent to the India Office and the Oriental Museum at Vienna. In round numbers the museum collected and dispatched over 30,000 specimens of the raw products of the Madras Presidency.

Bombay.

Several collections of specimens of different sorts were dispatched from the Victoria and Albert Museum at Bombay to the Paris Exhibition and to New Zealand, and a number of specimens were made over to the Director of the Oriental Museum of Austria. The average daily attendance at the museum was 803. At the close of the year the Sassoon Mechanics' Institute numbered 347 members, made up of 256 Europeans, 75 natives, and 16 Jews. In the library there were altogether 8,078 works. Two popular lectures were delivered during the year. With a view to increase the usefulness of the institute, arrangements were made for keeping open the reading-room from 7 to 9 p.m. A separate reading-room for ladies was also experimentally opened, but a trial of three months shewed that it was not appreciated.

LITERATURE AND
THE PRESS.

Of 4,890 publications other than newspapers registered during 1877, under Act XXV of 1867, in the several provinces of British India, 544 were written in English and European languages, 3,064 in the vernaculars, 719 in Indian classical languages, and 563 in more than one language. Of the total number, 2,451 were original works, and 273 were translations; the remainder were republications. Educational works numbered 1,138, and non-educational 3,752. A large proportion of the works were religious and devotional, their number being 1,242. Poetry came second with 717. Fiction embraced 199, and the drama 119. Under language, 636 works were classed, relating to grammars, dictionaries, vocabularies, and the like. Law was the subject of 241, medicine of 142, mathematical and mechanical science of 148, natural and other sciences of 108, while 86 were devoted to history, 56 to philosophy (including mental and moral science), 36 to biography, 9 to travels and voyages, and only 2 to politics. The remaining 1,149 works were classed as miscellaneous. As regards the publications registered in the different provinces, the numbers in 1876 and 1877 were respectively as follows:—Bengal, 1,512 and 1,576; Assam, 38 and 17; North-Western Provinces and Oudh, 630 and 898; the Punjab 892 and 815; Central Provinces, 1 and 1; British Burma, 69 and 83; Ajmere, none in either year; Berar, 1 and none; Mysore and Coorg, 68 and 32; Madras, 823 and 636; Bombay, 831 and 832. Act X of 1878, for the better control of publications in the Oriental languages, received the consent of the Governor General on 14 March 1878. After the close of the official year, a translation of the Act was forwarded to the publishers of vernacular papers, and their attention was called to its provisions. There were 683 periodicals on the registration list at the end of 1877-8 as eligible for the privileged rate of postage, and no less than 142 of these came into existence during the year, taking the place of 103 periodicals, the publication of which had been discontinued. Of the total 683 publications, 233 were in European languages, 369 in vernacular languages, and 81 in mixed languages. There are four reporters on the vernacular press in Bengal, Upper India, Madras, and Bombay, respectively.

Bengal.

Out of the 1,576 publications of all kinds received during 1877 in the Bengal Library,

LITERATURE AND
THE PRESS.

Library, 1,512 were published in Calcutta. The rest came principally from the Dacca, Presidency, and Burdwan divisions. Bengali works numbered 272. Copyrights of 1,399 books were registered during 1877-8, or 64 less than in 1876-7. The number of native newspapers supplied to the Bengal Library during 1877-8, exclusive of two that ceased to exist, and one, the form of which was changed during that period, was 40, against 35 received in 1876-7. Of the 40 papers supplied to the library, 14 were published in Calcutta, 11 in the Presidency division, 5 in the Dacca division, 5 in the Burdwan division, 3 in the Rajshahye and Cooch Behar division, and 2 in the Patna division. No papers were published in Chittagong, Orissa, and Chota Nagpore. Eight new papers were started during the year. Of these the *Hindoo Lalona*, a fortnightly journal, was edited by a respectable Hindoo lady. This paper deals mostly with social topics, especially such as relate to native females.

All the 17 books registered in Assam during 1877 were of little interest. Thirteen were written in Bengali and four in Assamese. Seven newspapers were published in the province during 1877-8.

Assam.

The number of papers on the list of the reporter on the vernacular press of Upper India, averages about 100, but the number fluctuates considerably on account of the struggling and ephemeral character of many of the publications. During 1877-8 the reporter had 107 papers on his list, against 97 papers during the previous year. Fifteen papers, however, expired before the close of the year, leaving only 92 papers on the list. Of the 107 papers, 46 belonged to the North-Western Provinces, 18 to Oudh, 30 to the Punjab, 3 to Berar, and 10 to native states. Of the 10 published in foreign territory, Rampur contributed 2, native states in the Punjab 3, Rajpootana 2, and Central India 3. During the Russo-Turkish war, single sheets of paper, giving the latest telegraphic news, were also published at many places to meet the local demands for intelligence. Lucknow, Delhi, Lahore, and Meerut are the centres of newspaper publication in Upper India.

Upper India.

Much greater literary activity was displayed during 1877 in the North-Western Provinces and Oudh than during the previous year. Altogether 898 works were registered, but few of them were of any importance. Twenty-one works were in English. Cawnpore and Lucknow were the principal centres of publication. Of the 64 native papers published in the North-Western Provinces and Oudh, 3 appeared daily, 1 twice a week, 35 weekly, 3 three times a month, 11 twice a month, and 11 monthly. The *Oudh Akhbar* had the largest circulation, namely, 820 copies. No other native paper had a greater circulation than 525.

N. W. Provinces
and Oudh.

Among the 815 books registered in the Punjab during 1877 several are said to be works of some interest or value. Twenty-seven vernacular papers were in existence at the end of 1877-8, and 14 of them were issued weekly.

Punjab.

Literature has almost no existence in the Central Provinces. Only one work, and that in English, was registered during 1877. There seem to be no vernacular newspapers in the province. The Indian Railway Service Press at Jubbulpore, under the proprietorship of the Amalgamated Society of Railway Servants in India, publishes the *Indian Railway Service Gazette* once a week, and the *Masonic Record of Western India* monthly.

Central Provinces.

With one or two exceptions, the 41 original works registered during 1877 in British Burma consisted of reports, tracts, and books on religious subjects by the American Baptist missionaries. The republications comprised religious, dramatical, and miscellaneous works in the Burmese and Karen languages. Burmese current literature is said to be represented by a few historical compilations in Arakan, and several struggling periodicals. Modern composition is said to be characterised by want of simplicity and pith, and is long-spun, pedantic, turgid, and illogical. The work of collecting manuscripts was deferred till the arrival of the Pali professor. Twelve newspapers were published in the province, of which two were issued daily, three twice, and seven once a week. There were also various advertising sheets, and four monthly magazines were published by the Baptist Mission and other religious bodies, in English, Burmese, and Karen.

British Burma.

Under the head of literature and the press the record in Berar is always of the slightest. Two works during 1877-8 were presented to the literature committee, and their author was adjudged rewards of 5 l. and 10 l. The

Berar.

366.

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monthly

LITERATURE AND
THE PRESS.

Mysore.

monthly Marathi publication, entitled the *Berar School Paper*, published by the educational department, reached the completion of its second volume. Four vernacular newspapers continued to be published.

Only 32 works were published and registered in Mysore during 1877, against 68 in 1876.

Madras.

In the Madras Presidency the year was not one of much activity in regard to publications, the total number registered falling from 823 in 1876 to 636 in 1877. The printing presses suffered from the effects of the general distress in much the same way as the educational institutions of the Presidency. The decrease in the total number of works registered in 1877 was, however, entirely under the head of reprints. Satisfactory advance was made in the number of "original works" and "translations," and these were chiefly in the vernacular languages. Distributed according to the language of publication, books in the European languages were about 14 per cent. of the total number, works in the vernacular languages were 69½ per cent., works in Oriental classics were 11 per cent., and the remaining 5½ per cent. were bilingual or polyglot publications. The number of publications in Sanscrit and the two classical languages of the Mahomedan population has slightly increased. Some of these are interspersed with vernacular explanations. Copyrights of 71 books were registered.

Bombay.

In the Bombay Presidency 433 original works were published and registered during 1877, including 349 in Oriental languages, 83 in English, and 1 in Portuguese. Most of the remainder were republications, with a few translations. Works connected with religion and languages were most numerous. There was a decrease of three in the number of printing presses, but an increase of five in that of libraries registered. There were 69 vernacular papers published in the Presidency, or four more than in the previous year. Two leading characteristics of the native press seemed to be the cheapness and the recent establishment of most of the publications. One paper was published at threepence a year, and there were 17 papers the subscription to which ranged from thirteen pence to four shillings. Thirty-eight of the sixty-nine papers had been in existence less than ten years, and of these twenty-five were under six years old. The greater part of the press supports no regular policy. There are exceptions, however, among the Bombay and Poona papers. Those most patronised by the Parsees take a great interest in commercial and social questions, both Indian and European. Two leading Marathi papers are ably conducted, and fairly represent the views on general subjects of a large class of native society.

