

VIEW OF ST. ANDREW'S CHURCH FROM MISSION ROW, 1826.



chaplain and his bishop. It was thus declared that garrison churches though built out of public funds were not available for the use of Scottish regiments except by grace of the Anglican chaplain and his bishop. This position was felt to be intolerable by the Church of Scotland, which took action in its General Assembly, and by means of representations to the (Home) Government procured the right to have Presbyterian churches built in garrisons out of public funds. In this way the grievance has been removed though the sting of the inequality has not yet been forgotten.

The Senior Chaplain suffers by contrast with an Anglican Bishop, though in the Bengal Establishment his duties are almost episcopal. It has been felt that there should be one Presbyterian official over the whole work of the Church of Scotland in India, to supervise that work, to co-ordinate its needs, and to represent its case to the Government. Such an official seems necessary, as the present Senior Chaplains represent only their own establishments. A general Superintendent for the whole of the church's work in India would probably meet the case. For the title Superintendent there is the venerable precedent of John Knox, but there is no doubt that the title has little charm for modern Presbyterians. The title of General Secretary has also been suggested and may in due course be accepted.

The Ecclesiastical organization of the Church of Scotland in India, Burma and Ceylon is divided into six bodies resembling Presbyteries called Presbyterial Bodies, *viz.*, Calcutta (for Bengal, Assam, and Burma), Madras (for Arkonam, Bangalore, Madras, and Secunderabad), Bombay (for Bombay, Karachi, Poona, Quetta), Northern India (for Allahabad, Cawnpore, Chamba, Daska, Dalhousie, Gujrat, Jalalpur, Jammu, Meerut, Murree, Rawalpindi, Sialkot, Umballa, and Wazirabad), Eastern Himalayas (for Darjeeling, Kurseong, Kalimpong, Independent Sikkim, and the Dooars). The Presbytery of Ceylon supervises work at Colombo, Galle and Kandy.

The Presbyterial Bodies consist of all Chaplains and Acting Chaplains that are ministers of the Church of Scotland, and all ordained missionaries and ministers of that church, two senior ordained native missionaries, and one representative elder from each native Kirk Session whose pastor is a member of the Court, two elders from European Kirk Sessions in the Presidency towns and one from European Kirk Sessions in the Mofussil.

Each Presbyterial Body exercises functions similar to those of a Presbytery at home with power to license and ordain Europeans, East Indians, and Indians for work in India under courses of study sanctioned by the General Assembly.

St. Andrew's Church, Calcutta, was the first church building of the Church of Scotland erected in India. It is the property of Government, but is assigned to the Church of Scotland. It is a handsome structure forming a feature in Dalhousie Square, which is reputed to be the finest square in India. Architecturally it is inferior to the church at Madras, which was built on the plan of an Italian church, and of which the following description has been given:—"No wood is used in the building except for doors and windows, and there is no edifice extant where a dome of masonry of the same dimensions is supported on a colonnade of the same height, the

entablature of which is a straight arch without beam or lintel. The church is circular, 81½ feet in diameter with an eastern and western extremity. The eastern end is occupied by the choir and organ; the western forms an entrance as well as side rooms for vestry and office."

Among other churches deserving special notice are the Macfarlane Memorial Church at Kalimpong (a large edifice holding 600 people and forming a landmark in the district that is visible for many miles), and St. Columba's Church at Darjeeling just above the Railway station, meeting the eye of every new arrival in that hill station.

The Church of Scotland congregations throughout India minister not only to Scottish immigrants, but to those members of the domiciled community that are attached to Presbyterianism. In this respect the gratitude of all sections of Presbyterians is due to the Church of Scotland for ministering to Scotsmen and other Presbyterians in civil populations that are preponderantly Anglican.

Before we pass to the Missions of the Church of Scotland, a brief reference must be made to the churches of Ceylon. Long before the Church of Scotland began work in Ceylon, the Reformed Church of Holland, which is almost Presbyterian, ministered to European settlers. In 1642 there was a congregation at Galle, then a much more important place than now. The Church had three circuits, Colombo, Galle, Jaffna—under one consistory whose jurisdiction while similar to that of a Presbytery also included the functions of a Scottish Kirk Session in matters of discipline. When Ceylon was ceded by the Dutch to the British in 1796, the Dutch church ceased to have much interest in the colony, and 15 out of 16 Dutch ministers left the island.

It was not till 1847 that the Church of Scotland appointed a chaplain to Galle in the person of the Rev. J. K. Clarke who was appointed Colonial Chaplain of Galle. The Colombo Church was founded in 1840 by Scotch officials, merchants, and others. The Ceylon Government paid the salary of a chaplain. The Kandy Church was founded in 1855. The Ceylon churches minister not only to Scottish Presbyterians, but to descendants of the Dutch population.

In 1881 something like disestablishment occurred in Ceylon, and the Government gave notice that when the chaplaincy was vacated they would discontinue the salary of chaplain. The present minister is supported partly by the income from a local endowment and partly by a grant from the Colonial Committee of the Church of Scotland.

The ideal of the Church of Scotland is to follow Scotsmen in India with the ministrations of their church. While it has been wonderfully successful in providing churches and services in various centres, it cannot overtake the scattered Scotsmen that are to be found in every part of the Indian empire, sometimes in groups, sometimes as solitary individuals. There is hardly a church at work in India that does not include in its membership Scotsmen who were born Presbyterians, but whom the changes of life in India have carried beyond the sphere of influence of the Scottish Church. In recent years the establishment of a congregation of the Church of Scotland at Simla has provided an ecclesiastical home for Scotsmen in the summer capital of India.

By co-operation with the United Free Church the spiritual needs of Scotsmen in the mills near Calcutta have been supplied by the appointment of two ministers, one representing each church. Such co-operation will probably be more usual in the future. An English service in connection with each Mission centre where Europeans live would help to cover the ground. Such a service in the Mission Church at Darjeeling has been distinctly helpful to Presbyterian visitors at that health resort.

CHURCH OF SCOTLAND MISSIONS.

These are found at Calcutta, Madras, Darjeeling, Kalimpong, in the Punjab at Gujrat, Sialkot, Chamba, Daska, and (for the work of the Women's Foreign Mission) at Poona.

The first missionary of the Church of Scotland to India (though not the first Scottish missionary) was Alexander Duff, the fervid orator and preacher, the most courageous apostle of Christ Scotland ever sent forth. He landed in Calcutta in May 1830 after being twice shipwrecked on the way. His instructions were to study missions in Calcutta but not to dream of settling down there. The study of mission operations then being carried on in the city led him to the resolve that Calcutta needed a new kind of Christian effort that would bring Christianity into the circles of the middle class who were more or less educated. Duff united the propagation of Christianity with the imparting of sound English education. His method has been followed all over India by one Church and Society after another, although there have always been severe critics of this combination of Christianity with education. Curiously enough, the same virulent criticism has never been directed against the combination of preaching and medical work, though the two forms of Mission work are very similar.

Duff did not get much help from other missionaries in Calcutta but went on with his programme. And whatever surface objections may be made to Educational missions, this much is to be said for them, that they are the only form of mission-work in India that familiarises the mind of the educated middle-classes with the knowledge of Christianity. It may be argued that so difficult a class is not worth the trouble of evangelising. But this argument ignores the social value of the class concerned, in whom many of the hopes of India are centred. To omit educational missions from the programme of Christianity would practically mean the exclusion of the middle classes from the propaganda.

Duff saw that in his day, and he had the courage to defy his instructions, and the lugubrious dissuasions of the older missionaries in Calcutta. He remained in the city, which promptly recognised him as her most eloquent spokesman, and he brought rapidly to a successful issue his combination of education and evangelism.

He had some difficulty in finding suitable premises. He began work in rooms lent him by the famous leader of the Brahmo-Somaj, Rajah Ram Mohun Roy. From the beginning Duff made religious teaching the distinctive feature of his school, and baptisms soon followed.

Duff's second convert was Dr. Krishna Mohun Bajerjee, the most scholarly of all the converts of Bengal. Each baptism was the signal for a vehement attack on Duff's methods, and for a temporary boycott of his school. But he held on as if nothing had happened and his school became the model for the city. In 1837 was laid the foundation stone of the General Assembly's Institution in Cornwallis Square. At this time Duff was in Scotland. Driven home by dysentery, he had been detained to plead the cause of missions, and his wonderful eloquence kindled missionary fervour in the undivided Church of Scotland. When he returned in 1840 he found the work in the hands of Mackay, Ewart, Macdonald and Thomas Smith prospering steadily. There were about 900 pupils at this time and their number was constantly growing. Then came the Disruption of the Church of Scotland in 1843, and the pathetic relinquishment by Duff and his colleagues of the Institution reared by his labours and his eloquence. After the disruption it was closed for some time. It was soon filled after the re-opening in 1845, and is now the largest missionary educational institution in North India. It was built up into a great College under Dr. Ogilvie, and subsequently under Dr. Hastie and others. It occupies an excellent site in the Northern division of Calcutta. In 1908 the two institutions founded by Dr. Duff (the General Assembly's Institution and the Duff College) are to unite. The College will meet in the Cornwallis Square premises with a new Science block. The School classes are to occupy a new handsome building in the same locality. The name is to be Calcutta Christian College, and it is safe to say that a very strong college will result from the union of the two institutions.

The woman's work is carried on at Bowbazar, Calcutta. Hindu girls' schools, a boarding school for Christian girls, and zenana mission work are the activities of this branch of the Mission, which contemplates acquiring new and more suitable premises at the north end of the city.

At Muttiabruz, Budge-Budge and Ghosery small outstations are maintained, superintended by a missionary resident in Calcutta.

At Madras there is a second grade College (teaching up to the Intermediate Examination). It was begun in 1837. It has one European professor usually. The Woman's Mission has school and Zenana work. About 40 miles from Madras is Arkonum, where mission work is carried on under a European missionary. Educational and evangelistic work are steadily maintained.

The Mission at Poona has a hospital for women which attracts patients from far and near. The boarding school for Christian girls and the Zenana Mission work are adapted to the needs of the communities served.

In these cities successful work has been accomplished, and steadily maintained, but it is in rural districts that most of the success of the Church's missions has been reaped. The mission in the Darjeeling district has been not only a religious force, but a social elevator of the community. KALIMPONG has its Training School for Catechists, its Hospital, its Weaving School, its Lace School, its home industries as well as its large and well-filled church. From it as centre there have sprung up numerous village churches, built largely

by the people themselves where on week days school is held and on Sundays the gospel is preached. Although under an undenominational Committee, the St. Andrew's Colonial Homes at Kalimpong for the boys and girls of the domiciled European community in India are closely associated with the Church of Scotland Mission. The Superintendent of the Homes is the Rev. Dr. J. A. Graham, the head of the Mission at Kalimpong, and in many other ways the influence of the Mission on the homes is felt. The workers from Europe in both Mission and Homes now number over 30. Down in the fever-stricken Dooars (not far from Kalimpong as the crow flies) a Scotsman ministers to planters, and mission work is carried on among coolies on tea-gardens. The influence of Kalimpong is felt far and near as a centre not only of religious and educational enlightenment, but of industrial progress. New industries are being taught, the resources of the locality are being utilised. One scheme leads to another, and all are successful. To such courageous initiative both Government aid and voluntary local donations are freely accorded. Perhaps nowhere in India do mission enterprise and Government aid supplement each other more naturally. The medical grant for the district is not expended in Government dispensaries but is handed over to the Mission which undertakes all cases in the district. Kalimpong is an almost ideal centre for mission work. At an elevation of over 4,000 feet it is yet not too cold for a large population. In summer it is warm, in winter not too cold for comfort. The soil is fertile and let out in crofts by Government (the owner). Indigenous methods of cultivation abound, and a happy peasantry lead contented lives.

The history of the Mission is remarkable. It began as an outstation of Darjeeling in 1875 and was worked by a native catechist. In 1880 a European missionary was appointed and did the pioneer work of the Mission so wisely that although the Mission has far outgrown the original plans, it has done so by evolution and not by revolution. Boundaries have been extended, new departments have been opened, but the piety and common-sense of the first missionary have not been set aside. Kalimpong may be described as one of the most successful missions in India both in respect of its achievements and its promise.

DARJEELING.

Mission work was begun at Darjeeling in 1870 by the Rev. W. Macfarlane, appointed to the mission at Gaya in 1865. When that mission was abandoned in 1870, Mr. Macfarlane chose the Darjeeling district as his future sphere. At Gaya he became interested in a group of hill lads who had been sent there for education. Following them up to their native hills, the Church of Scotland, at the invitation of European settlers in the Darjeeling district, began work. At first progress was slow: but gradually outstations were formed in little villages on the hills, and now Darjeeling and Kalimpong and the village churches throughout the district have a Christian community of over 5,000. About 1880 Mr. Macfarlane took up work at Kalimpong, and in 1887 he died there having begun to reap the results of his pioneering efforts.

At first the Mission house at Darjeeling was situated considerably below the station, but about the year 1890 the Mission procured a commanding site in Darjeeling itself. A handsome church was built and recently a new school house has been added.

Women's work is carried on in the same compound. The Darjeeling Mission has many primary schools on tea-gardens in the district, and though its activities are by the nature of things less numerous than those of Kalimpong, its influence is very great. In recent years Kurseong has been erected into a separate centre, and now with its resident missionary and its new church it superintends village work down to the Dooars.

Passing from Darjeeling across North India we come to Sialkot, Daska, Gujrat, and the Native State of Chamba.

The Sialkot Mission was founded in 1857, shortly before the mutiny, by Mr. Hunter who had come up to the Punjab from Bombay. He was murdered in the mutiny troubles, but the Mission thus begun in tragedy was continued. From it, in time, work was carried to Wazirabad and Gujrat. At Wazirabad there has been a notable accession of low caste people to the Christian ranks. Gujrat which at first was a difficult field has yielded to a large extent to the steady Christian siege carried on by the Mission through medical work and preaching and teaching. Agencies have been multiplied and much activity is shown in the various branches of work in operation among women as well as men. The Medical Missionaries of Gujrat of both sexes have made the Mission popular in the whole district. Here as elsewhere the entirely beneficent work of dispensary and hospital has removed the antagonism and prejudice that often exist in simple minds to the preaching of a gospel deemed alien. The Women's hospital is a distinct feature of the Gujrat Mission. Daska was at first managed from Sialkot, but events justified making it into a separate centre. In addition to the usual equipment of a Mission, Daska has a Training School for catechists and evangelists.

The Native State of Chamba is friendly to the Mission work which was begun in 1863, but was not formally made over to the Church of Scotland till ten years later. Medical work here also gained the confidence of the people. The benefits conferred upon the people were frankly recognized by the Rajah of Chamba who gave to the Mission the Church, both site and building. The foundation stone was laid in February 1899. This gift is, if not unique, at least very exceptional. A Hindu Rajah, proud descendant of a long line of rulers whose family traditions extend over one thousand years, must be not only magnanimous personally, but fully persuaded of the benefits conferred by the Mission on the sick and ignorant before he can venture on the gift of a church to the Mission. The significance of this act can hardly be overestimated.

In 1894 the baptisms in the various stations of the Church of Scotland's mission in the Punjab totalled 607. Since that date numbers have increased.

After bitter opposition the Church of Scotland obtained a footing in Jammu in 1889. But it was not till 1902 that the Maharajah of Jammu gave formal permission to the mission to settle there. A site was granted for a European missionary's house, and organized work is steadily maintained.

UNITED FREE CHURCH OF SCOTLAND.

This church was formed in 1900 by the Union of the Free Church (founded in 1843 by the Disruption) with the United Presbyterian Church, formed in 1847 by the Union of the Secession and Relief Churches. In 1900 a small body of Free Church members and adherents refused to enter the Union, went to law to claim the property of the Free Church, and after losing their case in two divisions of the Court of Session in Scotland, won it in the Appeal Court of the House of Lords. But the people of Scotland would not tolerate an arrangement that was so obviously unjust, however legal, and an Act of Parliament was passed incorporating a Commission to divide the property of the Free Church equitably between the United Free Church and the legal Free Church. The Commission in 1906 handed over all Mission properties and specially destined funds held by the Free Church before 1900 to the United Free Church. Consequently the latter church may be considered the real successor of the Free Church in the Mission field and the possessor not only of its buildings but of its history.

As a matter of fact the Union of the two churches in 1900 did not affect the Indian mission except to increase it. The spheres of occupation were different. The Free Church held Calcutta, Madras, Bombay, Poona, Nagpur, the Nizam's Territory, the Santal country, and district missions near their city centres, while the United Presbyterian Mission occupied the territory of Rajputana. The Union was clear gain. There was no overlapping before to be remedied now by curtailment and migration. If Union could be brought about between the Missions of the Church of Scotland and the United Free Church, there would be a series of Christian garrisons scattered over India that would be impressive and mutually supporting. In view of the Union of these two Missions in Calcutta, recently sanctioned, it is not quixotic to entertain the dream that a comprehensive union will one day take place.

In recent years the United Free Church has issued a series of handbooks dealing with its various Mission fields. It is from these handbooks that the following account of its Missions has been gathered.

The Mission at Calcutta was simply Dr. Duff's work in 1843 (begun in 1830) transferred from the Church of Scotland to the Free Church. He left the building he had only recently erected and entered, and for two years it remained empty. All his colleagues, teachers and pupils went with him. Most of his chief supporters at home belonged to the party of the Church of Scotland that went out in 1843. After a long period of wandering about in search of a site, during which time Duff's school was held in hired premises, he settled down in a district of Calcutta near the river. There in 1857 was built a handsome college and school in commodious and well-equipped premises which cost £15,000. It was a spirit of chivalry that took him away from Cornwallis Square, the site of his first college. There was a site available in the next compound, but he decided to take his work into a congested quarter a mile to the westward. As Calcutta has developed, his second site has turned out to be unfortunate for educational purposes. His college is situated in the midst of jute and rice warehouses far away from the city's educational centre and remote from the student population. As the city has grown,

the disadvantages of the site for education have been intensified, and it was practically decided some years ago either to unite with the Church of Scotland, or to remove the college to some more suitable site.

The school and college that Duff founded in 1843 and installed in its new building in 1857 has had a striking career. For many years while Calcutta was sparsely provided with schools, Duff's school had from 1,200 to 1,800 pupils. The highest numbers were reached after Duff had left India. But gradually education spread in Calcutta, and with the increase in the number of schools the number of pupils attending any one school diminished. No such school is possible or desirable to-day.

Round the college and school there grew up the usual activities. Some pupils were trained in theology. The college was affiliated to the University of Calcutta in 1857, and from the first its students took a good place in the University.

A native church was built and gradually attracted a group of leading Bengali Christians. A Christian Home for students and converts was established.

In course of time the European staff was increased, and woman's work was extended. The Zenana Mission and the Boarding School were accommodated in the same premises till 1888 when the Zenana Mission entered a new building and underwent great developments. Subsequently the Girls' Boarding School and Orphanage, having grown greatly from the original orphanage of the early days of the mission, was housed in one of the best planned buildings for that purpose in Calcutta. The woman's work of the Mission has been very successful. The men's work has been largely a conquest of the difficulties of an unsuitable site, and has been in the circumstances singularly successful. For nearly 30 years an almost unique open air service has been conducted Sunday after Sunday in Beadon Square, but this form of activity has during the recent political unrest in Calcutta been severely boycotted, and though still maintained is in the meantime little more than a name.

In all these forms of activity, education, preaching, zenana visiting, training of agents, training of teachers and Christian development the Mission has done conspicuous work often in very adverse circumstances in the past.

BENGAL RURAL MISSION.

The mission district worked by the United Free Church is in the Hughli and Burdwan districts. The leading centres are Chinsurah, Kalna, Mahanad. Kalna is now principally a medical mission where three doctors (two men and one lady) minister to crowds of sick people. On dispensary days sometimes as many as 500 patients have to be attended to. There is a large hospital with separate blocks for men and women. The malarious district keeps the medical missionaries busy. Their excellent work has been acknowledged by the Government of Bengal which gave a liberal grant to the erection of a new hospital. The mission at Kalna dates from 1843. Its activities were educational and evangelistic. About 1899 the medical mission was organized. There is a small Christian congregation. At Chinsurah there is a High School which dates from 1849, though the present

building is less than ten years old. The Christian congregation meets in a church which was handed over to the Free Church by the London Mission in 1849. At Chinsurah also lives the district missionary who has to superintend stations to the north and west. At these centres educational and evangelistic work is carried on, and although there is no qualified doctor, a good deal of medical aid is rendered to the inhabitants of a malarious tract of country. The missionary at Chinsurah is a distinguished Bengali scholar who in addition to superintending the mission work of a large district has written two commentaries which have been highly commended by competent authorities.

