

is of a much larger scope and of a more formal constitution. It is based upon no such abstract principle as that there should be no taxation without representation. It is constructed with a view to practical efficiency. The objects sought to be attained are, first, that local concerns should be properly managed by men with local knowledge; second, that in this way the higher authorities should be relieved of a portion of their burdens; and, third, that the people should be gradually instructed in the art of self-government. For the last of these purposes local officials are associated with elected representatives of the people. The whole system is a tentative one, and, as it succeeds, it is being gradually extended and developed. That is to say it is being extended over a larger and larger area, the constituencies are being enlarged, and the elective system is being expanded. Apart from the constitution of local self-governing bodies, the elective principle is every day receiving wider recognition. Some of the Fellowships of the Calcutta and other Universities for instance, are open to election. Committees of the Senate, of Municipal Corporations, and other public bodies are formed by election. Some other public bodies elect Fellows of Universities and members of some of the Local Councils, and the elected members of these Councils elect representatives to the Viceregal Council. From the example of the Government the people are coming to apply the elective principle more and more largely to such of their own concerns as admit of its application.

Systems of local self-government differ from each other in regard to their constitution, in regard; for instance, to

the strength or proportion of the elective element and the degree of supervision or control reserved to superior authorities. Local self-government is opposed to central or centralised government. The policy of the rulers is gradually to decentralise Government or to extend local self-government. But in this as in other matters they guide themselves by no theoretical principles, but study the lessons of experience and proceed cautiously. The recent Decentralisation Commission presided over by Mr. C. E. H. Hobhouse, M.P., has made large recommendations for further decentralisation, and legislative effect may soon be given to many of these recommendations.

Self-governing institutions develop in the ordinary way from the smaller into the larger, and the capacity for self-government grows likewise from the management of the smaller bodies to that of the larger. Government are ready to grant an extension of self-government only when it has succeeded on a smaller scale. The system of self-government has therefore gone on developing with the increasing fitness of the people. Further and extensive development has been promised. It may be expected to come in due course. The whole system is about to be revised and what is known as the Montagu-Chelmsford Scheme now under discussion, is the first great step towards the change.

CHAPTER IV.

SUPPRESSION OF SOCIAL ABUSES.

Suppression of indecent, immoral and criminal practices—History of the practice of *Sati*—History of measures for its repression—Hook-swinging—History of measures for its repression—Attitude of the Government towards social evils—Infanticide—Immoral practices—Re-marriage of Hindu widows—Removal of the disabilities of converts—Female education—Laws in restraint of indecent and immoral practices.

Religious and social usages of all races and sects have been respected under British rule. Such of them, however, as were of an objectionable or criminal character, could not be tolerated. Those practices would be regarded as of a criminal character which would tend to the destruction of human life or to the infliction of injury on person or property. Whenever any usages had to be stopped the rulers proceeded very cautiously and paid due respect to the opinions of the society concerned. They have in the first instance given a warning or taken only mild action and have trusted to the accomplishment of reform by the society. It is only where warning has been unheeded, where mild measures have failed, and where society has been unable or unwilling to effect the necessary reform, that the ruling power had to exert its authority and uproot the evil by legislative or executive action.

A conspicuous instance of social reform accomplished by Government is the abolition of the practice known to Englishmen as *Sati*, or, according to the older spelling, *Suttee*.

Sati means literally a virtuous wife. The practice known as *Sati* meant a woman's burning herself to death on the funeral pyre of her husband. The origin of the practice is unknown. She might according to *shastric* injunctions either live a life of *brahmacharjya* or she might burn herself. The sacrifice, to be of any merit, was to be voluntary. In course of time the abuse grew up of practically compelling widows to perform *Sati*. A woman was very often goaded on to self-immolation at a moment when she was overcome with grief and had scarcely strength enough to judge or courage enough to resist. It is said that sometimes she was drugged into giving consent.

The evil had assumed such proportions in the early years of the nineteenth century that the Government could not overlook it. In 1805 the Government of Lord Wellesley asked the appellate Judges "to ascertain how far the practice was founded on the religious opinions of the Hindus. If not founded on any precept of their law the Governor-General hoped that the custom might gradually, if not immediately, be altogether abolished. If, however, the entire abolition should appear to the Court to be impracticable in itself or inexpedient, as offending Hindu religious opinion, the Court were desired to devise means for the prevention of the abuses, such as the use of drugs and the sacrifice of widows of tender age." The judges asked the pandits if a widow was "enjoined" by the Sastras to perform *Sati*. They answered that every woman of the four castes was permitted to burn herself except in certain cases. The judges in their reply to Government said "that

they considered the immediate abolition highly inexpedient, although they thought it might be gradually effected, at no distant period." They also suggested the enactment of provisions for preventing the illegal, unwarrantable and criminal abuses which were known to occur in the performance of the rite.

In 1813 it was ordered that the *Sati* rite "should never take place without previous communication to the Magistrate or the principal officer of police, who was to ascertain that it was entirely voluntary: that the widow was not under the influence of stupefying and intoxicating drugs; and that she was not under the age of sixteen, and not pregnant." The rite was to be performed in the presence of the police who were to see that no intimidation or violence was employed. These measures did not prove effective. Raja Ram Mohan Roy vigorously protested against the practice. In 1823 Lord Amherst made illegal the burning of a widow with the body of her deceased husband. It was also laid down that widows intending to perform the rite should personally apply to a Magistrate, that families in which *Sati* took place would be disqualified for Government employment, and that all property belonging to the *Sati* and her husband was to be forfeited to the State.¹

Even these measures proved insufficient. It was reserved for Lord William Bentinck to extinguish the evil. Soon after his arrival in India he circulated a letter to some of the officers of Government calling for their opinions with regard to the abolition of the practice. Having

¹ For a more detailed account, see P. N. Bose's *History of Hindu Civilisation*, Vol. II, Ch. iii.

obtained the opinions he decided to suppress *Sati* throughout British territory. On the 4th December, 1829, Regulation XVII of 1829 was passed by the Governor-General in Council "for declaring the practice of *Sati* or of burning or burying alive the widows of Hindus illegal and punishable by the criminal courts."

The preamble to the Regulation is worthy of study. It runs as follows : "The practice of *Sati* or of burning or burying alive the widows of Hindus is revolting to the feelings of human nature, it is nowhere enjoined by the religion of the Hindus as an imperative duty, on the contrary a life of purity and retirement on the part of the widow is more especially and preferably inculcated, and by a vast majority of that people throughout India the practice is not kept up nor observed. In some extensive districts it does not exist. In those in which it has been most frequent it is notorious that in many instances, acts of atrocity have been perpetrated which have been shocking to the Hindus themselves, and in their eyes unlawful and wicked. The measures hitherto adopted to discourage and prevent such acts have failed of success, and the Governor-General in Council is deeply impressed with the conviction that the abuses in question cannot be effectively put an end to without abolishing the practice altogether. Actuated by these considerations the Governor-General in Council—without intending to depart from one of the first and most important principles of the system of British Government in India, that all classes of the people be secure in the observance of their religious usages so long as that system can be adhered to without violation of the

paramount dictates of justice and humanity—has deemed it right to establish the following rules, which are hereby enacted to be in force from the time of their promulgation throughout the territories immediately subject to the Presidency of Fort William.” The rules which follow, relating to the duties of Zamindars and the police when they receive information of an act of *Sati*, need not be here reproduced.