XIII.

NATIVE STATES.

States under the Government of India.

THERE is no information available regarding the important State of HYDERABAD. Hyderabad.

Baroda continued during 1877-8 under the administration of Sir T. Madava Rao, K.C.S.I., Mr. P. S. Melvill, C.S.I., being the Governor General's Agent; and the administration report for the State deals with the twelve months ending 31 July 1878. The notable occurrences to the Gaekwar house during the year were the presentation to Her Highness the Maharani Jumnabai of the insignia of the Crown of India, the delivery with due ceremony of the Viceroy's *sanad* and *kharita* to the Maharaja for the title which had been given at the Delhi Imperial Assemblage, and the visit to Baroda of Sir Richard Temple, the Governor of Bombay. Improved relations existed between Baroda and the British officers of the adjoining districts and states. In the pursuit and extradition of offenders there was an increasing degree of efficiency, both in the neighbouring states and districts, and in Baroda. Ninety-four British subjects were surrendered and brought to trial in the courts of Baroda State during the year. A Boundary Commissioner was appointed, and shortly after the close of the year assumed charge of his duties, which are to settle disputed boundaries between Baroda and the neighbouring districts and native states. There were 107 of such cases for settlement. Out of 2,339 cases before the Settlement Officer for Giras and Wanta rights, 197 were settled during the last three months of the year, and it was expected that the duties of this officer would not be completed for at least two years. There were 125 Judicial Courts at work, and their yearly cost for the purpose of civil and criminal justice was 37,300 l. From stamps, fees, and fines the income was 28,100 l., against 33,240 l. in the previous year. Fewer civil suits were filed than in 1876-7, the numbers declining from 12,539 to 8,159. Including 301 cases pending from the previous year, there were 10,821 criminal cases for disposal in 1877-8. Of these, 10,586 were decided, their average duration being 18 days. It is said that the general character of the sentences inflicted by the courts of the State were mild; the maximum number of stripes allowed is 30, as in British territory; fines are pitched very low, more than half not exceeding five rupees. Very rarely have complaints been made to the Governor General's Agent of the action of the judicial machinery. Most of the men employed in superior offices have been trained in the British service. Altogether 13,552 prisoners passed through or out of jail during 1877-8, as against 8,515 during 1876-7. The existing jail at Baroda was over-crowded during the year. Mortality in Baroda jail was high, but in other jails it was normal. The State police consisted of 545 mounted, 3,669 foot constables, with 973 officers, and cost for the year 74,989 l. Liberal salaries were paid to the officers and men. Municipal improvements were gradually being effected in Baroda city, the state of which is enormously better than it was three years previously. Attention was being paid to the sanitation of the leading towns of the State. Mr. Crosthwait completed the preparation of his scheme for the water-supply and the drainage of Baroda city. The Gaekwar's 2-feet 6-inch gauge railway between Meagam and Dabhoi was successfully worked. Extensions of this line, aggregating 35½ miles in length, were in hand, at an estimated cost of 61,800 l. Baroda High School continued to flourish, and contained 327 pupils. A gymnasium was opened in connexion with this institution, and was fairly used by the boys. There were 106 vernacular schools in the State, with 11,481 pupils of both sexes, being an increase of about 300 pupils on the previous year. Six of these schools were for girls, of whom there were 445, shewing an increase of 233. At the Vernacular College of Science, which aims at teaching medicine, law, and engineering, by means of the vernacular language, 62 pupils attended. Altogether 10,199 l. was expended by the State for education, and the fees received amounted to 366.

BARODA.

BARODA.

1,025 l. Two more dispensaries were opened during the year. 66,755 persons were vaccinated, the number of males and females being nearly equal; the total increase of vaccinations for the year was 10,824. Owing to the badness of the season, remissions of land revenue were granted to the extent of 23,156 l., and there were outstanding balances amounting to 108,757 l., on account of the annual demand. A considerable portion of these balances would probably have to be eventually remitted. Waste lands, assessed at an annual value of 15,600 l., were brought under cultivation. The total income of the State for the year was 1,201,221 l., while the expenditure was 1,221,410 l.; there was thus a deficit of about 20,000 l.

RAJPUTANA
AGENCY.

Rajputana States were much afflicted during 1877 by a deficiency in the rainfall, the crops being almost entirely burnt up by the extraordinary heat of the weather. Prices rose considerably; and from the pastoral districts the people were compelled to emigrate to save a portion of their starving cattle. Petty relief measures were adopted, such as the repairing of bunds, roads, wells, &c., to which the strong and able-bodied flocked, while the weak and needy were fed in their houses and relief camps. The scarcity continued up to the monsoon season of 1878. Large numbers of cattle perished for want of forage; but a sufficiency of food-grains for the people was obtained, and the country enjoyed comparative immunity from the disasters which usually attend a famine. The expedition which was begun in 1878 against certain refractory Bheel villages in Bānswāra was brought to a successful issue, almost without bloodshed, the chief offender being taken prisoner, and compelled to enter into agreements for the future good conduct of himself and his principal associates. The question of extradition between Rajputana and the Punjab States was not on a satisfactory footing; complaints and counter-complaints of laxity on the part of the officials of Jeypore and Patiala were not infrequent. Special measures having been considered desirable to control the predatory tribe of Moghees, an officer was appointed to ascertain on the spot the best means of effective action against this tribe. Some little time was likely to elapse before any workable plan could be arranged. Sixty dacoities were reported during the year. Boundary settlements made satisfactory progress. The prisoners in the 13 existing jails shewed a daily average of 3,142; their death-rate was 49 per 1,000. In the various states 84,060 persons were successfully vaccinated. Emigrants returning from Malwa were affected with cholera on their way, and 36 deaths occurred. Smallpox was more prevalent than usual; in the city of Jeypore, where deaths are registered, 1,367 deaths were ascribed to this disease. Altogether 215,165 patients were treated during 1877 in the dispensaries of the various native states, as compared with 223,363 in 1876. After many delays, the construction of the main building of the Mayo College was begun at Ajmere, and favorable progress was made during the year. Since the submission of the previous report on this institution six boys left the college on attaining their majority, while fourteen new pupils joined; the total number of students rising from 31 to 39. Education in Rajputana generally made fair progress. In Jeypore the attendance at the Maharaja's College shewed an increase of 144 in the number over that of the preceding year. Jodhpore and Ulwur High Schools were fairly attended, as also was the Thakoor's School at Ulwur. Several new schools were opened in Oodeypore. Female education progressed in Jeypore and Ulwur. In the latter state there were 15 girls' schools, and the number of pupils rose during 1877-8 from 301 to 387.

CENTRAL INDIA
AGENCY.
Indore.

The Third Annual Administration Report of the Indore State for the *fashi* year ending 5 June 1878, drawn up by the Minister of the Maharaja, contains a notice of the measures taken at Indore to relieve the distress caused by the scarcity and famine over a great part of Central India. Holkar found that the combination among the dealers and the difficulty of procuring grain from the neighbouring countries, prevented his carrying out the principles of free trade; the Durbar accordingly purchased a good deal of grain, which was sold to *bona fide* customers at a fixed rate below the market price. Many poor wanderers were fed, clothed, and sent back to their homes. Export and import duties on grain were suspended, and donations were sent to several famine committees in Indore. Famine relief measures cost the State about 9,300 l. The system

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In Gwalior the average rainfall is 29.26 inches, but during 1877-8 only 14.83 inches of rain fell. July, August, and September of 1877 were rainless, resulting in an absolute failure of the grain and grass crops in the northern districts, and consequently in much distress. Towards the south matters mended, and in the Malwa districts a fair harvest was gathered. A general exodus of the people in the Northern parts began early in August; they were joined by many who had left their homes in Bhurtpore, Dholpur, and Agra, and the roads were soon thronged with wretched emigrants and starving cattle straggling southward to Malwa; in a month the northern districts were all but deserted; no persuasion could stay the sufferers; many died of disease and hunger while spreading over Bhopal and Malwa. In October came a little rain, bringing partial relief. From August the Maharaja began measures of relief; public works were opened, and a large sum was spent in charity and various useful schemes. Laying the earthwork of the Sindia State Railway, between Dholpur and Gwalior, and constructing the road between Bhind and Etawah, saved thousands from exile and starvation. To meet the loss of revenue, the Maharaja was obliged to borrow 500,000 l. from the Government of India. Surrender of criminals under the Extradition Act of 1872, is reported to have worked without delay or obstruction. Negotiations, since completed, for the conclusion of a treaty with Gwalior for the protection of British interests in connexion with salt revenue on the abolition of the preventive line, were carried on throughout the year. In December 1877, the Maharaja received his commission as a general officer in the British Army, and in January 1878 he was invested at Calcutta with the Order of the Grand Cross of the Bath.

