# CHAPTER XI

## REVENUES DERIVED FROM TAXATION

The Salt Tax—Sources of salt supply—Former system of levying duties —The Inland Customs Line—Its abolition—The present system—Result of reforms—The stamp revenue—Excise on spirits and drugs —Misrepresentations—Principles of excise administration—Assessed taxes—Income Tax—Registration.

TAXES, properly so called, yielded altogether in India, in 1900-01, a gross revenue of £20,816,000. Among them the most important is the tax on salt. It gave in 1900-01 a gross income of £5,967,000.

The system under which the Salt duties are levied varies in different parts of India. Bengal and Assam, with 81 millions of people, obtained, until not many years ago, almost the whole of their salt from England. There are hardly any local sources of supply for these provinces except the sea, but on the greater part of the coasts of Bengal salt cannot be made cheaply by solar evaporation; the climate is damp, and the difficulty is increased by the vast quantity of fresh water brought to the Bay of Bengal by the Ganges and Bráhmaputra. The locally produced salt cannot compete with that imported by sea. Owing to the fact that the exports from India are largely in excess of the imports, freights to India are very low, and salt costs little to import. The tax in Bengal is levied as an import duty at the port of entry. Before 1888 nearly all the salt consumed in Bengal was brought from Cheshire; but in consequence principally of a great increase in the price of English salt caused by the action of the Salt Syndicate, a large supply is now furnished by Arabia and Germany. Increased facilities of inland communication have also encouraged the displacement of foreign salt by salt manufactured in other Indian provinces.

In Madras and Bombay, although the facilities for communication with other countries are equally great, foreign salt does not compete with that produced locally, for the manufacture of salt from the sea by solar evaporation is an easy process. The duty in Madras is collected partly under an excise system, and partly under a monopoly, by which all salt is manufactured for the Government and sold at a price which gives a profit equal to the duty. In Bombay the duty is levied as an excise.

The United Provinces of Agra and Oudh, and parts of the Central Provinces and of the Punjab, derive their chief supply of salt from lakes or springs impregnated with salt in the Native States of Rájputána. The salt is prepared by solar evaporation at works controlled by the Government. Farther north, the greater part of the Punjab is supplied from rock-salt, which is found in inexhaustible quantities. The salt is extracted and sold by the Government, the duty being included in the selling price. In Burma the greater part of the salt comes from England and Germany, and from Madras; there is also a considerable local manufacture.

Until 1882-83, the amount of duty varied in different provinces. It was higher in Bengal than in Madras and Bombay. So long as there were no railways and few roads, the inconvenience of these different rates was not much felt; but as communication improved, it became more and more impossible to prevent salt taxed at a lower rate from coming into provinces where the tax was higher, and a system gradually grew up in India to which, for extraordinary folly, it would be hard to find a parallel.

In 1843, with the object of shutting out the cheaper salt from provinces where it had been made artificially dear, and of keeping out from British territory the untaxed salt of Native States, the establishment of an Inland Customs Line was commenced, and by 1870 it had extended itself across the whole of British India from a point north of Attock, on the Indus, to the Máhánadi, on the borders of Madras, a distance of 2500 miles. Along the greater part of its length it was a huge material barrier, which Sir M. E. Grant Duff, speaking from personal observation, said could be compared to nothing else in the world except the Great Wall of China; it consisted chiefly of an immense impenetrable hedge of thorny trees and bushes, supplemented by stone walls and ditches, across which no human being or beast of burden or vehicle could pass without being subjected to detention and search. If this Customs Line had been put down in Europe, it would have stretched, in 1869, from Moscow to Gibraltar. It was guarded by an army of officers and men, some 12,000 in number, divided into beats which were constantly patrolled by night and day, and were watched from 1700 guard-posts. It may easily be imagined what obstruction to trade, what abuses and oppression, what annoyance and harassment to individuals, took place. The interference was not confined to traffic passing into the British provinces, or to salt alone, for an export duty was levied on sugar produced in our own territories when it passed from British territory into Native States, and sometimes when it passed from one part of British territory to another. This was a most objectionable and indeed irrational tax, levied as it was on one of the most important agricultural staples of our own provinces. Obstructions were thus offered to traffic from whichever direction it came.

It was impossible to get rid of this Inland Customs Line while the salt tax was levied at different rates in different provinces, and until we had the means of controlling the manufacture and taxation of salt produced in the great salt tracts of the Native States and brought into our own territories.

The first steps towards a better system were taken by the Government of Lord Mayo in 1869. An amicable arrangement was ably and successfully negotiated by Mr. A. O. Hume with the Native States of Jaipur and Jodhpur, under which we acquired the sole right of manufacturing salt at the Sámbhar salt lake, the chief of the salt sources of Rájputána, and from which a large proportion of the supply of Northern India is derived.

No further steps were taken until 1873, but in that year (I am quoting from a despatch of the Government of India), "Mr. G. H. M. Batten, the Commissioner of Inland Customs, first suggested to the Government that inquiries should be made and negotiations entered into with a view to the British Government being enabled to levy an excise duty on salt at the principal places of production in Rájputána, and to suppress or restrict all other salt manufacture in the Native States. He pointed out that by this measure, and this measure alone, would it become possible to remove the Inland Customs Line." The Government of Lord Northbrook then entered into an arrangement with Jodhpur, by which all the important salt sources of that State were transferred to British management. An important reduction was also made in the length of the Customs Line in its southern section, where it passed through British territory only.

In 1878, under the Government of Lord Lytton, by my own advice, the export duty on sugar was abolished, and in the following year the Inland Customs Line finally disappeared. It was still, at that time, 1500 miles long, a distance as great as that from London to Constantinople, and its existence was declared by Lord Lytton to be a great political and commercial scandal. There is nothing in my Indian life that I remember with more satisfaction than the fact that it was my good fortune, as Financial Member of the Government, to help Lord Lytton in carrying to completion the reform of a system which for many years I had denounced.

The abolition of the Customs Line was rendered possible by two measures. By the first the duties on salt throughout India, although for financial reasons they could not be at once completely equalised, were made to approximate so nearly that salt could not profitably be taken from one province to another. By the second measure agreements were entered into with the Native States of Rájputána and Central India, under which the British Government obtained leases and control of all the more important sources of salt manufacture. Liberal compensation was given to the chiefs of the Native States for loss of revenue. These measures led almost immediately to a large increase in the consumption of salt and to a large increase of revenue.[1]

[1] This account of a great reform would not be complete without some reference to the eminent services of Mr. A. O. Hume, Sir Alfred Lyall, and Sir Henry

The final completion of these reforms, by the equalisation of the salt duties throughout India at a reduced rate, was reserved for Sir Evelyn Baring, now Lord Cromer, as Financial Member of the Government of Lord Ripon. In 1882 the duty was fixed at two rupees per maund (82 lbs.).

The measures that have been described had as their ultimate object much more than the removal of the Inland Customs Line, and the equalisation of the duties upon salt. That object was explained by myself in 1877, in the Legislative Council, on behalf of the Government of India, to be that of giving to the people throughout India the means of obtaining an unlimited supply of salt at the cheapest possible cost; I said that the interests of the people and of the public revenue were identical, and that the only just and wise system was to levy a low rate of duty on an unrestricted consumption. That policy was not long maintained. In January 1888 the salt tax was raised to two and a half rupees per maund, and so it remained for the next fifteen years. Neither in the consumption of salt nor in the revenue was the progress satisfactory. In March 1903 the tax was reduced by the Government of Lord Curzon to its former rate of two rupees.

The temptation is great in times of financial pressure to have recourse to the expedient of increasing the duty on salt. The vast majority of the people on whom the tax falls are probably unaware of the existence of the tax. The masses remain unmoved and silent, while the small and wealthier minority, who

Daly, who conducted the negotiations with the Native States, and to those of Mr. G. H. M. Batten, who, at the headquarters of the Government of India, was, in regard to all the questions involved, its chief adviser.

alone can make their voices heard, give loud approval to measures which impose no appreciable obligation upon themselves. No efforts should be spared to reduce to the utmost the price of salt throughout India, and thereby to stimulate consumption. Nor is this policy desirable merely for the reason, essentially important as this is, that the cost to the poor of one of the necessaries of life should not needlessly be enhanced, but because it will certainly, from a purely financial point of view, be advantageous. Nor should it be forgotten that a time of extreme political emergency may come when a large and immediate addition to the revenues is necessary, and when fresh direct and unpopular taxation cannot possibly be imposed. In such circumstances, the tax on salt might, if it were very low, and the consumption of salt were unrestricted, be temporarily increased without serious objection, for the Government would thus be able to obtain, by a small increase of duty, large additional resources, almost without the knowledge of the people. Salt ought to be looked on as a financial reserve, which might be drawn upon in case of urgent necessity, but not otherwise. I do not assert, nor do I believe, that the tax at the rate which prevailed from 1888 to 1903 was felt as an actual hardship by the people, but its reduction has been one of the wisest measures of the Government of Lord Curzon.

The duty on salt is the only obligatory tax which falls upon the masses of the population, and although they are very poor it is not a serious burden. It is equivalent to an annual tax of about fourpence per head. The case was very different once, when high duties, unwise policy, and, above all, imperfect means of communication, made it impossible for the poorest classes in some parts of India to obtain a sufficient supply of salt.