The abolition of hook-swinging is another though a less notable instance of social reform effected by Government. In the year 1856-57 the Calcutta Missionary Conference memorialised Government asking for the suppression of the cruelties, the acts of barbarism and suffering which accompanied the celebration of the ceremony of the Charak Puja during the three principal days of the festival. “These devotees,” it was said, “cast themselves on thorns and upraised knives ; they pierce their arms or tongues by iron arrows, draw strings through the flesh of their sides, or fix thereto spikes that are heated by continually burning fire, while others swing on the *Charak* tree by hooks fastened through the muscles of their back.” After careful consideration Sir Frederick Halliday, Lieutenant-Governor of Bengal, came to the conclusion that as the case was one of pain voluntarily undergone, the remedy must be left to the missionary and the school-master, and that, as stated by the Court of Directors, all such cruel ceremonies must be discouraged by influence rather than by authority.¹

When Sir John Peter Grant was Lieutenant-Governor of Bengal (1859-1862) the Calcutta Missionary Conference

¹ Bengal under the Lieutenant-Governors, By C. E. Buckland, Vol. I, p. 32.

again petitioned the Legislative Council on the subject, and the petition was forwarded to the Secretary of State. Queen Victoria's Government were of opinion that every opportunity should be taken of discountenancing the practice, and they suggested the propriety of inserting, in all leases, for Government lands, a provision hostile to the celebration of the festival ; of enlisting in the same direction the sympathies of the leading members of the Indian community, and quietly making known the disapprobation with which such spectacles were regarded by Government. Sir J. P. Grant called for reports from Commissioners of Divisions and learnt that hook-swinging was confined to Bengal proper and Orissa. Where this practice existed as a long established custom the local authorities were directed, by using their personal influence and by obtaining the co-operation of the Zamindars, to induce the people voluntarily to abandon the practice. Where *Charak* swinging was not an established custom but a mere occasional exhibition, the Magistrates were authorised to prohibit its celebration as a local measure of police for the preservation of order and decency. The practice was reported to be gradually dying out.¹

In 1864-65 the subject came up again. Sir Cecil Beadon, Lieutenant-Governor of Bengal, issued a resolution on the 15th March, 1865, suppressing the cruel practices.² Magistrates of districts in the Lower Provinces were required to direct all persons to abstain from the act of hook-swinging or other self-torture, in public, and from the

¹ Ibid. Vol. 1, p. 177.

² Ibid. p. 312.

abetment thereof, and take such order with property in their possession or under their management as might serve to prevent the commission of the act. Persons who disobeyed any such injunction were to be prosecuted and punished according to law.

The history of these two reforms is interesting if only because it shows the unwillingness of Government to interfere with social and religious usages, the incapacity of society in these cases to effect the reform itself, and the determination of Government to suppress the evil where society proves itself unequal to the task. In both cases much-needed reforms were tardily carried out only because Government decided to let the society concerned have an opportunity of rectifying its own abuses. The evils of *Sati* had existed for a long time, but since the attention of Government was called to them it took them about a quarter of a century to accomplish the reform. The policy of non-interference with matters domestic, social and religious, has been a marked characteristic of English rule, but an equally marked characteristic has been an intolerance of abuses. No action is taken in a hurry. Great forbearance is shown. But if ultimately the people are found unable to help themselves, Government are ready to use the strong arm of authority in protecting the weak against the strong, removing injustice and oppression and even saving people from the evils of their own social life.

Infanticide prevailed in this country to an appreciable extent before the days of British ascendancy. Women consigned their new-born children to the

Ganga-Sagar or gave them up as a propitiatory offering to some god or goddess, in accordance with some vow they may have taken, or as the price of some blessing which they sought. In some parts of the country, especially in the Punjab, the United Provinces and Rajputana, it was not an uncommon practice to kill female children as soon as they were born, for the expenses would be great in marrying them, or because by being married below their social rank they might bring dishonour on their family. Those inhuman practices have now been killed out by the general criminal law of the country, by special laws for the registration of births and deaths, and by administrative arrangements for supervision of criminal practices.¹ Under the Indian Penal Code, to cause the death of any human being, whatever his or her age, with the intention of causing death, constitutes the offence of murder, or as it is technically called culpable homicide amounting to murder, and is punishable with death or transportation for life. By the same Code care is taken to provide, by way of explanation, that it may amount to culpable homicide to cause the death of a living child, if any part of that child, has been brought forth, though the child may not have breathed or been completely born.² It is also provided that whoever being the father or mother of a child under the age of twelve years, or having the care of such child, shall expose or leave such child in any place with the intention of wholly abandoning such child, shall be liable to be seriously punished. If the child die

¹ For a detailed statement of fact and authorities, see Strachey's "India," 3rd Edition, pp. 395-400.

² Section 292, *Explanation*.

in consequence of the exposure the offender may be tried for murder or culpable homicide.¹ A certain class of ascetics sometimes thought it necessary for some of their religious ceremonies to offer human sacrifice, and for this purpose they killed human beings or procured the killing of them. It is not possible for them to indulge in that practice now without making themselves liable to be tried for murder [or the abetment of it. A law may not be able to extinguish a crime. Infants may still be killed and human sacrifices made, but these acts can no longer be performed openly and as of right, even on any supposed ground of religion. They can only be perpetrated as crimes, in secrecy, and, when detected, they will be punished under the law.

Though there may still be found subsisting in unexplored corners of social life practices of a grossly objectionable and even criminal character there can be no doubt that under British law the sanctity of the person has been universally respected. No one can with impunity violently lay his hands on another. The law has given equal protection to all. The person is inviolable alike of prince and peasant, Brahmin and pariah. A certain class of reforms that Government have accomplished is in the nature of an enlargement of the liberty of individuals in social life. Hindu Society had not tolerated the re-marriage of widows belonging to the higher castes. That is to say, a widow belonging to any of these castes, could not, even if she was her own mistress, contract at her option a marriage that would be recognised as legally valid. Nor

¹ Section 317.

could the guardians of a widow, who was legally a minor, give her away in marriage if they chose. These restrictions on the liberty of widows and their guardians have now been removed. Pandit Iswarchandra Vidyasagar started a movement in favour of the reform, wrote tracts to prove that re-marriage was sanctioned by the *sastras* in certain cases, and submitted petitions to Government praying for a law to remove the disability of widows to re-marry. Government were convinced of the necessity of the reform; and they decided to have a permissive or enabling law passed. In 1856 a Bill was brought in by Sir J. P. Grant as member of Council, and passed as Act XV of that year, to remove all legal obstacles to the marriage of Hindu widows.¹ The first clause of the Act is: "No marriage contracted between Hindus shall be invalid and the issue of no such marriage shall be illegitimate by reason of the woman having been previously married or betrothed to another person who was dead at the time of such marriage, any custom and any interpretation of Hindu Law to the contrary notwithstanding."