Bhopal received but half its annual rainfall during 1877-8, and scarcity in consequence prevailed. The opium yield was only one-fifth of the average amount; gram crops almost entirely failed, and wheat partially; fortunately the autumn crop was fair. General health was not good, and much sickness lurked among the famine immigrants from Gwalior. Crime is said not to have increased to any great extent. For the construction of a line of rail from Ujein to Bhopal 250,000 l. was subscribed by the Begum, and 100,000 l. by the Kudsia Begum. It was proposed to set up cotton and saw-mills at Bhopal, and opium scales at Sehore, on the completion of the railway. Reform was effected in the working of the criminal law by a code framed on the model of the Indian penal and procedure codes, which it was hoped would gradually supplant the influence of Mahomedan legislation.

Bundelkund States suffered, like others, from the scantiness of the monsoon rains in 1877, but in 1878 a spring harvest of nearly the average saved the country from famine. No special relief works were started, as it was found that the distress could be met by employing those in want on ordinary works and repairs. Cholera entered the northern and eastern parts of the country, and between July and October, 210 out of 311 persons who were affected succumbed to the disease. Smallpox was prevalent as usual during the hot season, but vaccination, now extensively adopted, kept it in check. Twelve cases of dacoity occurred, against one case in 1877, the increase being ascribed to the pressure from want and scarcity.

In the districts of the Baghelcund agency the general health was good during 1877-8, though smallpox of a not very virulent type was prevalent. As in other parts of Central India, the rainfall was deficient.

Rewah has considerably improved in its financial position; 9 lacs out of 20 due by the State have been paid by the Maharaja, partly from his private funds and partly with the help of his principal sirdars. Income from all sources was 74,751 l. (including a balance of 3,486 l. from the previous year), and expenditure 65,066 l., leaving a surplus of 9,685 l.; a balance of 8,928 l. was still recoverable on account of land revenue. Though grain fetched

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unusually high prices near the railway line, it was very cheap in the more remote and inaccessible parts of the country to which no roads led. No alteration took place in the constitution and powers of the criminal and civil courts; the former are reported to have worked very well. A new jail was much required, but lack of funds prevented its erection. Sanitary arrangements and discipline, formerly very defective, were beginning to shew beneficial results.

States under the Government of Bengal.

BENGAL STATES.
Cooch Behar.

In Cooch Behar the year 1877-8 was not a prosperous one. The crop was short, and the people were consequently unable to take much advantage of the rise in price of produce caused by the distress in Southern India. The principal event of the year was the marriage of the Raja to the daughter of Baboo Keshub Chunder Sen, the leader of the Brahmo Somaj. The ceremony took place on 6 March 1878. Soon afterwards the Raja left India on a visit to Europe. Owing to the expenses of the Raja's marriage, which were estimated to amount to about 16,000 £, there was a deficit in the State income of 7,895 £; the actual income of the State during the year was 126,747 £, and the expenditure 134,642 £. At the close of the year the liabilities of the State were 8,508 £, and the assets 245,298 £. Crime shewed a slight decrease during the year. Persons under medical treatment at the charitable dispensaries numbered 15,525, against 12,143 in 1876-7. Fever was very prevalent. Great progress has been made in vaccination during several years, and it was clear that the prejudice of the people against the operation has been overcome. The number of operations in 1877-8 was 19,559. Schools increased in number from 322 to 360, and pupils from 8,745 to 9,832. Female education made considerable progress, the schools increasing from 28 to 43, and the pupils from 439 to 560, of whom 374 were Hindoos and 186 Mahomedans. Altogether 7,925 £ was expended on education, of which 5,385 £ was contributed from the funds of the Raja. Attention was paid to the sanitation of the town of Cooch Behar; new roads were opened in the State, the growth of jungle was kept down, hollows were filled up, and tanks were excavated. A new court house was completed at a cost of 10,000 £.

Hill Tipperah.

On the North-Eastern frontier unbroken quiet reigned throughout the year. In Hill Tipperah an important step was taken by the Maharaja in the adoption of vigorous measures for the repression of domestic slavery. The system of frontier police in the Chittagong Hill districts worked very satisfactorily, and arrangements for securing regular communication between the frontier posts of Hill Tipperah and the Chittagong Hill districts were in progress. The annual durbar fair at Demagri was largely attended by the chiefs of the Sylloo and Thanglowa clans. A good deal of damage was done to the crops in the hill districts by the heavy rainfall in August and September, and by the overflowing of the Kurnafuolee River. Trade was languid, and there was some distress among the population.

Cuttack Mehals,
and Chota Nag-
pore Mehals.

The conduct of the chiefs of the tributary states on the borders of Orissa and on the South-Western frontier was with rare exceptions very satisfactory, and the tribute was in all cases punctually discharged. Most of the Maharajas managed their states with discretion, and contributed to the happiness and prosperity of their people. The conduct of the chiefs of three states was unsatisfactory, but measures were adopted for the proper settlement of the land and for the protection of the people from extravagant exactions.

Sikkim.

A mission visited Sikkim in October 1877, and delivered to the Maharaja a Delhi Assemblage banner, together with some presents from the Prince of Wales. The Sikkim peasantry appeared to be prosperous and contented.

States under the Government of the Punjab.

PUNJAB STATES.
Kashmir.

Throughout 1877-8, and for a long time afterwards, the territories of the Maharaja of Kashmir suffered from a scarcity which in some tracts was so severe as to be termed a famine, and caused the partial depopulation of the country by death and emigration. Snow fell heavily and unusually early in the winter months. The unharvested rice crop was injured, and the output of this grain, which is the principal food of the inhabitants of the Kashmir Valley,

Valley, was much reduced. Snow also prevented the usual area of land from being brought under cultivation, while the heavy and unseasonable rain later in the year destroyed a large portion of the crops which had been sown. Considerable emigration set in from Kashmir to British territory, and the adjoining districts were heavily burdened with the support of impoverished and starving emigrants, persons in most cases unable or unwilling to work in return for the assistance afforded to them. The shawl and pashm trade in Kashmir continued depressed owing to the European demand for Kashmir shawl goods having almost ceased. The silk industry received a large share of attention from the Durbar. Reports received from Europe as to the quality of the silk manufactured were favorable, but the season was inclement and unsuitable for the silkworm. Mr. Ney Elias was appointed to succeed Mr. Shaw as British Commissioner in Ladak.

With regard to the three Phulkian States of Patiala, Jind, and Nabha, there is very little to record concerning 1877-8. In Patiala the Council of Regency, appointed in August 1876, continued to conduct their duties to the satisfaction of Government. Public works were carried on with some activity, important works for the preservation of the city from floods were finished, and a large expenditure was made by both Patiala and the States of Jind and Nabha towards the construction of the Sirhind Canal, which was speedily progressing towards completion.

Bahawalpur remained during 1877-8 under the charge of a British political officer, and the efforts of the Punjab Government were specially directed to so modify the administration (which had necessarily on the first assumption of British control been thrown, from the absence of competent native officials, into the hands of English officers) as to prevent any violent dislocation or break of continuity when the Nawab should assume the Government of his territory in November 1879. The new palace was nearly finished; it is said to be a handsome building, though somewhat too much in the European style for native taste. Bahawalpur Town has been embellished by various public buildings. The system of canals which have most largely developed the resources of the State has been improved and extended. As the Indus Valley passes through the whole length of the State, it is probable that the revenue of the State will, under the influence of canals and railways, rapidly increase. All customs and transit duties were during 1877-8 abolished in Bahawalpur, the State receiving from the British Government a sum of 8,000 £ a year as compensation. The State loan contracted soon after the assumption of the administration by the British Government was paid off in 1877-8.

On the death of Rajah Kharak Singh, on 5 September 1877, the administration of the Kapurthala State, which had been undertaken by the British Government during the Raja's illness, was continued, owing to the minority of his son. The administration is carried on, in strict accordance with the traditions of the State, through the agency of hereditary native officials acquainted with the territory and known to the people. Public works were energetically prosecuted; the main road from Kapurthala to Sultanpur was raised and partly metalled; State stables and barracks for the troops were completed. Revision of settlement was in progress throughout the year in the Oudh estates, and that of the Punjab Districts was approaching completion. The Lieutenant Governor of the Punjab visited Kapurthala to instal the young Raja on 17 November 1877.

Mandi was reported to be flourishing, the people contented, and with an appearance of ease and prosperity. The only work of importance completed in 1877-8 was the bridge over the Beas opposite the town. This is an exceedingly fine work, and, though its construction has somewhat taxed the limited resources of the State, it will be of immense advantage for future convenience and purposes of trade.