The work of the Women's Mission is very actively carried on at Hughli and Kalna (where lady missionaries from Scotland are at work) and to a smaller extent at other centres which are supervised from Hughli.

The United Free Church maintains two European congregations in India, one at Calcutta and the other at Bombay. They are both the offspring of the disruption of 1847. They minister to Scotsmen and others who adhered to the Free Church in 1843 and their successors.

The ministers are usually selected in Scotland by a special Commission. The congregations are managed by Kirk Sessions and Deacons' Courts, the members of which are elected by the congregation. The congregational Funds are vested in Local Trustees. The congregations are entirely self-supporting. The income is derived from subscriptions, offertories, and interest on endowments. The congregations are represented on the local mission Councils and Presbyteries. Both congregations occupy a worthy place in the estimation of Scotsmen in Calcutta and Bombay.

MADRAS.

Madras is the centre of the largest and best organized mission of the United Free Church in India. In the recently published "Story" of this mission, the progress of the mission is thus summarised:—

"In 1837 there was one missionary; in 1907 there are twenty-six—fourteen sent out by the Foreign Mission Committee, and twelve by the Women's Foreign Mission of our Church. There were no Indian ministers of our mission then, now there are seven. There were no congregations then, now there are five fully organized. There were no members or adherents then, now they number over 2,500."

In the Southern Presidency there is a different atmosphere from the north of India. There is the hereditary influence of an ancient Christianity that dates from the early centuries of the Christian Church, and tradition would have us believe that the Apostle Thomas actually visited the land. In 1542 Francis Xavier included South India in his world-wide tour. In 1705 Ziegenbalg set out for Tranquebar. But it was not till 1726 that a missionary settled at Madras. This was Schultze, the successor of Ziegenbalg. Before the 19th century began there were 4,000 converts in Madras.

In 1835 two chaplains of the Church of Scotland established a school on the lines of Dr. Duff's in Calcutta and sent home an appeal for a missionary. In 1837 that

missionary, the Rev. John Anderson, after having seen the work in Calcutta, arrived in Madras. He began in a rented house with 59 boys. The prospectus indicated that the school was to follow the lines of Dr. Duff's school, and ambitiously included in the list of subjects "the elements of astronomy and political economy, logic, moral philosophy, and natural theology; the evidences and doctrines of Christianity."

Under Mr. Anderson the school rapidly grew. A colleague arrived from Scotland in 1839. Then came the first blow. Three pariah boys had been innocently admitted into the school. The caste pupils protested vehemently when they discovered it, and demanded the expulsion of the offending pupils. Mr. Anderson fought out the battle of caste, retained the boys, though the struggle cost him over one-third of the pupils. But the day was gained. Part of Anderson's plan was to establish branch schools in important centres in the Presidency. Conjeeveram, Nellore, Chingleput, Tiruvallur soon had schools. A school was also begun at Triplicane in Madras.

In 1841 came the baptism of two of the senior pupils. A storm of fanaticism broke out. But the youths declared before the magistrate their intention to remain with the missionaries. The school was nearly emptied: only 70 pupils remained out of 400. Subsequent baptisms did not create the same opposition perhaps, but whenever a convert of good family was baptised, the stress was great. But after each emptying of the school the numbers grew again. In 1843 came the disruption of the Church of Scotland and the Mission went over bodily to the Free Church. The Christian public of Madras subscribed £1,700 to start them. As the work of the mission had been carried on in rented premises, no real property had to be sacrificed.

There was no break of system or of staff. The Free Church carried on the work begun by the Church of Scotland with ever-increasing success. In 1855 Mr. Anderson died, and with him the first period of the mission may be said to end. He was a man of rare enthusiasm and insight.

The second leader was William Miller who landed in Madras in 1862 and has been till recently in the field. He has now gone to Scotland in broken health, but the indomitable will of the man may yet bring him back to his beloved Madras.

When he came, the mission was reduced to great straits. The death of Mr. Anderson and the failure in health of other members had wrought havoc with the school. For a time Dr. Miller was the only representative of the church. This gave him the opportunity of working out his ideas. By 1864 equilibrium had been restored. Finances flourished, discipline was good, and the staff was replenished. In 1865 a college class was added. This was carried on to the B.A. stage and candidates were presented for the B.A. examination in 1869. Dr. Miller was not yet satisfied. He planned to have a Central Christian College in Madras for South Indian Missions. The Church Missionary Society and the Wesleyan Missionary Society gave grants to the College. Other missions agreed to send students. In this way the Christian College was started in 1875. The Free Church of Scotland was responsible for £1,400 a year, the C. M. S. for £300, and the Wesleyan M. S. for £300 for a man,

The success of the last thirty years has shown the wisdom of Dr. Miller's experiment. The Christian College has been a worthy fortress of Christianity in South India and its influence has been simply incalculable. Behind the loyal and able staff there was the master mind of Dr. Miller. His services to education were recognised not only in his College but by the authorities. From Aberdeen University came the LL.D. degree, from Edinburgh the D.D., from the Government of India the C.I.E., for his services in connection with the Education Commission. The citizens of Madras and former students have erected a statue of him in Madras. His is probably the best known name among contemporary Indian missionaries.

The College is prosperous in every way. It has 800 students in addition to 900 schoolboys. It occupies a fine site, though the arrangement of class rooms is now rather antiquated. The new University regulations necessitate more and better accommodation than was permissible before, and friends of the College will doubtless give additional buildings to an institution of which any church or group of churches may well be proud.

Medical mission work was carried on for some time. Dr. Paterson came from home in 1856 as the agent of the Edinburgh Medical Mission and he was closely associated with the Madras Mission. He left in 1870 and died soon thereafter. His successor was Dr. Elder, who belonged jointly to the Edinburgh Medical Mission and the Free Church Mission. He retired in 1883. No successor came from home, and the dispensaries were handed over to the Women's Foreign Mission, whose medical work is reported on below.

There are two Christian congregations of this mission in Madras, one in the College Church and the other at Royapuram. Both are solid Christian congregations. The Royapuram congregation supports the catechists in charge of a neighbouring village congregation. The Indian Churches of this mission and the Arcot Mission (Dutch Reformed Church of America) united in 1902: and since then they have likewise joined the Presbyterian Church in India which was constituted in 1904.

DISTRICT MISSION.

Chingleput, 35 miles from Madras, is the centre of a great variety of mission work and experiment. The first beginning was a school planted down by Mr. Anderson as a branch of the Madras Institution in 1840. It has now 300 boys. The first resident European missionary was a German. It was not till 1879 that a Scottish missionary arrived—Mr. Andrew—and he is still the directing mind of the district. He greatly increased the number of catechists and successfully evangelised the district. From Chingleput there sprang up three other stations, Walajabad, Conjeveram, and Sriperambadur. Experiments have been made in settling Christian peasants on land granted by Government to Mr. Andrew. The colony at Melrosapuram is very successful. The children are taught not only the three R's but also agriculture, rope-making and mat-weaving. In other colonies the results are not yet so well-marked. The work of Mr. Andrew in raising the lot of the depressed classes was rewarded

by a Kaisar-i-Hind medal. The Christianisation of the villagers has been satisfactory.

Conjeveram, about 50 miles from Madras, one of the sacred cities of Hinduism, was visited casually for many years as part of the mission work of Madras. But in 1889 this unsatisfactory arrangement ceased by the arrival of a resident medical missionary, who was soon, however, transferred to the neighbouring village of Walajabad. His successor has reverted to Conjeveram, but medical work is carried on equally in both places. A hospital has just been opened at Conjeveram. Primary schools have been established, and there is a vigorous Indian Christian congregation.

Sriperambadur has had a resident missionary only for nine years, and work is still in its beginnings.

Women's work in Madras and district is of high quality. The Christian Girls' Boarding School in Madras, where 150 boarders and 100 day-scholars are taught by skilled teachers and gradually led up to the Matriculation standard of the University, has an excellent building and ample grounds. The seven Hindu girls' day schools in the city with 1,000 pupils bring enlightenment into the only too-brief years of the Hindu girls' school-life, and as far as possible in that time give the elements of a sound education.

At Chingleput Boarding School lace-making and other useful arts are taught in addition to the ordinary school course. Small schools for Hindu girls are scattered throughout the district evangelised by the mission.

There is a training school for female teachers in connection with the Madras Boarding School, with an average attendance of 25 a year. They are given a one-year's course, and are sent out to teach. The Madras Presidency is ahead of other Indian provinces in its training of teachers.

The Zenana Mission in Madras experiences great difficulties owing to the bigotry of its Hindu women. But the educational advantages offered are eagerly welcomed. Scottish ladies and Indian Bible-women carry on systematic work in many homes both at Madras and the district centres.

MEDICAL MISSION WORK FOR WOMEN.

In 1888 the first woman doctor sent out by the Free Church began work in the dispensary formerly used by Dr. Elder. Since then great extensions have been made. A hospital for women was provided: another woman doctor was sent; a new dispensary was opened in another part of the city. Six thousand five hundred patients annually pass through the dispensaries. The hospital has 600 patients a year. In the district dispensaries 11,000 patients are treated every year. The medical work brings in over £500 in fees.

MAHRATTA MISSIONS.

Under this heading we may group mission work at Poona, Bombay (with Alibag), Nagpore (with Bhandara and Wardha) and Jaina.

POONA.

Mission work was begun by Scottish missionaries in the intellectual capital of the Bombay Presidency in

1829, amid bitter opposition from the Poona Brahmins whose bigotry (or orthodoxy) is notorious. It was very up-hill work; but schools were established and successfully maintained. The High School was carried on till 1888 when it was closed. Bazaar preaching on ordinary lines, proving more or less casual, was supplemented by more systematic teaching and discussions in hired rooms. Religious work among students in Poona has been in many cases fruitful of a higher life, but has not as yet led to many baptisms. The Christian congregation in Poona, probably because of opposition, has developed a vigorous life. Two ordained missionaries by word and pen are now expounding Christianity in Poona to its very critical audiences. Among the villages evangelistic work is diligently carried on.

Women's work is represented by a good Boarding School for Christian girls, Hindu girls' day schools and zenana visiting.

BOMBAY.

The Wilson College is the principal agency of the mission in Bombay. It is named after the founder of the mission, Dr. John Wilson, a man of tremendous learning and unique personality, who arrived in Bombay in 1829. He started a school in 1832, prepared text books for it, and was at once successful. The Church of Scotland took over the mission in 1835. For many years Wilson, Nesbit, and Murray Mitchell made the school prosper. Learned debates with Hindus and Mussalmans were carried on by Wilson who was a rare protagonist. Unwearied with this contest, when attacked by Parsis, he replied with a trenchant exposition of the Parsi religion. Two Parsi students were baptised in 1839 amid fierce excitement. One of them after being educated in Scotland became, and still is, a missionary of the church. But these baptisms emptied the school for a time. Other baptisms were those of Narayan Sheshadri (in 1843) and Baba Padmanji (in 1854).

In 1857 the University of Bombay was founded. Its policy was largely shaped by Dr. Wilson, who was distinctly the greatest personage in Bombay. Under the University régime the school and college made great progress.

In 1874 Dr. Mackichan, the present Principal of the College, arrived in Bombay, and from the first devoted his splendid energies to the development of the college. From funds raised in Scotland, largely supplemented by a Government grant, a new college was built, and opened in 1889, as a worthy memorial of the great Dr. Wilson. The College occupies one of the finest sites in Bombay. It is regarded as the chief centre of religious work among the educated classes in the city. It stands very high in academic reputation. Its students gain many honours in the University, and its influence upon the life of the community, though perhaps not so great as that of the Madras Christian College, is the highest in the city.

The High School is similarly successful. The women's work in Bombay includes the usual union of forces, *viz.*, Christian Girls' Boarding School, non-Christian Girls' Day Schools, and Zenana visiting. The

mixture of communities in Bombay considerably modifies the influence of the *purdah*, and lady students (Parsis and others) are frequent attenders at the Wilson College.

The district work in the Konkan is superintended from Alibag, where since 1880 an Indian missionary and from 1895 a European missionary, have been stationed. The duties of the missionary include preaching, superintending, training catechists, and itinerating. The work amongst women and girls is superintended by his wife.

NAGPORE.

This mission began in 1844 with money handed by Captain (afterwards Sir William) Hill to Dr. Wilson for this purpose. The money was promised before the Disruption. But the mission was not sanctioned till after that event. Thus, it was entirely a Free Church Mission. The first missionary was Stephen Hislop, who in 1864 (after touring his district thoroughly) opened his first boys' school in the city of Nagpore. Here too there was a fight over the admission of low-caste pupils, and over the first baptisms. As Nagpur did not become British territory till 1853 the mission had to face all the opposition of a Native State.

In 1858 fine buildings were erected in the city. The Christian congregation had been steadily growing, and under Hislop the activities of the mission were healthily developing. Then came the great catastrophe of the mission in the death by drowning of Hislop in September 1863, as he was returning to head-quarters from an outstation. He was a distinguished naturalist and a man of great sagacity whose loss at this stage seemed almost irreparable. He was the trusted friend of high officials as well as of the humblest Christian. But the progress of the mission was not to be held back. Nagpore is considered a model mission because of its variety of activities in a compact little city which the mission permeates. It has a college which, though it cannot compare in numbers with those of Bombay, Madras or Calcutta, is yet relatively as important from a Christian point of view as any. The evangelistic work is very thorough. Primary education is diligently carried on. Outstations are superintended from the city. A dispensary for men does useful work.

MEDICAL WORK AMONG WOMEN.

Nagpore shares with Madras the honour of having a women's hospital under this church. At each station two medical women are maintained, and probably in future three will be provided. The women's hospital is nearly always full. Patients come from great distances. The medical mission was begun by a donation from the late Sir William Henderson of Aberdeen. The income provides the salary of a woman doctor. His daughter was the first incumbent of the post. She has recently had to resign owing to ill-health, brought on by heroic labours in epidemics to help poor people. Government rewarded her services with a Kaiser-i-Hind medal.

Girls' schools and zenana visitation are systematically carried on. For Christian girls there is a boarding school.

Near Nagpore is Bhandara which has really sprung up owing to the labours of one Native Christian family. It was made a regular station in 1881 and has since had a European resident missionary (now two). It has also a flourishing medical mission with dispensary and hospital which report over 11,000 cases per annum.

Owing to recent famines and the need of providing for famine orphans, Bhandara has developed into an orphan centre. As the boys grow up, they are taught to earn their living either by agriculture or by employment in the mills of Nagpore or on the railway.

WARDHA.

This station in the coal region of Central India was opened in 1889 by a benefaction from Mr. J. T. Morton of London. A medical missionary was appointed. He at once opened a dispensary and in 1901 a hospital. There is also a school and a small Indian Church. Work among women and girls is carried on systematically.

JALNA.

Jalna is about 210 miles north-east of Bombay in the territory of the Nizam of Hyderabad, and near the battle-field of Assaye. There is, however, a British cantonment in which the head-quarters of the mission are situated. But the district is under the Nizam. Work in this mission is distinctly among the lower and depressed classes, especially the despised Mangs and Mahars. Dr. Wilson visited Jalna in 1832 and was impressed with its suitability as a mission centre. In 1855 he sent a catechist at the request of some officers. Then came the mutiny and the work was stopped. In 1861 Dr. Murray Mitchell visited Jalna and in the following year sent a convert as colporteur. It was arranged that Narayan Sheshadri (whose baptism has been mentioned under Bombay) should superintend Jalna from Indapur, 150 miles away. He soon found that Jalna was the better centre and migrated there. Schools were started: a Christian congregation was formed. Villages in the neighbourhood were evangelised. Every year a considerable number of baptisms took place.

But the number of converts raised a new problem of their support and ultimately forced Narayan Sheshadri to found a Christian village on 800 acres of land conveyed by Sir Salar Jung to Narayan Sheshadri. This is the Christian village of Bethel, where a church was built on its highest point in 1879. For over a quarter of a century Sheshadri, the Brahman, worked among these out-caste Mangs. It must be admitted that as a Christian experiment Bethel was not a success. But the Christian community gathered was considerable and work among them has greatly elevated the people.

In its recent development the mission has two leading characteristics. It has a medical mission manned by two doctors, and a Training School for catechists. The first doctor arrived in 1890 and alone for four years he did everything, medical, evangelistic and educational. Then, in 1894 he was joined by an ordained missionary who took the minis-

terial work off his hands. In 1904 a second doctor arrived. In this mission a great deal of social work has to be done. The ignorant peasantry have to be rescued from the money-lender and the extortioner. They have to be taught often the first elements of morality, and gradually to be raised to a higher moral plane. The Christian congregation for the sake of its own life has to be very strict in matters of discipline. But in spite of these facts the Christian progress of the community is satisfactory. No mission in the United Free Church better exhibits the social value of Christianity.

Work among women is carried on by lady missionaries. The absence of caste-restrictions considerably modifies the conditions of work among women and girls.

RAJPUTANA MISSION.

This Mission was brought into the United Free Church by the United Presbyterian branch of the church. Unlike the Free Church India Mission which was distributed over three provinces and a Native State, the United Presbyterian Church concentrated their efforts in a well-defined area and among a homogeneous people, with one language (Hindi) as contrasted with the six languages which complicated the labours of the Free Church missionaries, *viz.*, Bengali, Tamil, Telegu, Mahratti, Hindi, Santali.

The United Presbyterian Church began mission work in India after the Mutiny. The Synod in 1858 resolved to undertake such a mission. After consulting other missionary societies about a field, they selected the district of Ajmere, which geographically is the centre of Rajputana, and politically is British. The first station projected was Beawar, the second Ajmere, about 50 miles apart. To each station two missionaries were to be assigned. Only two men could be found, however, and they set sail for Bombay. To reach Ajmere a wearisome journey by bullock cart was necessary and the strain and exposure were too great for one of the men, and he died before reaching his station.

The other, Mr. Shoolbred, reached Beawar in March 1860. The death of his companion stimulated the home church and they sent out five additional missionaries and their wives. Before the mission was ten years old a score of workers had come from Europe.

The idea of the founders of the mission was to occupy ultimately about a dozen of the 20 States of Rajputana, commencing with the British district, and gradually pushing outwards into Native States. The first advance was made in 1861 when Nasirabad was occupied, even before Ajmere which was manned in 1862, Todgarh following in 1863. Dr. Valentine settled at Jaipur in 1866, but it was not then deemed a regular station of the mission.

Rajputana is one of the unfortunate regions of India. At best visited by a meagre rainfall, any failure of the monsoon usually punishes this province severely. Famine follows, thousands die, and orphans make their pathetic appeal to philanthropic hearts, and not in vain. Time and again this fateful cycle has repeated itself, insufficient rain, failure of rain, famine prices, starvation, orphans.

The first occurrence in the history of the mission was in the famine 1868-70. Eight hundred orphans were almost thrust upon the mission. The home church nobly undertook their maintenance. But death from famine weakness reduced the number to 500, who were distributed among the four stations, where they were educated as Christians and trained for work, some as mission agents, others as artisans.

In 1870 the station of Deoli, south-east of Ajmere, was opened, and in 1872 Ashapura near Deoli. In 1872 Jaipur was formally occupied as a station of the church.

In 1877 Udaipur, south-west of Ajmere, was occupied by Dr. Shepherd who still holds the fort. In 1880 a man was stationed at Alwar, north-east of Ajmere.

In addition to the ordinary teaching and preaching at first undertaken, medical work was added. Medical missionaries were stationed at Beawar, Ajmere, Nasirabad, and Udaipur. Three of these were afterwards ordained by the local Presbytery established in 1880.

In 1885 the Presbytery licensed five native preachers who became the first accredited native ministers.

The following notes on the history of some of the stations may be interesting.

Beawar was founded in 1860, a school was established at Naya Nagar. Medical work began in 1862 under Dr. Valentine. The first convert, a Brahman, was baptised in 1863. A church to hold 500 was opened in 1873. A native pastor was ordained in 1866. The church prospered under him.

Ajmere.—In 1861 a missionary visiting it to prospect found a Christian family. The first missionaries had to live far off from the bazaar. In 1869 a school house and a large hall were built. In the hall the church met. The first convert was a Jain priest, who became a devoted Christian worker. In 1871 medical work was begun by Dr. Husband who opened a dispensary and later on a hospital, and who for some years was Chairman of the Municipality. Government subsequently rewarded his services by conferring on him the C. I. E. decoration.

Nasirabad.—The chief British military centre in Rajputana was opened in 1861 as a mission station. One of the first converts was a Mussalman who had a great gift of song. He wrote some of the most popular Christian *ghazals*.

At Ashapura, near Nasirabad, a Christian colony was planted from among the famine orphans. In recent years after a later famine, Ashapura was crowded with famine orphans. There has been medical work since 1873, with a dispensary. The Mission School has developed into a High School in premises given by the Municipality. A handsome church was erected in 1886. But the congregation is small.