Another instance of reform in the way of a removal of disability, is that with reference to the legal rights of Hindus converted to Christianity. Converts were at one time supposed to be incapable of inheriting any property to which but for their conversion, they would be entitled, and they were supposed also to be liable to forfeit rights and property they already possessed. This incapacity was removed by Act XXI of 1850 which declared that 'so much of any law or usage now in force within the

¹ Bengal under the Lieutenant-Governors, Vol. I, p. 22.

territories subject to the government of the East India Company as inflicts on any person forfeiture of rights or property, or may be held in any way, to impair or affect any right of inheritance, by reason of his or her renouncing or having been excluded from the communion of any religion, or being deprived of caste, shall cease to be enforced as law in the Courts of the East India Company, and in the Courts established by Royal Charter within the said territories.

There was no indigenous system of female education in this country on a large scale. The system as it now exists was called into being by Government. In 1849 Lord Dalhousie informed the Bengal Council of Education that henceforth its functions were to embrace female education, and the first girls' school recognised by Government was founded shortly afterwards by a committee of Indian gentlemen. The despatch of 1854 directed that female education should receive the frank and cordial support of Government as by 'this means a far greater proportional impulse is imparted to the educational and moral tone of the people than by the education of men.' The Education Commission of 1882 advised that female education should receive special encouragement and be treated with special liberality. The Government accepted this view; and state funds are more freely used, and state management more largely resorted to for this object than is considered desirable in the case of the education of boys.¹

In the interests of social well-being Government have thought fit to pass laws with regard to decency and morals.

¹ The Imperial Gazetteer of India, Vol. IV, p. 431

Such laws are to be found in various Police Acts and in the Indian Penal Code.¹ There are laws, for instance, in restraint of gambling, the keeping of disorderly houses, indecent behaviour in public, the singing of obscene songs in public places, the sale of obscene books and other acts calculated to outrage and debase the moral sense of people. It may be generally observed that anything said or done in public which offends the sense of decency or morality, or which tends to corrupt the morals of the people, or to lower their moral standard, has been discouraged.

¹ Chapter XIX.

CHAPTER V.

EDUCATIONAL WORK.

Education, in the widest sense, England's mission—The educative value of political institutions—Spontaneous gift of privileges—Academic education—Primary—Secondary—Higher—Technical education—Elementary—Higher—Medical education—Legal education—Normal School—Agricultural Colleges—Education in Art—Principles of academic education—Controversy between anglicists and orientalisists—The Education Despatch of 1854—Education open to all—Institutions for special classes—Religious neutrality in education—Various methods by which intellectual culture is promoted.

Education in the broadest sense of the word may be described as England's mission in the east, her highest aspiration. It is certainly the chief work to which she has devoted herself. The laws that have been passed, the institutions that have been established, have had as their object not merely the satisfaction of practical needs, but also a training of the people to new ideas and modes of life. They have generally been in advance of the ideas of the people. They have awakened in men a sense of their rights by conferring the rights. They have taught men to appreciate blessings by giving them blessings. In a word, men have been educated or are in course of being educated by laws and institutions to feel new wants and to be conscious of rights, obligations and advantages. Trial by Jury was introduced into India not to meet a demand of the people, nor even to satisfy a pressing want. The object was not merely to secure a better administration of justice but also to accustom the people to the institution and teach them to perform new duties by the bestowal on them of new rights. So well have the people been educated by the institution to

appreciate the new rights that they are now making a demand for its extension to new districts. When, again, the earliest measures of local self-government were introduced or suggested, it was not because there had been appreciable agitation for them. They brought blessings to which the people were practical strangers, but which, it was expected, they would learn to appreciate more, and which, it was also expected, would teach them to perform new duties by the exercise of new rights. Their value was mainly educative. So greatly has the object of the rulers been realised that now there is a wide-spread popular demand for the extension and development of local self-government culminating in what are known as the Montagu-Chelmsford Reforms that are engaging the attention of the authorities in India and England. It is not necessary to multiply instances. It will be found upon an examination of history that while in England popular institutions have been established generally in answer to popular demands, sometimes violently urged, in India they have generally been the spontaneous gift of the Government, and their purpose has been not merely an improved administration but also and mainly political education of the people. The reforms to be described in the next three chapters, classed under the headings economic, material, and civic, while no doubt they have been meant to achieve progress in some direction or other have all, at the same time, been directed to education of the people. The desire of the rulers has been to place before the people new ideals, to accustom them to new habits of thought and life, and to develop their capacity in various directions. The political and social work of England in India

has also been educative. That single word—Education, comprehends nearly all that Government have done or can do in this country. Education of the people means also the elevation of the people.

This chapter is devoted to academic education, to the principles upon which it is founded, and the institutions through which it is imparted ; and also to the facilities provided for intellectual, mechanical and æsthetic training. In regard to the subject-matter of instruction, education may be classified as literary, scientific, moral, technical, professional and artistic. In regard to degree or extent, education may be classified as primary, secondary, and higher ; and those are exactly the terms used in India in describing the different parts of the educational system. Post-graduate studies also are daily growing in extent and interest.

Primary schools are those in which the most elementary instruction is given. The courses of study are not the same all over India, nor is the management everywhere the same. The type of primary school varies from the primitive village *pathshala* or *maktab* to the modern form of schools in which instruction is more advanced and systematic. Generally speaking, all that a primary school attempts is to teach the child to read and write his own language, to enable him to do easy sums and understand simple forms of native accounts and the village land-record papers ; and to give him a rudimentary knowledge of common objects, geography, agriculture, sanitation, and the history of India.¹ This is the standard in towns ; in rural schools the course is more elementary. A comparatively

¹ The Imperial Gazetteer of India, Vol. IV, p. 419.

small but steadily growing number of primary schools is now managed directly by Government; most are administered by municipalities and district boards, or by private persons or bodies. In Bengal and Burma the majority are under private management. They are indigenous schools which have been brought to conform to the requirements of the Education Department; some are schools of a more modern type started by Indian proprietors; others belong to various missionary societies.

The special obligation of the Government towards the vernacular education of the masses was declared by the Court of Directors in 1854, and it has been accepted by the Government of India. The obligation has been discharged on an ever increasing scale; still the progress of primary education has not been nearly as great as could be wished.

There are three classes of secondary schools,—the vernacular middle schools, the middle English schools and the high schools. The vernacular middle school course is a prolongation of the primary course. In the middle English schools English is taught as a language and is also used as a medium of instruction. The range of studies is about the same as in a middle vernacular school. The high schools, or, as they are called in Bengal, Higher English schools, generally teach up to the standard of the matriculation. They provide a course of instruction that begins with the most elementary. Boys who have received their early education elsewhere may be admitted into the class for whose course of studies they may be found fit.

Higher education is given, through Universities, in affiliated colleges as well as through their own Professors, Lecturers, Readers and holders of Fellowships (including

the recently established Travelling Fellowships) in the Post-Graduate stage. There are five Universities, and they are situated in Calcutta, Bombay, Madras, Lahore and Allahabad. The first three of these were founded in 1857. The Punjab (formerly Lahore) University College was incorporated as the University of the Punjab in 1882. The University of Allahabad was established in 1887. One University has been recently established at Patna and one at Dacca and one in Burma and one at Nagpore are also in contemplation. The Hindu University at Benares, the Mysore University and Osmania University at Hyderabad have also recently come into existence.