Owing to the oppressive conduct of the Raja of Suket, conduct which resulted in the revolt of his subjects against his rule, his deposition was sanctioned by the Government of India. The situation had become so serious that troops had to be moved from Dharmasala towards the Suket border. The Raja was removed to Lahore, and was afterwards permitted to take up his residence at Jullundur. His brother was appointed Regent of the State, under the immediate superintendence of the Commissioner of Jullundur.

Maler Kotla was administered by the Nawab during 1877-8 with tolerable success.

PUNJAB STATES. success, but his temperament and delicate health were said to lead him to leave too much power in the hands of subordinates.

Chamba. Chamba State enjoyed a further increase of revenue during 1877-8. Not only did the collections largely increase, but miscellaneous expenditure was reduced, leaving an unusually large surplus available to pay off State loans and to carry out works of public improvement. New lines of road were constructed, four large bridges were built, and other improvements effected. Survey and settlement work progressed favorably, and a considerable amount of new land was taken up and brought on to the rent roll.

Loháru. There was a financial difficulty in the small State of Loháru, owing to the extravagance of the Nawab; and it was necessary to apply to Government for a loan to enable him to clear off his debts.

States under the Government of the Central Provinces.

CENTRAL PROVINCES STATES. Feudatory States under the Government of the Central Provinces remained peaceable in 1877-8. In the four states which continued under the direct administration of Government, industries have been developed, fresh land has been brought under cultivation, and rights in property are respected. In all the Feudatory States, criminal, civil, and police Administration are conducted on the model of British laws, and in the states under direct management this is strictly the case. Punishments in Feudatory States are generally light, and the relative gravity of offences is not nicely distinguished. Much consideration is not yet paid to education, but something in this direction was being attempted both in Feudatory and *Zemindari* States.

Khairagarh. Khairagarh having been for eight years under Government administration, and as the conduct of the sons of the late ruler had been for some years satisfactory, steps were taken to entrust them with the management of the State. The eldest son was appointed manager; and, if he displayed ability and discretion, the question of appointing him as Raja was to be considered.

Patna. In Patna State the people everywhere were happy and prosperous, new tanks were being dug, and new land brought under cultivation; trade was brisk, and the revenue was got in with ease. Unfortunately the ex-ruler shewed no improvement in conduct during the year, and there was little hope that he would mend his ways.

Sakti. In Sakti cultivation was spreading, and villages were increasing in size, consequent on the settled condition of the State.

Sarangarh. Towards the close of the year 1877-8 it became necessary to take Sarangarh under temporary direct management. The heir of the State was a minor, and his mother had for years systematically mismanaged the administration. Though a year's revenue had been paid by the people to disembarass the State of debt, yet the money had been squandered and the debt was not discharged.

Bastar. Bastar suffered a partial failure of the crops during 1877-8. This caused some distress, which the Raja was mitigating by remissions of his land revenue demand.

Kalahandi. The chief of Kalahandi, who has always been a good ruler, although in weak health, travelled during a great part of the year in Northern India. In a portion of his State held on *Zemindari* tenure, there was a rising among the *khonds* and *khonds*, owing to some exactions that had been made by the servants of the *Zemindar*. No life was lost in the riot, but property was plundered, and some houses destroyed. The ringleaders of the disturbance, and also the servants of the *Zemindar*, were subsequently imprisoned.

Sonpur. Sonpur continued to be well managed. The Chief is a man of education and liberal views. During 1877-8 he procured two vaccinators for employment in his State. A dispensary was shortly to be opened.

Nandgaon. Nandgaon is well cultivated and prosperous. Trade has much increased of late years, and in 1877-8 there were other signs of material progress. Metalled roads and drains were being provided for the town, and an establishment was kept up for its conservancy.

Kawardha. Kawardha was not well administered in 1877-8, its Chief being addicted to the society of unworthy favorites.

States under the Government of Madras.

MADRAS STATES.

Travancore. Three new enactments were passed in the Travancore State during the *Malayalam* year ending 15 August 1877. One was enacted in the interests of the Christian community, and provided for offences relating to marriage; the second related to criminal breaches of contract, and was enacted chiefly for the convenience of coffee planters; the third amended the law in regard to the registration of assurances. Under Civil Courts there was a marked improvement in the execution of decrees, while two additional munsif courts were established in order to clear off arrears. Criminal cases increased. Mortality in the jails was as high as 9 per cent., owing to the prevalence of cholera. It was intended to build a new central jail. Registration transactions increased in value. The land revenue amounted to 163,201 *l.* Except in the southern parts, the season was generally favorable. The land tax on coffee was abolished and an export duty of 2½ per cent. substituted, the latter form of taxation being preferred by the planting interest. Receipts from customs duty were 122,666 *l.*, exclusive of 4,000 *l.* paid by the British Government on account of the abolished import duties. The total revenue of the State amounted to 552,620 *l.*, the total expenditure exceeding this by only 1,409 *l.* A large surplus would have been shewn, but for the general failure of the cardamom crop, on which the loss was estimated at 16,000 *l.* A railway was urgently needed between Trevandrum and Tinnivelly, but the Travancore Government was opposed to constructing this by the investment of State funds, though, on the other hand, it was in no way adverse to the introduction of a railway to be constructed by a company under a guaranteed percentage. Education in the State continued to progress. The building of the museum was approaching completion.

Cochin. In Cochin, the total revenue for the *Malayalam* year ending 15 August 1877 was 128,158 *l.*, and the disbursements somewhat exceeded this amount. On Public Works 30,000 *l.* was expended. Besides roads, good progress was made with the Ernacollum backwater reclamation, the new jail at Ernacollum, the pier and the basin at the important harbour of Narakel, and the Pannacooty Girder Bridge. Attention was directed to the importance of protecting the water communication between the Madras Railway and Cochin, a work requiring the cooperation of both the Madras and Cochin Governments. Narakel Port remained open throughout the monsoons of 1876-7, and afforded great facility for the landing of cargoes of rice during the famine.

Ganjam and Vizagapatam Agencies. But little of importance occurred in the Agency Tracts during 1877-8. Education made good progress in the Ganjam Agency, there being 744 Ooryah, Khond, and Sourah boys under instruction in the hill schools, which are said to be very popular. As far as elementary education goes, the attainments of these boys compare favorably with those of boys at schools of the same standard in the plains. This was the first year that loaded carts made their way through the Maliah Hills from Sambalpur, in the Central Provinces, to the low country of Ganjam. Civilisation was extending, the *Khonds* having of late become more temperate in the use of ardent spirits. Caravans of Brinjarry traders to Parvatipur and elsewhere were much fewer than usual, being probably deterred by the fear of famine prices and of cholera. There was no distress in any of the hill districts, though prices were high owing to the increased exportations of corn to markets at the foot of the hills.

Puducottah. Out of an aggregate registered debt of 7½ lacs, owed to creditors by the Raja of Puducottah, over four lacs had been paid off at the end of June 1877, and it was believed that the account would soon be closed by the sale of certain valuable jewels which had been pawned by his Highness and redeemed through the Political Agent. A survey and settlement were in contemplation for the State.

Banganapalli. The Raja of Banganapalli had a loan of three lacs of rupees made to him in 1876-7, to enable him to pay his principal creditors, and the settlement with them was effected in 1877-8 through the Collector.

BOMBAY STATES.

States under the Government of Bombay.

There were very few Native States throughout the Bombay Presidency that did not suffer more or less from the failure of rainfall, either in 1876 or 1877. In the Deccan and Western Carnatic States the distress amounted to famine. In the northern part of the Presidency the failure was not so extensive as to seriously affect any but the lowest classes. Although relief measures had to be taken in most of the States, comparatively few States, whether under the direct control of Government officers or not, were obliged to contract further debts on account of the famine. It is in the organisation of the police and general conduct of judicial matters, that the greatest improvement has taken place of late years among the tributary States. Altogether, 47,294 persons were arrested in them during the year 1877-8, against 33,584 in 1876-7; convictions were obtained in 56 per cent. of the arrests. Offences reported to magisterial authorities numbered 45,210, as compared with 35,379 in the previous year; the increase was noticeable in every State, and was greatest in the famine districts. The number of persons dealt with is set down as 73,218, against 55,570 in 1876-7, and 57 per cent. of them were convicted. Larger sums are said to be now spent in the various States on works of general utility in preference to palaces or temples. Municipalities had been established in 17 of the larger towns, and dispensaries in 71. Surveys were in progress in most of the more important States, and by their means the assessment of land revenue will be distributed equally over the cultivating population, instead of being borne by those who have no influence at court. Vaccination, although it suffered a temporary check during the famine period, has already been as successful in tributary as in Government districts in preventing epidemic outbursts of small-pox. Education has received a certain degree of attention in nearly every State, and 48,656 l. was expended during 1877-8 on 960 schools that were under the inspection of Government officials. Schools not under inspection are said to be numerous and very efficient in Kathiawar, but did not appear to flourish elsewhere.

Cutch.