Jeypore.—In 1866 Dr. Valentine was appointed physician to the Maharajah. In his high position he helped on Christian work. In 1871 the Maharajah gave him a piece of ground for a bungalow which he handed over to the mission. In 1872 it was occupied as a regular station by the mission. Educational work is well organized. The congregation is still small as the opposition in Jeypore to Christianity is considerable.

Udaipur.—Dr. Shepherd made friends by his medical skill and obtained suitable ground for a

bungalow. Later on another medical missionary obtained a site for a hospital, which was built with funds raised by Dr. Shepherd at home, and was opened in 1886. From Udaipur as centre a mission to the Bhils is supervised. Dr. Shepherd has won their confidence, and induced Bhil boys to enter his Bhil home at Udaipur. A beautiful church was opened in 1891, though the Christian community is still small.

Jodhpur, the capital of Marwar, was not occupied as a mission station till 1885 when Dr. Sommerville went there; but such hostility prevailed that he could not obtain a foothold till 1886. By his medical skill he disarmed hostility and at last the Maharajah gave a site where a bungalow at his cost was to be built for the mission. This bungalow was built and occupied in 1887. Medical work is the distinctive feature of this mission.

Woman's Work.

The first work in each station was done by the wives of missionaries. But gradually it was found necessary to send out ladies from Scotland to overtake the work. In almost all the larger centres there are agents of the Woman's Foreign Mission, who teach Hindu girls in day schools, Christian girls in boarding schools, nurse and tend famine orphans and train them up in useful arts. The first zenana missionary was Mrs. Drynan, the widow of a missionary who began work in 1866. It was after 1880 that zenana work was adopted as a regular branch of the mission, and ladies came out from home in sufficient numbers to occupy the stations. The principal stations where woman's work is carried on are Ajmere, Nasirabad, Jeypore, Beawar, Alwar.

THE SANTAL MISSION.

In our survey of the Mission fields of the United Free Church we started from Calcutta, visited Madras, city and district, then Poona, Bombay, the Konkan, the Central Provinces, the Nizam's Dominions, and Rajputana. Turning eastwards we come to the Santal Mission in Behar, Bengal Proper and Chota Nagpore.

The Santal Mission is not in the Santal Pergunnahs. In that district the C. M. S. and the Scandinavian Mission were already at work when Dr. Duff in the cold weather of 1862-63 toured among the Santals with a view to establishing a mission among them, to be maintained by Calcutta merchants. Nothing was done at that time, but in 1868-69 Dr. Murray Mitchell, after touring the district, recommended the starting of a mission. Pachamba near Giridih was chosen as the first station: Sir Wm. Mackinnon and Mr. Peter Mackinnon subscribed liberally to this mission from the start. At first the station was under the charge of a Eurasian gentleman. The first missionary from Scotland was Dr. Templeton, a medical man, who arrived at Pachamba at the end of 1871. In the following year there came Mr. Andrew Campbell (now Rev. Dr. Campbell) as an industrial missionary. Dr. Templeton began medical work with a dispensary and a small hospital. In 1874 he was invalided home, and though returning in 1875, he was finally invalided home in 1876. Dr. Dyer joined the Pachamba Mission in 1875 and Mr. Stevenson in 1876.

From Pachamba as centre, extensions were made in two directions to the S. E. and to the N. Two stations

were founded which are now more Santal than Pachamba itself. At Toondee or Pokhuria since 1879 Dr. Campbell has built up a mission of great interest and social value. In 1879 land was obtained at Chakai or Bamdah, and the bungalow was completed in 1887 by Dr. Dyer who went there for a few months. Dr. Macphail who came out in 1889 has been the real builder up of the Chakai Mission.

A few lines will have to suffice for detail. The parent mission at Pachamba is chiefly a medical mission. Dr. Dyer superintends the evangelistic work of the preachers and the educational work of the teachers in boys' schools. He is a very successful doctor and eye-specialist. At Toondee (Pokhuria) besides a large church and good schools, Dr. Campbell has established various industries—a printing press, silk spinning, cotton weaving and other arts. Dr. Campbell has had to fight famine in his district and has been entrusted by Government with the superintendence of famine relief works. He is an admirable magistrate, greatly trusted by the people as the arbiter of their quarrels. He is an authority on the Santali language, and his Santali Dictionary is recognized as a standard. He is a Kaiser-i-Hind medallist. Dr. Campbell is one of the greatest industrial missionaries in India. His knowledge of his district is unrivalled. Although not a medical man, he is forced into relieving sickness and disease in his neighbourhood.

At Chakai Dr. Macphail has built a handsome church which is a conspicuous landmark in the beautiful undulating country where he lives and works. A hospital and dispensary, built not many years ago, is too small already, so great is his fame as a doctor and an eye-specialist. He performs an astounding number of operations for cataract every year.

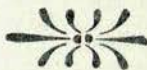
Dr. Kitchin is the latest addition to the mission. His present duty is to supply the place of Dr. Dyer at Pachamba; but he will soon have to begin the founding of a new station west of Pachamba. This will also be primarily a medical mission. In all the medical missions of the Church evangelistic and educational work is carried on energetically.

From this detailed survey of the field of the United Free Church in India two facts are obvious—

(1) This Church does an immense amount of educational work in Primary and High Schools, and in addition has hitherto carried the burden of four Arts Colleges.

(2) This Church is almost in the forefront of Indian missions in the number of its medical missionaries.

By these means its contributions to the social well-being of India are considerable. Its women missionaries form a large contingent of its workers, and carry the benefits of teaching and healing behind the *purdah*. It thus occupies an important place among the philanthropic agencies of the Indian Empire.



The Armenian Church in India.

THROUGH much tribulation and oppression, extending over many centuries, the Armenians would appear to have lost almost everything they once possessed as a nation, save only their nationality and their religion. Like the Jews, they are now a scattered people, with small but important communities in various parts of Europe, Asia, and America, enjoying that security of life and property denied to them in their own land. At precisely what period Armenians first found their way to India is purely a matter of conjecture; but sufficient evidence exists to show that in very remote times there was a commercial connection between Armenia and India, by way of Persia, and that cordial relations existed between the peoples of the two countries. It is stated that in the earliest days of the Christian era, the headquarters of Armenian merchants was at Benares, or rather, at Kasi, at that time a great commercial emporium of India, on the site of which now stands the city of Benares. But the real influx appears to have set in at the period when the Mogul Empire was at its zenith, and the splendours of Akbar's Court at Agra induced the Armenian merchants to form a commercial colony at that historic capital. Here was built the first Armenian Church in India of which any record exists. Other places of worship there may have been; for it is claimed for the Armenians that in every country in which they settle they retain

their distinct religion; and that had it not been for the remarkably strong hold maintained on the race by its national Church, the nationality of the people must, ere this, have been lost. The Emperor Akbar appears to have entertained a strong regard for the Armenians; in fact, the community seem to have flourished exceedingly under all the Mogul Emperors, and it was at the express wish of their Royal patron that the first Christian Church was built at Agra in 1562. With the downfall of the Mogul power the

Armenians deserted Agra, and the only records now to be found of their sojourn there are the Armenian inscriptions on the tombstones in the old cemetery, among which are recorded the deaths of several priests.

Before the fall of the Mogul Empire, the Armenians had also established themselves at Surat, but exact dates with reference to this settlement are not in evidence. Driven from Persia, where by their com-



STEEPLE OF THE ARMENIAN CHURCH, CALCUTTA.

mercial pursuits they had amassed considerable wealth, and had in consequence excited the cupidity of the Persian monarch, a number of Armenians reached Busrah, and thence sailed for India, forming a permanent settlement at Surat. Here they built two churches, and were exceptionally successful in their commercial pursuits, until hostilities between the French and English broke out, which proved the death-blow to Armenian commercial activity in Guzerat. Of the two churches which they built, one

is still in existence, but is not in use; while the other lies in ruins in the old cemetery, which itself contains convincing proof of the flourishing condition of the community in the middle of the Eighteenth Century.

It was in the days of Mogul supremacy that the Armenians first founded settlements in Bengal, and when Murshidabad, the seat of the Viceroys of Bengal, was at the height of its glory, the Armenians formed a permanent settlement at Syedabad, the commercial suburb of Murshidabad, by virtue of a Royal *firman* issued in 1665 by Aurungzebe, the Mogul Emperor of Delhi, granting them a piece of land at that place, with full permission to found a colony there. This they did, and success here, as elsewhere in India, attended their commercial undertakings. It was not, however, until nearly one hundred years later that a church was erected at Syedabad, though the Armenians had a church at Chinsurah built in 1695. From the earliest days of their settlement in Bengal, the Armenians had attached themselves to their confreres in trade, the Dutch at Chinsurah, under the leadership of the famous and opulent Margar family, who were high in favour with the Mahomedan rulers. The Armenian Church at Chinsurah, which was dedicated to St. John the Baptist, is the second oldest Christian Church in Bengal, pride of place being taken, in this respect, by the Roman Catholic Church and priory at Bandel, which was erected by the Portuguese in 1599, burnt to the ground by the Moguls in 1632 during the siege of Hughli, and rebuilt shortly afterwards by its worshippers. The Armenian Church at Chinsurah was erected by the pious Margar family, alluded to above, as a national church. Its splendid steeple, which serves as a belfry, was not built until the beginning of the Nineteenth Century, when it was added to the church by Sophia Simon Bagram, an Armenian lady of Calcutta. The most famous member of the Margar family was Khojah Johannes Margar who died in 1697 and whose tomb may be seen in the cemetery at Chinsurah to this day. It bears an interesting inscription in Armenian verse. When Chinsurah lost its commercial importance, it was deserted by the Armenians, but the national church they founded there is still in existence and services are held in it at the present day. The Armenian Church at Syedabad was not built until 1758. It is still in existence, but is used only occasionally for purposes of divine worship, a service being conducted once a year by the Armenian priests connected with the Church at Calcutta.

The oldest Christian Church in Calcutta, and the second in point of antiquity to that at Chinsurah, is the Armenian Church, known as the Holy Church of Nazareth, situated in Burra Bazaar. It was erected in 1724, and the belfry was added ten years later. Previous to this, however, there had been an Armenian place of worship near by the site of the existing church, and built of wood. Even before Job Charnock had made that celebrated halt by the banks of the Hughli, the Armenians of Chinsurah had attached themselves to the English, and under a Charter, dated 22nd June, 1688, and granted by "The Governor

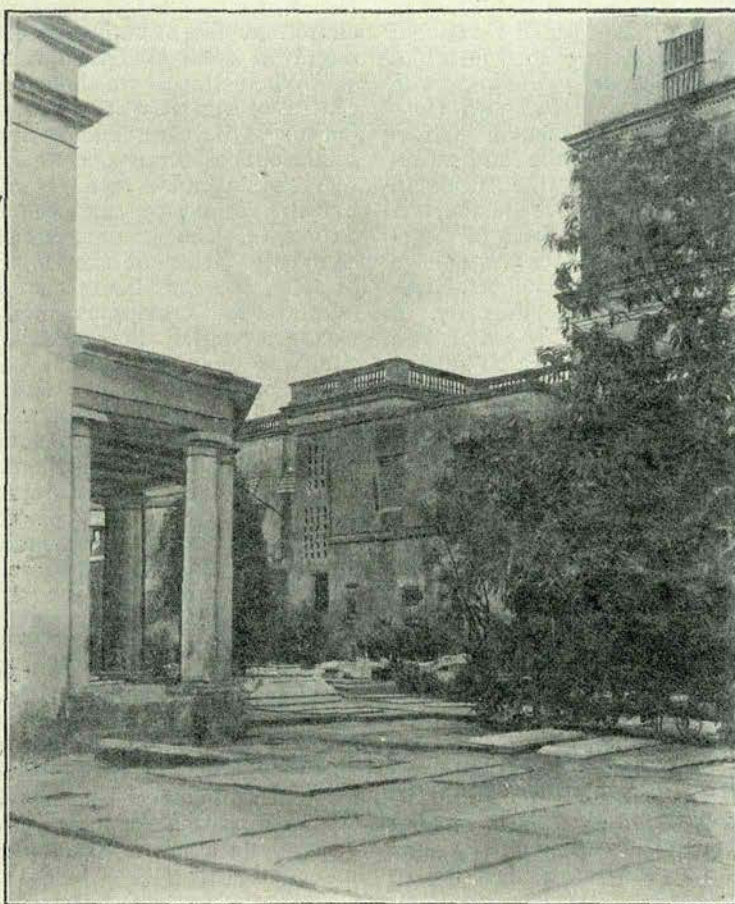
and Company of Merchants of London trading to the East Indies," it was provided amongst other things that:—"whenever forty or more of the Armenian nation shall become inhabitants of any garrison cities or towns belonging to the Company in the East Indies, the said Armenians shall not only enjoy the free use and exercise of their religion, but there shall also be allotted to them a parcel of ground to erect a church thereon for worship and service of God in their own way. And that we also will, at our own charge, cause a convenient church to be built of timber, which afterwards the said Armenians may alter and build with stone or other solid materials to their own liking. And the said Governor and Company will also allow fifty pounds per annum, during the space of seven years, for the maintenance of such priest or minister as they shall choose to officiate therein." But that Armenians had established themselves in the vicinity of what is now Calcutta long before this Charter was granted is shown by an inscription on one of the grave-stones in the old Armenian Burial-ground, over some of the graves in which the present church is built. The courtyard which surrounds the existing church is paved with tombstones, most of them old, but some of very recent date; and among the former is one with an inscription in the Armenian language which, according to the translation made for the writer by the Priest in charge, bears the date of the year 1633. This is the oldest Christian grave that has yet been discovered in the city, and it is monumental evidence which would seem to support the theory that Armenians had formed some kind of a settlement in the vicinity, years before the coming of the English.

The Holy Church of Nazareth was upwards of thirty years old at the time Suraj-ud-Dowlah laid siege to Calcutta, when were perpetrated the horrors of the Black Hole. Out of the turmoil of those days it passed uninjured, and on two separate occasions before the end of the Eighteenth Century, in 1763 and 1790, the church was repaired, improved and embellished by prominent members of the Armenian community in Calcutta. In the last-named year the expenses of the repairs and additions were borne by a public-spirited Armenian citizen, Agah Catchick Arrakiel, who built a wall around the church compound and erected the adjacent parsonage. He also presented the church with the clock which still adorns the belfry, and which has been keeping time for considerably more than a century. The third storey of the parsonage was added recently, by Mr. A. G. Apar, the present head of the firm of Messrs. Apar & Co., who is a connexion by marriage of Mr. Agah Catchick Arrakiel. Mr. Catchick Arrakiel was a wealthy merchant, an old inhabitant of the settlement, who, in consideration of his public-spirited acts of generosity, was selected by George III, at that time King of Great Britain, as a recipient of his special favour. Before the Royal gifts reached India, however, Mr. Arrakiel had died, and the presents, which consisted of a miniature portrait and a valuable sword, were made over to his eldest son, Mr. Moses Catchick Arrakiel, by Lord Cornwallis, the Governor-General, at a public levée at Government House. Agah Catchick

Arrakiel lies buried within the church, and by his side are laid the remains of his wife, who survived him thirty-five years. In 1837 the Armenian community erected a black marble mural tablet to his memory inside the church. Outside, under a portico at the east end of the church, are some of the more modern graves, the tombstones on which mark the last resting-place of men of mark among the Armenian community. On one of these, erected in 1905, "Sacred to the Memory of Joseph Paul, Esq., of New Julpha, Persia," it is recorded that he was a benefactor of great zeal, who left by a deed, the greater part of the fruits of his labours, for the establishment at New Julpha of a Free National Hospital for the benefit of the orphans and the poor of that place, and for the repair of the holy churches of New Julpha, Shiraz, and Bushire in Persia. The money thus bequeathed, amounting to upwards of four lakhs of rupees, is now being expended in accordance with the wishes of the donor. Here also are laid to rest the remains of Arratoon Apcar, the founder of the well-known and wealthy firm of Messrs. Apcar & Co., of Calcutta, together with several other members of the family. Arratoon Apcar was born at Julpha in Ispahan in 1779. At the age of sixteen he came to India, and entered the service of an Armenian merchant in Bombay, where he gained experience in the trade with China and Manila. In 1830 he came to Calcutta, where he founded the present firm of Apcar & Co. His was a useful life, and he used the wealth which he acquired for charitable purposes. He endowed the Church of St. Mary at Julpha, in which he had been christened, with many liberal gifts, and also left it a legacy. He died in 1863. The Apcars of the present generation follow the footsteps of their common ancestor in the matter of charitable contributions in aid of their less fortunate fellow-countrymen.

The Armenian Churches in Bengal are possessed of considerable wealth, and the management of the property of the Holy Church of Nazareth at Calcutta, and of the Church of St. John at Chinsurah, is vested in a Committee consisting of eleven members of the Armenian community resident in Calcutta, or within a radius of fifty miles thereof. These are elected at a general meeting of the Armenian community of Calcutta. The Committee remains in office for four years, and two Wardens are elected from among themselves by the members. These are entrusted with the immediate management of church property and the administration of endowments, funds and charities, under the supervision and control of the Committee.

The Holy Church of Nazareth is a very wealthy church, and its revenues have been largely increased, by judicious investments, during the Wardenship of Mr. A. Stephen and Mr. M. V. Apcar. Liberal contributions are made to the various charities for the benefit of the poorer members of the community, and all needy Armenians have their immediate necessities relieved. Help is afforded to those desirous of procuring work in Calcutta, or of travelling further afield in search thereof. There is also an Alms-house, situated in Pollock Street, which is supported from Church funds; and fifty boys are always in training at the Armenian College, their schooling fees and other expenses being paid by the



CORNER IN THE GRAVEYARD OF THE ARMENIAN CHURCH, CALCUTTA.
Showing the Porch, near which are the graves of the Apcar Family.

Church. There being no distinctive Armenian educational institution for girls, a certain number of these latter are sent by the Church to the Calcutta Girls' School, and their fees are paid from Church revenue. In former years there was a girls' department in the Armenian Philanthropic Academy, but it was allowed to lapse in 1842. There was also in years gone by an Armenian infants' seminary, founded by the late Mesroby David Thaliatin in 1846, and dedicated to the tutelar Saint, Sanduct, an Armenian princess who suffered martyrdom for her Christian

faith, in the forty-eighth year of the Christian era. The school was self-supporting and comprised both boys' and girls' departments, and instructions were given in the English and Armenian languages. It is on record that the education imparted was in no wise inferior to that obtainable in any of the existing schools of the period, but it did not, apparently, find favour with those for whose benefit it was intended, for the school closed its doors after an existence of only six years, having been but indifferently supported by the Armenian community.

The principal Armenian educational establishment in Calcutta at the present time is the Armenian College and Philanthropic Academy, which was established in 1821. Some years before that, the idea of a national academy for the education of the Armenian youth had been conceived by Mr. Astwadatoor Mooradkon, who left a donation of Rs. 8,000, by will dated 30th July, 1797, for aiding the establishment of such an institution. This sum formed the nucleus of the fund subsequently raised by subscriptions among the Armenian community, with which the College was started. A small Armenian institution, which had been in existence from 1798, was amalgamated with the new college in 1825. The founder of this smaller school, Mr. Arratoom Kaloos, had devoted his life to the education of the Armenians. He died in 1833, and his grave is in the burial-ground of St. Nazareth, to which he bequeathed the sum of Rs. 10,000 for the relief of the poor. His good deeds are recorded on a tablet on the wall of the church, while tributes to the memory of two other Armenian gentlemen interested in the advancement of education are inscribed on tablets within the College itself, namely, Astwadatoor Mooradkon and Manatsakan Varden, the latter of whom was mainly instrumental in raising the subscriptions with which the Armenian College was started.

In addition to the Holy Church of Nazareth, there is an Armenian Chapel which was built in 1907, with money subscribed by a few wealthy Armenian gentlemen. This Chapel, intended mainly for mortuary purposes, but in which other services are also conducted, is situated away to the eastward of the Lower Circular Road Burial ground, on a plot of what was formerly *busti* land. Adjacent is the present Armenian burial-ground . . . a plot of land granted to the Armenian community by the Calcutta Burial Board, on the same terms as regards fees as plots granted to members of other communities. It was at first proposed to erect the new Chapel within these limits, but as the available space is small, and likely to be soon fully occupied, it was decided to purchase outright the adjoining plot of land for the erection of the Chapel, and to leave the land granted by the Burial Board for its original purpose. The Chapel is a neat and compact little edifice, surrounded with a wall and with small grounds, nicely laid out.