The law relating to Universities in British India is now embodied in an Act passed in 1904 amending the older Act of 1857. Under that Act a University has the power to make provision for the instruction of students, to appoint University professors and lecturers, to hold and manage educational endowments, to erect, equip and maintain University Libraries, laboratories and museums, to make regulations relating to the residence and conduct of students, and generally to do all acts which tend to the promotion of study and research. A University consists of the Chancellor, (in the case of the University of Calcutta, also the Rector), the Vice-Chancellor, the ex-officio Fellows and the Ordinary Fellows. The ex-officio Fellows are a number of high officials whose number is never to exceed ten. The Ordinary Fellows include those nominated by the Chancellor, those elected by the Faculties, and those elected by registered graduates, or by the Senate. The Ordinary Fellows hold office for five years.

In the Universities of Calcutta, Bombay and Madras, their number shall not be less than fifty nor exceed one hundred. The Governor-General is Chancellor of the Calcutta University and the Governor of Bengal is its Rector. In the case of the other Universities the Chancellor is the head of the Government of the province in which the University is situated. The Benares Hindu University is governed by a separate Act. So also is the Patna University.

The Senate may institute and confer such degrees, and grant such diplomas, licenses, titles and marks of honour in respect of degrees and examinations as may be prescribed by regulation. The University may affiliate or disaffiliate colleges and maintain colleges of its own. The opinions, recorded by the Senate in regard to the affiliation or disaffiliation of a college, have to be submitted to the Government of India who pass final orders. Regulations made by the Senate are subject to the sanction of the Government. All the Universities grant degrees in Arts, Law and Medicine; all except Madras have separate Science schools; and all except Allahabad give degrees or diplomas in Engineering.

So far a sketch has been given of the system that exists for providing a liberal education. There exist also institutions for various special kinds of education. The subject of technical education early attracted the attention of Government. In Bengal, in 1863, Sir Cecil Beadon induced the Government of India to sanction, as a Government Institution, the Industrial School of Arts which had been founded in 1854 by a number of gentlemen designated

the Society for the promotion of Industrial Art, as the school had become practically dependent on Government. The object of the school was to introduce among the people an improved taste and appreciation of the true principles of Art, in matters both of decoration and utility, and to supply draftsmen, designers, engineers, modellers, lithographers, engravers &c. to meet the demand for them in this country.¹ During the Lieutenant-Governorship of Sir Richard Temple, technical education was advanced by the foundation of survey schools at Hughli, Dacca, Patna and Cuttack. Technical education was not as first popular in this country. Such of it as existed, consisted in instruction given to their own children by handicraftsmen belonging to the artisan castes. A carpenter brought up his son as a carpenter, and so on. Industrial education of a systematic, academic kind was not appreciated. Of late, however, it has grown in popularity, and institutions for imparting it are rapidly on the increase. A committee appointed to investigate the subject in March, 1902, prepared a list of 123 industrial institutions, most of which are of recent origin. A few of the more important are managed by Government, some have been established by municipalities and local boards, and others are maintained by missionary societies or private benefactors.² The question of improving the system of industrial education has lately been under the consideration of the Government, and provision has been made for sending a certain number of advanced students to obtain technical training in Europe

¹ Bengal under the Lieutenant-Governors, Vol. I, p. 289.

² The Imperial Gazetteer of India, Vol. IV, p. 406.

or America.¹ The Calcutta University also grants similar facilities and the Government, some time ago, recorded a Resolution favouring a high grade Technological Institute.

Technical education of a higher and scientific kind is given in colleges of Engineering. There are such colleges in Madras, Bombay, Bengal, and the United Provinces. The colleges at Roorkee in the United Provinces and at Sibpur and Poona, are the largest. The Victoria Jubilee Technical Institution in Bombay is an institution for the training of engineers, mechanics and draftsmen. The Industrial Commission and the Senate of the Calcutta University have made recommendations for much larger expansion in this direction, which are engaging the attention of the authorities.

Medical education is given in colleges established for the purpose at Calcutta, Madras, Bombay, Lucknow and Lahore, and in Medical Schools,—mostly Government institutions. The Calcutta and Madras Government colleges were founded in 1845 and 1860. In consequence of religious prejudice there was in the old days a repugnance to the European system of medicine, and the student of the Calcutta Medical College who first performed an act of dissection of a dead body was regarded as having accomplished a bold feat. To attract students to that College, stipends had to be given to them. Private Medical Institutions and Hospitals have recently been established and are steadily attracting public and Government support and are considerably supplementing the Medical education

¹ Ibid, p. 438.

of the country. The Belgachia Medical College was established in 1917.

Legal education is given in central law colleges established in Madras, Bombay and Lahore. In Bengal and the United Provinces law classes have been a section of what are mainly Arts Colleges. Recently a central law college in Calcutta has been established by the University through the exertions of its late Vice-Chancellor, the Hon'ble Sir Asutosh Mookerjee. About 1600 students are on its rolls and a well equipped and up to date Hostel named after Lord Hardinge, the late able and popular Chancellor of the University, is attached to it.

It is enough barely to refer to such special institutions as normal colleges and schools for the training of teachers, all Government institutions, and the schools that are springing up, or the classes that are being established, for giving commercial education to boys. The latter class of institutions is most developed in Bombay but are making a headway in Bengal.

For the teaching of agriculture, colleges or sections of colleges have been established in Madras, Bombay, the United Provinces, and the Central Provinces. In Bengal there were formerly agricultural classes at Sibpur near Calcutta; but these have now been replaced by a Central Agricultural College for the whole of India, provided with an agricultural research institute, and an experimental cultivation and cattle-breeding farm, at Pusa in the Darbhanga District of Behar.¹ An agricultural college

¹ Imperial Gazetteer of India, Vol. IV, p. 440.

has been established at Sabour in the district of Bhagalpur.

Each nation has its own artistic sense, its own special type of art. Science is the same for all countries, but the art of a nation is peculiar to itself. It so happens, however, that the schools of Art which exist in Calcutta, Madras, Bombay and Lahore, are Government institutions. The Madras School was opened in 1850, the Calcutta School in 1854, the Bombay School in 1857. Private schools of Art have also come into existence and receive Government and public support.

Apart from schools and colleges there have been established such institutions as libraries and museums for the purpose of promoting learning and encouraging research. The Imperial Library in Calcutta is a Government institution. Libraries of respectable dimensions are attached to many Government colleges. Aid is given by Government to some libraries owned by learned societies, and for the purposes of collecting and cataloguing rare or ancient works. The Darbhanga Library of the Calcutta University is fast growing in size, usefulness and importance.

The Economic Museum in Calcutta was established by Sir George Campbell, Lieutenant-Governor. Realising the importance of obtaining an adequate knowledge of the products of the country he was inclined to favour the idea of an economic survey. As a first step he thought it well to provide a place in which specimens of the economic, vegetable and other products of the country might be placed and made accessible to the public. The Economic

Museum came to be such a place. It now forms an annexe to the Indian Museum. Both raw materials and manufactures are collected and classified in this institution. There is an economic museum at Lucknow and there is another in Bombay. Botanical and Zoological gardens are a great educative factor.