In the existing conditions of India a moderate tax upon salt is open in principle to little objection. The reasons for this conclusion were summed up by the Duke of Argyll, when Secretary of State for India, in a passage which I cannot do better than quote:—

"On all grounds of general principles, salt is a perfectly legitimate subject of taxation. It is impossible in any country to reach the masses of the population by direct taxes. If they are to contribute at all to the expenditure of the State, it must be through taxes levied upon some articles of universal consumption. If such taxes are fairly adjusted, a revenue can thus be raised, not only with less consciousness on the part of the people, but with less real hardship upon them than in any other way whatever. There is no other article in India answering this description upon which any tax is levied. It appears to be the only one which, at present, in that country can occupy the place which is held in our own financial system by the great articles of consumption from which a large part of the imperial revenue is derived. I am of opinion, therefore, that the salt tax in India must continue to be regarded as a legitimate and important branch of the public revenue. It is the duty, however, of the Government to see that such taxes are not so heavy as to bear unjustly on the poor by amounting to a very large percentage upon their necessary expenditure. The best test whether an indirect tax is open to this objection is to be found in its effect upon consumption." [1]

The Stamp revenue is derived partly from stamps on commercial papers, and partly from fees, levied by means of stamps, on proceedings in the judicial courts. It amounted in 1900-01 to £3,343,000, of which £998,000 was derived from commercial stamps, and the rest from court fees.

The revenue under the head of Excise is derived

[1] Despatch to Government of India, January 21, 1869.

from duties on spirits and intoxicating drugs. Tobacco, which is grown in almost every village and is consumed by nearly every man in India, and by very many women, is subject to no duty. The people of India generally are extremely abstemious; the consumption of spirits is for the most part confined to the lower classes, but even among them there is, in the words of the Government of India, "a condition of things which, if it existed in England, would be regarded almost as a millennium of temperance. Drunkenness in the English sense of the term hardly exists in India." Whereas in the United Kingdom there was one liquor shop to about 242 of the population, the proportion in India was one to more than 2400. There has been a large and steady increase in the excise revenue. In 1870 it was less than £1,250,000; in 1880 it was £2,840,000; and it was £3,937,000 in 1900-01. Benevolent people in England, carried away by the enthusiasm of ignorance, have found in such figures as these the opportunity for indignant protest against the wickedness of a Government which, with the object of obtaining revenue, affords, in defiance of native opinion, constantly increasing facilities for drinking. There is no foundation for such assertions. The sole cause of the increase of revenue has been improved administration and the suppression of illicit distillation and sale. I quote from a despatch of the Government of India the following summary of the facts :—

"Few subjects have of recent years obtained greater attention at the hands of the Government than questions relating to excise administration. In each of the three larger Governments the excise system has, within the last six or seven years, been completely examined in its operation and in its effects. These examinations have been made under the instructions of the Local

Governments, and in direct communication with us, and the principles on which they have been based, and which have been unanimously accepted by all the authorities concerned, have been these: that liquor should be taxed and consumption restricted, as far as it is possible to do so without imposing positive hardships upon the people and driving them to illicit manufacture. The facts now placed on record show that in this policy the Local Governments have been completely successful, and that the great increase of excise revenue in recent years, which has been taken as evidence of the spread of drinking habits, really represents a much smaller consumption of liquor, and an infinitely better regulated consumption, than the smaller revenue of former years. . . .

"There is not the slightest reason to imagine that in the days of native administration the Indian populations refrained from indulgence in a practice which it requires the constant watchfulness of the British administration to prevent. Under the Mohammedan administration, which immediately preceded the British rule, the facilities for drinking were very much greater than have ever since existed, and the prevalence of drinking habits was quite as much complained of. The reports of the Chief Commissioners of the Central Provinces and of Assam prove that it is precisely those tribes and races which have been the least accessible to the influences of British rule which are most addicted to intoxicating drinks and drugs. We have at the present day ample evidence on this very point in the conflict between the British and Native excise systems wherever British and Native territory meet. These are the only points where the British system breaks down, because the restrictions imposed upon manufacture and consumption on the British side of such frontiers are not met by equivalent restrictions on the other side. One of the main difficulties which the excise authorities have to meet is that of excluding from British territory the more lightly taxed and more easily obtained spirit available in Native States.

"It is only by strong preventive establishments that illicit distillation can be prevented. The great increase in the revenue does not mark the extension of drinking habits, but is the result of a great and general increase in the rate of tax, which it would have been entirely impossible to realise but for the great improvement in preventive measures which has accompanied it.

In fact, the ability of the Excise department to prevent illicit distillation is the only limit which is imposed in practice to increase in the rate of taxation."

Speaking generally, there has been almost everywhere since 1880 a decrease in the number of liquor shops and in the consumption of liquors. The real question now is not whether restriction has been carried far enough, but whether it has not, in some parts of India, been carried too far. There is reason to fear that there has been, not infrequently, a serious increase of illicit production which it is impossible to prevent, that the difficulty of obtaining liquor at a reasonable price has sometimes largely stimulated the consumption of drugs, especially hemp, that are more noxious, and that classes which have always been accustomed to the use of liquor have been forced into systematic evasion of the law.

The next head of Indian taxation is that of Provincial Rates, which I have already mentioned.

In 1859, the year after the transfer of the Government to the Crown, Mr. James Wilson was appointed financial member of the Governor-General's Council. The heavy charges incurred in the suppression of the mutinies and the reorganisation of the administration rendered the imposition of fresh taxation necessary, and in 1860, under the advice of Mr. Wilson, a general income tax was imposed. It was levied at the rate of 4 per cent, or rather more than 9½d. in the pound, on all incomes of 500 rupees and upwards, and at half that rate on incomes between 200 and 500 rupees. It yielded in 1861-62 a net revenue of nearly £2,000,000. Many changes have from time to time been made in the system thus introduced. The direct taxation of incomes has several times been wholly or partially abolished, and several times it has been restored. Sometimes there has been a general tax upon all incomes, sometimes a license tax on professions and trades, and sometimes on trades only. In 1877-78 the question of direct taxation was forced into prominence by the necessity of making provision against the financial dangers caused by the liability to famine to which the greater part of India is from time to time subject. Taxes which were called license taxes, but which were really in the nature of taxes on income, were then imposed throughout India on the commercial and trading classes, and additional rates were placed on the land in some of the provinces. In 1886 a further step was taken. An Act then imposed a tax on all incomes derived from sources other than agriculture, the latter being exempted. This Act affected no income below 500 rupees; on incomes of 2000 rupees and upwards, it fell at the rate of 5 pies in the rupee, or about 6¼d. in the pound; and on incomes between 500 and 2000 rupees at the rate of 4 pies in the rupee, or 5d. in the pound. In March 1903 the minimum taxable income was raised from 500 to 1000 rupees. The poorer classes are not touched. An income of £66 a year seems very small to us in Europe, but to a native of India, in his own country, it represents, not indeed wealth, but something far removed from poverty. I hope it may now be assumed, after many years of contest, that an income tax has been finally accepted as a permanent source of revenue in India.

There is no country where a tax upon incomes is more just than in India; but there has been difficulty in imposing and maintaining it, because it has been opposed by the richest and most powerful classes, who alone can make their voices heard. It has long been a reproach to our administration that they have borne no fair proportion of the public burdens. The official classes, in the absence of direct taxation, contribute almost nothing. The mercantile and professional classes derive, from the security which they enjoy, greater benefits from our government than any other part of the community, but they have paid almost nothing for its support, except when direct taxation has been imposed upon them. Even the land, although it provides so large a portion of the public revenues, sometimes fails to contribute anything like an adequate amount; the most notorious example of this fact is seen in Bengal, where the zemindars, in the richest province of the empire, not only, in consequence of mistakes made more than a century ago, pay an altogether insufficient sum as land revenue, but remain in great measure exempt from taxation. Much has been said about the unpopularity of an income tax in India. It is undoubtedly disliked by those who have to pay it; but out of the 232,000,000 people in British India, less than 300,000 are liable to the tax, and no such term as unpopular can reasonably be applied to it. I do not undervalue the fact that the small minority on which the income tax falls is politically the most influential section of the whole community, but its discontent is a less evil than the injustice of allowing it almost entirely to escape taxation. Temptations are never wanting in India for Governments to earn for themselves an apparent popularity by a refusal to impose taxes on the richer and more influential classes of the community, and while these, the only audible critics, approve, it is not difficult to find acceptable reasons for a course essentially impolitic and unjust. The real foundations of our power do not rest on the interested approval of the noisy few, but in justice and on the contentment of the silent millions.

The revenue under the head of Registration is not very important in amount. It is derived from fees levied on instruments brought for registration; in some cases, when immovable property above a certain value is affected, the registration of documents is obligatory, in other cases it is optional.

# CHAPTER XII

## REVENUES DERIVED FROM TAXATION (*continued*)

Customs duties—Duties before 1875—Duties on cotton goods—Free trade in India—Abolition of import duties—Indian tea—Export duty on rice—Re-imposition of import duties in 1894.

I HAVE gone through all the heads of taxation except Customs. I propose to give in some detail an account of past legislation on this subject. There have been, from time to time, great changes in the policy of the Government; of these changes it is not likely that we have seen the last, and their history is not unimportant.

Until 1860 nearly everything imported into India was taxed at the rate of 10 per cent *ad valorem*. On some articles the rate was much higher. Almost everything exported paid a duty of 3 per cent. In 1864, the general rate of duty on imports was reduced to $7\frac{1}{2}$ per cent, and in 1875, under the Government of Lord Northbrook, to 5 per cent. Many exemptions from export duty were made from time to time, and in 1875 the only exports still taxed were rice, indigo, and lac.

The application to the Indian customs tariff of the principles of greater freedom of trade might have been long delayed but for the accident that the interests of a great British industry were affected. Cotton goods were among the articles on which import duties were imposed. The English manufacturers complained loudly that the practical result was to levy a protective duty to their detriment in favour of cotton manufactures rapidly growing up in India. After a long and acrimonious discussion, the question at issue, so far as the principles at stake were concerned, was decided on May 31, 1876, in a despatch to the Government of India from the Marquis of Salisbury, who was then Secretary of State for India. He said that there was no conflict between the interests of India and of England, and that while the abolition of these duties would give legitimate relief to a great British industry, it was a measure still more necessary in the interests of India; that while the duties had the effect of checking the import of British manufactures, they were at the same time exposing to future injury an Indian industry which it was of the first importance should rest upon sound foundations, which there was every reason to believe would rapidly increase, and which ought not to be allowed to grow up under influences which experience had shown must be injurious to its healthy and natural development. "Whether (he wrote) the question be regarded as it affects the consumer, the producer, or the revenue, I am of opinion that the interests of India imperatively require the timely removal of a tax which is at once wrong in principle, injurious in its practical effect, and self-destructive in its operation."