In Southern India, Armenians appear to have first settled permanently at Madras in 1666. During the latter part of the Seventeenth and the whole of the Eighteenth Centuries, they attained great commercial success. The trade of the Carnatic was practically in their hands, and they had extensive dealings with Europe and the East. The first Armenian Church

was built in Madras in 1712, and it is said to have been one of the few magnificent edifices on the Esplanade at that time. The British Military authorities, however, objected to the location of so lofty a building in the immediate vicinity of the Fort, and it was vacated. The Armenian Church which is now in use was built in 1772. It is situated in Armenian Street, and is dedicated to the Holy Virgin Mary. As in the case of Calcutta, the site selected for the church at Madras was the old Armenian burying ground, originally the property of the famous Agar Shameer, whose wife had been buried there in 1765. A room built to her memory, and still known as Shameer's Room, forms part of the church. There was also a church at Masulipatam erected by Armenians who migrated from Madras about the year 1781.

When Dacca was one of the great commercial centres of Bengal, at the beginning of the Eighteenth Century, the Armenians formed a colony there, a small chapel serving as their place of worship; and five or six miles from Dacca is the old Armenian burying ground, in which the oldest tombstone bears date 1714. The present Armenian Church at Dacca, called the Church of the Holy Resurrection, was built in 1781, the cost being met from subscriptions by four wealthy Armenians, Michael Sarkies, Astwasatoor Gavork, Khojah Petrus, and Margar Pogose. The site was the gift of Agah Catchick Minas, and the belfry was added some time after the church had been built, by Sarkies Johanness Sarkies.

In Bombay, the Armenians first formed a commercial settlement about the middle of the Eighteenth Century, and in 1796 the present Armenian Church in Meadows Street was erected. Here an Armenian priest is still maintained, to minister to the wants of his small congregation, and those of the native Christians who have embraced the Christian faith in the Armenian Apostolic Church. The church was erected by Jacob Petrus, a wealthy Armenian merchant of Bombay, at a time when there was not even an Armenian burying ground in the city, and when the Armenians were obliged to bury their dead in their private compounds, without any religious ceremony. Some of the tombstones of these private graves are still in existence, the oldest bearing the date of the year 1767.

The existing Armenian churches at Penang, Singapore, Batavia and Rangoon were built in the order named, in 1822, 1835, 1854, and 1862, respectively.

All the Armenian churches in India, Burma, and Java come under the jurisdiction of the Diocesan Archbishop, who has his seat at the All-Saviour's Convent (Soorp Amenaperkitch Vank) of Julpha, Ispahan, Persia. The name of the present Archbishop is Sahak Ayyadian. For spiritual functions in the different Armenian churches of India and Java, the Archbishop sends out priests from Julpha, whose term of office is generally fixed for three years; at the expiration of which they are relieved from their duties by other priests from Julpha. The right of control in ecclesiastical matters is vested in the Diocesan Archbishop, but final authority is exercised by the Supreme Head of the Armenian Church, who is styled Catholicos of all Armenians, and whose Holy See is at Etchmiadzine.

Freemasonry in India.

In no part of the world is Masonry, in proportion to the European population, so strongly represented as it is in India. It may be calculated that in India there are twenty-two district or provincial ruling bodies for various degrees, some four hundred and ninety private lodges, chapters, preceptories or conclaves, actually working, and some forty to fifty in abeyance or dormant. The District Grand Lodge of Bengal has 61 lodges on its roll, and there are, at the time of writing, at least two new lodges in course of formation. * Madras has 26, Bombay (English) 28, Burma 10, Punjab 25, and Ceylon 5 lodges, working under the immediate rule of the Grand Lodge of England. To the District Grand Lodges of Bengal, Madras, Bombay, Burma, and the Punjab are attached Benevolent funds for the relief of indigent Masons and their near relations, and associations for educating their orphans. The Bengal Masonic Association for the Education of Freemasons, founded in 1869, has now a capital of more than two and a half lakhs, and a considerable income in addition, derived from capitation fees charged on the private Lodges.

Freemasonry, as is well known, is centuries older than the Grand Lodges by which it is at the present day ruled. The Grand Lodge of England itself only came into existence in the year 1717 A.D., when four "Time Immemorial" lodges banded themselves together for the purpose of creating a supreme Masonic body. It is, therefore, quite impossible to state the date at which European Masons first foregathered in the East Indies. Calcutta commenced its history as a British Settlement with old Job Charnock's "midday halt," on the 24th August, 1690. On St. John's Day, December 27, 1728, the Grand Lodge granted a dispensation to open a new Lodge in Bengal, to George Pomfret who "first introduced Masonry into the English Settlement in India." A year later Captain Ralph Farwinter (or Far Winter) was appointed Provincial Grand

Master "for East India in Bengal." The first Lodge founded in Calcutta which has a name known to history, was Lodge East India Arms, 1730. The first Lodge in Madras known to history was established in 1752 and became extinct in 1790: the appointment of a Provincial Grand Master for Madras goes back to 1767 (or perhaps 1768). On March 24th, 1758, the Grand Lodge issued a warrant for a Lodge at Bombay: and in 1764 James Tod (or Todd) was appointed first Provincial Grand Master. In 1813 the pioneer Bombay Lodge was erased from the list of lodges, and, but for the visit of travelling military lodges, Masonry seems to have been at a standstill until the formation of a Military Lodge *Benevolent* at Kaira in 1822. This lodge in 1824 removed to Poona, and, later on, to Bombay: it was erased in 1862. Between 1822 and 1840 no less than ten lodges were warranted in the Bombay Presidency, but of these one only, *Orion in the West*, No. 415 E.C. (established in 1833), is in existence at the present day. The first District Grand Master of Burma was Col. A. J. Greenlaw, appointed in 1868, in the same year that Col. Charles McW. Mercer was appointed first Provincial Grand Master of the Punjab. The District Grand Lodge of the Punjab was formed by division from that of Bengal in 1866.

Early in 1838, a Provincial Grand Lodge under the Scottish Jurisdiction was constituted for the Western Provinces of British India. Dr. James (the Chevalier) Burnes was its first Grand Master, and his brother, Alexander Burnes, murdered at Kabul in 1842, was one of the Grand Wardens. Under the brilliant rule of James Burnes, Scottish Masonry was in the ascendant throughout Western India, and until 1848 English Masonry was practically in abeyance in the Bombay Presidency. It was not till 1861 that Rt. Wor. Bro. James Tod (appointed in 1764) was given a successor in Rt. Wor. Bro. George Taylor. Previous to 1848 Masonry under the Scotch Constitution had no footing in Calcutta. Travelling military lodges, with Irish—and sometimes with both Irish and English Constitutions—have wandered all through India: but in 1905, Wor. Bro. P. C. Dutt, "the first Hindu to be made a Master Mason," gave a permanent home to Irish Masonry in lodge *The Duke of Abercorn*, over which he ruled as first Worshipful Master. Wor. Bro. Dutt is also the first First Principal of a Calcutta Royal Arch Chapter under the Irish Constitution.

The roll of Anglo-Indian Masons is replete with historical names. The Marquess of Hastings, Governor-General of India, 1813—1823, held the unique appointment of "Acting Grand Master for all India." Lord Dalhousie, Governor-General, 1848—1856, was Patron of the Craft. Scotch Freemasonry in Bombay has enjoyed the strong and inspiring rule of a succession of its Gov-

* Compare this with the following :—

Prov. Grand Lodge	English Lodges.	Craft.
Kent	70	
Lancashire Eastern Divn.	121	
" Western "	135	
Yorkshire West Riding	85	
Cheshire	66	
Devonshire	56	
Essex	62	
Hants and Isle of Wight	51	
Sussex	34	
Surrey	49	
Transvaal	37	
Queensland	62	

The P. G. L. of Oxfordshire has 12 lodges, Cambridgeshire 7, Cornwall 30, Gloucestershire 56, Shropshire 12, Nottingham 20, Malta 7, and Gibraltar 1.

The 1st Prov. G. Master of Bengal was appointed in 1728. The only older provincial appointments are South Wales (1726), North Wales (1726), Cheshire 1725.—*Masonic Calendar*, 1906.

ernors—Lords Sandhurst (also District Grand Master of the E.C.), Northcote, and Lamington. Among the Provincial Grand Masters of Madras we find the record of one who arrived in this country as a private soldier in the Company's Army, and who left it as Chief Justice of Bombay (Sir Herbert Compton); a career which can only be approached by that of John Blessington Roberts, who rose from the ranks of the police to the position of Chief Presidency Magistrate of Calcutta; from Tyler to District Grand Master of Bengal. Among the soldiers, we find the names of the Duke of Wellington, Gillespie, Grant Keir, Roberts, Lockhart, Kitchener, and Macdonald. In 1775 Lodge

No. 3 of Madras initiated the eldest son of the then formidable Nawab of the Carnatic: in 1907 Lodge *Concordia*, in Calcutta, initiated the Amir of Afghanistan. Among the Governors of Madras will not be forgotten the name of one keen Mason, Lord Ampthill, who acted as Viceroy during the absence from India of Lord Curzon. The High Court of Calcutta has given as a ruler of the District of Bengal Sir H. T. Prinsep, and that of Allahabad gives Bengal its present District Grand Master, Sir W. R. Burkitt, who has succeeded Sir J. Digges La Touche, the late Lieutenant-Governor of the United Provinces, in this high office. The present Lieutenant-Governor of Bengal, Sir Andrew Fraser, rules over a Calcutta Lodge. The present District Grand Master of Bombay is the Chief Justice of the High Court of that city. It should not be forgotten that Holwell, the hero of the Black Hole tragedy, was a member of the Provincial Grand Lodge of Bengal.

To the student of Anglo-Indian history, the study of the old Masonic corporations must be of the deepest interest, for, the Christian Church apart, they are the oldest of European social institutions in India. The story of Lodge *Star in the East*, although broken, goes back to the year 1740: the story of another Calcutta lodge, *Humility with Fortitude*, No. 229 E. C., broken for only three years during the great Carnatic War, is that of a Calcutta society which for nearly one hundred years

has, without a break, maintained a vigorous existence and spread its tenets and principles broadcast throughout the growing Empire. Lodge *Industry with Perseverance* No. 109, is *par excellence* the lodge of the men whose undertakings have proved to folks at home that the toils of the Indian Empire are, from a business point of view, well worth the while. It is surely most instructive to watch the foul days as well as the fair. When the Madras lodges are on their beam ends, it is because the struggle with the French for the mastery of India leaves little time for the abstract study of the squares or compass: when *Humility with Fortitude* cannot meet in 1784, it is because as a lodge attached to

the Bengal Artillery, it has sent its good men and true to the great conflict which is to decide whether or no there is to be such a thing as British rule in India. When Masonry flags in Madras, disappears in Bombay, and in Calcutta is represented by what some, unmasonically, call "artisan lodges," it is because Napoleon has challenged the access of English ships to the Eastern Seas—and men's minds are full of anxieties, or distressed by actual ruin. Insurance freights run high for English cargoes, and cheap for those flourishing Danes at Serampore: nowonder there is but little time or money for social gathering. Throughout India, during the struggle with Napoleon, the "class lodges" fall into abeyance, while the humbler lodges, which have received



MARQUESS OF HASTINGS.

their traditions from military lodges with an experience of Continental Masonry in Europe, survive, as adherents to the Ancient or Atholl Constitution.

In this place it is only possible to take what is called a "bird's-eye view." For the "worm's-eye view" the reader should study: C. H. Malden: *A History of Freemasonry on the Coast of Coromandel*. Madras, 1895. W. K. Firminger: *The Early History of Freemasonry in Bengal*. Calcutta 1906 (Thacker, Spink & Co.) Articles in the *Indian Freemason*, 1900-1907 by P. C. Dutt and I. M. Shields. For the story of the oldest Bengal Lodges see an article which appeared in *Ars Quatuor Coronatorum*. Vol. XVIII, 1905. The dates

accorded to the foundation of these lodges, either by the official Masonic Calendar or by the lodges themselves, cannot be relied upon. The records of the Provincial Grand Lodge of Bengal do not go back beyond 1860, although much of their contents are preserved in Firminger's *Early History of Freemasonry in Bengal*.

The following is a list of the eight oldest existing Indian Lodges.

1. *Star in the East*, 67, Calcutta.—Founded April 16th, 1740. First placed on the Engraved Lists of G. Lodge in 1750, when it took the place of the recently erased Lodge Three Tuns No. 185. In 1756 it appears as "the Third Lodge, Calcutta, in the East Indies." In 1773 it is "the First Lodge of Bengal." The Lodge was in abeyance for some time previous to 1785, and again from 1800 to 1812.
2. *Industry with Perseverance*, 109, Calcutta.—Founded February 7th, 1761. Appears in Engraved List in 1769 as "No 245 The Eighth, Lodge, Calcutta." This Lodge alone maintained its work during the Carnatic War, but was in abeyance from 1804 to 1812.
3. *Humility with Fortitude*, 229, Calcutta.—Founded in the Bengal Artillery, 1773. In abeyance 1781-1785. Seceded to the Atholl Constitution in 1798. Reunited in 1813. Continuous working since 1785.
4. *Perfect Unanimity*, 150, Madras.—The Masonic Calendar gives the year 1765 as that of the foundation of this Lodge, but this is probably mere guesswork. Malden shows that this Lodge was "the result of the union which took place in 1780 between the Atholl Provincial Grand Authorities under Col. Joseph Moorhouse and Brigadier-General Mathew Horne and his able Lieutenant Dr. Terence Gahagan." Lodge *Perfect Unanimity* can produce from its records an absolutely unbroken chain of evidence to show that from 1786 to the present date, there has been hardly a month without a regular meeting.
5. *Marine*, 232, and *Anchor and Hope*, 234, Calcutta.—It may be conjectured that these two lodges represent two stages of secession in a single lodge, from the "Regular" or "Modern" to the "Atholl" or "Ancient" Grand Lodge. In 1788 the 3rd Brigade of the Bengal Army came to Calcutta, bringing with them a Lodge said to have been constituted at Murshidabad, in 1773. When the Brigade left Calcutta, its civilian initiates petitioned to be warranted as a new lodge: this was done, and the lodge was named *St. George in the East*. Later on, finding their members were mainly seafaring men, the lodge changed its name to that of Lodge *The Anchor and Hope*. It was thus the Marine Lodge of the Anchor and Hope. In 1801 some of the members seceded

and became the Atholl Lodge *Marine*, later on the remnant seceded and became the Atholl *Anchor and Hope*. *Marine* now works under a warrant of confirmation of its Atholl Warrant, while *Anchor and Hope* works under a warrant of confirmation of the Military Lodge, which was attached to the Third Brigade. *Marine* has had two short periods of suspended working: *Anchor and Hope* a lengthy one. The latter lodge is to-day composed of natives.

7. *True Friendship*, 218, Calcutta.—The Military Lodge, whose visits led to the foundation of *The Anchor and Hope* in 1788, was No. 12 of Bengal and was probably founded in 1778, but into its hands had come a Warrant of the Tenth Lodge of Bengal at Murshidabad. The Third Brigade returned to Calcutta in 1793, and brought its lodge with it. The lodge, however, became extinct in 1798 "by the dispersion of its members." In 1798 a new *True Friendship* was warranted by the Atholl Grand Lodge, and, from that day to this, has worked continuously.
8. *Universal Charity*, 273.—The *Masonic Calendar* gives 1789 as the date of foundation. The Lodge was founded in 1811 as an offshoot of the Carnatic Military Lodge, but it was fortunate in obtaining the Warrant of Lodge *Strength and Beauty*, which had perished in the Vellore Mutiny. The Lodge was in abeyance from 1830 to 1845.
9. *Rock*, 260, Trichinopoly.—The *Masonic Calendar* gives 1786 as the date of foundation. The Lodge was locally warranted on December 27th, 1816, but in 1820 was given the precedence and antiquity of an older lodge, which had become extinct.

In the above table some reference has been made to the division of Masons into "Atholls" or "Ancients" and "Regulars" or "Moderns." It would not be in place, in an article on Masonry in India, to discuss historical questions which belong to the universal history of the Craft, but a word or two of explanation is necessary to render what has been said intelligible to the reader. Mr. Saddler, the librarian of the United Grand Lodge of England, writes on this subject:—"The Atholls were Irish Masons, who, in consequence of the doors of the English Lodges being closed against them, had assembled in Lodges of their own formation, perfectly independent of any authority but that of their own selection, until they felt themselves strong enough, and circumstances being favourable, to organize a Grand Lodge, which they did on the 27th December 1753, having regularly assembled as a governing body under the denomination of a Grand Committee since the 17th July, 1751." A marked feature of Atholl Masonry was its patronage of the "higher degrees," and when, in 1813, the rival Grand Lodges united, the definite recognition of the Royal Arch degree, as the completion of the Master Mason's degree, represented the triumph of the Atholl ideal. From the year 1801 to the year 1812, Masonry in Calcutta was either Atholl or nil, and although the Masons in Madras by their re-union antici-

pated the re-union of the two English Grand Lodges by twenty-eight years, they continued, despite their allegiance to the regular Grand Lodge, to "work Atholl."

In India the Craft has had to face the problem of the legitimacy of the admission of non-Christians to the craft degrees. It would be understating the facts to say that Masonry is essentially monotheistic. Masonry is also committed to the belief that there is such a thing as "a Volume of the Sacred Law," and that this volume contains a unique revelation of the Almighty. In accordance with the English love of vesting moral responsibility in the man who enters upon obligations, rather than in the obligator, British-Indian Masonry has in the purely Craft degrees opened wide its threshold. From the religious point of view, the man who

becomes a Mason commits himself to Masonry, and not Masonry to its initiates. If, for instance, Hinduism is inconsistent with Masonry, it remains for the Hindu to ask himself how far in becoming a Mason he has, or has not, definitely adopted a new moral and intellectual position. Masons do not merely believe in *a* god; but in *the* God; and the very first step in Masonry is a tacit profession of belief and moral observance to Him *alone* who has inspired, not many sacred laws, but a Unique Volume.

In Bombay the Craft has for some time past rejoiced in the possession of a fine Masonic Hall. In Calcutta the brethren of the mystic tie have at last carried out a design, which for nearly one hundred years has been under contemplation; but the ideal temple has yet to be built to grace the City of Palaces.



Irrigation.

INTRODUCTORY.

THERE are very few countries in the world where the natural supply of water, whether by rainfall or by the overflow of rivers, is sufficient or regular enough to enable crops to be raised to the best advantage, and where, therefore, irrigation is not practised to supplement Nature. In most tropical countries this is especially the case, and India, as will be seen, owing to the diversity of climates and conditions, offers a field for every variety of artificial expedients both for regulating and for supplementing the moisture drawn up from the sea and deposited on the land. These artificial aids can there be studied both in the crudest forms, through all their stages, up to the latest devices of engineering talent and experience.

The water required is either raised from out of channels, streams and rivers, or is led on to the lower lying lands by tapping or damming waterways whether perennial, as in rivers, or temporary, as in watersheds.

The modes of raising water for irrigation purposes in India are as follows :—The basket scoop whereby two (and sometimes four) men can raise water up to four feet at the outside. The scoop is a shallow four-cornered article, to the corners of which ropes are attached ; by a swinging motion the men at the corners dip it into the lower water and deliver its contents into the higher channel. Like all indigenous methods this involves a great waste of energy, as a large proportion of the water falls out of the scoop during the process of raising. By these means it is estimated that about 2,000 feet of water can be raised one foot in an hour, at the outside, at a cost of 7 annas per acre of crop.

With the “doon” water can be raised 3 feet. This is used in Bengal, and is a trough fixed in the centre, about which it oscillates. It is worked by a man, standing on a platform in the stream, by means of a long horizontal pole, pivoting on a standard, the long or water end of which is attached to the trough by a rope, and the short end of which has a weight attached sufficiently heavy to pull up the trough and its contents ; the cost per acre of crop is estimated at about 12½ annas with a 3-foot lift.

The “lat” as it is called in Upper India (“picotah” being its name in the South) is similar to the well-known “shaloof” of Egypt, and is worked like the “doon ;” but a bucket takes the place of the trough and the man working it stands on the edge of a high bank and pulls the bucket down ; swinging it inland when it has been raised by the counterbalance weight on the short or land end of the long pole. A plank is sometimes substituted for the pole on which the worker stands, as on a see-saw. Two men are sometimes employed on this contrivance and the maximum lift is 15 feet, at which two men will lift 5,760 feet in

an hour and one man 3,300 cubic feet, at an estimated cost of Rs. 13 per acre of crop.