The work that is being done in regard to education not only in the way of establishing, reforming or extending the scope of schools and colleges, but also in the way of providing facilities for intellectual culture, is so rapidly progressive that it is scarcely worth while giving any details as to figures. The figures of any particular time would not be the same six months later. But it is essential that the principles which underlie the educational work of England in India should be fully grasped. It has already been observed how the indigenous, that is, the Oriental system of education was not only continued but encouraged and developed in the early days of British rule. In a short time it came to be doubted if that system was by itself sufficient to supply the intellectual needs of the people and give them the best and the most useful culture according to modern standards. A controversy arose and two parties were formed. It was generally recognised that vernacular education should be extended. The Orientalists contended that this was to be supplemented by a study of the classical languages of the East, because the indigenous laws, literature and religion were enshrined in those languages. The Anglicists argued that higher education was to be given through the medium of English, because apart from the merits of the language

itself, it would be a key to the treasures of Western thought and science. Among them were many leading members of the Indian community, the most conspicuous of whom was Raja Ram Mohan Ray. The battle was decided in favour of the Anglicists. The success of that party was due mainly to the ability and determination with which Lord Macaulay, Legal Member of Council and a member of the Council of Education, pressed the case. Lord William Bentinck accepted the views of Macaulay as expressed in his famous Minute of 1835, and, soon after, his Government issued a Resolution announcing their decision in favour of a Western education. It is in consequence of that decision that English has continued up to the present day as the medium of advanced instruction and has produced the most momentous changes in the life and thought of those who have received it, and, through them, of a large portion of the Indian people. It has brought the Indian mind into contact with the most advanced western thought, has quickened it with a new life, and has not only developed intellectual and practical capacity but has bred high aspirations, intellectual and political. Vernaculars are now given their proper place in the educational curriculum of the country though it is not overrated. Their systematic study is insisted on in the undergraduate as well as the graduate stage. The Calcutta University has recently established a Readership and a Fellowship in Bengali and it has found a place in the advanced curriculum.

Schools and colleges were established in various parts of the country by Government, by Christian missionaries

and by enlightened members of the Indian community. But the progress of education up to 1853 was not very rapid. In 1854 a new impetus was given. Sir Charles Wood (afterwards Lord Halifax) being President of the Board of Control, the Court of Directors decided that the Government should afford assistance 'to the more extended and systematic promotion of general education in India', and addressed the Governor-General in Council a memorable despatch which sketched in outline a complete scheme of public instruction, controlled, aided and in part directly managed by the State. The principles then laid down were re-affirmed in 1859 after the transfer of the administration to the Crown, and still guide, in the main, the efforts of the Government for the better education of the people.¹ The despatch prescribed among other things the constitution in each province of a Department of Public Instruction and the institution of Universities in the Presidency towns.

For the first time in the history of India, education, from the most elementary to the highest, has been open to all castes, races and sects. In the indigenous system of the Hindus the instruction given in the *tols* was confined to the higher castes. The indigenous Mahomedan schools appear to have been open to Hindus, but few Hindus would find such institutions congenial; and the higher instruction, including a large element of religion, was necessarily confined to Mahomedans. It is in the British period that schools and colleges have been thrown open to all classes, whatever their race, religion, caste or

¹ The Imperial Gazetteer of India, Vol. IV, p. 413.

position in life. As in law so in education the principle of equality is recognised. It is a principle which has resulted not only in the spread of education among all classes, but has in an indirect way largely influenced the modes of thought of the Indian people.

In addition to the schools and colleges open to all, special institutions have been established for the benefit of particular classes. There are special schools, for instance, for the education of low-caste children. These schools have been established mostly by private bodies, particularly Christian and other missionaries, but they have received encouragement from Government, and it is only British rule that has made them possible. Several Chiefs' Colleges, all Government institutions, have been established, of which the most important are at Ajmere, Rajkot, and Lahore. The object is to give young chiefs and nobles an education fitting them for their position.

On general principles of toleration, and in consequence, in particular, of schools and colleges being open to men of all races and religions, the rulers have observed the principle of religious neutrality in all educational institutions. That principle, it has already been stated, was definitely declared in the despatch of 1854. There is nothing to prevent the authorities of private institutions from giving to their students such religious instruction as they may wish, but in no Government school or college can there be any religious teaching. Government could not conscientiously teach any religion but their own; but that religion they cannot teach those who do not profess it; nor can they allow any other religion to be taught

in a school which is not professed by all its students. It has been recently proposed to provide facilities for religious teaching by the different communities themselves, as an aid to moral education.

The work of Government in the field of education, or rather for the promotion of the intellectual culture of a people, could not be more varied or extensive than it is in this country as was vividly portrayed in a resolution of Lord Hardinge's Government on the subject of Education. They conduct the largest portion of academic education,—primary, secondary and higher; vernacular and English. They have established numerous scholarships. They have not only their own schools and colleges, but they grant aid to many institutions. They have to take charge of special kinds of education,—industrial, scientific, artistic. Girl education is largely in their hands. They have to look after the education of special classes,—aborigines and low-caste men on the one hand, nobles and chiefs on the other. It is under their auspices and by their encouragement that learned societies grow up and libraries are established. They start and maintain museums. To guide administrators in the future and to make it possible for histories to be written they preserve records. They encourage meritorious authors by purchasing numerous copies of their works. They establish their own systems of research and they give help and encouragement to individuals and private bodies in carrying on research. When occasion arises they keep their officers on deputation to conduct some special research. They have authorised and helped Universities to take steps for

promoting research. The central laboratory at Kasauli near Simla is an institution for research. The different scientific surveys to be referred to hereafter are in the nature of research. The census operations conducted from time to time come under the same category.

Much of the work here described would in advanced countries be taken up by private agency. From very early times the Christian missionaries have done valuable work in the way of establishing schools and libraries, producing text-books and publishing other literature, vernacular and English. But though they may have done such work independently of Government patronage of any kind, it has to be remembered that they are here in such numbers mainly because the Government is English; and their work has been in pursuance of the policy of Government. If Government had not decided to give English education few English books would have been written. In recent times a portion of the burden of education has been borne by private Indian enterprise, and public spirited Indian gentlemen like Pandit Iswarchandra Vidyasagar, Mr. Premchand Raychand of Bombay, Babu Prasannakumar Tagore, Babu Guruprasanna Ghosh, Sir Taraknath Palit and Dr. Rashbehary Ghosh, and the Tatas have with a will and zeal seconded Government efforts. The main brunt of the education has however been borne by Government, who have led the way from the beginning.

CHAPTER VI.

ECONOMIC PROGRESS.

Agriculture—Chief objects of cultivation—Food-grains—Rice, wheat and millet—Jute—Sericulture—Tea, Coffee and Cinchona—Indigo—Services of Government to Agriculture—Need of self-help—Free scope for enterprise—Exhibitions—Protection of invention—Free Trade—Customs duties—Their history in India—Loans to agriculturists—Agricultural Banks—Savings Banks—Tenancy Laws—Famines—Causes—Measures of prevention and relief—Development of foreign trade.