In Cutch the Council of Regency abolished the practice of farming out the land revenue, and introduced laws similar to those in force in British territory regarding registration, stamping, shipping, and procedure in courts of justice. Surveys made progress. Crime increased, though serious offences were rare. Litigation decreased. Trade shewed a slight decline, attributed to the temporary effect of the bad season in the State. The Regency were making great efforts to bring back the trade to its former prosperous condition; and, with this view, the harbour of Mandvi was greatly improved, and overtures were made towards getting a branch of the Western Rajputana State Railway constructed up to Cutch.

Palanpur.

Few events during the year 1878 in the Palanpur group of States call for special remark. As elsewhere the season was unfavorable. The increase of crime, as in Cutch, consisted chiefly of offences against property, though in some few States more serious crimes were reported. Litigation decreased considerably.

Mahi Kanta.

In the 59 Mahi Kanta States criminal justice was fairly conducted. Crimes increased considerably owing to the unfavorable season; but the working of the police shewed an improvement. Education in this district seemed to be making some progress among the lower classes.

Kathiawar.

No event of political importance occurred in the 189 territorial divisions of Kathiawar. In Navanagar State the heir-apparent, Bhimsingji (called Kalubha), had for some time been giving trouble to his father, and in consequence of his misconduct and bad character, his right of succession has been vetoed by the paramount power. His Highness the Jam had also to contend against other factions at his court, and his annoyances were aggravated by the failure of crops in his State. Bhaunagar State, after eight years joint administration by a European and a Native officer, was replaced in the hands of the Rawal. This was the first instance in which the delicate experiment of a joint administration was tried, and the trusteeship has been discharged to the lasting benefit of the State. Every department has been remodelled and organised. 209 miles of road have been constructed; the port has been improved; the town has been supplied with water and embellished with some of the finest public buildings in

in the Presidency; while the cash balance, which was 229,830 l. when the Trustees assumed charge of the State, increased to 518,640 l. at the close of their administration. Favorable reports were made of the administration of the Thakor of Limri. The Thakor of Morvi was admitted to a share in the administration of his State, and shewed an intelligent interest in his duties. With regard to Kathiawar as a whole, crime increased as in other parts of the Presidency; and the number of serious robberies on the highway or in gangs was considerable, more than they had been for several years; but there was no general outbreak among the predatory tribes. The scarcity that caused an increase of criminal cases tended to discourage resort to the Civil Courts. The cotton crop shewed a heavy decrease of 75 per cent., the outturn being successful in only a few places in the North. Education continued to progress very rapidly. In 1858 there were only 29 schools in Kathiawar; in 1877 there were 483.

Improvements were effected in the judicial administration of the small State of Cambay, and the Nawáb finally accepted cash compensation to the amount annually derived from his salt works, which were accordingly closed. Nothing else of moment occurred during 1877-8.

In the Rewa Kanta States the lower classes were driven to great straits by the want of rain; and relief works on a small scale had to be set on foot. Crime increased considerably; and at one time the wild tribes in the State of Chota Udepur shewed a disposition to break out into raids and other serious offences. Arrangements were in progress to connect some of the roads with the terminus of the Branch Railway at Pali. Education made some progress. Surveys were being made in each of the three Surat States, and considerable sums were spent on public works, chiefly communications.

With regard to the wild forest States under the Collector of Khandesh, there were no events of importance during 1877-8. The mode of life of the Dangs is primitive, and shews scarcely any variation from year to year. Their principal source of revenue is timber, which it is the great aim of Government to save from being recklessly destroyed, merely to gratify the chief's whim of the moment.

Peint, of which the revenue was about 5,240 l., lapsed to the British Government during 1877-8, the Begum having died without legitimate issue. Legislative enactments will gradually be made applicable to the State, this course being considered best on account of the wild condition of the people, and the general poverty of the district. One or two good roads had been constructed, and some progress was made in education. Forests were likely under proper management to yield a considerable revenue.

In Janjira a series of riots occurred in 1877-8 between Hindoos and Mahomedans. At a festival of the former it had been the practice to prohibit during Ramázán the playing of music by the Hindoos in their processions. This year the prohibition was withdrawn, provided that no music was played in front or near any Mahomedan place of worship. The great Ganpati Festival fell in Ramázán, and the Mahomedans determined to resist the carrying out of the new order regarding the playing of music. They accordingly attacked the Hindoos in several villages. They ringleaders were punished, and some new rules drawn up by the Nawáb, in consultation with his leading Hindoos and Mahomedan subjects, will probably prevent the recurrence of another such outbreak of sectarian animosity.

The municipal system was introduced during 1877-8 into the principal town of Sáwant Wári. Education made some progress. An increase of vaccination was recorded. Extra police were posted on the Goa frontier to guard against salt smuggling.

With regard to the Deccan States, improvement was shewn in the administration of Bhor. Magisterial establishments were revised. Some attention was paid to tree planting, the subject having been specially forced upon the chief's consideration, inasmuch as the State contains the hills in which the irrigationally important rivers, called the Mutha and Nira, take their rise, and it is necessary to preserve the forests round the sources and early course of these streams.

Of Aundh it is said that most of the expenditure for public works was devoted to temples and rest-houses, in preference to undertakings of greater public utility.

BOMBAY STATES.

Phaltan.

Jath.

Akalkot.

Kolhapur.

In Phaltan, too, little progress was manifested, a great proportion of the revenue being spent on establishment.

Jath, which is under the direct control of Government, was much affected by famine. On this account the introduction of the Revenue survey system was postponed.

Akalkot was severely affected by the famine in 1876, but was improving under Government management. Retrenchments were effected in the private expenses of the chief's family, and most of the debt incurred by the late chief was liquidated.

In the important State of Kolhapur, which has been under direct control since 1866 during the minority of its chief, the famine was severely felt during 1876 and 1877. The total revenue credited to the State during the year 1877-8 was 175,486 *l.* Famine expenditure caused a deficit of 35,775 *l.* The financial position of the State was, however, satisfactory. So long a period of minority has enabled Government to set the different departments of the State on a thoroughly efficient footing, without introducing any violent changes distasteful to the people or the nobles about the court.

XIV.

FRONTIER RELATIONS.

WITH one or two exceptions there was during 1877-8 a general condition of peace and good order on the border of the Punjab. The tranquillity of the Hazara border was principally assured by the successful capture of Abbas Khan, a notorious brigand, who had long kept the country in a state of disturbance. The death of the venerable Akhund of Swat, which occurred on 12 January 1878, is an event deserving of mention, as his influence had long been paramount in the hills to the north of the Punjab, and was considerable in Kabul and among the whole of the tribes on the Afghan border. His death has been succeeded by what is virtually a state of anarchy in Swat, there being no less than three candidates for power. It seemed probable that the claims of the Akhund's son would eventually be acknowledged by the people, although he does not possess the character of his father, and has not, like him, the authority derived from asceticism and sanctity. A raid was made by the Bunerwals in the upper part of the Peshawur Valley in July 1877, but was repulsed by the British forces with considerable loss to the enemy in killed, wounded, and prisoners; and the Bunerwals being subjected to a rigorous blockade, were at last compelled to ask for pardon and pay the fine demanded by Government. Strong representations having been made to the Government of India as to the urgent necessity of punishing the Utman Khels for a murderous outrage committed in December 1877 on the laborers employed on the Swat Canal, an expedition was organised to surprise by a night attack their principal village of Sapri, and inflict such punishment as could be given in a short time. The surprise was excellently arranged, and the village was surrounded and assaulted. The principal instigator of the outrage on the canal works was killed, and the object of the expedition was accomplished. This was supplemented a short time afterwards by a rapid military expedition against the Utman Khel villages of Búcha, during which the leading men of the contumacious sections attended, and submitted to the terms imposed by Government. Major Cavagnari planned the expeditions with great skill, and accompanied the force. In the Kohat district, the most important event during the year was the rupture with the Jowaki Afridis, which necessitated operations on an extended scale. During the Pass Afridi rupture connected with the Kohat Pass Road, it had been necessary to compel the Jowakis to maintain a strict neutrality. This engagement they observed until the close of the Pass difficulties in March 1877. In July they abandoned their peaceful, if not friendly, attitude, directed a series of attacks against British territory, cut the telegraph wires, and attacked British subjects and villages with a surprising degree of audacity and energy. These outrages led to a rapid punitive expedition in August, under General Keyes; but the outrages nevertheless continued, and culminated in an attack on a body of native infantry at Ishkakot, in the British territory, on the night of 25 October. Fourteen Sepoys were killed and wounded in this attack. The continued outrages of the tribe at last rendered a military expedition against them absolutely necessary. This expedition was successfully carried out by Brigadier-Generals Keyes and Ross. The Lieutenant-Governor of the Punjab had the satisfaction of sanctioning a final settlement with the tribe. This settlement was ratified at a durbar held at Peshawur on 4 March 1878, when the submission of the Jowaki deputation was received. A fine of 500 *l.* was paid, and the stipulated number of arms surrendered. As regards border affairs in the Bannu district, with the exception of an attack on police constables near Bannu (the act not of a tribe, but of a few outlaws and criminals), there were no serious offences to record during the year. This outrage was satisfactorily settled by a blockade of the Daur villages which had harbored the assassins, the fine demanded by the Government being paid in full. The Waziri tribe, which had in past years given unceasing trouble, and especially the Mahsud portion of it, behaved during the year exceedingly well. Large numbers of the tribe have since come down and settled in British territory, encouraged to do so by grants of land.