In the following year (July 11, 1877), a resolution was adopted by the House of Commons, without a division, that "the duties now levied upon cotton manufactures imported into India, being protective in their nature, are contrary to sound commercial policy, and ought to be repealed without delay so soon as the financial condition of India will permit."

Famine and other causes of financial difficulty prevented immediate action, but in the financial statement, March 1878, an important step, not only towards the abolition of the duties on cotton goods, but towards the complete freedom of trade, was announced. A declaration was then made by myself, as Financial Member of the Council, of the principles which the Government of India intended to carry out gradually as circumstances allowed :—

"It is not necessary to discuss the advantages to a country of free trade, and the disadvantage of protective duties. It is sufficient to say that these have been admitted for many years by the statesmen who, of whatever party, have guided the policy of the United Kingdom. . . . The principles on which the customs legislation of the United Kingdom has been based are now admitted axioms by all who recognise the theoretic advantages of free trade. These principles are, as regards imports :

"1. That no duty should exist which affords protection to native industry ; and, as a corollary, that no duty should be applied to any article which can be produced at home without an equivalent duty of excise on the home production ; also, that no duty should be levied except for purely fiscal purposes.

"2. That, as far as possible, the raw materials of industry and articles contributing to production should be exempt from customs taxation.

"3. That duties should be applied only to articles which yield a revenue of sufficient importance to justify the interference with trade involved by the machinery of collection.

"As regards exports : That duties should be levied on those commodities only in which the exporting country has practically a monopoly of production.

"These principles are of general application, but in the case of India they possess a peculiar significance. India is a country of unbounded material resources, but her people are a poor people. Its characteristics are great power of production, but almost total absence of accumulated capital. On this account alone the prosperity of the country essentially depends on its being able to secure a large and favourable outlet for its surplus produce. But there is a special feature in the economic conditions of India which renders this a matter of yet more pressing and even of vital importance. This is the fact that her connection with England, and the financial results of that connection, compel her to send to Europe every year about £20,000,000 sterling worth of her products without receiving in return any direct commercial equivalent. This excess of exports over imports . . . is really the return for the foreign capital, in its broadest sense, invested in India, including, under capital, not only money, but all advantages which have to be paid for, such as the intelligence, strength, and energy on which good administration and commercial prosperity depend. From these causes the trade of India is in an abnormal position, preventing her from receiving, in the shape of imported merchandise and treasure, the full commercial benefit which otherwise would spring from her vast material resources. The comparatively undeveloped condition of the trade of India may be illustrated by the following figures:—The value of the imports and exports, taken together, per head of the population is in the United Kingdom about £20. In British India it is about 10s. The customs revenue on the few articles now retained in the import tariff of the United Kingdom is about 12s. per head, while that of India, on all the articles of its lengthy tariff, is about 3d., showing that, small as is the proportion of the foreign trade of India to that of England, the proportion of customs revenue derived from it is smaller still. Here then is a country which, both from its poverty, the primitive and monotonous condition of its industrial life, and the peculiar character of its political condition, requires from its Government, before all things, the most economical treatment of its resources, and, therefore, the greatest possible freedom in its foreign exchanges."

Excluding the duties levied on salt and liquors, which corresponded to the internal excise duties imposed on those articles, the Indian import duties yielded at that time (1876-77) £1,275,000; and £811,000 of this was derived from cotton goods. Apart from the latter sum there remained, therefore, only £464,000 levied from a multitude of articles, many of which yielded an insignificant revenue. It was clear that after the abolition of the duties on cotton goods it would be impossible to maintain the rest of the import tariff, and the intention was declared of getting rid of all import duties as soon as the state of the finances permitted. The first step was at once taken, in March 1878, by the remission of duties on a great number of articles, and on some of the coarser descriptions of manufactured cotton goods. The inland duties on the export of sugar across the great Inland Customs Line, to which I have already referred, were at the same time abolished. In the following year, in March 1879, the duty on all so-called grey cotton goods, except those of the finer qualities, was remitted.

None of the previous steps towards the abolition of customs duties had been taken by the Government without difficulty, and this further measure, which it was obvious must lead before long to the destruction of the whole fabric of the customs tariff, met with much opposition. Popular opinion in India had always, in regard to questions of fiscal reform, been obstructive and ignorant; and the fact that the abolition of customs duties would be favourable to English manufacturers was enough, in the belief of many, to prove that the party purpose of obtaining political support in Lancashire, and not any care for the interests of India, was the real motive of the Government. This foolish calumny deserved, and deserves, no notice or reply. The opposition to the reform of the cotton duties satisfied Lord Lytton that he must carry out the measure himself, or acquiesce in nothing being done at all. He believed that the interests of India required it, and he was not to be deterred by the imputation of base motives. The measure was held by Lord Lytton to be one which could not rightly be delayed, and it was carried into effect on March 13, 1879. This step was taken by Lord Lytton in opposition to the opinion of a majority of his Council, but on my own advice as member in charge of the Finances. It was approved, on April 4, 1879, by the House of Commons, in the following resolution :—

"That the Indian import duty on cotton goods, being unjust alike to the Indian consumer and the English producer, ought to be abolished, and this House accepts the recent reduction in these duties as a step towards their total abolition, to which Her Majesty's Government are pledged."

The declared object of the Government of India being not merely the abolition of the duties on cotton goods but the complete freedom of the import trade, the measures actually adopted were taken with the knowledge and intention that they must lead to the speedy collapse of the whole fabric of the customs tariff. It was soon generally admitted that it was not reasonable that certain cotton goods should be free while others of almost the same character remained liable to duty. Both manufacturers and importers complained, and, as the condition of the Indian finances had by this time become highly prosperous, it was impossible to justify the retention of the remaining duties on the finer qualities of goods; and, as already explained, it was clear that, when the cotton duties were given up, the rest of the import duties must go with them.

The history of these proceedings, and the forecast of the future which had become inevitable, was summed up by myself in the year 1881 in the following passage which I quote from the *Finances and Public Works of India* :—

"The policy followed by the Government of India during the Viceroyalty of Lord Lytton was one of absolute free trade, without reservation or qualification, and financial necessities alone prevented that policy from being carried out to the fullest extent. These proceedings have rendered inevitable the almost total abolition of customs duties, which of all Indian taxes are probably the worst. The cotton duties are virtually dead, and the other import duties cannot long survive them. How long a period may elapse before such a consummation is reached cannot be predicted; but the time is not very far distant when the ports of India will be thrown open freely to the commerce of the world.

"The people of India consume at present hardly any foreign luxuries; and cotton goods, which are among the necessaries, and not among the luxuries of life, are the only articles of foreign production which come largely into their consumption. There is no present possibility of deriving a large customs revenue from anything else. . . . The reforms which have been described will be remembered hereafter in the economical history of India, and they will be set down among the honourable titles of Lord Lytton's and Lord Salisbury's administration. They will be remembered, not only because they were the first application to India of the principles of free trade, but also because they have been carried out in a manner which has made the adoption of any other policy virtually impossible in the future, and has rendered it almost a matter of certainty that, within a short period of time, the absolute freedom of Indian commerce will be accomplished.

"The authors of this book may be pardoned for recollecting the part they have taken in this work, and while on public grounds they must regret the almost universal opposition and disapproval in spite of which the policy they have so long maintained has been carried out, they cannot pretend that their personal satisfaction in the success which has been gained already, and in the greater future success which is inevitable, has been diminished by such considerations.

"Non tam portas intrare patentes
Quam fregisse juvat." [1]

This was written early in 1881, and in March 1882

[1] *The Finances and Public Works of India*, by Sir John Strachey and Lieut.-General Richard Strachey.

the anticipations of the authors were verified by the abolition, with two exceptions, of all the remaining import duties, on the advice of Lord Cromer, then Sir Evelyn Baring, by the Government of Lord Ripon.

The exceptions were two articles on which import duties must be imposed, because the same articles are subject to an internal excise duty. One of these is salt, liquors are the other. Arms and ammunition were afterwards also subjected to a duty which, on all the cheaper qualities, was prohibitory, but this was imposed for political reasons, it being inexpedient to allow the free import of arms into India.

In January 1886, Sir Auckland Colvin, who had succeeded Sir Evelyn Baring as financial member of the Council, gave the following summary of the results that followed the measures that have been described :—

"The value of imports of manufactured goods, treasure and Government imports apart, which in the ten years before 1878-1879 averaged £35,000,000, was, in 1884-85, £53,000,000. The average of the four years from 1878-79, when the first duties were remitted, to 1881-82, the year before the final abolition, was £47,000,000; the average of the three years from 1882-83 to 1884-85 has been £51,000,000. The percentage of increase from 1878-79 to 1881-82 was 28; from 1878-79 to 1884-85 it has been 45. If we remember that during this period prices have been steadily falling, and that these figures represent value, not quantities, the real increase will be much greater. I am not so foolish as to suppose that the great growth of our imports since 1878-79 is due solely or mainly to the abolition of the import duties. It is due to a variety of causes. It is partly due to the increase in our exports; it is partly due to the cause to which so much of the increase of our exports is due—namely, to the extension of our railways, and to the consequent improvement in the distribution and cheapening of commodities; it is due to the forcing of accumulated stocks, owing to the fall of prices in England, upon the Indian market; it is very largely due to the fall of prices in England; but, unquestionably, it is also partly due to the abolition of import duties."