A “moth” is worked by animal power. This is a leather bag holding from 30 to 40 gallons, attached to one end of a long rope which is led over a pulley, and to the other end of which the draught animals are yoked. They pull up the bag by walking down an incline. When they reach the bottom of this and the bag reaches the top of the well in which it works, the driver unhitches the rope, while another man empties the bag into the distributing channel—the weight of the empty bag drags the rope up this incline. In some cases the animals walk backwards with the rope, and the bag discharges itself by a simple automatic device. Sometimes two “moths” are used in one well. Two bullocks and one man will thus raise 7,920 cubic feet an hour from a depth of 15 feet and at a cost of Rs. 9 per acre of crop. “Moths” are sometimes used at much greater depths, but the next device is generally put up for this work.

The Persian wheel or “norah” is composed of an endless band to which water pots are attached. The lower loop dips into the water in the well, the upper loop goes round a large wooden pulley, which is revolved by rough gearing, also of wood, worked by animals walking round in a circle. As the full pots come down over the pulley, they discharge into a trough leading to the distributing channel. All this wooden apparatus, which is seldom if ever greased, creaks fearfully. To this noise the owner does not object as it informs him whether the wheel is working, for the boy driver, who sits at the end of the beam to which the draught animals are yoked, is very apt to drop off to sleep, and no wonder, whereupon the bullocks or camel, as the case may be, also take a rest.

These wheels are used over wells generally 40 feet deep, but sometimes as much as 60 feet in depth, and also with two chains of buckets. A single wheel is estimated to raise about 69 cubic feet of water per hour from a depth of 50 feet and a double wheel 190 cubic feet at less cost than a double “moth.” Improved “norahs” and even some oil-driven and wind-driven pumps have been put up in places, but they cannot be said to have taken on. In many instances the working of wells by animal power costs the owner little or nothing as he employs his animals at this work when there is nothing else for them to do.

The average cost of irrigation by the above means is put down at Rs. 3-8 per acre of crop in India as a whole, exclusive of the expenditure on well-sinking.

Wells are divided into three classes :—First, *kutchas* or unlined ; these last from one to two years and, when the sides fall in, a new one is dug ; the depth varies

according to the soil, and they are only large enough for one man to work in, the appliances for lowering the sinker and for raising the earth are of the rudest, and the chant of the digger when a big hoeful has to be raised is very weird, especially as it appears to come from the bowels of the earth. These *kutchas* wells cost but a few rupees and serve a small extent

overflow from rivers may also be placed. Petty canals are still constructed and maintained by private enterprise to a considerable extent; they are sometimes assisted by local funds. No less than 800,000 acres are irrigated from hill streams and *jhils*.

RESERVOIRS AND TANKS.

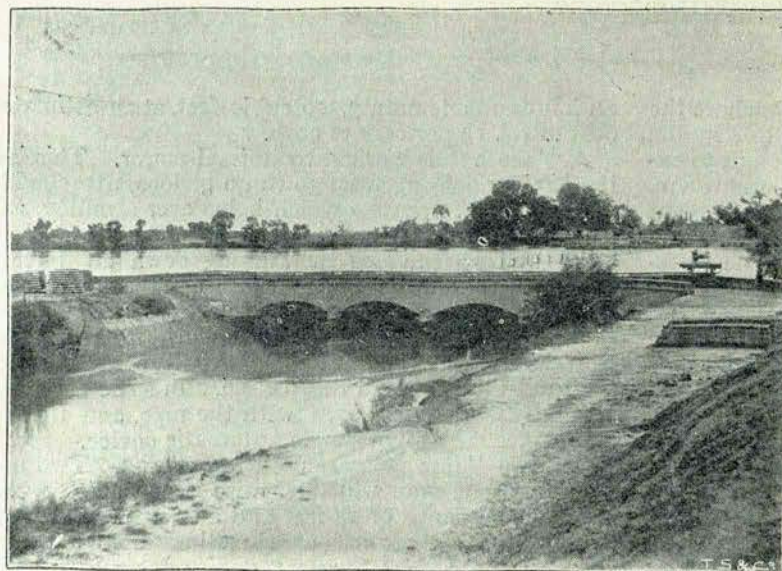
Natural reservoirs or *jhils* are formed in low lands during the rains and are found in the beds of rivers in the dry season, where they are used to raise crops on the *churs* or islands left by the receding water. It is in these places that the simplest lifts are found so useful. Tanks and reservoirs suffer greatly from evaporation and from loss of water by absorption and leakage.

PERENNIAL CANALS.

In comparatively narrow valleys tanks were formed by throwing *bunds* or banks across them at intervals; "anicut" or weirs were also thrown across rivers and streams, ranging from the smallest hill streams to some of the largest deltaic rivers, serving mostly class two or perennial water-courses. In the hills the water was led along terraces formed all over the hill sides, and in the plains the impounded water was led along artificial water-courses and canals. As these latter, however, were not scientifically de-

signed, they were costly to maintain either by reason of the erosion of their banks or by the silting up of the beds.

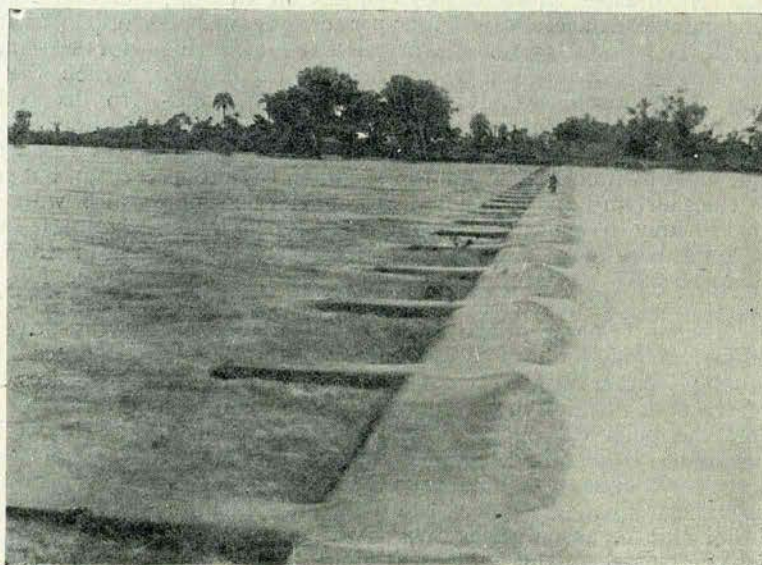
This class of work cannot be considered successful unless the weir or anicut impounds sufficient water for irrigating purposes even in the driest seasons and when the feeder streams are at their lowest.



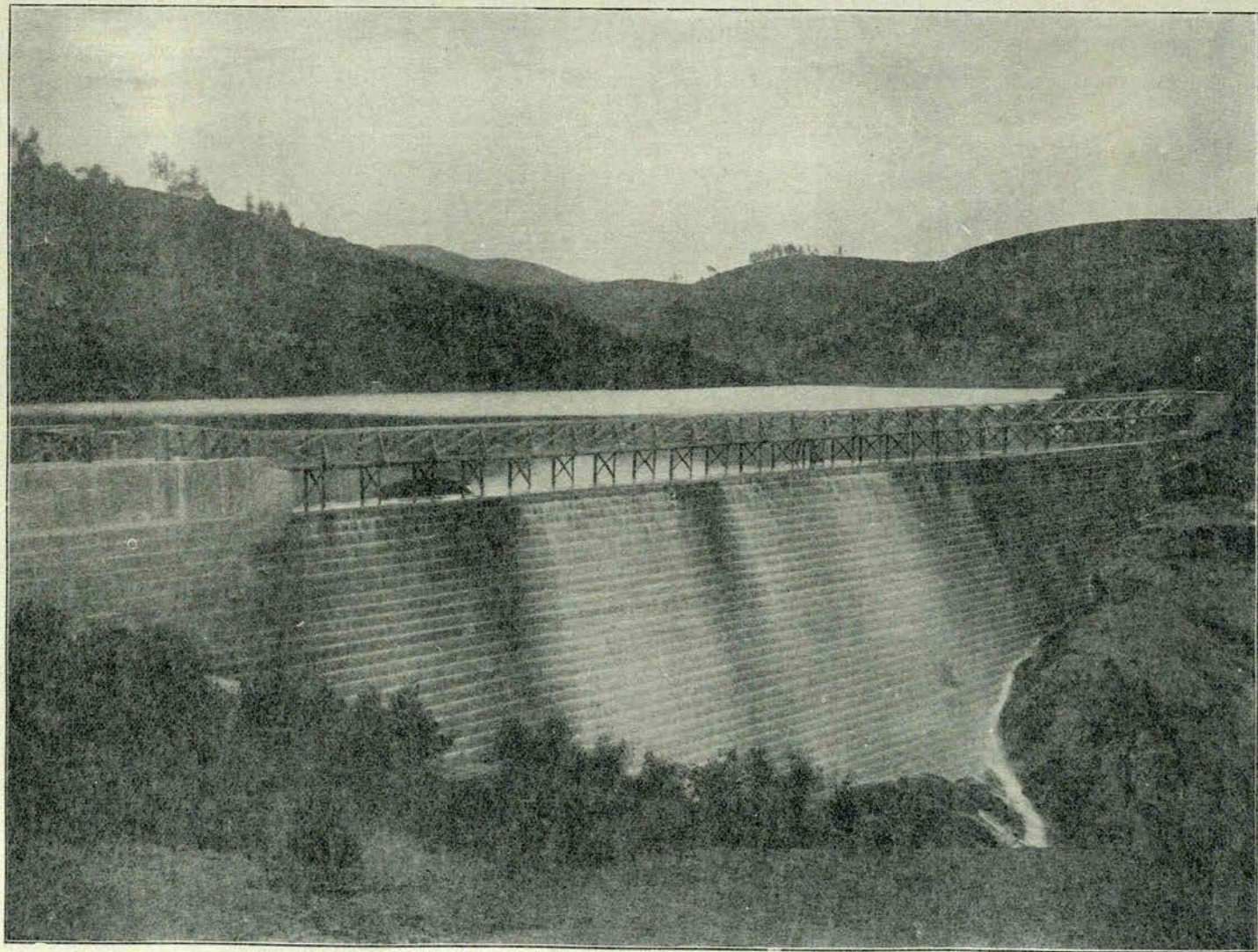
SIDHNAI WEIR, RIVER RAVI, FROM THE KORANGA CANAL HEAD.

of ground. Second, *kutchas* wells are made larger and are lined either with wattles, brushwood, or bricks and stones in mud mortar. Third, *pucka* wells are lined with brick or stone-work in lime mortar; these cost an average from 300 to 600 rupees and irrigate from 2 to as much as 20 acres. Sometimes these *pucka* wells are very large indeed—as for instance—the celebrated one at the Kootub near Agra—from the water level of which a ramp or incline reaches up to the surface for the watering of cattle, etc., and they can hardly be classed among irrigation works though sometimes used as such. All these works are mostly due to private enterprise. There is no doubt that the experience gained in well-sinking under varying conditions, all over India, proved of the greatest assistance to the designers and constructors of the various modern works of art which have been erected since the land fell under British rule, and of which wells and other cylinders form so large a part.

Other modes of irrigation practised from time immemorial in India can also be grouped into three classes, *viz.*, First, reservoirs, natural or impounded. Second, Perennial watercourses and canals and, Third, those called "Inundation" canals that only work while streams are in flood, in which class the



SIDHNAI WEIR, RIVER RAVI, NEEDLES REMOVED.



DAM, CORDITE FACTORY POWER PLANT, NILGIRIS.

INUNDATION CANALS.

These were constructed with a similar want of technical knowledge and suffered from the same defects as the old so-called perennial works. This class of canal depends entirely for its supply of water on the feeder river or stream rising to a height sufficient to serve it efficiently. The inlets from the feeders are often partly choked with several feet of silt during the floods and the water ceases to flow at a higher level. Cultivators have to adapt themselves to the seasons when the canals are at work and generally have no difficulty in doing this. As for the natural overflow from rivers, this has been one of the most difficult problems and one which even to this day has not been satisfactorily solved.

The revenue received by the State from irrigation works depends on the amount of water supplied; on the kind of crops; on the area actually or ordinarily cultivated. When the land revenue was taken in kind, the State's share increased with the irrigation and therefore, rulers and farmers of land constructed or helped to construct irrigation works. Under British rule payments are made in cash and assessments are fixed with reference to average produce, irrigated lands ("wet") being assessed higher than the others. The difference between the "wet" and the "dry" rate represents the true revenue due to irrigation works. The charge for irrigation averages about 11 per cent. of the crop value and the average working expenses per acre are Re. 1-1.

GENERAL.

The statistics given are for the year 1904-05 (the latest available) and up to March 31st, 1905, they are taken from the *Review of Irrigation* by L. M. Jacob, Esq., c.s.i., Secretary to the Government of India for Irrigation, Roads and Buildings, and from the "Note" by R. N. Burn, Esq., Accountant-General, Public Works Department.

The average rainfall in India is 42 inches a year, and only one-fifth of the crops grown are irrigated, covering 44 million acres. Of these, 30 per cent. are served by wells and yield one-third of the total outturn.

The State encourages all these private enterprises by loans and by liberal assessments. It also maintains many of the works which were formally constructed by native chiefs and which were fast disappearing. Irrigation by wells being comparatively costly, it cannot be forced on the cultivators and the encouragement takes the forms of *takavi* or temporary exemption from land revenue, bearing 6½ per cent. interest in general, or where it is less, repayment is made by instalments ranging from 7 to 30 years. For instance, in the ten years ended 1901, Government had advanced Rs. 348 lakhs in the form of loans and Rs. 277 lakhs for specific improvements. Ryots who dig wells and make other improvements are exempted from enhanced assessments for specific periods, long enough to enable the ryots to recoup themselves for their capital outlay.

MINOR REVENUE WORKS.

The works taken over as mentioned above are included in the so-called "Minor" works for which

separate capital accounts are not kept, either because the works are too small, or because they have not been constructed by the British Government, which has simply undertaken their improvement and maintenance. For such works only revenue accounts are maintained as the cost of their construction cannot now be ascertained; they are credited with a share of the land revenue depending on their maintenance, and are debited with all expenditure incurred on construction, extension, improvement, and maintenance. The area irrigated by these was 2,075,135 acres in 1904-05. The revenue receipts were over a crore of rupees, and the charges amounted to nearly Rs. 71 lakhs: the net receipts being Rs. 37,39,786 or nearly 35 per cent. of the gross receipts. The total gain to end of 1904-05 (including indirect charges) was over 8½ crores of rupees.

Another similar class of works are some 28,000 tanks and 6,000 irrigation channels, the improvements and repairs of which are executed by the Public Works Department, or, in the case of smaller works, by civil officers. The expenditure during 1904-05 amounted to over Rs. 27 lakhs, of which about one-fifth was spent by the civil officers. The areas charged as irrigated by these small works aggregate about 3 million acres. The revenue derived therefrom varies considerably according to the character of the season, whether favourable, or otherwise; for instance, in 1903-04, it was over Rs. 75 and in 1905-06 under Rs. 65 lakhs.

This includes the description of works constructed mainly by native agency and now maintained by the Government.

The so-called Major and Minor works are those for which capital and revenue accounts are kept and are divided into three classes. 1st, Major Productive works. 2nd, Major Protective works; and 3rd, Minor (or Minor Capital) works. The most important irrigation works in India are those classed as Productive works, or works the capital cost of which has been wholly or mainly provided from loan funds, in the expectation that they would prove directly remunerative, and that the net revenue derived from them would fully cover all charges for interest within a reasonable time after their completion.

MAJOR PRODUCTIVE WORKS.

There are 41 of these irrigating about 12,617,000 acres; this area is gradually increasing except where hereafter noted. The total outlay on these to 1904-05 was close on 39 crores, exclusive of Rs. 10,92,150 on account of outlay on surveys and in investigations of Irrigation Projects and on special Establishments employed on the preparation of famine relief programme. The percentage of net revenue on capital outlay was 7·60 per cent. in the same year, being the highest on record after a steady advance for many years, which advance is sure to continue. The total net revenue on these, from their inception to 31st March, 1905, was over 17½ crores of rupees, and this exceeded the accumulated interest by over 14½ crores of rupees. The revenue due to them is given whether received directly in the form of water rates and miscellaneous receipts, or indirectly on account of enhancements of land revenue due to irrigation.

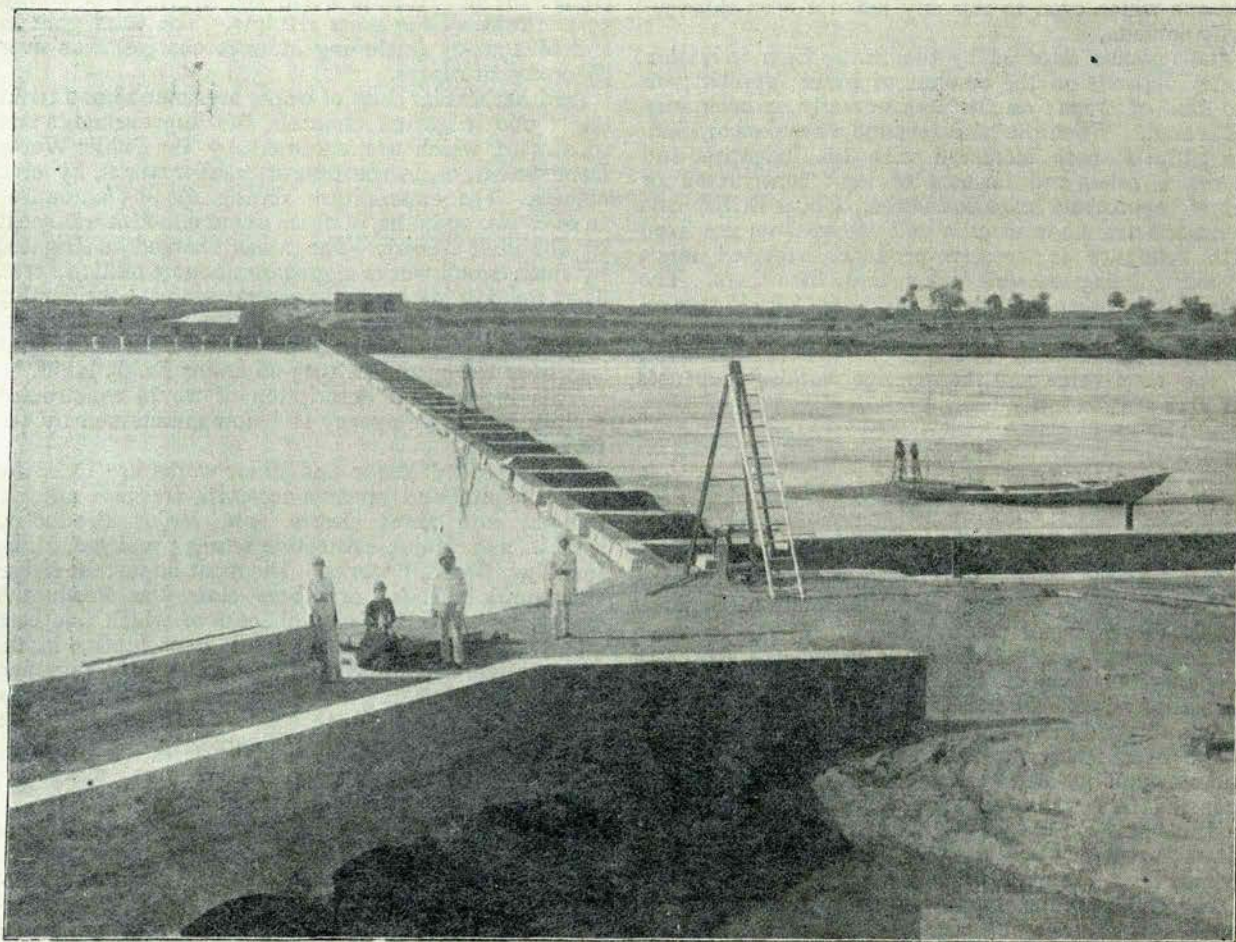
Major Protective works are those which have been sanctioned in consideration of their value as famine protective works, but without any expectation of their becoming directly remunerative. The cost of their construction has been met from the Famine Grant.

There are at present six of these works in operation irrigating nearly 434,000 acres. The total capital outlay on these to 1904-05 was over 2½ crores. The area irrigated has gradually increased during the last nine years.

The total direct loss on these works to 31st March 1905 was Rs. 2,32,60,953.

MINOR CAPITAL WORKS.

The third class are the so-called Minor works for which Capital and Revenue accounts are kept, and all expenditure incurred on them, both in construction and in development, is met from revenue. Of the larger or more important works there are 81, including those under construction, irrigating nearly 2 million acres, on which the capital outlay to the end of 1904-05 had been over Rs. 386½ lakhs. The net revenue in the same year yielded 7·27 per cent. on the capital outlay, and the rate of revenue assessed per acre was Rs. 2·8 or



SIDHNAI WEIR, RIVER RAVI, NEEDLES IN POSITION.