FRONTIER
RELATIONS.
Punjab Border
Tribes.

In the Arakan hill tracts there were no raids during 1877-8. The despatch of 366. 0 3 Arakan Hill Tracts.

STRENGTH, COST,
&c., OF THE
INDIAN ARMY.

wagons is present the ammunition in possession is brought up to 214 rounds per gun in the Armstrong batteries and to 256 rounds for the muzzle-loading batteries. The second line of wagons, it may be noted, is at once sent to any battery that is warned for service. A heavy field battery has with it 122 rounds for each 40-pounder gun and 108 shells and four carcasses for each of the large mortars, and 118 shells and four carcasses for each of the small mortars. Ninety rounds per gun are kept with each mountain battery of Royal Artillery, and 120 rounds with the Native mountain batteries. In addition to the above about 1,000 rounds per piece are kept in reserve in the various arsenals and magazines.

Engineers.

Of Royal Engineers there were 374 officers at the beginning of 1878 on the Indian establishment. These officers are for the most part employed in the Public Works Department, but several are in the Survey Department, and other miscellaneous employments. They are all available for military duty when wanted, and a small number are always attached to the three Native corps of Sappers and Miners, which have also a proportion of European non-commissioned officers from the corps of Royal Engineers. About 200 European soldiers are employed in this way, and to constitute a skeleton company of Royal Engineers, which is maintained in each Presidency for the purpose of supplying European non-commissioned officers for transfer as wanted to the Public Works Department, which in India is a Civil department, though entrusted as one part of its duty with the construction and maintenance of all military buildings. The three Native corps of Sappers and Miners consist—exclusive of the European officers and non-commissioned officers—of 1,160 men of all ranks in Bengal; of 1,311 men in Madras, and of 480 men in Bombay.

Cavalry.

Of British Cavalry there are nine regiments in India, six in Bengal, two in Madras, and one in Bombay. These regiments are always taken from either the medium or the light cavalry of the British army. They each have six service troops and an Indian establishment, exclusive of medical officers, of 25 officers and 455 non-commissioned officers and rank and file, with 426 horses.

The only Native cavalry corps in the Indian Army which are mounted by the State are the Body Guards of the Viceroy and the Governor of Madras and the four regiments of Madras Light Cavalry. The Viceroy's body guard has an establishment of two European officers and 120 natives of all ranks. The Madras Body Guard has two European officers and two European non-commissioned officers, with 125 native soldiers, but the latter are included on the establishment of the different Cavalry regiments of the Madras Presidency. The four Madras Cavalry regiments have each six troops, with an establishment of seven European officers and 387 native soldiers. All the rest of the cavalry of the Indian Army is on what is called the Silladar system, the horses being the property of the men. All the regiments of the Bengal and Bombay cavalry and the Punjab Frontier Force have an establishment of six troops, with seven European officers, namely, a commandant, an adjutant, three squadron commanders, and two junior officers, styled squadron officers. The 19 Bengal regiments have a strength of 457 men, and the seven Bombay and five Punjab regiments have 493 men. In these regiments and in all other Native cavalry every man is mounted.

Besides the foregoing there is a Body Guard for the Governor of Bombay of a strength of one European officer and 71 men; the Guide Cavalry, of four troops, with three European officers and 341 native soldiers; two regiments of Central India Horse, with a commandant for the two corps, and six European officers and 493 men in each regiment; a squadron of cavalry attached to the Deolee, and one attached to the Erinpoora Force, each composed of one European officer and 165 natives; and the Aden troop, of one European officer and 100 men. There is also a corps of Belooch Mounted Guides for service on the Sind frontier, consisting of 315 men.

The whole strength of the cavalry of the Indian Army may, therefore, be estimated at 4,600 Europeans and 18,600 natives.

Infantry.

Of British infantry there are 50 battalions in India, and every regiment of this arm now takes its turn of Indian service excepting the battalions of the brigade of Foot Guards. Thirty-two of the battalions in India are quartered in Bengal and nine in each of the other Presidencies. Each battalion has an Indian establishment of eight companies with 30 officers and 886 men.

The

STRENGTH, COST,
&c., OF THE
INDIAN ARMY.

The Native infantry of the three Presidencies comprises 49 regiments of the Bengal Army, 40 regiments in Madras, 30 in Bombay, and 12 of the Punjab Frontier Force, or 131 in all. Each of these corps has eight companies, with an establishment of seven European officers, and the Bengal, Madras, and Bombay regiments have 712 natives of all ranks. The 12 regiments of the Punjab Frontier Force have 752 men each, but one of them, the Guide Infantry, has only six European officers. Besides these regiments there is a regiment of Deolee and one of Erinpoora Infantry, each of three European officers and 712 men; the Malwah Bheel corps, of three officers and 612 men; the Meywar Bheel corps, four officers and 707 men; and the Bhopal Battalion, of four officers and 940 men. The seven European officers serving with each Native Infantry regiment of the Regular army are thus employed: one as commandant, one as adjutant, one as quartermaster, and two with each wing or half-battalion. The principle in the infantry and in the cavalry alike is that the companies and troops are to be commanded by native officers, and the staff and superior positions in native regiments held by European officers.

The whole force of Infantry may be estimated at 47,000 Europeans, including officers, and 99,000 Natives. Thus in round numbers the army of India consists of 13,000 Artillery, with 400 field guns, 3,600 Engineers, 23,000 Cavalry, and 146,000 Infantry. This is exclusive of general officers and officers not borne on the strength of regiments.

In the foregoing detail the Hyderabad contingent is not included. It is not paid from British revenues and it usually only serves within the Nizam's territories, but it is officered entirely from the Royal Artillery, staff corps and Indian forces. It consists of four horse field batteries of four guns each, four regiments of cavalry, and six of infantry. It is commanded by a brigadier general, who is under the orders of the Resident at Hyderabad.

Hyderabad
Contingent.

The control of this army, as well as the control in all matters, civil and military, in India, is vested in the Governor General in Council, subject to the direction of the Secretary of State for India; but the Governor General in Council does not interfere, save in very unusual cases, with the executive direction of the army. The relation of the Governor General in Council to the army is very much akin to the relation of the Secretary of State for War to the British Army, but there is this important distinction, that whereas the Secretary of State for War has, as such, no functions apart from those of the War Department, the Governor General in Council is capable of dealing with political and financial considerations, as well as with those of a military nature. The business of the military branch of the Government of India is directed by the military member of the Council, but all important matters come before the Viceroy and his Council, and no permanent increase of establishment in the army can be made without the approval of the Secretary of State for India. For the purpose of conducting the details of the Military Department of the Government there is a secretary with a deputy and assistants, and the Viceroy has a personal staff of a military secretary and five aides-de-camp. In the Presidencies of Madras and Bombay there is no military member of Council, but there is a military secretary to the Government in each Presidency.

Control.

For the service of the army there are various departments which are under the direct control of the Government. These are the Ordnance Department, the Department of Military Accounts, the Commissariat, and the Departments of Remounts and Army Clothing.

Service
Departments.

The Ordnance Department has an inspector general and a deputy for each Presidency, with commissaries and deputy commissaries of ordnance for the charge of the different arsenals and magazines, and under these officers is a large staff of European warrant and non-commissioned officers, with Native artificers and workmen. To this department also belong the various manufacturing establishments for gunpowder, small arms ammunition, gun carriages, and harness and saddlery, each of which is under an officer of this department, all of whom are taken from the Royal Artillery. Each Presidency has a gun carriage and a gunpowder factory, and there are small-arms ammunition factories in Bengal and Bombay, and a harness factory in Bengal. When an army takes the field, one or more of the officers of this Department take charge of the ordnance park attached to it.

Ordnance
Department.

There is one Military Accounts Department for all three Presidencies. This Department is charged with the compilation of accounts and the audit of all payments.

Military Accounts
Department.

STRENGTH, COST,
&c., OF THE
INDIAN ARMY.

Commissariat,
Remount, and
Army Clothing
Departments.

Executive Control.

Medical and
Public Works
Departments.

Veterinary
Departments.

Chaplains.

payments on account of the army. It also has to issue payments to the troops and pensioners. All the officers in it, as in all the departments of the army in India, are taken from the army.