The chief Indian industry is and has been for ages Agriculture. The chief articles of cultivation at the present day are rice, wheat, millet, maize, barley, oats, pulses, oil seeds, sugarcane, date-palm, cotton, jute, indigo, opium, tobacco, mulberry, tea, coffee, cinchona. Rice is more largely grown than any other article. The deltas of the great rivers of Lower Burma and Bengal, the deltas of the Godavery, the Krishna and the Kaveri, the long narrow strips of land fringing the coast, and the lowlands of Travancore, Malabar, Kanara and Konkan, present all the conditions of successful rice cultivation, and constitute the great rice-growing area.¹ Throughout the remainder of the country rice is a subordinate if not a rare crop. Millets take the place of rice in the interior, excepting Assam. Sir William Hunter writes : "Taking India as a whole it may be broadly affirmed that the staple food-grain is neither rice nor wheat but millet."

Jute is almost exclusively cultivated in Bengal, especially northern and eastern Bengal. It grows best in

¹ P. N. Bose's History of Hindu Civilisation, Vol. II, p. 175.

the deltas of the Hughli, the Brahmaputra and the Megna. The development of jute cultivation and of jute industry is entirely the product of British rule. With the increase of the British trade in grains, especially wheat, grew up the demand for gunny bags, and this gave an impetus to jute cultivation.¹ The large profits of the trade in jute have been tending to enlarge the area of jute cultivation and limit that of rice cultivation.

Sericulture is a very old industry in India. But it is almost certain that neither the mulberry nor the silk worm was indigenous in India. When the East India Company established their trade marts in Bengal they found the silk industry in a declining state, and took great pains to revive it. As Bengal has always been the chief seat of mulberry cultivation they established several factories with numerous filatures in each, to which the cultivators brought their cocoons. They brought in 1769 a company of Italian reelers to teach their factory hands the Italian system of reeling. Bengal silk soon became an important article of trade and superseded all other silk in the European market. The palmy days of Bengal silk industry lasted till 1833, from which year the Company abandoned the trade on their own account and it fell into private hands. Sericulture has ever since been steadily declining. The imports of raw silk into India now exceed the exports. The silk of Japan, of China, and of the countries bordering on the Mediterranean Sea, now controls the European as well as the Indian market.²

¹ Ibid, p. 189.

² Ibid, pp. 198-199.

Tea, coffee and cinchona are crops with which the peasantry of India have little or no concern. These agricultural industries are very largely financed by European capitalists, supervised by European skill, and, except in the case of coffee, were introduced into India under the auspices of the British Government.¹

The development of the cultivation and manufacture of indigo in Bengal is solely due to the enlightened policy adopted by the East India Company who began by importing good planters from the East Indies and subsidising their enterprise with advances. Similar attempts were made to import sugarcane planters from the West Indies and establish sugarcane planters in India on the lines of the indigo plantation, but these attempts utterly failed.²

A well informed writer thus sums up the services of Government to agriculture :³

“Attempts to improve and expand the indigenous agriculture have been made by Government ever since the time of the East India Company, as is well shown by the history of the silk industry in Bengal ; of the introduction of Carolina paddy, American cotton, tea and cinchona ; of the extraction of fibre from hemp ; and of the formation of sugarcane plantations on the model of those in the West Indies.

“But there existed no organization for this purpose previous to 1872, when a Department of Revenue, Agriculture and Commerce was established under the Government of

¹ Ibid, p. 200.

² Ibid, p. 192.

³ P. N. Bose's *History of Hindu Civilization*, Vol, II, pp. 208-209.

India. * * * The department was subsequently abolished, but revived by Lord Ripon by whom the scope of agricultural improvements was considerably enlarged. * * * *

“Demonstration or Model Farms have been established in different provinces, all under Departmental supervision, some financed by Government, and some by local Zamindars and Rajas. In Bengal there are the Sibpur Government Farm,¹ the Burdwan Raj farm and the Dumraon Raj farm, the two latter being maintained by the two Raj estates respectively; in the North-Western Provinces and Oudh,² the Cawnpore Experimental Farm maintained by Government; in Madras, the Saidapet Government Farm; in Bombay, the Government Farms in Khandesh; and in the Central Provinces, the Government Farm at Nagpur. Besides, there are some minor farms in the Punjab, Assam and Burma.”

What Government have done in the way of promoting agricultural education has already been noticed. They appreciate so well the value of agriculture in this country that the idea of its improvement is never absent from their mind. Their services have not only been rendered in the past but are continuing. At the present moment it is in contemplation to introduce into India the cultivation of Egyptian cotton. Government officers have been making a study of the diseases of cattle and pests of plants and of the merits of particular kinds of manure. Already good results have been achieved in these subjects, and there is expectation of more.

¹ Now closed.

² Now called the United Provinces of Agra and Oudh.

Industry, trade and commerce constitute a sphere of life in which, pre-eminently, the people must help themselves. Labour and capital are essential to the growth of industry, but it may be said generally that for the industrial and commercial progress of a nation there are needed also certain intellectual, moral and social qualities,—technical knowledge and skill, for instance, a spirit of enterprise or adventure, honesty, mutual confidence, capacity of organisation, power of associated action, and what may be called generally habits of business. It is not possible for Government to render much direct assistance to the industries of the people by advancing capital or supplying labour. Government cannot carry on a business in partnership with the people. The relation of ruler and subject excludes the notion of business partnership. This must be especially so in India at the present day for Government is now vested not in a trading company but in the Crown. But Government can give indirect help, and that help has been given to some extent in this country. As has been shown in a previous chapter, they have been giving industrial education to the people, and at the present moment there are schemes for a great expansion of it. A separate department of the Government of India controls Commerce and Industrial movements which have received a marked impetus within the last few years from various causes. Respectable classes now take much more freely to commercial and industrial life than before and Government assists in the movement. They often purchase stores in the local market, giving a preference to the products of Indian industry. No higher privilege could be expected from Government than free scope for commercial and industrial

enterprise, and that the people have obtained. The indigo enterprise, which was at one time a monopoly of Europeans gradually passed to some extent into the hands of the cultivators and Indian capitalists, especially in Madras. With the discovery of the synthetic process of manufacturing Indigo the industry has lately been of little value. It is however being again revived. Tea planting also was at one time a purely European industry recently however, there have been tea companies composed entirely of Indians. Mining business also is now to some extent in the hands of Indians. Mills and factories are coming to be established with purely Indian capital. Government have never stood in the way of this development of native industrial and commercial enterprise.

Industrial exhibitions help the growth of industries by spreading knowledge of them, suggesting new ideas to observers, and widening the markets for articles of the kinds exhibited. Government have always held such exhibitions in favour and have often given help and encouragement to the parties organising them.

Under the laws of the country the authors of inventions, that is, machines or other contrivances of a useful character which are original in design, are encouraged by securing to them the fruits of their originality. When the articles are patented no one is at liberty to produce one like it by imitating the original design. If such a protection were not given men might produce copies of the contrivance and sell them at a cheaper rate than the original. The inventor would thus make no gain out of

his original design, and all incentive would be taken away from creative genius. The protection of inventions stimulates originality and is a help to industrial progress.