The area irrigated by the last two classes of works is, therefore, well over 13 million acres, or 20,400 square miles, or 21 crore bighas. The estimated value of the crops was over 36½ crores, the average value of the crops per acre was Rs. 28 or about 37½s.; the average rate of revenue assessed per acre was Rs. 3·6 or 57½d.; the working expenses rate per acre irrigated were Rs. 1·2 or 19·2d., and the percentage of working expenses on gross revenue was 31½.

44·8d.; on the smaller works the capital outlay during 1904-05 was nearly Rs. 17,40,000. The total gain up to 31st March, 1905, was Rs. 2,20,03,115.

Summarising the above data, the capital outlay to end of 1904-05 on the three last named classes was Rs. 47,25,78,389 or £31,505,226, the net revenue during the year amounting to 7·01 per cent. of the capital outlay expended on them. Under these circumstances it seems most extraordinary that the sums allocated to this work should depend in any way on the other

commitments of the Government, or that there should be any difficulty whatever in raising sufficient sums at all times for such remunerative work, yielding such splendid results in the way of increased cultivation.

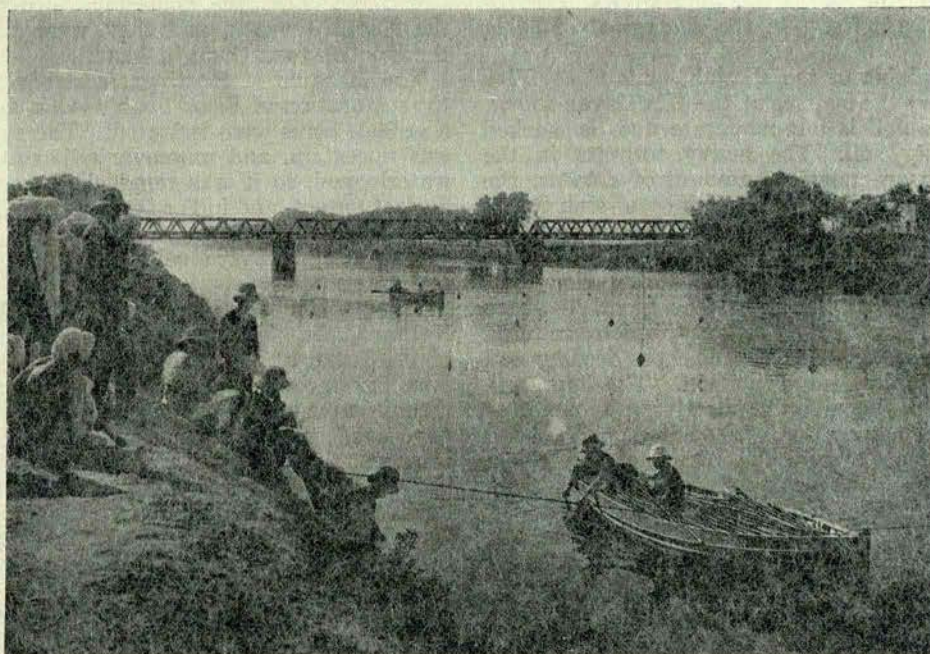
The total area irrigated by all the works in 1904-05 amounted to 20,107,510 acres, or over 322 lakhs bigahs or 31,418 square miles (rather more than the area of all Scotland); the total length of waterways, including distributaries, being 42,376 for the first three classes of work; the net revenue of which was Rs. 39,342,927 or £2,622,862. Of course it is no good growing more food stuff than can be consumed on the spot unless a profitable market can be found for the surplus. It was at one time considered that water carriage would solve the problem; but it was soon found that, with very few exceptions, navigable canals could not be constructed to any advantage, owing to the necessary speed of the current to prevent silt and also to the actual cost

money to pay for food, however moderate in price it may be. Hence the need for relief works, whereby they may earn sufficient to tide them over the bad times.

For many years past the gross water rates have increased considerably, while the cost of revenue management and the working expenses has decreased, with a material increase in the net revenue, which increase there is every reason to believe will continue. As it is, the water costs the people one-third of the increased value of their crops in ordinary years.

Again, famines have been estimated to increase the death-rate by 40 per cent. The 1876-78 famine is stated to have cost over 16,79 lakhs.

The duties of Engineers of the Irrigation Branch of the Public Works Department are many and varied; they are responsible for the proper assessment of the Irrigation Revenues; for the collection of other revenue



TAKING VELOCITIES, THOMASON CIVIL ENGINEERING COLLEGE, ROORKEE.

of transportation; and, as in England and elsewhere, it was soon discovered that except under exceptional circumstances nothing could compete with effective carriage by railway. Further, as railways were also found to be profitable investments, even without allowing them to charge the minimum paying rates which would add so enormously to their earning power, there was no reason in the world, except the financial policy of the Government, why irrigation works and railways should not have been executed as fast as labour could be found for them and materials could be procured.

Even as it is, and in spite of the want of sufficient feeder roads and a continued and continuing shortage of rolling stock, the combination of irrigation and railways has so far advanced that no famine need now occur in India, for want of food stuffs at reasonable prices; the only difficulty being that in bad years, the cultivators on non-irrigable lands do not possess sufficient

earned by the canals; for repairs; for suggesting improvements; for the regulation and distribution of canal water; and, in some provinces, for all public works except railways; all this in addition to the designing and construction of all new works whether in the shape of additions or reconstructions.

The pay of officials is not princely:—the Patrol receives from Rs. 5 to Rs. 10, and deal with from 1,500 to 3,000 acres; the Ameens get from Rs. 10 to Rs. 25, for 7,000 to 10,000 acres; the Zilladars, for from Rs. 50 to Rs. 100, overlook from 30,000 to 54,000 acres, and Deputy Collectors, with from Rs. 200 to Rs. 300, have 80,000 to 120,000 acres under their charge.

Irrigation accounts are kept separately for the following provinces, viz.: Punjab, United Provinces of Agra and Oudh, Madras, Bombay, Sind, Bombay, Deccan and Gujerat, Bengal, Burma, and the Native States in the Punjab, which will now be noticed in that order.

PUNJAB.

In the Punjab there are 8 Productive works irrigating 5,281,831 acres with a mileage of 12,201, the capital cost of which has been Rs. 10,87,88,346,* yielding net revenue of 12.29 per cent., the total net revenue having been Rs. 8,71,93,900. The water charge is distinct from the land revenue assessment and is levied as a water rate on occupiers; this varies with the crops grown and is chargeable only on fields actually watered. This is subject to revision, of which the Government may take a share and, under the Northern India Canal and Drainage Act, 1873, it may, during the currency of a settlement, impose, in addition to the occupier's rate, an owner's rate on lands brought under irrigation after the settlement was made; provided such rate does not exceed half the increase in rental value of the land due to irrigation. The maximum sugarcane rate is Rs. 8-8; of rice from Rs. 3-4 to Rs. 7; for wheat Rs. 3-12 to Rs. 4-4; for fodder crops Rs. 3 to Rs. 3-8; the average of all being Rs. 3-4.

The alluvial plains of the Punjab, or land of Five Rivers, are fed by the melting of the Himalayan snows, for the local rainfall is but moderate and is sucked up by the thirsty soil. The heavy torrents in the hills bring down an enormous amount of *detritus*, the larger and heavier portions of which soon sink to the bottom, leaving only the smaller and lighter particles to be deposited on the beds of the rivers as the waters subside, and over the land during the flood season. The nature of the silt varies greatly—where it is deposited by a comparatively quick running stream, it is often composed of sand from decomposed granite and is inimical to cultivation. The finer and soil-land silt, on the other hand, giving a new coat of fertile soil wherever it is deposited. The flood water deposits most silt on the banks of the rivers where the stream slackens by reason of the sudden expansion of its outlet. The consequence is that the whole cross-section of the river rises leaving the "Doab," or two-river-lands between them, the lowest part of the country they traverse. What follows is, that during some abnormally high flood the main stream bursts its banks and seeks an older and lower bed. This see-sawing has been going on from time immemorial and accounts for the gradual raising of all alluvial plains similarly situated.

The land on the high banks along the rivers is called "Bhangar," that in the low lands between them, from 10 to 50 feet below, is called "Khadir." The main

canals and distributaries generally lie along the ridges, and the distributaries on minor watersheds. The canals, being laid out with a smaller bed slope than the rivers, conduct the water out of the valley at the intake on to the higher lands further down, and at times right over one watershed into an adjoining one.

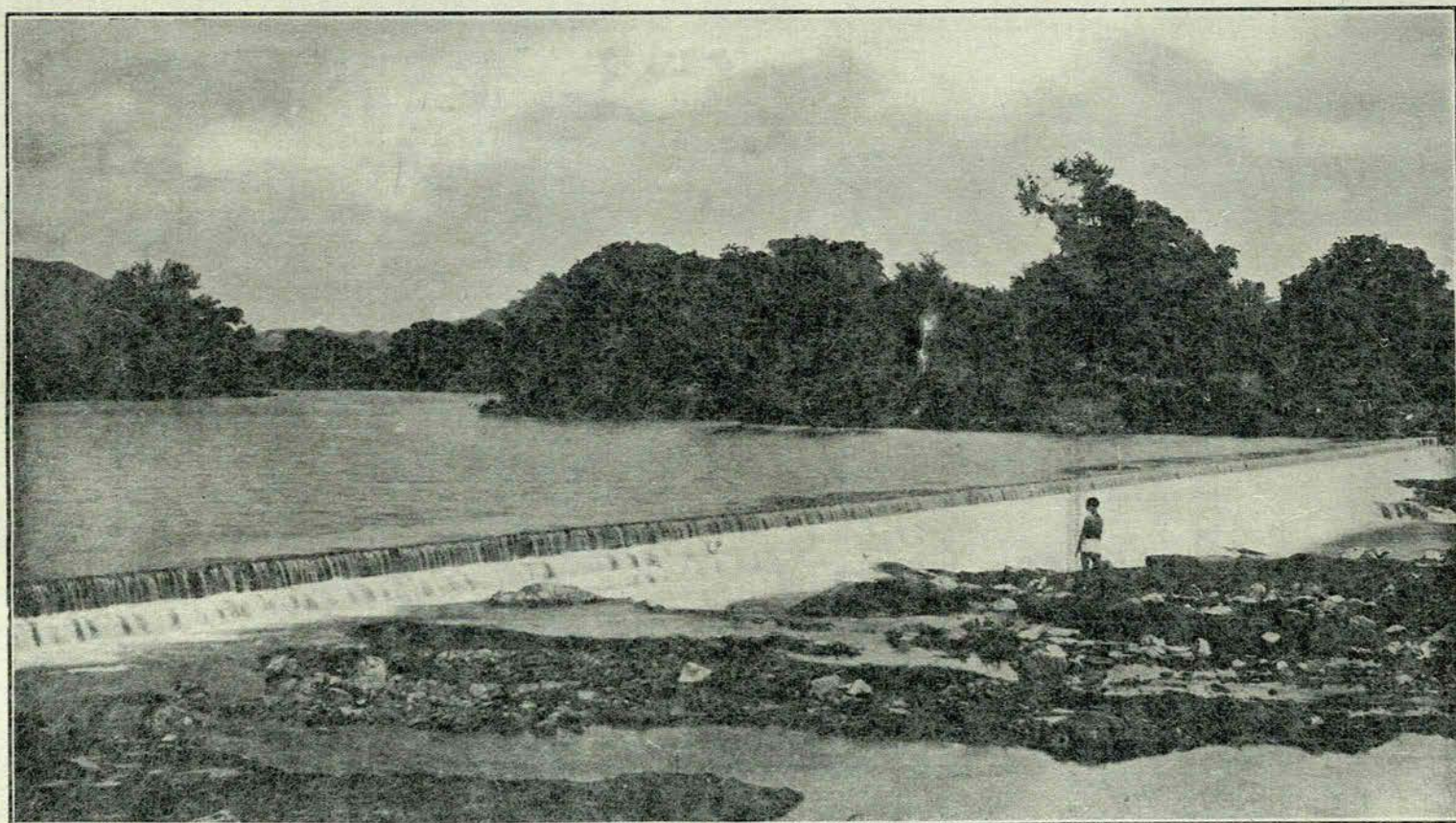
The Western Jumna Canal serves both Imperial and a small part of Patiala State lands, much of the land is salt or *reh*, due in some measure to over-irrigation. This might be avoided by educating the cultivators, or, as the stretches are comparatively few and small, the canals can be taken across them. The utility of the Jumna for irrigation was recognised many centuries ago. In 1350 Firoz Shah Tuglak tapped the right or western bank and constructed a canal 150 miles in length leading to his lands in Hissar. In course of time it silted up. Akbar re-opened it and during Shah Jehan's reign a branch was opened to Delhi. But the works were neglected during the decline of the Mogul dynasty, and they were abandoned until the English took them in hand.

The Marquis of Hastings, from 1814 to 1823, began the restoration of Firoz Shah's work, and by 1870 half a million acres were irrigated. The supply, however, was uncertain, and moreover adjacent lands became waterlogged, so it was remodelled and re-aligned to a great extent, and in the famine year 1897-98 the area irrigated amounted to 764,000 acres. On this canal there are some river level crossings by means of inlets and escapes.

The Sirhind Canal also serves both Imperial and Native lands. This canal takes off from the left bank of the Sutlej at Rupar, which lies at the foot of the Siwaliks or lower hills of the Himalayan range, where the minimum discharge of the river is 2,800 cubic feet per second, the maximum being 6,000 cubic feet. The work was first proposed by Sir William Baker in 1841; but the first estimate was not sanctioned until 1870. Lord Ripon let the water in 12 years later in 1882. The Scinde, Punjab and Delhi Railway laid a branch to serve during the later part of the construction and continued it past the head works to a stone quarry some miles beyond. In crossing the numerous streams the line was carried on so-called "Irish" causeways dipping into the beds of the watercourses. It was here also that some of the anomalies attaching to Government departmental work were exemplified. At Rupar there was a small boat yard, as it was intended to navigate the canal, and this was in charge of a British stonemason; the quarry beyond it

Canals.	Western Jumna Imperial.	Sirhind Imperial.	Bari Doab.	Lower Chenab.	Upper Sutlej including Lower Sohai and Para.	Sidhnai.	Lower Jhelum.	Indus Irrigation.
Acres Irrigated ...	700,335	813,454	955,741	1,945,675	213,997	164,589	305,900	182,140
Capital Cost Rs. ...	1,72,75,463	2,48,37,227	1,98,23,305	98,712	27,20,734	39,967	3,15,439	39,183
Percentage of Net Revenues ...	10.07	6.86	12.13	24.48	10.37	25.88	Loss Rs. 5,33,409	10.04
Miles in operation ...	1,905	3,011	1,963	2,806	718	199	796	743
Total net Revenue ...	3,98,85,197	12,93,908	208,70,393	2,43,80,212	7,33,410	12,93,908	21,32,523	1,09,823

* To which have to be added the Upper Chenab Rs. 32,823 and the Upper Jhelum Rs. 14,563.



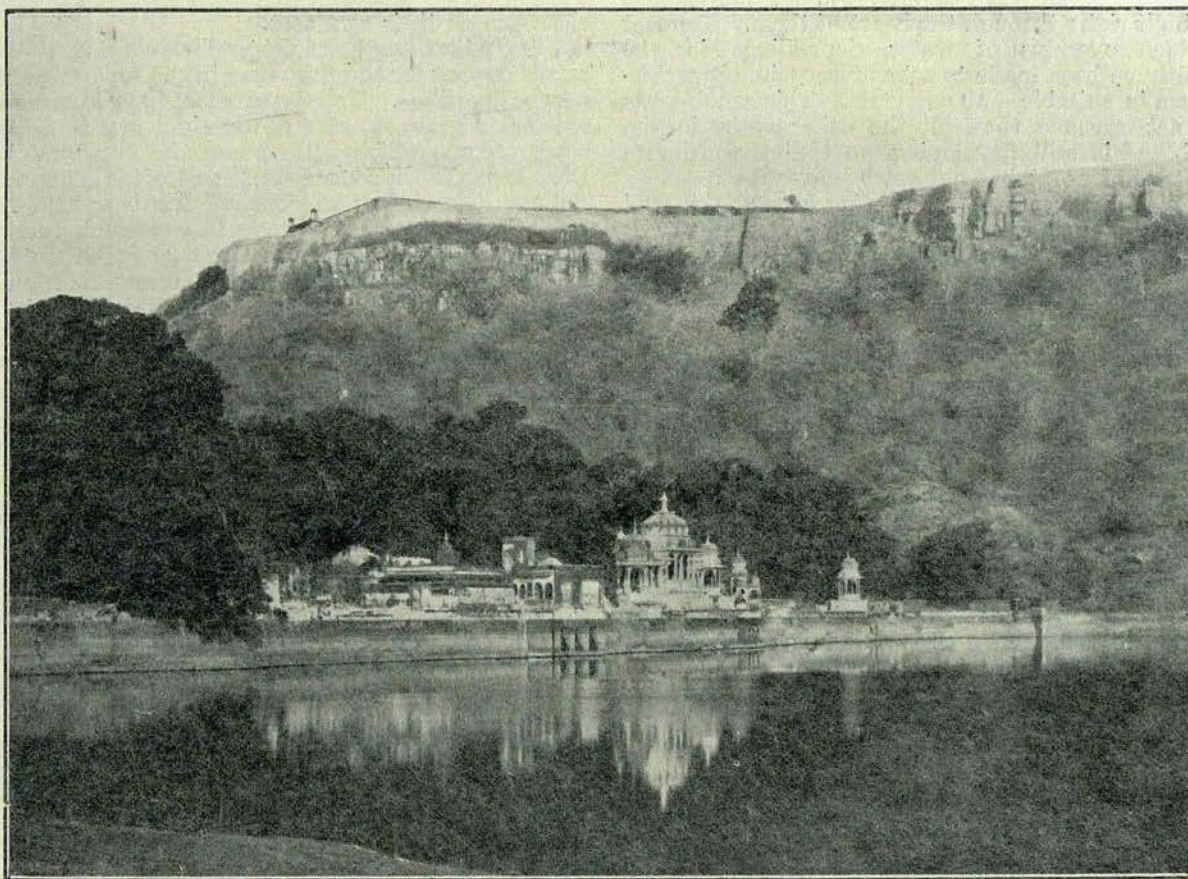
MASONRY WEIR ACROSS RIVER ARH.—CONNAUGHT TANK HEADWORKS, RAJPUTANA.

was in charge of a Danish shipwright. The flow in this canal is now sufficiently fast to automatically prevent the deposit of coarse sand. In the first 57,000 feet of the canal the deposit amounted to 20,253,000 cubic feet in 1893; in 1904 it was only 1,422,000 cubic feet. The Sugh and Budki torrents are carried over this canal at a height of 24 feet. The aqueduct is designed to carry 30,000 cubic feet per second; it is 400 feet wide with a depth of from 8'4 feet to 8'34 feet.

More than one-third of the cost was contributed by the Phulkian States:—Patiala, Nabha and Jhind; in consideration of this they are entitled to the same

feet per second, serving Gurdaspur as well as the above mentioned important towns. It was begun after the annexation of the provinces in 1850 and was originally opened in 1861; it has been greatly enlarged and extended since then. In the central portion, between the Ravi and the Sutlej, it is evident that there was high cultivation, which ceased after the Beas was diverted into the Sutlej in 1790, instead of running an independent course into the Chenab.

The Lower Chenab Canal.—The ordinary discharge of the canal is six times that of the Thames at Teddington. It lies between the Ravi and the Chenab Rivers, and is the largest of all canals in India at the present



A BEAUTIFUL BUND TO AN ANCIENT RAJPUTANA LAKE.

proportion of the supply. The water serves large areas in those States, and also in Faridkot and in the Ludhiana and Firozpur districts. In these States the ordinary irrigated area is two million acres, three-quarters of which is by the above two canals.