There is a separate Commissariat Department, under a Commissary General, for each Presidency. The commissariat has officers at all the large stations of the army, and sends into the field when necessary such officers as are required. This Department provides for the rationing of the troops, for the care and supply of the transport cattle, and for the provision of medical comforts. A subordinate staff of European warrant and non-commissioned officers from the army, in addition to extensive native establishments, is employed in this department. There are also two small departments, one for the provision and care of remounts for the mounted branches, and the other for the manufacture and supply of army clothing.

For the executive control of the army there is a Commander-in-Chief in India. He commands the whole army, but cannot issue directions to the armies of Madras and Bombay, except such as affect the discipline of British troops. The powers of the Commander-in-Chief in India are very much the same as those of the Commander-in-Chief in England with respect to the British army, with two exceptions; first, the Commander-in-Chief in India is the subordinate of the Commander-in-Chief at home as respects British troops, and receives his instructions in many matters of discipline; and, secondly, the Commander-in-Chief in India is a member of the Government, and takes part in the deliberations and the voting of the Council on all matters, military or otherwise.

The two Commanders-in-Chief in Madras and Bombay exercise their commands under the Governments of those Presidencies, and as respects the discipline of British troops under the direction of the Commander-in-Chief in India.

Under the Commander-in-Chief in India there is a personal staff, consisting of military secretary, aides-de-camp, interpreter, and surgeon, with strong departments of the adjutant general and quartermaster general, a judge advocate general, inspector general of artillery, and departments of garrison instruction and musketry instruction. The Presidencies of Madras and Bombay possess a similar staff, except that it is on a smaller scale, and that there is only one inspector general of artillery for all India.

Two most necessary and important departments are on rather a peculiar footing, namely, the Medical and Public Works Departments. There are, in fact, two separate medical departments in India, with two surgeons general at their head, under the Government of each Presidency. These surgeons general, although under the Governments, communicate directly with the Commanders-in-Chief on many subjects. One of these departments in each Presidency is for the British forces, and, under the surgeon general, it consists of several deputy surgeons general and staff surgeons major for the medical supervision of British troops in the various circles of the army, and of a large number of medical officers for the regimental and staff duties of those troops. The Indian Medical Department has likewise a number of deputy surgeons general, who superintend the medical arrangements not only of the native troops, but of the civil medical establishments, which are on a large scale. This department provides all the medical officers required for native troops and civil hospitals, as also for the medical store depôts. There is a large establishment of European and East Indian apothecaries and native hospital assistants for all subordinate medical duties. When a force takes the field the double medical staff ceases, and a superior officer taken from either of the services becomes principal medical officer of the force.

With respect to military buildings, all duties are performed by the Public Works Department, which is a branch of the civil administration, and this department also is charged with the provision and maintenance of barrack furniture.

There is also a Veterinary Department in each Presidency for the professional care of the horses of the cavalry and artillery and for remount duties. Its superior officers are employed as principal and inspecting veterinary surgeons, and veterinary surgeons are attached to regiments and batteries.

Chaplains are attached to the troops from the Ecclesiastical Department of the Government, which is a civil department.

The

The various commands subordinate to the Commanders-in-Chief and above those of regiments are divisions, districts, brigades, and garrisons, or stations. Of divisions there are 12 in the three Presidencies, commanded by majors-general, with a staff of aide-de-camp, assistant-adjutant-general, assistant-quartermaster-general, and officers of the commissariat, medical, and other departments, with sometimes a brigade major for the garrison duties of the head-quarter station. There are also 16 districts which are in reality small divisions, and report direct to army head quarters. These are under brigadiers-general, who have each a brigade major attached to them, and in some cases also a deputy assistant-quartermaster-general. There are also six brigadiers-general who command large garrisons situated within the limits of divisions. Each of these has a brigade major. Other garrisons which are not the head-quarters of divisions are commanded by the senior officer present, who has what is called a station staff officer to assist him.

The foregoing statement shews how the command and staff duties of the armies of Bengal, Madras, and Bombay are arranged for, but the forces not distinctly belonging to those Presidencies are differently provided for. The Punjab Frontier Force has a brigadier-general and an assistant-adjutant-general, and is immediately under the Punjab Government, which, as respects this force, is subordinate to the Military Department of the Government of India. In like manner, the Hyderabad Contingent, with a like staff, is under the Resident at Hyderabad and the Military Department of the Government of India. The Central India Horse, Malwa Bheel Corps, and Bhopal Battalion, are under the Governor-General's Agent in Central India, and the Deolee and Erinpoora Forces and the Meywar Bheel Corps are under the Governor General's Agent in Rajpootana; and both these Agents of the Governor General report to the Foreign Department of the Government of India.

The net cost of this army for the year 1877-8 was 11,548,495 l.* This includes the cost of all the advantages given to the Native Army on the assumption by Her Majesty of the title of Empress of India on 1 January 1877, but it does not include the charges incurred at home for purchase of stores, for pensions and furlough allowances, and for contributions to the War Department for training recruits, pensioning soldiers of the British Army, and other incidental charges, which amounted to 4,221,285 l.

Two Royal Warrants were issued on 31 December 1877 and 28 January 1878 respectively, the former providing for the superannuation of general officers of Her Majesty's Indian Forces, the other providing for the promotion of the officers of those forces. It was considered desirable, following the system that had been adopted in the British Service, to introduce into the Indian Service the practice of placing on a retired list all general officers of 70 years of age. Although removed from the army, the general officers thus superannuated are not otherwise affected. They retain their colonelcies of cavalry and infantry and their colonel's allowances; they must continue to subscribe to the various military funds, and their widows retain their claims on the fund, formerly called Lord Clive's. By the Warrant of 28 January 1878, the existing regulations for promotion were slightly modified. In providing for the ultimate cessation of the army promotion for majors and captains in succession to vacancies on the establishment of general officers, it was thought expedient to preserve the right to such promotion of the officers under the old conditions of appointment. The establishment of general officers was reduced to an extent corresponding with the reduction that had also been made in the establishment of general officers of Her Majesty's British Forces. All the retirements and promotions made under the Warrants took effect from 1 October 1877.

A special committee was appointed by the Government of India to report whether the existing pension rules of the native armies in India were calculated to meet the objects aimed at in forming them, namely, that none but efficient men should remain in the service, while old and deserving soldiers should be ensured a suitable and comfortable provision on retirement. The committee reported that the existing pensions were not adapted to meet these objects, and they

* Divided thus: Government of India, 6,432,316 l.; Madras, 2,814,845 l.; and Bombay, 2,301,334 l.

PENSION RULES
OF NATIVE
ARMIES.

they made certain proposals for the introduction of a graduated scale of pension and gratuities, and a system of earlier retirements, voluntary or compulsory, which they considered would have the desired effect. The Government of India, while agreeing that some modification of the existing rules was necessary, only partially accepted the proposals of the special committee, and in lieu of the suggested system of gratuities, varying rates of pensions after periods of service, and earlier permissive or enforced retirement, proposed that there should continue to be only two rates of pension in each grade, namely, one at any time after 15 years' service, on the recommendation of an invaliding committee, and one after 32 years' service, corresponding in conditions to the existing 40 years' pension. The Government also recommended that no changes should be made in the existing rates of pension, except in respect to native commissioned officers. These measures were approved by the Secretary of State in December 1877, and the giving immediate effect to them was sanctioned.

HEALTH OF
BRITISH TROOPS.

Statistics of sickness and mortality in the European Army of India during 1877 shew that the rates per 1,000 for the entire army were: admissions 1,257.3, daily sick 55.8, deaths 12.71; for the Bengal Army they were respectively 1,251.3, 54.3, and 11.64; for the Madras Army they were 1,177.6, 58.9, and 16.83; for the Bombay Army they were 1,365.6, 58.0, and 12.09.

The results were more favorable than those of any previous year; and this is especially remarkable when it is remembered that famine prevailed in a great part of the country, with an unusual amount of disease more or less consequent on it. Looking back at the large outlay that has been incurred for new barracks and other sanitary improvements, the Army Sanitary Commission consider that, while there may have been in some cases extravagance in the style of construction, the results to the general health of the troops, as compared with former years, are most satisfactory. The low rate of mortality is especially worthy of note. During the year under review the death-rate was 12.71; in 1876 it was 15.32. In the Army of Bengal the rate was lower still, namely, 11.64, against 16.02 in 1876. Among the troops of this Presidency the average rates for three quinquennial periods fell from 29.30 in 1861-65, to 27.48 in 1866-70, and to 18.50 in 1871-75.