The first serious remission of duty on cotton manufactures was made in March 1879. In the four years preceding that date, the average annual value of the imports of cotton goods was Rx.18,760,000; in the four years following the complete abolition of the duty, and ending with March 1886, it was Rx.24,690,000, and in the five years ending 1892-93 it was Rx.29,718,000. The prices of cotton goods fell greatly after the Indian import duties were remitted, and the increase in the quantities imported was more striking than the increase in value.[1]

With one exception, which will presently be mentioned, India had done everything in her power to establish complete freedom of commercial intercourse between the two countries. England could not say the same; she maintained, as she still maintains, her duties on Indian tea and coffee, deriving from the former, in 1901, £3,700,000.

In January 1888 a small import duty was imposed on petroleum, and assuming that it was necessary for financial reasons to increase the revenue derived from indirect taxation, there was no article of the import trade on which a customs duty might with less objection be imposed. There has been throughout a great part of India a very large and remarkable increase in the use of petroleum for lighting. It comes from Russia and America, and chiefly from the former. This duty has thus the merit of directly affecting no British industry.

[1] I have left these figures, as they were originally stated, in rupees, because the fluctuations in the gold value of the rupee between 1879 and 1893 were so great that the amounts cannot be given in pounds sterling.

So far as the import trade is concerned, the principles of free trade were, until March 1894, carried out in India more completely than in any other country. The same could hardly be said of the exports. One export duty remained, and still remains, that on rice, chiefly grown in Burma. The revenue taken from the land in Burma is very small, and Burma and India had, for many years, something approaching to a monopoly of the supply of rice to Europe. This rendered the results less injurious than they would otherwise have been; but the tax is one that cannot, on economical grounds, be defended. Since 1880 there has been no important increase in the trade, and the fall of prices in Europe has encouraged the use of other grains in place of rice in the manufacture of starch and for distillation. The only excuse for the maintenance of this tax has been its productiveness; during the five years ending with 1900-01, the average revenue yielded by it was nearly £600,000. The duty is levied at the rate of 3 annas per Indian maund of 82 lbs., or about 4d. per cwt.

In March 1894, the Government of India, in consequence of financial pressure caused by the fall in the gold value of the rupee, considered fresh taxation to be unavoidable, and the least objectionable method by which they could increase the public revenues appeared to them to be the re-imposition of duties upon imports. The tariff of 1875, under which, with the exception of the precious metals, almost everything imported into India was subject to a duty of 5 per cent, was with some modifications restored. Two important changes were made. Silver bullion was included among dutiable articles, and cotton goods were excepted. This exemption of cotton goods from taxation lasted, however, for a short time only. In December 1894 a 5 per cent import duty was imposed on cotton goods and yarns, and a countervailing excise duty of 5 per cent *ad valorem* was imposed on cotton fabrics manufactured at power mills in India. In February 1896 these duties were again revised. Cotton yarns were freed from duty. A duty of 3½ per cent *ad valorem* was imposed on cotton manufactured goods imported from abroad, and a corresponding excise duty at the same rate was imposed on goods manufactured at mills in India. In 1902 these duties were still levied.

In 1900-01, the total value of all imports by sea into India was £70,314,000. This amount included Government transactions, stores, valued at £3,078,000, and gold and silver valued at £5,409,000. The private imports were merchandise valued at £50,852,000, and gold and silver valued at £10,976,000.

If, excluding salt, we set aside those articles of private merchandise on which duties are necessarily levied, or which are levied for special reasons,—silver, arms and ammunition, petroleum, liquors, and sugar—the value of the remaining articles liable to duty was about £43,500,000. The value of the imports of cotton fabrics, almost entirely of British manufacture, was nearly £20,000,000, or, with the exceptions just mentioned, not far from one-half of the whole import trade. The customs duties on imports, in 1900-01, yielded altogether £2,670,000. Apart from the articles which I have placed in a separate category, cotton fabrics yielded nearly one-half of the total amount received, or £623,000. The Indian import tariff now comprises nearly 400 specified articles, but the actual number of dutiable articles is much larger, because duties are levied on all other articles, manufactured or unmanufactured, except a few specially exempted.[1] In the words of the latest Official Review of the Trade of India, issued by the Government of India, "though the Indian tariff comprises a lengthy list of dutiable articles, there are but few on which individually any revenue of importance is collected; these are spirituous liquors, petroleum, sugar, metals, including silver, and cotton piece goods. These yielded three-fourths of the whole revenue. Cotton piece goods are much the most important source of revenue in the tariff."

I have shown that at one time there was no country in which trade was so free from all burdens as India. Whether the re-imposition and maintenance of a multitude of customs duties, the majority of which yield practically nothing, and which fall principally on articles of British manufacture, has or has not been necessary or wise, is a question into which I do not now propose to enter. Personally I cannot be expected to approve the abandonment of a policy which I myself initiated, which was carried into complete effect by Lord Cromer, and which was declared by his successor, Sir Auckland Colvin, to have been successful and beneficial in its results.

[1] The more important among the articles exempted from duty are the following:—living animals, printed books, hops, grain, machinery, gold bullion and coin, coal, printing material, railway material, ships, raw wool. On certain manufactures of iron a duty of 1 per cent only is imposed.

# CHAPTER XIII

## FOREIGN TRADE—HOME CHARGES—CURRENCY—WEIGHTS AND MEASURES

Growth of Indian trade and of manufactures and other industries—Conditions under which trade is carried on—Imports of gold and silver—Excess of exports over imports—Home charges—The Secretary of State's Bills—The manner in which the Home charges are met—The currency—Fall in the gold value of silver—Loss by exchange—Serious consequences—The closing of the Indian mints to silver—The results—Weights and measures—Reforms proposed by the Governments of Lord Lawrence and Lord Mayo—Their importance and failure to carry them out.

THE development of the foreign trade of India during the last half-century has been very great, and it affords a remarkable illustration of the increase in the material wealth of the country. In 1840 the total value of the sea-borne trade was about £20,000,000; in 1857, the year before the transfer of the Government to the Crown, it was £55,000,000; in 1877 it was £114,000,000; in 1900-01 it was nearly £152,000,000. The foreign trade of India is now larger than that of the United Kingdom in the middle of the last century. It was carried in 1901 by nearly 9000 vessels, with a tonnage of 9,600,000 tons, of which more than 80 per cent were under the British flag. More than two-thirds of the foreign trade passes through the Suez Canal. The value of the coasting trade in 1901 exceeded £63,000,000.

I do not propose to give any account in detail of Indian trade, but there are some matters connected with it which must be noticed. Speaking in general terms, although there are some very important exceptions, it may be said that the imports into India consist chiefly of manufactured articles, while the exports consist almost entirely of agricultural products.

Among the imports, cotton goods are, as I have already stated, by far the most important, but great as this branch of trade now is, it has, for some years past, made little progress, and, among the causes to which this is to be attributed, the competition of Indian mills with those of England is not the least serious. Before 1851 there were no cotton mills in India, but there has been in later years a great and rapid growth, especially in Bombay, of the manufacture of all but the finer qualities of cotton goods. In 1877 the Indian mills employed 1,300,000 spindles. In 1901 there were 192 mills, and the number of spindles had risen to nearly 5,000,000, giving employment every day to some 156,000 persons. The products of these mills not only come largely into the local markets, but an extensive export trade in cotton piece goods and yarns has sprung up from India to Japan, China, and other countries of Asia. This is not the only case in which important industries have been established. The jute mills of Bengal have become not less important than the cotton mills of Bombay, and the exports of raw and manufactured jute have gone on rapidly increasing, until they constitute in value almost one-half of the exports from Calcutta. In Northern India there are mills which produce large quantities of woollen goods; the amount of malt liquors made in India is now larger than that imported from Europe; the greater part of the paper used in the Government offices is obtained from Indian mills; rice and timber mills in Burma give employment to a rapidly increasing number of workmen, and in the same province, oil-fields yield already considerable quantities of petroleum, and give great promise for the future. The production of coal, especially in Bengal, has made immense progress; Indian coal provides the greater part of the requirements of the railways and factories, and is becoming an important article of export. In 1901 more than 100 vessels laden with coal sailed from Calcutta, whereas twenty years before not a single ton was so exported.

The growth of mining and manufacturing industries in recent years is one of the most satisfactory signs of Indian progress. I quote from a memorandum by Mr. L. P. Shirres, of the Indian Civil Service, the following account of the progress in Bengal:—

"Great as has been the expansion of foreign trade at the ports of Bengal, it is altogether eclipsed by the outburst of mining and manufacturing activity, which is converting the metropolitan districts into a vast industrial tract. No mere enumeration of figures can convey the impression that would be derived from a voyage up the Hoogly, where the banks are studded with tall chimneys and every new reach of the river discloses a fresh vista of factories. . . . The total number of mills and works, exclusive of those connected with tea, classed as large industries, increased from 891 in 1891-92 to 1718 in 1900-01, or by 92·7 per cent, and the number of persons employed from 203,483 to 327,844, or by 61·1 per cent. These are classed under some fifty different heads, among these being bone-crushing mills, cement works, chemical works, lac factories, oil mills, potteries, tile factories, sugar factories, tanneries, rice and flour mills, silk mills and works, rope works, etc. The number of persons working at brass and iron foundries has doubled during the decade, and at its close the 25 largest foundries employed 11,600 persons. . . . The out-turn of the East Indian Railway Company's workshops at

Jumalpur has increased during the same period from £68,000 to £310,000. The quantity of paper produced has more than doubled, and the value has risen by 80 per cent. By far the most important industry, however, is that of jute. In the first nine years of the decade the number of mills increased by 10, the number of persons employed from 64,091 to 110,051 and the outturn from £1,333,000 to nearly £5,700,000. The area under cultivation amounted to nearly $2\frac{1}{4}$ million acres, or 3500 square miles, jute machinery to the value of £433,000 was imported, and the number of persons employed rose to 113,493. The exports of 'articles of Indian produce manufactured or partly manufactured' have risen in value from £2,567,000 to £7,267,000, or by 195 per cent."