The Bari Doab Canal.—The silt here is very sandy. The Hasli Canal was constructed by native chiefs in former times to serve Lahore and Amritsar with water from the Ravi, and the Bari Doab takes off very near the same place, at Madhopur on the right bank of this river, close to the foot of the hills where it has a discharge of 1,200 c. feet per second. Here a weir diverts the water into a canal having a capacity of 45,000 c.

time. It was originally an inundation canal opened in 1887, which ran the risk common to all such canals of silting up. In 1889, work having been started in 1884, it was converted into an irrigation canal of the first magnitude. The weir head works are at Khanki 8 miles below Wazirabad, and were completed in 1892, since which there have been constant enlargements and extensions so that it now serves the greater part of the Rechna Doab, nearly all Crown land in the Gujranwala, Jhang, and Montgomery districts, and commands 2,645,000 acres or over 4,134 square miles of culturable land which was formerly an uninhabited howling desert. (The cultivable area of Egypt is 3,000,000 acres.) It

has already attracted a new population of one million from congested districts. The weir has 4,000 feet of waterway and is divided into 8 lengths of about 500 feet by piers 10 feet wide. Iron shutters 8 feet high are erected on the crest; these are put up as the floods subside and are dropped from the piers by let-go gear as the waters rise. The take-off of the canal is just above the weir, it has a maximum depth of about 11 feet, is 250 feet wide at the base, and is capable of discharging 10,800 c. feet per second. All the Crownlands are parcelled off into 1,100 feet squares with numbered boundary pillars which served as guide posts to the officers when all was jungle. These plots have been carefully levelled and have a network of telegraphs for the men who regulate the water-supply, while a railway has been built right through the heart of them. To meet a sudden overplus of water, depressions in the ground have been made to act as reservoirs by enclosing them in suitable embankments. This canal earns more net revenue than all the other works in the Punjab and is still developing, so that the ultimate percentage of profit has not yet been reached.

The Upper Sutlej Canals, including Lower Sohag and Para. They are inundation canals from the right bank of the Sutlej and there is no weir at the intake. A portion of the Montgomery district is served by them. The new population first began to settle here successfully in 1892-93.

The Sidhnai Canal earned the highest net revenue of all, and the average cost of the work per acre irrigated was the lowest in India, viz., Rs. 2. This small but remarkable canal takes off above the weir on the Ravi, north of the junction with the Chenab and serves part of the Multan district. The first settlers arrived in 1892-93.

The Lower Jhelum Canal though begun in 1901, is not yet completed, and the loss in working, exclusive of interest, fell from Rs. 1,12,030 in 1901-02 to Rs. 19,435 in the next three years. This canal will eventually serve 1½ million acres in the Jech Doab, which was and is still, in a great measure, an arid tract between the Chenab and Jhelum, a Crown waste in the Shahpur district; and it is estimated to cost, when completed, no less than Rs. 1,81,89,849. In January 1899 the staff first arrived on the job; and the head works were begun in October of that year; the weir was completed in May and the water diverted over it in December 1901. The head works are near Rasul, where Chilianwala was fought, and the intake is on the right bank of the Jhelum. The cost of revenue management per each rupee of Irrigation Revenue were the highest in India, viz., Re. 1.07.

The Indus Inundation Canals.—The Indus has gradually worked its way from east to west—indeed this is the general tendency of rivers running north and south in India, and may perhaps be due to the rotation of the earth in the other direction. From Sukkur to the sea, some 300 miles, the banks are permanent only at Sukkur, Jhirk and Kotri. The river begins to rise with the melting of the snows in April and May to the middle of August. The water then falls rapidly for six weeks and more slowly afterwards. When the water is 12 feet at Bhukkur (in the Sukkur gorge) it begins to flow into the canals sufficiently to moisten the land for ploughing; if not, the beasts have to be

employed in raising water. The depth of some of the canals is 15 feet and the velocity is from 1 to 3 feet per second; sufficient to prevent silt while not eroding the banks.

In the Inundation Canals taken over, the land revenue was fixed with reference to water advantages, and people were required to clear out or to contribute to the annual clearance of the canals. In some districts each owner had to send a number of coolies proportionate to his land irrigated in the previous season; this was called *chher*; in others, the owners were charged rateably a fixed clearance rate of about half the estimated average cost of clearance. At the last resettlement of this district it was decided to impose an occupier's rate in addition to the "dry" assessment, the Government doing the clearance at their own cost.

The Upper Chenab and Upper Jhelum Canals.—These canals appear for the first time in the reports and will now be described. The Government have sanctioned a scheme estimated to cost nearly eight crores of rupees or £5,300,000 which will convert the vast Sind-Sagar Doab into a fertile country by the use of the Indus water. Between the Jhelum and Chenab Canals and the Bari-Doab Canal three canals are to be constructed forming one great scheme. These are designed to serve 1,876,000 acres or nearly 3,000 square miles of land by means of 3,218 miles of waterway, main, branch and distributing. By these means a gross revenue of Rs. 96 lakhs is anticipated or £640,000 yielding a net revenue of 10 per cent. for irrigation alone. The largest canal will beat the record in India as it will have a discharge of nearly 12,000 c. feet per second from a channel 270 feet broad and 11 feet deep with a velocity of 4½ feet per second. The three main canals are called No. 1 Upper Jhelum, No. 2 Upper Chenab, No. 3 Lower Bari Doab, and will irrigate three totally separate tracts of land.

Canal No. 1 will lie between the Jhelum and Chenab Rivers from where they emerge out of the Himalayan range. The southern portions of this tract called the Upper Jech Doab has been subject to famine. The canal will take off from the Jhelum River which has a cold weather discharge of from 6,000 to 10,000 c. feet per second. One canal already takes off from this river but enough is left for this second one; a great portion of this supply will, moreover, be passed on through this canal to the Chenab river.

Canal No. 2 will lie between the Chenab and Ravi Rivers in the Upper Rechna. In this district an old canal, the *Kitri*, 50 miles long, used to feed a tank at Shekopur. In this Doab there is a riverain tract on the south-east which is subject to droughts and is greatly in need of irrigation. The Chenab River already feeds the great Chenab Canal and little, if any, is left to spare; so the necessary amount will be drawn from the Jhelum surplus and be delivered a little above the head of this last mentioned canal.

Canal No. 3.—The land called the Lower Bari Doab which will be served by this work is now mostly jungle—a grazing ground for camels—and nearly a million acres of waste ground will be turned into a fertile plain at the magic touch of water; it is in the Montgomery district east of the Ravi. The supply for this canal will be drawn from the Chenab River 40 miles above where

No. 2 debouches ; it should come from the Ravi, but the old Bari Doab Canal absorbs most of the supply from this river, so a portion of Canal No. 2 will be carried under the Ravi by a syphon and will deliver the water into the waste lands of the Lower Bari Doab. This great syphon will carry 6,500 c. feet per second under a river having a flood discharge of 200,000 c. feet per second ; it will be a quarter of a mile long.

The minimum height above the soffit at low water will be 27 feet. There are eight vent barrels 11½ feet by 10 feet, carrying 6,500 c. feet per second under the Ravi which, when in flood, discharges 200,000 c. feet per second. There is an invert over the whole work enclosed in iron straps ; it is 1,400 feet long between the drop walls, and there is a drop of 4 feet through the syphon.

Another work now being studied is the New Swat River Canal, involving two tunnels under the Malakand and estimated to cost two crores. This project is in an advanced state. Another to tap the Kabul River 20 miles north of Peshawar is still in embryo.

MINOR CAPITAL WORKS.

Nearly all these are treated as Imperial.

Shahpur Inundation Canals.—There has been a great reduction in the revenue on these canals.

Ghaggar Canals.—The loss on the working of these canals has increased.

Name of Canals.	Shahpur inundation.	Ghaggar.	Total.
Acres of Land Irrigated ...	18,991	16,412	35,403
Miles in Operation ...	152	68	220
Capital Cost Rs. ...	2,15,914	3,43,245	5,59,159
Percentage of Net Revenue ...	18.00	Rs. 38,825	0.01
Total net Deficit Rs. ...	+7,11,433	-2,16,244	4,95,189

UNITED PROVINCES.

In the United Provinces of Agra and Oudh there are five Productive Works, irrigating 1,909,316 acres with a mileage of 8,593, the capital cost of which has been Rs. 8,73,54,769, yielding a net revenue of 7.58 per cent. ; the total net revenue having been Rs. 4,16,15,024. The area irrigated is, however, gradually decreasing. The water charge is distinct from the land revenue as in the Punjab.

Canals.	Ganges.	Lower Ganges.	Agra.	Eastern Jumna.	Fatehpur Branch Lower Ganges.
Acres Irrigated ...	8,18,551	5,96,257	1,85,297	2,77,543	31,668
Capital Cost Rs. ...	3,20,80,153	3,66,21,484	1,03,19,538	47,57,968	35,72,226
Percentage of Net Revenue ...	9.66	4.66	5.75	22.82	4.05
Miles in operation ...	3,206	3,195	774	884	534
Total Net Revenue Rs. ...	2,00,61,061	-24,72,768	-7,32,416	2,55,33,480	-7,74,333

The Ganges Canal.—An old canal opened at the beginning of the 18th century took off from the left or eastern bank of the Jumna, it was re-opened early in the 19th century and now serves parts of the Saharanpur, Mozufarnagar and Meerut districts. Sir Proby Cautley used the experience he gained on this work in designing and constructing the Ganges Canal, and it was opened in 1854 after six years' work. It serves nine districts in the Jumna Ganges Doab, taking off from the right bank of the last named river just below the famous pilgrimage place, Hardwar, by means of a weir constructed of rubble stone, fascines, and earth work, made up annually, and annually destroyed by the floods. It passes over the Solani River in an aqueduct named therefrom, and is not only the first large original work executed in Northern India, but is reckoned second to none in boldness of conception and to very few in utility and financial success. It was originally designed for a flow of 6,750 c. feet per second. This was found to create too much scour, especially at the open Ogee falls. Nine lakhs were spent in remedying defects but the main original features were not altered.

On this system there are 1,730 miles of drainage channels, with the result that the lands which had previously remained flooded till the end of the cold weather are now drained sufficiently dry for the *rabi* sowings ; the level of the subsoil water has ceased to rise and the sanitary condition of the district has been much improved.

The canal is carried over the Solani River by means of an aqueduct with fifteen 50-feet arches ; it is 172 feet wide, with a discharge of 6,500 c. feet per second ; the parapet walls are 12 feet 9 inches high. The cost was Rs. 32,87,000. The Putri torrent is carried over this canal in an aqueduct and there is also the Rampur superpassage.

This canal supplies a large proportion of the water for the next two canals.

The Lower Ganges Canal.—The cost of the work per each cubic foot of full discharge was the highest in India, viz., Rs. 3.838. It takes off, by means of a weir, at a point 130 miles below Harwar on the right bank of the Ganges, and irrigates seven districts in the lower part of the Doab. It was opened in 1878 after six years' work. There is an escape back into the river about two miles below the weir sufficient to scour out the greater part of the silt. This canal is carried over the Nadrai or Kali Nudi River by means of an aqueduct with fifteen arches of 60 feet span, founded

on wells sunk 50 feet below the bed of the river. The width is 130 feet and the maximum velocity is 4 feet per second ; there is a 12 feet roadway on one side and a 6 feet bridle path on the other. The cost was Rs. 44,57,000. This and the Solani are the two largest works of the kind in the world.

The Agra Canal was opened in 1874. It takes off the right bank of the Jumna 11 miles below Delhi, at a place called Okla, and serves part of the Gurgaon, Muttra and Agra districts. On this work there is an escape below the weir

similar to that on the Lower Ganges Canal. The head works on these two canals were built on exceedingly fine sand—consequently the cost of them rose from 2½ to 45½ lakhs.

The *Eastern Jumna Canal* is remarkable for the enormous profit it has brought in to the State, it being the most remunerative work in these provinces. On this canal there are some level crossings similar to those on the Western Jumna.

MAJOR PROTECTIVE WORKS.

Name of Work.	Betwa Canal.	Ken Canal.
Acres of land irrigated ...	1,17,563	.....
Miles in operation ...	573	...
Capital Cost Rs. ...	48,67,742	7,74,806
Percentage of Net Revenues ...	0.81	Deficit Rs. 155,82
Total Net Profits and Deficit Rs. ...	-39,49,327	-18,184

The *Betwa Canal* is not likely to prove remunerative in its present condition, but the construction of an additional reservoir will provide additional storage for 1,484 millions c. feet of water which, it is anticipated, will have a beneficial effect on the receipts. It takes off from the Betwa (a tributary of the Jumna) about 12 miles north of Jhansi, and irrigated portions of the Hamirpur and Jalaon districts; it is not perennial and was opened in 1885. The demand for water while it is flowing is slack, except in dry season. 2,700 million c. feet of water are stored at present, the weir being 56 feet high. The canal was found very useful in the 1896-97 famines, when it irrigated 87,000 acres.

The *Ken Canal* is in progress and is intended to protect the Banda district, which was hit so hard in 1896-97. It is not likely to prove otherwise remunerative. There is not a great field for extension in these provinces. Over 30 years ago a big project was proposed to take a canal off the right bank of the Sarda River and to irrigate the Oudh districts. This, as well as a smaller project, has always met with strong opposition, although additional protection is urgently needed in the districts South of the Jumna.

MINOR CAPITAL WORKS.

Dun Canals.	Rohilkhand Canals.	Bijnor Canals.	Bundelkhand Irrigation Works.	Total.
14,496	47,736	10,018	5,019	1,94,852
87	397	76	66	1,199
9,24,366	24,23,102	2,35,870	82,031	93,07,917
6.74	1.82	14.70	Deficit Rs. 4,354	.....
+15,08,608	+9,90,719	+4,96,049	-47,501	-10,20,136

The Minor works were all treated as "Provincial," 750,000 acres are irrigated by private canals; the most important being those constructed by two English landowners which irrigates 40,000 acres of rice and 15,000 of rabi crops on their respective estates.

Canals in this province water-logged the soil and created malaria, besides covering the tracts with *Vsar* or *Reh*. These evils have been cured by re-alignment and by 3,300 miles of drainage channels.

MADRAS.

Nearly all new works include or supersede old ones. On newly irrigated land at one time the water ("wet") rate might be levied on the whole area for which water had been supplied, or on areas actually irrigated in addition to the "dry" rate. Subsequently on revision of the settlement the two rates were consolidated, representing the revenue assessed on land entitled to irrigation. This has many advantages where most of the crop is paddy raised every year. The maximum sugarcane rate was Rs. 10; on rice Rs. 5 to Rs. 2; the average of all rates being Rs. 4-8.

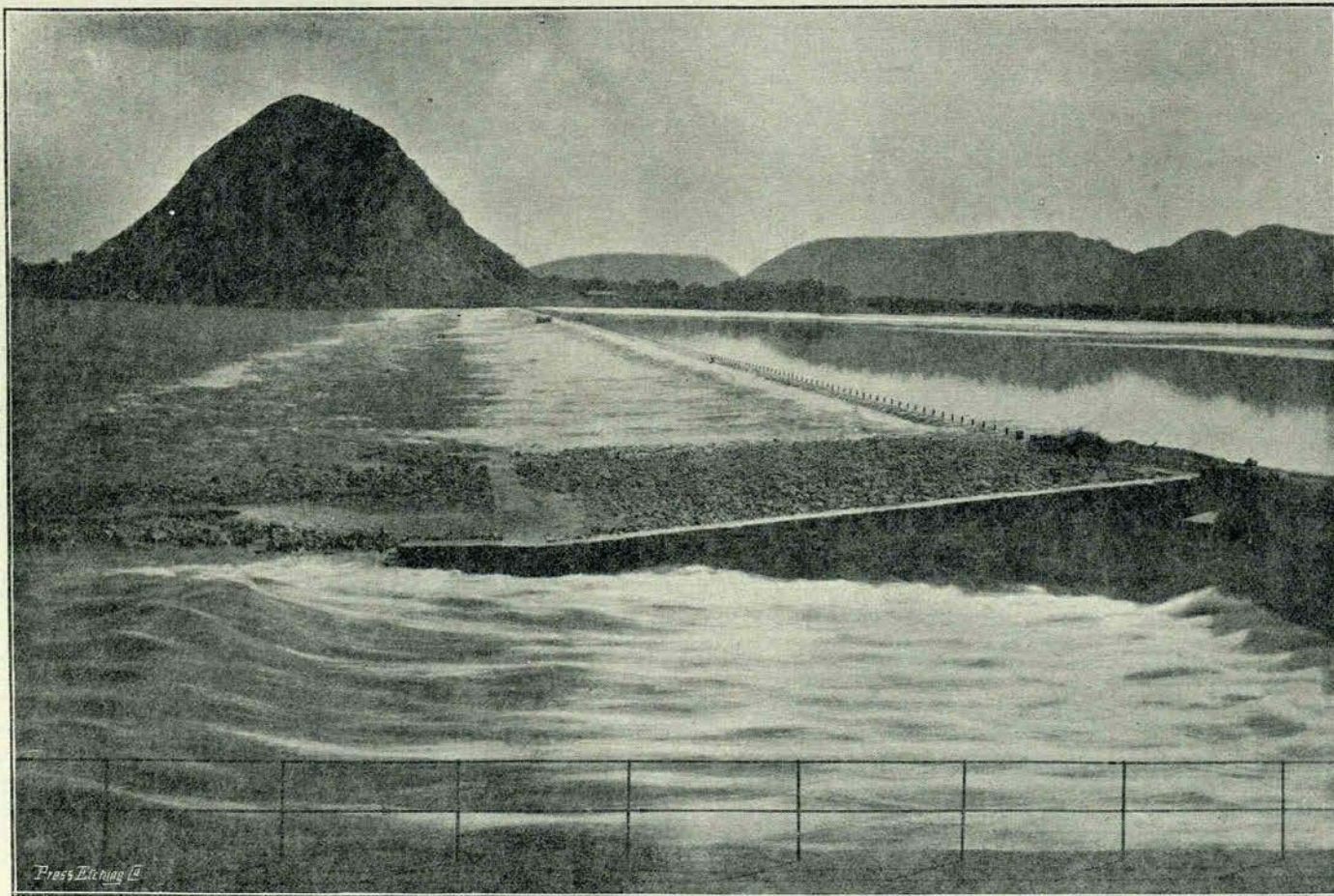
MAJOR PRODUCTIVE WORKS.

In the province of Madras there are eight Productive Works irrigating 2,940,599 acres, with a mileage of 8,304, the capital cost of which has been Rs. 7,18,66,138, yielding a net revenue of 8.79 per cent.; the total net revenue having been Rs. 8,58,41,824. The area irrigated exceeded all previous records.

In this province there are 40,000 small storage tanks for irrigation purposes in the ryotwari tracts; of these only 3,500, which are looked after by the Public Works Department, irrigate more than 200 acres, many of them serving less than 10 acres. Thirty-one thousand of these tanks are under the charge of the Revenue Officers, while 5,000 are private works. Some of these and also some of the larger works of a similar nature are very old. Two tanks in Chingleput district still serve 2,000 to 4,000 acres and are 1,100 years old according to inscriptions. The Chembrambakam and Cumbum tanks hold between 3,000 and 4,000 million c. feet and cover over 959 miles. On zemindari estates two million acres are irrigated from tanks and half a million by wells and watercourses, including spring channels in beds of streams during the dry season.

In the Native States 625,000 acres are irrigated or 57 per cent. of the estimated culturable area. In 1857 the Provincial Government was instructed to submit proposals for works to be carried out by private agency. These were submitted as will be noted later on.

The Godaveri Delta System.—The Dowlaishwaram Weir on the Godaveri River was sanctioned in 1884; it is 2½ miles long; it is in four sections on a bed of pure sand, and the flood rises 28 feet; the main wall is on 6 feet wells sunk 6 feet, and is from 3 to 4 feet thick; over this there is a masonry flooring 47 feet wide of which 19 feet are horizontal, the remainder sloping and curved, it is 4 feet thick and ends on another row of similar wells, below which there is a rough stone pitching 70 to 80 feet wide. This work



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THE KISTNA ANICUT.



BIOGRAPHICAL SECTION.

the cost of revenue management for each rupee of irrigation revenue, and the incidence of irrigation revenue per acre irrigated, are the lowest. The gross revenue has risen steadily in the last three years.

The Umharwah Canal.—The net revenue on this canal was as high as 17·96 per cent. in the triennium 1896-99. The gross revenue has declined in the last three years. The cost of revenue management per acre irrigated is the lowest in India, being Re. 0·10.

Name of Canal.	Desert.	Umharwah.	Begari.	Eastern Nara.	Jamrao.	Dad.	Wasrat.	Mahiwah.
Acres irrigated ...	199,513	66,595	232,598	269,415	260,030	68,085	77,033	28,619
Miles in operation ...	318	98	158	298	591	355	234	60
Capital Cost Rs. ...	25,67,057	6,59,688	17,06,799	66,02,930	82,59,133	22,69,474	16,70,495	13,46,817
Percentage of Net Revenue ..	7·17	9·54	17·23	6·26	3·85	1,16 232	0·87	3·11
Total Net Revenue Rs. ...	9,31,060	8,66,097	44,65,646	16,12,015	5,68,549	5,09,568	1,54,592	26,247

The Begari Canal.—The net revenue on this canal was also as high as 21 per cent. in the same triennium, but it has been very steady on the whole, as has also been the gross revenue. These three canals also take off from the right bank of the Indus above Sukkur and have been practically made by Government.