Malarial fevers were during 1877 the principal cause of sickness in Bengal and Bombay, but were surpassed in Madras by venereal diseases. Only 73 cases of cholera were treated, of which 48 were fatal. There were 44 cases of smallpox, one only, in Bengal, ending fatally. Under enteric fever 233 cases and 92 deaths were recorded. Special inquiries have been made as to the necessary connexion of this disease with unhealthy local conditions. The usual predisposition of young and unacclimatised soldiers to the disease is again apparent from the statistics of 1877. Malarial fevers produced less sickness than in any previous year of which there is a record. This was probably due to the dryness of the season. The particulars relating to the prevalence of intemperate habits are very unsatisfactory. No information has been received from Madras. In the other Presidencies both the number of total abstainers and the cases of drunkenness shewed an increase. A very important reform was in contemplation, namely, the abolition of the supply of spirits to the British troops serving in India, and the substitution of an optional extra allowance of malt liquor for the dram of rum now allowed. The Army Sanitary Commission are of opinion that, "if drink were abolished, and the men's diet and underclothing were brought into closer relation to the necessities of the country, neither the sanitary nor the medical officer would have much to concern himself about, as far at least as regards fatal diseases." The invaliding rate was 42.25 per 1,000, being 10.42 for discharge, and 31.83 for change. The results were not quite as good as those of 1875 and 1876, but compare favorably with those of former years. The average ratio during the five years 1866-70 was 49.66. The improvement, however, in regard to invaliding for discharge is confined to Bengal; the rate for Bombay (11.84) exceeds any recorded since 1868.

HEALTH OF
NATIVE TROOPS.
Bengal Army.

The vital statistics of the Bengal Native Army for 1877 were on the whole very satisfactory, and better than those of any former year. Calculated on the strength present, the rate of admissions per 1,000 was 1,144.7, and of daily sick 34.9, while the death-rate calculated on the total strength was 13.4. Fevers headed the list, both of admissions and of deaths. Bowel complaints occupied a high place in both, but as a cause of mortality were surpassed by pneumonia and

HEALTH OF
NATIVE TROOPS.

and bronchitis. As compared with past years, the number of deaths from fever, bronchitis, debility, spleen diseases, and injuries was relatively higher, and that from smallpox, cholera, and dysentery, lower. In the case of dysentery, the decline of mortality is ascribed in great measure to improved methods of treating the disease. The diminished sickness from fever was probably connected with the deficiency of rain. The figures shew a very marked reduction in prevalence of ague, and a slight reduction in that of remittent fever; but the number of deaths which took place being very nearly the same in both years, these bear a higher proportion to cases. Chest diseases contributed no less than 26 per cent. of the total deaths; shelter and clothing are preventive measures for this class of diseases. Only 24 cases of cholera were admitted into hospital, of which 11 were fatal; nine deaths took place elsewhere than in hospital. Although smallpox was very prevalent throughout the Presidency, and prevailed severely in Cawnpore, Lucknow, and Bareilly, only 37 cases and five deaths occurred during the year in the Native Army. The subject of providing exercise and recreation for sepoys continued to obtain attention, gymnasia having now been organised at almost every station; and, in addition to the feats of wrestling, &c., which sepoys indulge in of their own accord, arrangements have been made in many regiments for putting recruits and young soldiers through a regular course of gymnastics. The reports testify that this is highly conducive to improvement of the physique and bearing of the men. In some cases the men are encouraged to join in English games, hunting and shooting; and cavalry regiments resort for exercise and amusement to tent-pegging, polo and other sports.

The Surgeon General in Madras reports that, although the year was one of general sickness and mortality from famine and pestilence, the army, as a whole, largely escaped those evils, and he adds: "These facts shew how bodies of men, under discipline and medical supervision, with a moderate supply of food, and protected by sanitary arrangements, may pass through a season of widespread famine, sickness, and mortality with comparative immunity;" while the Army Sanitary Commission observe, on the same subject: "If there are any persons in authority in India, or out of it, disposed to question the utility of sanitary work, we would recommend to them a careful consideration of these facts." The ratios per 1,000 were, of admissions 855.6, of daily sick 27.9, of deaths 15.3, and of invaliding for discharge 26.1. All the rates except the last were higher than in 1876. There was a greater relative mortality among Mahomedan soldiers than in other classes, which is attributed to the scarcity of animal food. There occurred 187 cases of cholera, with 72 deaths; and there was only one casualty from smallpox. A report has been furnished from Madras, at the instance of the Army Sanitary Commission on the prevalence among the troops of eye and skin diseases. Of the former much is due to the influences of the tropical climate which give rise to irritation and inflammation. But both classes of disease are greatly propagated by the neglect of personal cleanliness; and it is suggested that cases of such neglect, in connexion with avoidable diseases, ought to be made the subject of military discipline.

In the Bombay Army, as a whole, there was improvement in regard to sickness, but not in regard to mortality. The admission-rate was 1,113.8 against 1,191.9 in 1876; and the death-rate 13.7 against 13.1. In the Northern and Sind divisions there was altogether a decided improvement, especially in the latter, where the number of deaths fell from 92 to 36. There was much less malarious fever in both divisions; and in Sind there was no cholera, there having been in the previous year 68 cases (which occurred in the Khelat Expeditionary Force). For the Poona division the statistics were much less favorable than in 1876; the regiments at Sholapore, Dharwar, and Satara suffered very severely from the malarious fever which decimated the Deccan population after the famine. Malarious fevers, as usual, were the principal cause of inefficiency. A late and copious rainfall in the Deccan resulted in an extraordinary development of these fevers during the last three months of the year. Leaving Sind out of the account for both years, there were 67 cases of cholera as compared with 44, and 29 of these were fatal. Considering the great extent to which epidemic cholera prevailed in the Deccan, the Konkan, and Gujarat during the year, the comparative immunity of the troops from this disease is very satisfactory. It is stated by the Surgeon-General that the regiments at Ahmedabad and Baroda are always liable to be attacked by cholera, which appears to be endemic among the civil population of those cities.

Bombay Army.

"and

118 STATEMENT: PROGRESS AND CONDITION OF INDIA, 1877-8.

HEALTH OF
NATIVE TROOPS.

"and of the surrounding villages." Cases of smallpox increased from 57 to 101, four of the latter being fatal. A severe epidemic visited most parts of the Presidency.

ARMY
SANITATION.
European Army.

A total sum of 702,229 l. was expended during 18778 on works designed to add to the health and comfort of the troops, more particularly of the British troops in the Bengal Presidency. No works, however, of sufficient interest to be detailed appear to have been carried out. The total outlay on sanitary works in connexion with the Bombay army was 53,831 l., of which 38,231 l. was expended at Ahmedabad, principally on barracks. Among the Bombay stations the Presidency town itself produced the highest rate of admissions into hospital; this was principally owing to a foul swamp at Colaba, which has originated from the discharge of the Sonapore drain. The construction of new barracks was under the consideration of Government. Poona was notoriously unhealthy; 60 per cent. of the admissions were from malarial diseases, and cholera and diarrhoea were very prevalent there. Seven new barrack blocks were begun at that station. New barracks have also been ordered at Baroda, where the rate of admissions was 2,142, and of deaths 27.65 per 1,000.

Bengal Native
Army.

Attention continues to be paid to the important subject of accommodation for the Bengal Native Army. New lines of a superior kind have been built for the 16th Bengal Cavalry at Allahabad, and for the 5th Bengal Cavalry at Nowgong. In many cases huts have been dismantled and rebuilt, and sundry improvements made, tending to promote their comfort and ventilation. Nevertheless, the question of accommodation cannot yet be said to be in a satisfactory position. The most serious defects are the low level of the floors, which in some cases are actually excavated and below the level of the ground; the insufficient space, which is often less than half the regulated allowance, and the want of ventilation. Nowhere, except in Calcutta, has any system of subsoil drainage been attempted; but regimental and station authorities are said to be fully alive to the importance of removing and preventing the stagnation of surface water. The trench system of latrines continued to work satisfactorily where suitable conditions existed. Cultivation of the trenched ground appear to have been more generally carried out. The system was extended somewhat during the year. Under the orders of Government a rough analysis of portable waters in cantonments is now made by medical officers.

Madras Native
Army.

The question of the hutting of Native troops in the Madras Presidency remained unsettled.

Bombay Native
Army.

There is an urgent need for drainage in the lines of the Native Army of Bombay; Mehidpur, Surat, and Mhow are in a specially bad condition. Water supply was generally good and abundant in 1877. At Mehidpur and Neemuch it was scarce, and at the former station of indifferent quality. At Kurrachee and Jacobabad the water, though sufficient in quality, was far from pure. Notwithstanding the high prices of food there was in no instance any difficulty in obtaining a sufficient supply for the troops. But in the Poona division, in spite of the large amount of grain compensation allowed, men with large families were more or less pinched; and in consequence of this, and from the sepoys having been induced, by the lower rate at which it was offered, to purchase the spoiled and inferior grain to a considerable extent, bowel diseases, especially diarrhoea and dyspepsia, became more prevalent.

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