Customs duties have an important bearing on trade. England accepted long ago the principle of what is called Free Trade ; that is, she decided to impose no duties either on her exports or imports. The principle has reference only to foreign and not to internal trade. In India exports as well as imports were subject to duties until recent times. The duty on imports was much higher than that on exports. Exemptions from export duty were made from time to time, and in 1875 the only exports still taxed were rice, indigo and lac. English cotton goods were among the articles on which import duties were imposed. In 1876 the Secretary of State decided on a repeal of those duties, and in 1877 the House of Commons passed a resolution affirming that policy. In India effect was given to that policy in the two succeeding years by the repeal of duties on many articles and on several kinds of manufactured cotton goods. In 1882 import duties on all articles, with only two exceptions, were repealed. They were retained on salt and liquors, because those articles are subject to an internal excise duty. Arms and ammunition were afterwards subjected to a duty on political grounds. A small import duty was imposed on petroleum which comes from Russia and America. The principle of Free Trade in regard to imports was thus for a time very largely established in India. England, however, maintains duties on Indian tea and coffee. An export duty remains, that

on rice, chiefly grown in Burma. It is levied at the rate of three annas per maund.

In 1894, in consequence of financial pressure the Government of India changed their policy. The principle of Free Trade was partially changed. "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."¹ Silver bullion was included among dutiable articles, and cotton goods then excepted were afterwards included. In 1896 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.² The Indian tariff list shows 109 classes of articles, subject to customs duty. Most of the articles yield very little income. The most important source of revenue is cotton goods. Next in importance are spirituous liquors, petroleum, sugar and metals, including silver.

Government have adopted several measures to help the agricultural classes and in particular to relieve them of indebtedness. One of the most important of these is the practice, which is now in common force, of the grant to cultivators of Government loans, often made on the joint and several responsibility of the villagers, for agricultural improvements and the purchase of seed, cattle &c. An experiment is also being made in the way of

¹ India by Sir John Strachey, p. 183.

² Ibid, p. 184. See Chapter XII generally.

introducing Co-operative Credit Societies on the lines of the 'agricultural banks' of European countries and recently the movement has grown considerably. The principal objects of these societies are the encouragement of thrift, the accumulation of loanable capital, and the reduction of interest on borrowed money by a system of mutual credit. The experiment has been started on a small scale in Madras, the United Provinces, Bengal and the Punjab.¹

Another institution intended to encourage habits of thrift, is the Savings Bank. Until 1882-83 the savings bank business was carried on in the three cities of Calcutta, Madras and Bombay by the Presidency banks, and in other places at the Government treasuries. This system did not prove successful. The business grew slowly. The establishment of savings banks in the post offices was followed by a rapid change, and the number of deposits and the total of the deposits have largely increased. The banks were not started specially for the benefit of agriculturists. They are extensively patronised by other classes of the community.²

Amongst measures for the benefit of ryots may be mentioned various tenancy laws that have been passed. These are different in different parts of the country, varying according to local conditions and the kind of tenure prevailing. But they all have tended in one direction, namely, to free the ryot from the chances of

¹ The Imperial Gazetteer of India, Vol. IV, p. 523.

² Ibid, p. 524.

irregular exaction and other kinds of oppression, to fix his rights and liabilities, to provide simple methods of payment of rent, at the same time to allow the landlords every reasonable facility for realisation of rent and for the protection of their own rights.

Famines are one of the great scourges of the country. They are occasioned by failure of the food crops; and failure of crops is occasioned by bad seasons, of drought or flood. In consequence of failure or deficiency the price of food-grains rises high, and not only agriculturists but all other poor people such as petty artisans or traders, greatly suffer. The extreme poverty of these classes, occasioned not only by the smallness of their gains even in good seasons, but also by the growth of their families, their habits of thriftlessness, and sometimes of litigation, makes them live from hand to mouth in ordinary time. In seasons of scarcity they are unable to fall back upon any savings, and distress is the result. Even when there is food in the country these classes have not money enough to buy it with, and, if not aided, they may die of starvation or of diseases. The dearth of food stuff in the country, caused by failure or excess of rain or other natural calamities, is aggravated by exports to foreign countries and insufficient means of internal communication. The people are uncomplaining and it is not till the situation is acute that their want comes to be generally known. Relief then comes from the Government, from the people of the country, and, in extreme cases, from the people of England and of other foreign countries.

It is necessary here only to refer to the measures which Government have been taking to prevent famine as far as possible. Amongst preventive measures may be mentioned Irrigation Works to supply the deficiency of rains, and Railways for the ready conveyance of food to the affected area. When famine has actually broken out, Government distribute food as charity to some classes, and open what are called relief works for other classes. Relief works are works of public utility, roads for instance, upon which able-bodied men accustomed to labour are employed. Complete or partial remissions of the revenue payable by distressed men, and loans on reasonable terms, are granted where the occasion demands such a favour. Government may also permit or encourage the raising of public subscriptions here and in England in aid of the distressed. The recent devastating floods in the Burdwan Division of Bengal and other parts of the country afforded numerous notable occasions on which the people and the Government worked hand in hand with a will for relief of terrible suffering, and distress. The splendid services of the 'Volunteers' most of whom were students, extorted willing praise of all from His Excellency the Chancellor downwards.

India suffered from three great famines during the last quarter of the nineteenth century. The period opened with the famine of 1876-78 in southern India and closed with those of 1896-97 and 1899-1900. The total direct expenditure on famine relief since 1876 amounts to an average of one crore a year. The actual cost to the State is much greater, including loss of revenue and indirect

expenditure. In 1878, during the Viceroyalty of Lord Lytton it was decided to allot annually a sum of $1\frac{1}{2}$ crores of rupees for Famine Insurance. The actual relief of famine in years of scarcity has always been the first charge on the grant. At first the balance was devoted to the construction of 'productive' public works the cost of which would otherwise require to be met by loan. In 1881 protective public works which were calculated to mitigate or prevent famine in the areas served by them, were made the second charge on the grant.

The actual distinction between protective and productive works became obscured, and railways which formed part of the general system and were not constructed specially for famine purposes, were assisted from the 'protective' works portion of the famine grant. At the end of 1899 a stop was put to this practice. The expenditure on 'protective' works was limited to three quarters of a crore, and only railways and irrigation projects actually undertaken for famine purposes were allowed to be included in the category.¹

Sir John Strachey² wrote in 1903 : 'The development of the foreign trade of India during the last half century has been very great, and it affords 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.

¹ The Imperial Gazetteer of India, Vol. IV., pp. 188-189.

² India, by Sir John Strachey, p. 186.

The foreign trade of India is now larger than that of the United Kingdom in the middle of the last century.¹

¹ The sea-borne trade of India has grown as shown below :

Decennial average for

1875-76 to 1884-85

Rs.

Imports	69,59,00,000
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Exports	85,23,00,000
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1885-86 to 1894-95

Imports	83,11,00,000
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Exports	117,14,00,000
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1895-96 to 1904-05

Imports	143,92,00,000
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Exports	174,26,00,000
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1911-12 (for which latest figures are available).

Imports	197,53,00,000
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Exports	238,36,00,000
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CHAPTER VII.

MATERIAL PROGRESS.

Constructive work—Duties of the Government and the people—
Roads—Railways—Telegraph lines—Surveys—Trigonometrical—
Magnetic—Topographical—Forest survey—Frontier and trans-
frontier surveys—Revenue surveys—Topographical—Village—
Cadastral—Survey of India Department—Special surveys—
Marine—Geological—Botanical—Archæological—Mills and factories
—Industries of Bengal—Mineral resources—Reclamation of waste
lands—Tanks and wells—Fortifications—Dock yards—Harbours—
Landing places—Bridges—Preservation of Forests—Irrigation
works—Measures for Sanitation—Hospitals—Dispensaries—Lunatic
Asylums—Medical relief of women—Leper Asylums—Prevention
of epidemics—Medical research—Vital Statistics—Vaccination.