Another Indian industry has attained extraordinary dimensions: the cultivation and manufacture of tea. About the year 1830, in the time of Lord William Bentinck, the Government began the attempt to introduce the cultivation of tea. Gardens were established in the Himálayan districts of the North-Western Provinces, and men were brought from China to superintend operations. For many years the results were doubtful, and if the experiment had been in hands other than those of the Government, which could afford to wait, and which was fortunately wise enough to persevere, it would have been abandoned as hopeless. At last, when experience had shown what was required and what was to be avoided, the success became so great that the action of the Government was no longer necessary, and the field was left entirely to private enterprise. This was the beginning of the great tea industries of India and Ceylon, which now supply almost the whole of the tea consumed in Great Britain. The hill districts of Eastern Bengal have since proved far more favourable to the abundant production of tea than those of Northern India. In

Ceylon, into which it was introduced from India, the progress of the cultivation of tea has been even more rapid and remarkable. There has perhaps never been a greater revolution in trade in so short a time than that which has occurred in the case of tea. Even as recently as 1886 China supplied two-thirds of the tea imported into the United Kingdom. In 1901, out of nearly 300,000,000 lbs., less than 18,000,000 lbs. came from China, 160,000,000 lbs. from India, and 105,000,000 lbs. from Ceylon. In the same year the British revenue derived from Indian tea was £3,700,000, while that derived from Chinese tea had fallen to £246,000.

A very different story has to be told of another branch of the export trade, of which India possessed almost a monopoly, that of indigo. The great and steadily-increasing development of the manufacture of artificial indigo, brought about by the application, chiefly in Germany, of scientific processes, has reduced the cultivation of indigo to such an extent that it has become a question whether this once important Indian industry will not perish altogether.

One of the most valuable products of India is that of cane sugar. The importation of beet sugar from Austria-Hungary and Germany at prices artificially and immensely reduced by the system of bounties threatened millions of Indian cultivators with losses similar to those suffered by the planters of the West Indies. In 1899, and again in 1902, in consequence of the rapid increase of these imports, countervailing duties were imposed, and the Government may be trusted to provide sufficient safeguards for the future.

The conditions under which the foreign trade of India is carried on are peculiar.

It is probable that out of nearly 300,000,000 people inhabiting India, at least 200,000,000 are more or less directly dependent upon agriculture for support. Great manufacturing industries have hardly any existence except when they have been established by European capital or under European influence.

There is hardly one of the principal agricultural staples of the world which is not or may not be produced in India. The products both of the temperate and tropical zone find, in one or more of the regions within her boundaries, the climate, soil, and all other conditions that they require. The power of cheap agricultural production in India, and her capacity for supplying to other countries food-stuffs and raw materials for manufacture, are practically unlimited, while the capacity of Europe to consume is, or may become, as large as that of India to produce.

Almost everything that the people of India desire to meet their simple requirements is produced at home. This is true even of the comparatively rich, to the great majority of whom the wants and luxuries of European life are unknown. It is not so much the general poverty of the people, as the peculiar and slowly changing character of the social and industrial conditions under which they live, that confines within narrow channels their demands for the productions of other countries. The principal articles of general consumption which, in the absence of fiscal or other impediments, they can often obtain from abroad more cheaply than they can produce them, are clothing, simple metal manufactures, and metals as materials for their own industries. But there is one other important demand that cannot be supplied except from foreign sources. There has always been a flow into India of the precious metals, and centuries of disorder and oppression, the lessons of which are not soon forgotten, have led the people to invest their savings in what seems to them the safest form. Large quantities of gold and silver are thus constantly required for the purpose of hoarding. These hoards are kept for the most part in coin, but also in the shape of personal ornaments. It often surprises Englishmen to see the profusion of gold and silver bangles and other jewellery with which the women even of the humbler classes deck themselves on occasions of festivity. In the five years ending with 1902, the value of the net imports of gold and silver into India was about £37,500,000.[1]

In the same period, taking together the imports of merchandise and treasure, the average annual value of the imports into India fell short of the value of the exports by about £14,000,000. For this excess India receives no direct commercial equivalent, but she receives the equivalent in another form.

English capital to a very large amount has been, and is still being, invested in India by the State and by private individuals in railways, irrigation works, and industrial enterprises, and interest on these investments has to be remitted to England. In addition to this, large sums are required in England for what are really investments for India of another kind. It is an inevitable consequence of the subjection of India that a portion of the cost of her government should be paid in England. The maintenance of our dominion is essential in the interests of India herself, and, provided that she is not compelled to pay more than is really

[1] The production of gold in Southern India, chiefly in Mysore, has become important. In 1901 the mines yielded more than 500,000 ounces. The value of this gold was more than £2,000,000.

necessary to give her a thoroughly efficient Government, and in return for services actually rendered to her, she has no reason for complaint. The charges to be met in England are numerous: interest has to be paid on sterling debt incurred for India in England; there are, among others, charges for civil and military administration, interest and annuities on account of State railways and guaranteed lines, and on ordinary debt, furlough allowances, pensions, payments to the Government in England for British troops employed in India, stores of every kind, railway material for use in India, and the Secretary of State's administration at the India Office. The ordinary annual charge under the last-named head, exclusive of charges connected with the supply of stores to India, is about £130,000. The charges to be met in England necessarily vary from year to year; in 1900-01 they amounted to about £17,000,000.

I must briefly notice the manner in which the payments thus due by India to England are made. The average amount by which the exports from India annually exceed the imports was, as I have said, during the five years ending 1902, £14,000,000. This sum had to be paid in coin in India for the produce exported. The process by which these payments are effected is as follows:—The exporter from India sells his Indian produce in Europe; to pay for it in India the European importer must either send money to that country or he must purchase bills on India in London. The chief demand for remittances of money from India is that of the Secretary of State; he draws bills on the Government treasuries in India, which are paid in India out of the public revenues; and while the European importer obtains the money that he requires in India by the purchase of these bills, the Secretary of State at the same time receives the money that he requires in England. For the ten years ending with 1900-01, the average annual amount of the Secretary of State's bills was about £15,500,000.

It is this process which is sometimes represented as one by which India is being constantly drained of her resources, and forced to pay a crushing tribute to England. Such assertions are unfounded and ignorant. England receives nothing from India except in return for English services rendered, or English capital expended.

The time has passed in which it was deemed necessary to assume that it was always advantageous to a country that its imports should exceed its exports. This is one of the old opinions to which we may apply the words of Sir Robert Giffen: "The believers in such illusions are not entitled to any hearing as economists, however much they may be accepted in the market-place or among politicians. 'The balance of trade' and the excess of imports over exports are simply pitfalls for the amateur and the unwary."[1] The imports of Great Britain immensely exceed the exports; until very lately, on the other hand, the exports of the United States, probably the most prosperous country in the world, have, like those of India, greatly exceeded the imports. The obvious truth is that the accumulating wealth of Great Britain seeks useful employment all over the world, and that the legitimate returns on the capital thus invested flow back in the form of the excess imports, to which India and the United States, and other countries similarly situated, contribute. The payments made by India are the result and the evidence

[1] *Ency. Brit.* vol. xxv. 1902, art. "Balance of Trade."

of the benefits which she derives from her connection with England. In place of constant anarchy, bloodshed, and rapine, we have given to her peace, order, and justice; and, if our Government were to cease, all the miseries from which she has been saved would inevitably and instantly return. Her payments in England are nothing more than the return for the foreign capital in its broadest sense which is invested in India, including as capital not only money, but all advantages which have to be paid for, such as the intelligence, strength, and energy on which good administration and commercial prosperity depend. India derives from these investments benefits far outweighing in value the price that she has to pay, and it is through the excess of her exports over imports that she meets her liabilities.

The remittances on account of interest on English capital invested in useful public works in India involve no real charge to India, because such investments give to her a far larger profit than the interest sent away. Thus, for example, about £260,000,000 has been spent in India on railways and irrigation works, and that sum has been provided partly by State loans or from revenue, and partly through companies receiving a guarantee of interest, or other assistance from the State. The gross earnings of the railways amount to, say, £22,500,000, which is paid, in the first instance, into the Government treasuries; by far the greater portion of this sum is spent in India itself in wages and working expenses, and about £6,000,000 is sent to England as interest on the capital expended. The persons who voluntarily pay the £22,500,000 for the use of the railways are largely benefited by them, and would have had to pay much more had they been obliged to use ruder means of conveyance. It has been not unreasonably calculated that, in consequence of the greatly reduced cost of transport, India now derives from her railways, constructed for the most part with English capital, a benefit equivalent to £50,000,000 or £60,000,000 a year, while an immense trade has been created, which could not otherwise exist. To give one example, 5,000,000 tons of coal were carried in 1900 on the railways, which could not have been carried without them, and of this quantity 2,000,000 tons were exported. The payment of £6,000,000 in England indicates, in such circumstances, no drain upon India, but a transaction which has conferred upon her enormous benefits. The same may be said of the investments in tea, coffee, indigo, cotton mills, and other industries, mainly supported by British capital, the interest remitted on account of which implies the enrichment and not the impoverishment of the country.

There has, however, been one respect in which India has suffered serious injury from the necessity of having to make these heavy payments in England. This has resulted from the fact that the two countries have not had the same standard of value.

Gold being the standard of value in England, the payments which India has to make in this country must be made in gold, while the whole of her revenues are received in silver. Until June 1893 the standard of value in India was silver, and the mints were freely open for coinage; the metallic currency was exclusively silver, with subsidiary copper coins. The paper currency is established on a silver basis, notes being convertible on demand into silver coin.