The Eastern Nara Canal.—The net revenue returns were the lowest since 1896-99, having been as high as 7·32 in 1899-1902. The total working expenses per acre irrigated were the lowest in India, viz., Re. 0·47. This canal takes off from the left bank of the Indus above Sukkur and discharges into the Runn of Cutch giving perennial supply.

The Jamrao Canal was opened in November 1899 and the net revenue rose to 5·08 in 1903-04. The gross revenue on this has fluctuated considerably in the triennium 1902-05, but has improved considerably on the whole. It takes off from the Nara at the lower boundary of Khairpur State and the tract is being colonised.

The Dad Canal.—The gross revenue on this has steadily declined in the same period.

The Nasrat Canal.—The same remark applies to this canal which was opened in 1903-04.

The Mahiwah Canal first came into operation in 1903-04 and the gross revenue has dropped over 40 per cent. since then.

The Naulakhi Canal is under construction but has not yet been mentioned in the returns.

MINOR CAPITAL WORKS.

There are eight of these, irrigating 798,434 acres, the capital cost of which has been Rs. 45,54,478 yielding a net revenue of 19·48 per cent.; the total length of the canals being 1,826 miles. The total net profit has been Rs. 2,36,94,290. These works were nearly all treated as "Imperial."

Name of Canal.	Sukkur.	Ghar.	Great Marak.	Sarfranzawah.	Fuleli.	Three other works costing under 1 lakh.
Acres Irrigated ...	82,060	2,51,537	55,835	26,658	3,46,712	35,632
Miles in Operation ...	130	296	172	111	1,024	193
Capital Cost Rs. ...	14,25,974	4,98,602	2,15,746	1,24,680	18,61,503	4,27,973
Percentage of Net Revenue ..	2·50	92·67	20·13	11·88	16·16	7·09
Total Net Revenue Rs. ...	15,09,268	1,46,44,882	11,31,617	2,52,784	60,42,644	1,13,095

Of these canals the Fuleli alone is navigable; it lies in the Hyderabad district, is generally perennial, and can serve 400,000 acres. There are four small works in progress on the left bank of the Indus and many extensions have been proposed; when these have been carried out the present area irrigated will be increased by 20%. This area fluctuates about 800,000 acres according to the state of the river, but the canals never fail entirely, are cheap and profitable—

witness the Ghar, which pays nearly 93%, and which has returned its capital outlay more than 29 times. There is no doubt that a weir will have to be put up at Sukkur, owing to the amount of water that will eventually be abstracted from the upper part of the Indus for the Punjab Canals. It will be a very difficult and costly job owing to the strength and depth of the current even at low water.

BOMBAY-DECCAN AND GUJARAT.

The rainfall in the Deccan plateau is very uncertain and is almost entirely due to the south-west monsoon; some very large storage works have therefore been constructed. There are remains of very large tanks such as the Madag Tank in the Dharwar district. Excluding wells, 3/4rds of the irrigation depends on field embankments and small tanks serving from 3 to 400 acres, most of which the State, on account of its great interest in the revenue, now controls and contributes to their maintenance and improvements. The total area served by private canals is probably about 7½ million acres, but many of these are apt to fail when most wanted. This uncertainty accounts for the non-success (financially) of the Irrigation works in these parts of the province; moreover storage works are costly and the demand is irregular except on small areas on which high class crops are raised and which pay high rates. The loss by evaporation, leakage and absorption is also very great, being from 10 to as much as 62%. So-called "occupiers" rates are levied on all major and on several minor works, generally from Rs. 10 to Rs. 25 per acre on sugarcane, the average being Rs. 4-8. The working expenses are the highest in India, being Rs. 2-8. The charge for Irrigation works are small compared with those of other provin-

ces and the extent of area irrigated by them continues steady with slight variations. The works have not yet paid off the interest charges.

MAJOR PRODUCTIVE WORKS.

There are seven works in this province irrigating 31,885

acres; this area is gradually decreasing. The total length of the canals being 433 miles. The capital cost of these has been Rs. 1,15,40,351 yielding a net revenue of 1.87%. The total net deficit having been Rs. 9,118,750.

The Mhasvad Tank is not likely to prove remunerative. *The Nira Canal* is also not likely to prove remunerative.

The Shetphal Tank is another unremunerative undertaking and is likely to remain so.

Names of Works.	Hathmati Canal.	Lower Panjira River Works.	Kadva River Works.	Lakh Canal.	Mutha Canal.	Ekrak Tank.	Krisna Canal.
Acres Irrigated ...	51	2,489	4,584	550	10,971	4,816	8,185
Miles in Operation ...	51	45	38	32	155	48	64
Capital Cost Rs. ...	5,17,833	4,68,621	7,99,240	3,71,891	71,75,748	13,40,386	8,66,627
Percentage of Net Revenue ...	Deficit Rs. 24,150	0.86	1.27	Deficit Rs. 17,508	2.25	0.97	4.09
Total Net Deficit Rs. ...	6,95,515	3,74,410	7,62,847	7,43,316	40,61,084	17,28,384	7,59,194

The Kadra River Works have cost Rs. 3,605 per mile.

MAJOR PROTECTIVE WORKS.

There are six (including the Gokak Canal 1st section, which is now classed as a minor work, and included in the Gokak Storage Works) irrigating 60,564 acres, the total length of the canals being 353 miles. The capital cost of these has been Rs. 95,87,720, yielding a net revenue of 0.55%. The total net deficit having been Rs. 56,89,729, which is not likely to be recouped within a reasonable time, although the works are classed among "Productive" ones. Taking these two classes of works together, the average value of the crops per acre was Rs. 82; the average rate of revenue assessed was Rs. 5-8, and working expenses per acre irrigated came to Rs. 2-9; these figures being the highest in all India.

MINOR CAPITAL WORKS.

There are thirty of these irrigating 40,695 acres, the total length of the canals being 480 miles. The Capital cost of these has been Rs. 86,36,900, yielding a net revenue of 0.46%: the total net profit having been Rs. 42,275. The works were nearly all treated as "Imperial."

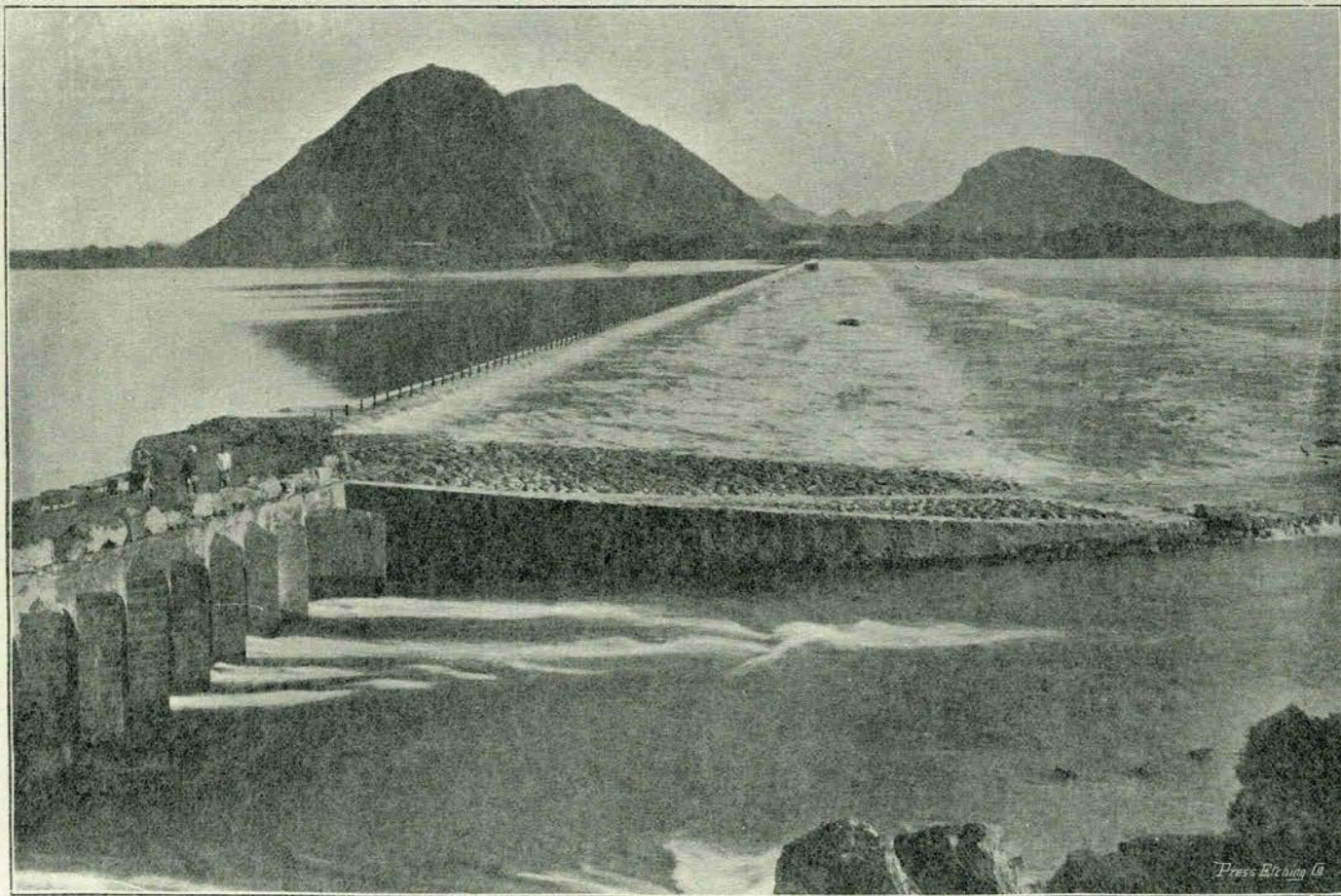
MINOR REVENUE WORKS.

The figures for Sind and the Deccan separately are not available. Those given by the Secretary to the Government of India are as follows:—Acres irrigated, 1,033,044: Revenue Receipts, Rs. 22,95,972: Charges (direct only), Rs. 12,66,691; Net Revenue, Rs. 11,28,381. The figures given by the Accountant-General are:—Direct Receipts, Rs. 40,552; Expenditure, Rs. 21,71,411.

Nearly all the works suffered financially from the fall in the price of sugar. On the Nara Canal, for example, although the area irrigated rose some 50% in the last 12 months revenue fell 76% in the same period.

The Mutha Canals will be fed from the Mutha reservoir at Kharavasta (Lake Fife) on the river of that name, which is fed from the Ghats in the Poona District of Bombay, where the rainfall amounts to 200 inches, over a catchment area of 169 square miles; the fall of the river is 6 feet per mile. The capacity of the reservoir 4,911 million cubic feet. The dam is 3,687 feet long, 106.7 feet high, and 11.75 feet above the crest

Name of Work.	Gokak Canal 1st Sect.	Mhasvad Tank.	Nira Canal L. Whiting.	Setphal Tank.	Charikapur Tank.	Maladevi Tank.
Acres Irrigated ...	.....	8,615	48,822	3,127	.....	...
Miles in Operation ...	.. ..	107	239	7	.. ..	.....
Capital Cost Rs. ...	4,12,666	20,91,430	56,90,988	7,06,238	3,62,458	3,14,950
Percentage of Net Revenue ...	Deficit Rs. 16,098	0.13	0.80	0.73	Deficit Rs. 16,545	Deficit Rs. 12,050
Total Net Deficit Rs.	3,65,654	17,39,431	33,14,759	1,16,197	78,358	75,330

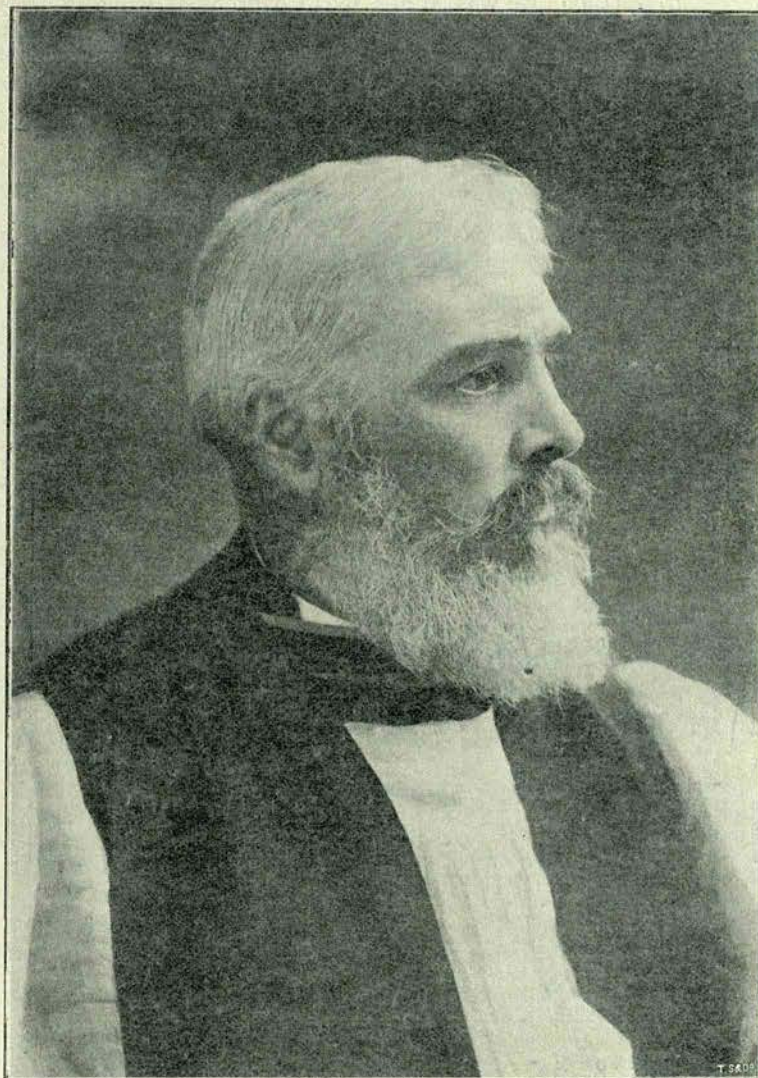


THE KISTNA ANICUT FROM SITANAGRAM END.

THE RIGHT REVEREND ALFRED CLIFFORD, D.D., Bishop of Lucknow.

THE RIGHT REVEREND ALFRED CLIFFORD, Bishop of Lucknow, was born at Torquay in 1849. He is the son of the late Rev. J. B. Clifford, who was a well-known Clergyman at Bristol during the latter half of last century. The Bishop was educated at Redland Knoll School and at Corpus Christi College, Cambridge. After taking his degree he was ordained in 1872 and became

language, he became Superintendent of the Church Missionary Society's large Mission in the Krishnagar District. He was then called to take the important post of Secretary at Calcutta for all the Society's Missions in Bengal, North-West Provinces, Central Provinces and Rajputana. In 1892 he was offered the Bishopric of Lucknow and in January 1893 he was consecrated. Bishop Clifford is the first Bishop



THE RT. REV. ALFRED CLIFFORD, D.D.,
BISHOP OF LUCKNOW.

Curate at St. Nicholas Church, Nottingham, under the Rev. G. R. Thornton. In 1874 he offered for missionary work in connection with the Church Missionary Society. He landed in India in November 1874 and for four years served at the Old Mission Church, Calcutta. After a few months' furlough he returned to India, and, having qualified himself by learning the Bengali

of the See of Lucknow, which is conterminous in area with what is now known as the United Provinces of Agra and Oudh. The Cathedral of the See—already a singularly beautiful building, though not yet complete—is situated at Allahabad, where the Bishop resides. In 1886 the Bishop married Catherine Amy Bernard, daughter of Dr. Bernard of Clifton.

THE RIGHT REV. GEORGE ALFRED LEFROY, D.D., Bishop of Lahore.

THE RIGHT REV. GEORGE ALFRED LEFROY, D.D., Bishop of Lahore, was born in County Down, Ireland, in 1854. He is the son of the Very Reverend Jeffrey Lefroy, Dean of Dromore, and grandson of Chief Justice Lefroy, of the Queen's Bench, Ireland. He was educated at Marlborough, and Trinity College Cambridge, where he took a first class in the Theological Tripos. He was ordained in 1879, and joined the Cambridge Mission in Delhi the same year. Twelve years later, in 1891, he became head of the United Society for the Propagation of the Gospel and Cambridge Mission. In 1899 he was made Bishop of Lahore.

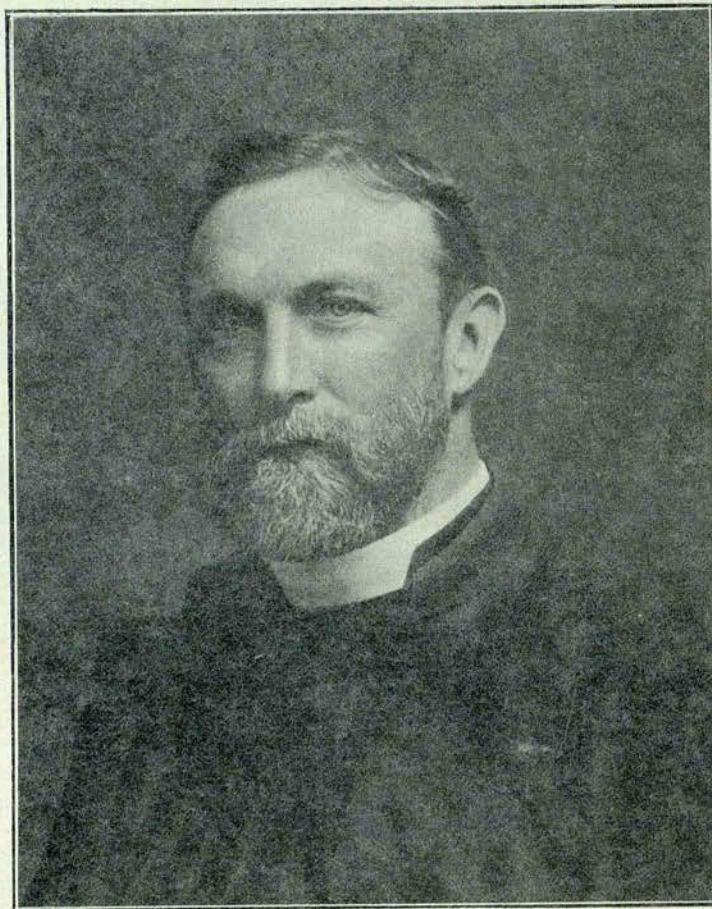
The whole of Bishop Lefroy's pastorate has been spent in Northern India, and his career in Lahore has been marked by vigorous administration and much plain speaking. He had made a special study of the shortcomings of Europeans in this country, their mode of living, their neglect of religious duties and observances, and their devotion to things appertaining to this world only. He has never hesitated to ventilate his opinions on these matters, and to call to account not only the particular congregation to which he was addressing himself at the moment, but the European community in general, for their bridge-playing, dance loving, gambling, and frivolous propensities. These, he maintains, are not calculated to raise the European standard of morality in the eyes of the natives of the country. On the part that should be taken by the Church in secular education, he holds strong views, and in the course of a recent visitation charge to the clergy of his diocese, he referred to the Church's responsibility in respect to the educational institutions for Europeans and Eurasians carried on under Anglican management. The very largely

increased measure of financial help now received from Government must lead to increased State control, and he believed this could be arranged for without difficulty or interference with the religious or moral ideas of the clergy in connexion with the schools. He is of opinion that Government will also expect from them a larger outlay of their own to assist in raising the schools to higher standards and methods of education. The obligation is not all on one side however, for Government

owes a great debt to the Church, and other religious communities, for taking upon themselves in the past the burden of providing for the education of European and Eurasian children in India, a burden which must otherwise have been accepted by Government itself. The grants-in-aid given in the past, the Bishop maintains, have been altogether insignificant compared with the expenditure which would have been forced on the Government had it been compelled to maintain schools of this class on its own account. But, when all this had been said, the Bishop felt that the logical, the inevitable result, sooner or later, of this more generous, more sympathetic attitude of the Government would be a desire that the Church should also move ahead in the matter, that their proportion of outlay should be larger, their staffs more adequate and

effective, and altogether their own side of the business more worthily managed.

Bishop Lefroy is a staunch advocate of anything practicable that will tend to promote a better state of feeling between Europeans and natives of the country. He shows, perhaps, an undue tendency to lay the chief blame upon his own countrymen for the present state of tension between the races; a position in which, however, he by no means stands alone.



THE RIGHT REV. GEORGE ALFRED LEFROY, D.D.,
BISHOP OF LAHORE.