The most palpable of England's gifts to India are the material works, the constructive works of public utility with which this country has been endowed. Many of the works which in advanced countries like those of the West, are constructed by the people, had to be done in India by the Government. John Stuart Mill has observed : "In the particular circumstances of a given age or nation, 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 cultivated people.”¹ Mill was probably thinking of India when he wrote this, and it is certainly true that the situation which he describes has arisen in India. Government have felt it necessary to undertake works which in countries differently circumstanced have been done by the people.

Before the days of British rule roads were fewer in India. “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 expenses of civil magnates or governors desirous of leaving a name behind them.”² Throughout a great part of India it was only in the dry season that travelling was possible without difficulty, and, during three or four months of the year, trade, excepting where water-carriage was available, came

¹ Principles of Political Economy, Vol. II, p. 551.

² India, by Sir John Strachey, p. 212.

altogether to a standstill.¹ During the Viceroyalty of Lord Dalhousie great progress was made towards remedying the evil. Metalled roads, bridges and other useful works were constructed in the North-Western Provinces and in the Punjab. The construction of the Grand Trunk Road was commenced. The Ganges Canal, a magnificent irrigation work, was opened in 1854. At the close of the Viceroyalty of Lord Canning, in 1861-62, there were in Bengal eleven Imperial Trunk Roads existing or under construction, extending over 1994 miles, with Imperial branch roads aggregating 1145 miles. The Grand Trunk Road from Calcutta to the Karamnassa was then nearly completed.²

The subject of railway communication in India was first laid before the Government of India by Mr. Macdonald Stephenson in 1843. In 1849 the East India Company engaged in a contract with the East Indian Railway Company, for the construction of an experimental line at a cost not exceeding one million sterling. In 1851 a line was surveyed between Burdwan and Rajmahal. Next year the survey was continued to Allahabad. In 1853 the Government of Lord Dalhousie submitted to the Court of Directors their views upon the general question of railways for India. The Court was advised to encourage the formation of railways in India to the utmost. Lord Dalhousie wrote his final minute on the subject in 1856. The East Indian Railway was opened in 1858, and

¹ Ibid, p. 213.

² Bengal under the Lieutenant-Governors, by C. E. Buckland, Vol. I, p. 29.

it was gradually extended to Benares (541 miles) in December, 1862.¹ Two other great lines were opened about the same time: the Great Indian Peninsular Railway and 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.²

Telegraph lines were also first laid during the rule of Lord Dalhousie. They are now very largely concurrent with Railway lines all over the country.

For different purposes and from different points of view the country has been subject to surveys of various kinds. There have been systematic investigations yielding accurate knowledge of a geographical, economic and scientific character. They have mostly been made during the British period of Indian history. The record that was made in the time of Akbar, during the latter half of the sixteenth century, of the revenue, population and produce of the portion of the country he governed, and the descriptive and statistical account of the different *subahs* or provinces, embodied in the *Ain-i-Akbari*, may be said to represent the first attempt at a survey, but it had little of the accuracy or thoroughness of modern operations in the same direction. The earliest attempt at a modern and accurate map of India,—for the results of Akbar's inquiries had never been embodied in a map,—was made by the French geographer D'Anville in 1751-52, in accordance

¹ Ibid, pp. 29-30.

² India, by Sir John Strachey, p. 215.

with the information then available. The knowledge thus furnished was extended by Major James Rennell who had served under Clive and who has been called the 'Father of Indian Geography'. His *Bengal Atlas*, based on his own personal work in surveying, was published in 1781, and his *Memoir of a Map of Hindoostan* in 1788. Two maps of India, one in the form of an atlas by Col. Call of Madras and the other by Col. Reynolds of Bombay, were completed towards the closing years of the eighteenth century, but they were never published and they are not now in existence.

In the year 1800 Col. Lambton with the permission and under the patronage of the Government of Madras introduced a new method of geographical survey of southern India. The Trigonometrical Survey of India—a survey by a system of triangles,—was actually commenced in 1802. In 1818 the survey was brought under the control of the Governor-General, and the headquarters removed to Calcutta. Colonel Lambton died in 1823, but the work he initiated has been continued ever since. The principal operations of the Great Trigonometrical Survey have furnished data for investigating the figure of the earth.

A survey of a purely scientific character is the Magnetic Survey of India and Burma, initiated by Professor Rücker, F.R.S., through the Royal Society in 1897. The work was commenced in 1901.

Topographical (or descriptive) Surveys have now been carried out throughout India except in certain tracts in Madras, and through the greater portion of Burma. But a survey of this kind is not older than the nineteenth

century. It was begun about the same time as the great Trigonometrical survey, by Col. Colin Mackenzie, in southern India. The Trigonometrical survey was an aid to the Topographical. The earliest surveys were generally accompanied by '*Memoirs*' which contained statistical, historical and descriptive details for the area embraced in the map. The Surveys have been a thing of slow growth. The earlier operations were carried out in the Native States and the non-regulation British Provinces. They were hardly systematically performed before the middle of the nineteenth century, and they have been especially active for only about thirty years. In recent years Indians have learnt the work of survey, and survey parties now include an Indian element. 'The Survey of India', like other departments, is now divided into an Imperial and a Provincial branch. The former is as a rule recruited from the Royal Engineers or the Indian Army; the latter consists of men enlisted in India to whom some of the higher posts of the department are open. There is also a subordinate, and practically Indian branch.¹

A special Forest Survey branch (of the Topographical Survey) was constituted in 1872, and was in 1900 amalgamated with the Survey of India.

For purposes of geographical exploration and the delimitation of frontiers, surveys have sometimes had to be carried out beyond India. Such were the surveys carried out during the Afghan Wars of 1878-80, and in

The Imperial Gazetteer of India, Vol. IV, p. 498.

the course of the operations of the Afghan Boundary Commission. Frontier and transfrontier surveys are made by small survey detachments or single officers attached to boundary commissions or frontier expeditions. 'Their range may be said to extend from Nyassaland, Uganda, and Abyssinia in Africa, through Persia and Afghanistan, with a break for the greater part of Tibet and Nepal, over the northern and eastern limits of Burma.'¹

The plan of training Indians in the elements of surveying with a view to their employment in exploration, and for the purpose of acquiring geographical information of countries beyond the Indian frontiers into which no British officer could penetrate, originated with Captain Montgomerie while engaged on the Kashmir Survey. His idea was to employ Pathans for explorations in the Hindu Kush, the Oxus Valley, and Turkistan, and Bhotias or Tibetans for work in Tibet and on the borders of the Chinese Empire.'²

Revenue surveys naturally form the basis of all settlement operations and of the entire revenue administration of the country. They were commenced in 1822, west of the river Jumna, in the Delhi, Panipat and Rohtak districts. Surveys of the Punjab, Oudh, Sind, the Central Provinces, and Bengal, were executed during Col. Thuillier's administration of the revenue survey which lasted for thirty years commencing from 1847. There are three classes of professional revenue surveys, namely, first, the topographical surveys, second, the village surveys, and

¹ Ibid, p. 497.

² Ibid, p. 499.