Before 1873 the fluctuations in the value of silver in relation to gold were comparatively small. The exchange value of the Indian rupee was seldom much less than two shillings. After 1873, in consequence, principally, of changes in the monetary systems of France and Germany, the causes which had maintained throughout the world, at an almost uniform ratio, the value of silver to gold, no longer operated. Of these causes I do not propose to speak, but, after they ceased to act, depreciation followed in the value of silver in relation to gold. One of the consequences was that when India had to buy the gold required for the discharge of her obligations in England, she had to give for it an increased number of silver rupees, for gold in India and silver in England were merely articles of merchandise. When the rupee was worth 2s., 1000 rupees would purchase £100 in England; when, as was the case in 1892, the rupee was worth 1s. 3d., the same number of rupees produced only £62 : 10s.

It is easy to understand what a serious matter this became when the Government of India had to purchase with depreciated silver the large amount of gold required for meeting its liabilities in England. In 1892-93 the amount remitted from India to meet the Home charges was £16,532,000, and this required a payment of 264,780,000 rupees. If this remittance could have been made at the rate of exchange prevailing in 1873-74, the payment would have been 177,520,000 rupees. Thus the fall in the gold value of silver involved an additional payment by India of more than 87,000,000 rupees from the revenues of the year. In other words, taxation to that amount, equivalent, at the rate of 1s. 4d. per rupee, to £5,800,000, had to be levied in India over and above what would have been necessary if these changes in the relative value of gold and silver had not taken place.

It was, at the same time, so impossible to foresee th course of the exchanges that the Government could n estimate, within many millions of rupees, the probable expenditure of the year. Its most careful anticipations were liable at any time to be completely upset by causes absolutely beyond its control. "The financial position," Sir David Barbour wrote in March 1893, "is at the mercy of exchange, and of those who have it in their power to affect in any way the price of silver. If we budget for the present deficit of 15,950,000 rupees, and Exchange rises one penny, we shall have a surplus; if it falls a penny, we shall have a deficit of more than 30,000,000 rupees; if we impose taxation to the extent of 15,000,000 rupees, a turn of the wheel may require us to impose further taxation of not less magnitude; another turn and we may find that no taxation at all was required. What we have got to consider in making our arrangements for next year is not so much the question of increasing the public revenue, or restricting that portion of the public expenditure which is under our control, but the chances of a settlement of the currency question."

Writing on this subject in 1888, I used the following language:—"No one can say where this continuous depreciation of silver is to stop, or when we shall see the end of the constantly recurring increase in the liabilities of the Government which follows as the inevitable result. Recourse has already been had to taxes that are economically objectionable, and which place fresh burdens upon the poorer classes, and we are perilously near the time in which we may be called on to adopt measures which may be politically dangerous or inexpedient. We have hitherto never introduced into India any strange and unpopular taxation affecting the masses of the population. If we were to change this policy, and were to impose heavy burdens of a kind hitherto unknown, our position might become very different from what it has been in the past. Our difficulties would be seriously increased if such burdens were to meet charges from which the Indian taxpayer derived no benefit, the nature of which he was unable to understand, and which were the direct result of the existence of a foreign dominion. But the truth is that, for such a state of things as that which exists, no readjustment of Indian taxation could afford a remedy. Even if India were a country like Great Britain, where the public revenues, in case of necessity, can almost at any moment be largely increased, she would find, while her standard of value differed from that of England, and while the gold value of silver continued to fall, no relief from pouring into the bottomless pit of her treasury constantly increasing supplies of silver. No language that I could use would be too strong to express my sense of the gravity of this question. There is no Indian authority who does not feel that, if it be allowed to drift on in the future as it has drifted in the past, we may some day find ourselves in a position not only of extreme financial difficulty but of political peril."

The serious anticipations thus expressed were soon fully verified, and in 1892 the Government of India submitted proposals to the Secretary of State for stopping the free coinage of silver in India, with a view to the introduction of a gold standard. The result was the appointment of a Committee, under the presidency of Lord Herschell, for the consideration of the whole subject. The inquiries of the Committee gave complete confirmation to the conclusion that the financial position of the Government of India had become, in consequence of the fall in the gold value of silver, extremely critical, and that it was probable that a further serious fall was impending. It was far from unlikely that the value of the rupee might before long not be more than one shilling. There was already a large deficit, and the Committee were of opinion that, if no remedy for the currency difficulty were applied, that deficit might be increased by as much as 100,000,000 rupees. It was not conceivable that any such sum could be provided by reduction of expenditure, and to provide it by fresh taxation would have been impossible, unless we were prepared to adopt measures that would not only have been economically disastrous, but which would have involved political dangers of the utmost gravity. The result of the Committee's deliberations was to agree with the Government of India that it had become necessary to establish a common standard of value between India and England; that the Indian standard should be gold; that the Indian mints should be closed to the public for the coinage of silver, but should be used by the Government for the coinage of rupees, if required by the public, in exchange for gold, at a ratio fixed, in the first instance, at 1s. 4d. per rupee; and that gold should be received at the Government treasuries at the same ratio in satisfaction of public dues.

In June 1893 an Act was passed by the Governor-General in Council to give effect to these recommendations. It was recognised that the first arrangements could only be regarded as provisional. The making of gold coins legal tender, and the other measures necessary for the final and effective establishment of a gold standard in India, were left to be provided by further legislation in the light of future experience.

It was not until four years had elapsed after the closing of the mints that the value of the rupee approached the desired standard of 1s. 4d. Early in 1898 it was considered by the Government of India that the time had come for carrying to completion the measures initiated in 1893. Their proposals were referred to a Committee of which Sir Henry Fowler was chairman, and in 1899, in accordance with its recommendations, an Act of the Indian Legislature was passed (Act XXII. of 1899), declaring that English gold coin should be legal tender in India at the rate of one sovereign for fifteen rupees, and that the Indian mints should be open for the coinage of sovereigns to the public. Certain legal and technical difficulties have until now (1902) prevented the latter of these provisions from being carried into effect, but the former has been successful in causing an influx of gold into India for payment to the Government in exchange for rupees. Large amounts of gold have been reissued to the public in India for use as currency. Since 1898 the exchange value of the rupee has been maintained at 1s. 4d., practically without a break; a common standard of value between India and England has, it may reasonably be hoped, been permanently secured, and difficulties and dangers which were intolerable have been removed. The metallic currency of India, in ordinary use by the people, is now a silver token currency of enormous magnitude. Gold is the standard of value, but silver is a legal tender to an unlimited amount. The system in force is similar in principle to that which has prevailed for many years in France, and there seems no reason why it should not be equally successful. The profits on the coinage of silver are necessarily large; they are not treated as revenue, but are held as a special "Gold Reserve

Fund," available for the maintenance of exchange, and they are invested in sterling securities in England.

It was a great misfortune for India that this reform of the currency was so long delayed. In 1878, when Sir Richard Strachey was acting as Financial Member of the Council, he drew up an elaborate scheme dealing with this subject. It was adopted by the Government of Lord Lytton and sent to the Secretary of State with a strong recommendation that it should be adopted. Although differing in detail from the system established in 1893 and 1898, it was in principle the same, and where it differed its effect would have been more beneficial, because the gold value of the rupee was at that time much higher than that to which it subsequently fell. Unfortunately, the British Treasury, to which the proposals of the Government of India were referred, refused its sanction, and the Secretary of State could hardly act, if he had wished to do so, in opposition to its views. The result of this delay of fifteen years in carrying out a reform of vital importance was the needless imposition on India of an enormous burden which was felt in every branch of the administration, and of fresh and objectionable taxation.

There is one other matter, closely connected with the commercial interests of India, which I must notice before closing this chapter.

The loss and inconvenience caused to the commerce of Great Britain by the confusion and diversity of the existing weights and measures can hardly be exaggerated; it is denied by no reasonable man, and the time cannot be far distant, when the ignorant prejudices which have prevented the general adoption of the metric system will no longer be allowed to stand in the way of a most urgent reform. In India, similar evils exist in an exaggerated shape; apart from the inconvenience in the larger transactions of trade, the poorer and more ignorant classes suffer constantly from the multiplicity of weights and measures, and from the want of all standards by which the operations of retail dealers can be tested and regulated. In 1867, when Lord Lawrence was Viceroy, a Committee was appointed to inquire into this subject throughout India. Its President was Sir Richard Strachey, and he thus described the general facts that were established:—"The diversity among the weights and measures used in various parts of India is as great as is well possible. Not only do the weights vary from province to province, but from town to town, and even within the same town or rural district. Different weights are used in various trades in the sale of different commodities, and in whole-sale and retail transactions."

The only system of weights at that time recognised by the Government, but never generally introduced for trade purposes, was created by Regulation VII. of 1833, a law which in fact served only as a basis for the currency. The *seer*, the weight in most common use, was declared to consist of 80 tolas, the tola being equal in weight to the rupee. This seer was commensurable only with English troy weights, on which the weight of the rupee was founded, and these being only used for the sale of drugs in retail and for gold and silver, it had no exact equivalent in avoirdupois weight, which is exclusively used in English commercial transactions. It was equal to $2\frac{2}{35}$ lbs. avoirdupois. Although to some extent introduced in Government transactions, and in towns containing a large English community, no serious attempt was ever made to bring the seer of 80 tolas into use in the country at large, and it was never generally used or known. It was inconveniently less than the weights of the same name commonly in use, and this reason was alone sufficient to make it disliked by the people and to prevent its more common adoption. Nor can it be said that the belief that loss is entailed upon purchasers by a diminution in the standard of weight is merely fanciful. That belief is an expression of the fact that prices often depend not only upon competition but on custom. Thus the Government seer had nothing to recommend it from an Indian point of view, while in relation to English commerce it was extremely inconvenient. There was nothing to render desirable any attempt to encourage its more general adoption.

The investigations made throughout India in 1867 established the fact that, although the diversities were almost infinite, the most generally known of all Indian weights was the seer, and that its average weight was about $2\frac{1}{4}$ lbs. avoirdupois. This being almost exactly equivalent to the kilogram of the metric system in force throughout the whole of civilised Europe, with the exception of the United Kingdom, it was proposed by Sir Richard Strachey, and the proposal was adopted by the Government of Lord Lawrence, that a seer of this value, or 2·205 lbs., should be the basis of the new Indian system. This weight differs little from the thousandth part of the English ton, the weight chiefly used in the Foreign trade, and from the fiftieth part of the hundredweight.

There never was a man less disposed than Lord Lawrence to pay much attention to reasons of a theoretical nature, nor one with profounder knowledge of India, or more absolutely devoted to the interests of its people. He wisely insisted that any conclusions must be based exclusively on a consideration of their convenience, and that we were bound to select a system which should be in all respects thoroughly and permanently beneficial to them. Believing this, he declared in a Despatch to the Secretary of State, in which all the members of his Government, myself included, concurred, that "the kilogram of the metric system at once provides a seer which would certainly be as acceptable to the people as any that could be chosen. On account of its simplicity and its symmetrical form, the metric system of weight, in its integrity, will be more convenient for India than any other. While it will be perfectly suitable for the internal wants of India, it will be in harmony with the system already adopted in the greater part of the civilised world, and which may ultimately be adopted by England herself. In any case it will be more convenient for commercial transactions between England and India than any other system not really commensurable with that of England." [1]

These conclusions were approved by the Duke of Argyll, who was then Secretary of State, and in 1870 a Bill was introduced by Sir Richard Strachey, and passed into law by the Government of Lord Mayo, who was then Viceroy. The measure received his warm approval, and it was passed by the Legislative Council, which had then the advantage of the presence of commercial members of much eminence, without a dissentient voice. It had been agreed by the Government of Lord Lawrence, and by the Secretary of State, that it was expedient, in the first instance, to deal with weights and measures of capacity only, and not with measures of length, the latter being a matter of less urgency.

[1] Despatch to Secretary of State, November 6, 1868.

The Government of Lord Mayo thought it desirable to take the opportunity of also defining in the new law the standard of length, on which, under the metrical system, the unit of weight depends. The Secretary of State, however, preferred the original conclusion, and a new Bill, introduced by Sir James Stephen, became law as the "Indian Weights and Measures of Capacity Act, 1871." It declared that it was desirable to provide for the ultimate adoption of a uniform system throughout British India; that the unit of weight should be the seer, equal to the kilogram of the metric system; that other weights and measures of capacity might be authorised by the Government, subject to the condition that they must be integral multiples or subdivisions of the prescribed units; that proper standards should be provided; and among other provisions, that, after a date to be fixed by the Government, these weights and measures should be used in the dealings and contracts of the Government, of municipalities, and railway companies.

It was from the first declared that no attempt would be made to force the new system, in regard to their private trade and dealings, upon any classes of the people. It was recognised that it was visionary to suppose, even if the Government had been inclined to do anything so foolish, that it was possible to force upon the people of India, within any definite period, the adoption of any new system of weights and measures.

"All," it was said, "who have studied the subject have agreed that the proper way of beginning the introduction of any new system would be to adopt it in all Government and municipal departments and on the railways. When we consider the manner in which a network of railways and canals will carry on an enormous proportion of the trade of the country, and when we remember the magnitude of the operations of the Government in the Public Works, the Commissariat, the Post-Office, the Customs, and other departments, it is reasonable to anticipate that in a not very distant future, the country would have become so far accustomed to the new units that the measures for their general introduction could no longer be called compulsory. It may be confidently said that not many years would elapse before this would be true at least of the wholesale traders in all the richest parts of India, and that they would gradually, for their own convenience, adopt the new system almost without pressure on the part of the Government. When the wholesale traders had become accustomed to the change, its gradual introduction into the operations of retail trade would be attended with comparatively little difficulty."

In accordance with this plan of proceeding, communications with the principal railway companies were opened by Lord Mayo. The East Indian and some other companies had gone so far as to alter their weighing-machines, to make them suitable to the new system, and Lord Mayo confidently expected to see the first steps towards this reform, in which he had taken a great and active interest, successfully carried out. His death put a stop to all further proceedings, and through causes on which I will not comment, matters remain in the same condition in which they were found by Lord Lawrence thirty-five years ago. Yet, the Regulation of 1833 having been repealed as obsolete, the Act of 1871 still remains on the statute-book, and, although treated as a dead letter, it is still the only law on the subject actually in force in British India. "We must be satisfied, for the present, with the knowledge that it is something even to have failed in the accomplishment of a wise undertaking, when the failure may help to prepare the way for success hereafter. It may confidently be asserted that the acceptance of a sound and uniform system of commercial weights and measures would be hardly less important and valuable to India than was the adoption of a uniform system of currency. The public inconvenience and injury caused by the neglect of this matter have gone on far too long, and must continue to increase as the country becomes richer and trade more active."[1]

[1] *The Finances and Public Works of India*, by Sir John Strachey and Lieut. General Richard Strachey, 1882.

# CHAPTER XIV

## PUBLIC WORKS—FAMINE

Mr. J. S. Mill on the duties of Governments—Famines in India—Necessity for roads, railways, and canals—Absence of roads under Native Governments—Their condition under the East India Company—Measures taken by Lord Dalhousie—Railway construction—Creation of Public Works Department—Progress up to 1887—Irrigation works in Northern India—Canals of Mohammedan sovereigns—The Ganges and other canals—Their value—Irrigation works in Central and Southern India and in Sind—Expenditure on railways and irrigation works—The manner of providing funds—Guaranteed companies—Policy of borrowing for investment in public works—Measures for the prevention and relief of famine.

THE duties of the Government in India go far beyond those which we expect from a Government in countries like our own.

"In the particular circumstances of a given age or nation," wrote Mr. J. S. Mill, evidently with India especially in his mind, "there is scarcely anything really important to the general interest which it may not be desirable, or even necessary, that the Government should take upon itself, not because private individuals cannot effectually perform it, but because they will not. At some times and places there will be no roads, docks, harbours, canals, works of irrigation, hospitals, schools, colleges, printing presses, unless the Government establishes them; the public being either too poor to command the necessary resources, or too little advanced in intelligence to appreciate the end, or not sufficiently practised in conjoint action to be capable of the means. This is true, more or less, of all countries inured to despotism, and particularly of those in which there is a very wide distance in civilisation between the people and the Government, as in those which have been conquered and are retained in subjection by a more energetic and more cultivated people."[1]

But for our Government, hardly any of these requirements of civilised life would now be supplied in India, and there are special reasons which make the duty which thus falls upon the Government extraordinarily urgent.

In India, the very existence of the people depends on the regular occurrence of the periodical rains, and when they fail through a wide tract of country, and, still worse, when they fail in successive years, the consequences are disastrous. It is, as the Government of India have observed, an obvious fallacy to suppose that any alterations of administration or in the system on which the assessments of the land are made can save an agricultural population, such as that of India, from the effects of failure of the rains. "The relation of cause and effect between a good rainfall, abundant crops, and agricultural prosperity, is not more obvious than that between a bad monsoon, deficient produce, and a suffering people. When the vast majority of the inhabitants of a country are dependent upon an industry which is in itself dependent upon the rainfall, it is clear that a failure of the latter must unfavourably, and in extreme cases calamitously, affect the entire agricultural community. The suspension of the rains means a suspension of labour; the suspension of labour means a drying up of the means of subsistence; and the latter is necessarily followed by distress and destitution. There is no industry in the world, the sudden interruption or the temporary destruction of which is not attended by

[1] *Principles of Political Economy*, vol. ii. p. 551.

impoverishment and suffering, and there is no country in the world, where the meteorological and climatic conditions are at all similar to those prevailing in India, that could by any land revenue system that might possibly be devised escape the same results. Nevertheless, if prevention of the inevitable consequences of drought be an ideal incapable of attainment, mitigation is manifestly an object worthy of the closest attention of the Government."[1]

The greater part of India is liable to this danger, but the country is so vast that it never happens that all parts of it suffer at the same time. Changes in the economical condition of the people, and especially greater diversity of occupation, can alone bring safeguards complete enough to render general famine, in its extremest form, through a great tract of country, impossible. But this must be a long and gradual process. Meanwhile, it has been found by experience that although the entire prevention of famines, the most destructive of all calamities, is beyond the power of any Government, we can do much to mitigate them by removing obstacles which hinder commercial intercourse, and by means which increase and secure the productiveness of the land. The instruments by which we can do this are roads, railways, works of irrigation, and wells. If, to give one illustration, we read the history of the Indian famines of 1876-78, and of 1896-99, we shall find ample proof of the incalculable value of such works. Without them, millions of people must have been left to perish without the possibility of relief.

Lord Macaulay did not speak too strongly when he said that, excepting only the inventions of the alphabet

[1] Resolution of the Government of India, January 16, 1902. Papers regarding the Land revenue system of British India presented to Parliament 1902.

and the printing press, no inventions have done so much for the moral and intellectual progress of man as those which abridge distance and improve the means of communication.

Until about the middle of the last century the duties which thus fall upon us were hardly recognised. Before that time India was, to a great extent, governed on principles that might have commended themselves to a beneficent Oriental ruler rather than to modern Englishmen. Even an enlightened man like Sir Charles Metcalfe could maintain in 1830 that India required no roads; and in fact there were none. No Native prince made a road. Before the establishment of our Government there was hardly a road deserving the name in all India. Under the Native Governments that preceded us (I am quoting from the Indian Famine Commissioners of 1880), nothing more was done than to plant trees along each side of the track used as a road, and occasionally to throw up earth on it when it passed through a depression; such bridges as existed were made at the private expense of civil magnates or governors desirous of leaving a name behind them.

The graphic description which Lord Macaulay has given of the highways of England in the time of Charles II. is almost exactly applicable to those of India as I remember them in my youth. On the best lines of communication in England, he tells us, it was often hardly possible to distinguish the road at all, or to avoid losing one's way in the dark; the mud lay deep on the right and left, and only a narrow tract of firm ground rose above the quagmire; it happened almost every day that coaches stuck fast until a team of cattle could be procured to tug them out of the slough; when the floods were out, passengers perished in the attempt to cross, or narrowly escaped being swept away, or had to wander across meadows, and ride to the saddle-skirts in water. The markets were often inaccessible during several months. "The fruits of the earth were sometimes suffered to rot in one place, while in another place, distant only a few miles, the supply fell far short of the demand." When Prince George of Denmark went to visit Petworth he was six hours in going nine miles, and it was necessary that a body of sturdy hinds should be on each side of his coach in order to prop it up; an unfortunate courtier who was one of the party complained that during fourteen hours he never once alighted, except when his coach was overturned or stuck fast in the mud. All this, which I have borrowed from Lord Macaulay, is precisely what might have happened to Indian travellers on the most frequented highways of the country some fifty or sixty years ago, if they trusted themselves to wheeled vehicles. But practically, for people who could afford it, the only means by which a long journey could be accomplished was to be carried by men in a palanquin. A dák journey, as it was called, of a thousand miles was, to an Englishman at least, a process of misery which in these days can hardly be understood. I remember Lord Lawrence telling me that when he was a young man he was thought to have performed an extraordinary feat, because, travelling day and night, he reached Delhi in a fortnight after leaving Calcutta—a journey, at the present time, of less than thirty hours. Throughout a great part of India it was only in the dry season that travelling was possible without extreme difficulty, and, during three or four months of the year, trade, excepting where water-carriage was available, came altogether to a standstill. As Sir George Chesney says in his *Indian Polity*:—

"The Court of Directors, until almost the termination of their existence, did not recognise the prosecution of public works as a necessary part of their policy. The construction of a road or canal was regarded by them, in their earlier days, much in the same light that a war would be—as an unavoidable evil, to be undertaken only when it could not be postponed any longer, and not, if possible, to be repeated."

Speaking in 1858, Mr. Bright said that in a single English county there were "more travelable roads than in the whole of India, and the single city of Manchester, in the supply of its inhabitants with the single article of water, has spent a larger sum of money than the East India Company spent in the fourteen years from 1834 to 1848 in public works of every kind throughout the whole of its vast dominions." I do not doubt that Mr. Bright's statement was substantially not far from correct.

In the last years of the East India Company, however, and especially during the Government of Lord Dalhousie, matters began rapidly to improve. Under the enlightened rule of their Lieutenant-Governor, Mr. Thomason, one of the wisest of Indian statesmen, great progress was made in the North-Western Provinces in the construction of metalled roads, and bridges, and other useful works; and his example was vigorously followed by his successor, Mr. John Colvin, and in the Punjab by the Lawrences. The grand trunk road from Calcutta to the North was rapidly pushed on. In 1854 the Ganges Canal, an irrigation work with which no similar works in the world, except those of the Punjab and Madras, can compete in magnitude and utility, was opened, though not completed.

People had become alive to the fact that without the material appliances which facilitate and cheapen the means of communication and production, there could be no rapid progress either in the condition of the people or in the efficiency of the Government. In 1853 the necessity of constructing railways to connect the chief provinces and cities of India was declared by Lord Dalhousie in a minute which laid the foundation of the existing system of railway communication. Three great lines were soon afterwards commenced: the East Indian Railway, from Calcutta towards the Northern Provinces; the Great Indian Peninsular Railway, and the Madras Railway, starting respectively from Bombay and Madras, and running through Western and Southern India. These lines were constructed by private companies, under a guarantee from the Government of a minimum return of 5 per cent on the capital expended.

In 1854 a separate Department of Public Works was for the first time created under the Government of India. In 1856-57 the outlay on public works, exclusive of the sums spent on railways by the guaranteed companies, had risen to nearly £2,250,000.

The mutinies of 1857 brought fresh and the strongest possible proof of the necessity for improved means of communication. When peace was restored, and the Government was transferred to the Crown, the construction of public works went on with increased speed, and from that time to this there has been constant progress. Considering the vast extent of India, and the fact that almost everything has been done by the Government or under its guarantee, or with its assistance, and little by unaided private enterprise, we may be well satisfied with the work that has been accomplished.

Railways now connect all the principal districts and cities; the great rivers are bridged; the country has been covered with roads, and there is no considerable town without its telegraph office. In 1901 nearly 28,000 miles of railway were open or under construction, and 195,000,000 passengers and 44,000,000 tons of goods were carried on them. Railways have given to the population throughout India an impulse of activity which in no other way could have been communicated. The time, however, is still distant when it will cease to be true that the provision of increased means of communication is one of the chief duties of the Government of India.

There is another result of the construction of railways in India that I must not omit to mention. They have increased, to a degree that is hardly calculable, our military strength; and so long as we retain our maritime supremacy, and the determination to maintain our empire, it will, we may reasonably believe, be impossible that any combination of hostile powers should dangerously threaten our dominion.

I must now refer to works of another kind, as important, in many parts of India, as those of which I have been speaking.

In Northern India, even in good seasons, artificial irrigation is a necessity for the successful cultivation of many of the more valuable crops, and when there is a general failure of the periodical rains there is no other means by which drought and scarcity can be prevented. A large portion of Northern India is now protected by canals of greater magnitude than any that exist in other countries of the world. In the United Provinces this is especially true of the tract called the Doáb, lying between the Ganges and Jumna. Owing to its geographical position, which made it the chief centre of the Moghal Empire, and to the industry of its numerous population, it has been for centuries one of the most important countries of India.

Long before our time some of the Mohammedan sovereigns had undertaken works on the western bank of the Jumna, with the object partly of irrigation, but still more with that of affording a supply of water to the city and imperial palaces of Delhi. A canal, the course of which is not very clearly known, was made by Firoz Toghlak, as far back as 1351 A.D., and more important works from the Jumna were constructed by Akbar and by Sháh Jehán in the sixteenth and seventeenth centuries. An elaborate system appears to have been in force for regulating the distribution of the water. The orders of Akbar provided "that all parties, rich or poor, weak or strong, shall share alike"; and directed, for the comfort of travellers, "that on both sides of the canal trees of every description, both for shade and blossom, shall be planted, so as to make it like the canal under the tree in Paradise, and that the sweet flavour of the rare fruits may reach the mouth of every one, and from these luxuries a voice may go forth to travellers, calling them to rest in the cities, where their every want will be supplied."[1] Not long after the death of Aurangzíb, when the empire was rapidly broken up, the canals of the Moghal sovereigns ceased to flow, and it was not until 1817, after these provinces had passed under the British Government, that their restoration and improvement was commenced. Later on an examination of historical records led to a result which deserves to be noticed. Describing the excavations for the canal of Firoz Toghlak, the historian Ferishta mentions incidentally that the work-people employed upon them found, near the foot of the hills,

[1] *Calcutta Review*, "Canals of Irrigation," 1849.

quantities of giants' bones. "To minds familiar with discoveries in fossil geology the old chronicle had a gleam of significance," and the investigations which followed led to the discovery, by Falconer and Cautley, of the gigantic fossil remains now in the British Museum.[1]

Little of the old irrigation works of our predecessors is retained in the existing canals. Practically, all of these have been made by ourselves, and the often-repeated statement, prompted, I suppose, by that strange inclination to depreciate their own achievements which often besets Englishmen, that the old canals have been more profitable than those constructed by ourselves, has not the least foundation of truth.

Among the irrigation works of primary importance in Northern India are those which distribute the water of the Ganges and Jumna. In the winter and spring, before the Ganges has been swollen by the melting of the snow in the Himálaya, and when water is urgently required for agricultural operations, nearly the whole visible stream of the great river at Hardwár, where it leaves the mountains, is thrown into an artificial channel. The works, due to the genius of Sir Proby Cautley, on the first twenty miles of its course are in a high degree remarkable, for the canal intersects the drainage of the lower Himálaya, and has to be carried across rivers which often become furious torrents, bringing down enormous floods. These obstacles have been overcome by various methods with a skill of which our Indian engineers may well be proud. One torrent flows harmlessly in a broad artificial bed over the canal which runs below; over another, still more formidable, with a bed more than two miles wide, the canal, which

[1] *Calcutta Review*, "Canals of Irrigation," 1849.

is virtually the whole Ganges, is carried by an aqueduct. Some 200 miles lower down the Ganges has again become a large river, and nearly all its water is again diverted into a second canal. The two canals together are capable of discharging more than 12,000 cubic feet of water per second; the ordinary supply of each is more than double the volume of the Thames at Teddington in average weather, and this great body of water is distributed over the country by a number of smaller channels for the irrigation of the land.

Three canals of smaller dimensions, but which in any other country would be looked on as works of great magnitude, distribute in a similar way nearly the whole of the water brought by the Jumna from the Himálaya. Altogether, in 1901, in the United Provinces, the length of the chief irrigation canals exceeded 1500 miles, the length of their distributories was nearly 11,000 miles; they irrigated nearly 3,000,000 acres of land, and more than double that area is capable of being served by them.

In Behár, the border province of the Bengal Lieutenant-Governorship, which in its physical character closely resembles the adjoining provinces of the north-west, irrigation works of considerable extent are taken from the river Són.

There are other important irrigation canals in Orissa and minor works in other parts of Bengal, but in that province irrigation is not ordinarily so essential as in countries farther north, where the climate is drier and the seasons are more precarious.

In the Punjab, where irrigation is even more necessary than in the United Provinces, great works have been constructed, or are in progress, to utilise the waters of the Sutlej, the Chenáb, the Rávi, the Jhelum, and other rivers. The Sirhind Canal, which distributes