

CHAPTER VIII.

SURVEYS.

SECTION I—TRIGONOMETRICAL AND OTHER SURVEYS.

ALMOST the first attempt at a survey of any kind of Mysore was made, in the beginning of the nineteenth century, by Dr. Francis Buchanan (who subsequently assumed the name of Hamilton) under the express orders of the Marquis Wellesley, then Governor-General of India. Buchanan-Hamilton's *Journey through Mysore*, which is referred to at some length below, is a work of unique interest. Buchanan prefixed to his work a map, which was prepared for him by Major C. Crawford who afterwards became Surveyor-General of India (1814-16) and is known as one of the first to attempt to measure the height of the Himalayan peaks in 1802. This map was intended by Buchanan to enable the reader to trace his route through the country he traversed and to judge of the opportunities he had of viewing the country. Major Crawford's map was framed apparently on simple lines. On a map of Major Rennel, he laid down a sketch of Buchanan's route. The very imperfect nature of the materials at Major Crawford's disposal rendered many errors unavoidable, and though Buchanan utilised a map he later received from Lieutenant-Colonel Mackenzie to rectify them, he records his regret that he did not receive it in time to avail himself of the numerous geographical improvements Mackenzie had effected in his production.

First attempt
at a Survey of
Mysore.

Neither Mackenzie's nor Crawford's map of Mysore can be described as the earliest map attempted of Mysore.

The earliest
maps of
Mysore.

A part of Mysore is figured in the map of the "Carnatic," which forms the frontispiece to Robert Orme's *History of the Military Transactions of the British Nation in Indostan*, Volume II, published in 1778. This is, so far as is known, the earliest attempt to depict Mysore on any modern map. This map, however, is more historical than geographical. Very similar is the other map of Mysore included in Orme's *Historical Fragments of the Mogul Empire, of the Morattoes, and of the English concerns in Indostan from the year M.D.C. LIX*, which was first published in 1782, and republished, after Orme's death, in 1805. The longitudes in this map are measured from East of London. This is a tolerably good map, but not being laid from actual surveys is only approximate as to positions of places, etc. Major Dirom's *Narrative of the Campaign in India which terminated the war with Tippoo Sultan in 1792*, published in 1792, has a much better map though only partially descriptive of Mysore. This map was, we are told, constructed from "a late Survey of that part of the Malabar Coast by Captain Montessor, and from the Survey of the other countries by Captains Beatson and Allen" and "published by Major Rennel in 1790." This was Major Rennel, the "Father of Indian Geography." His *Memoir of a map of Hindoostan*, which was first published in 1788, is well known. The method of surveying adopted by him was to fix the positions of a considerable number of stations by astronomical observations for latitude and longitude and to measure the intervening distance with the chain or with the 'measuring-wheel.' The correct determination of longitudes was his chief difficulty and although he utilized the work of several independent observers in India, his maps can only be considered, according to competent authority, as "approximations to accurate cartography."

In 1800, William Lambton, who had formerly served under Colonel Arthur Wellesley, afterwards Duke of Wellington, initiated the Great Trigonometrical Survey of India, the first base line of 7·43 miles being measured near Bangalore with the chain. During the next two years, Lambton was employed in fixing, by triangulation, a large number of points in Mysore, to serve as the basis for the topographical survey then in progress under Colonel Colin Mackenzie, afterwards Surveyor-General of India and well known by his Manuscript collections. Lambton was indefatigable in his work and his work resulted among other things in the correction of Rennel's errors, especially as to the breadth of the peninsula at its Southern extremity—between Mangalore and Madras, about 40 miles—and in the positions of the chief towns.

The beginning of the Great Trigonometrical Survey.

Colonel Colin Mackenzie's labours ended in a new map of Mysore, which has been referred to above. The map prefixed to Colonel Wilks' *History of Mysore* (1808) is specifically stated to have been laid from the "late Surveys of Mysore" by Colonel Mackenzie. It was apparently specially constructed by Mackenzie and presented to Wilks as "a mark of sincere regard" by Colonel Mackenzie. This is an excellent map. A copy of the same map seems to have been forwarded by Mackenzie to Buchanan, who, through its aid, as above remarked, corrected the many errors of Major Crawford's map, which he used for his publication.

Mackenzie's new map of Mysore.

In 1818, the head-quarters and control of the Trigonometrical Survey were transferred from Madras to Calcutta. Under the guidance of General J. T. Walker, who became Superintendent of the Trigonometrical Survey in 1861, the geodetic work of Lambton and others was widely expanded. The Vizagapatam, Bangalore and Cape Comorin base-lines were re-measured and all

Further extension of work in Mysore.

that great work, whose results are embodied in the volumes of the *Account of the operations of the Great Trigonometrical Survey of India*, was accomplished. In so far as this State is concerned, the heights of numerous conspicuous hills and points throughout the country have not only been fixed by the Great Trigonometrical Survey, but also continuous lines of levels have been carried in various directions that admit of the work done in both the Irrigation and Roads and Buildings' Branches closing on fixed bench marks, thus affording an opportunity for recording such a network of levels (unexampled in probably any other part of India) as must prove of invaluable service in all future Engineering operations—irrigation, navigation, drainage, water supply, roads, railways, etc.

Trigonometrical Stations.

The following statement gives the number of Stations of the Great Trigonometrical Survey, situated in the State :—

District	No. of Stations in the district.	District	No. of Stations in the district.
Bangalore	... 21	Hassan	... 5
Kolar	... 11	Shimoga	... 14
Tumkur	... 10	Kadur	... 5
Mysore	... 7	Chitaldrug	... 9

The Deputy Commissioners of districts and their subordinates are required to inspect annually all the stations in their jurisdiction and to execute repairs to such of those as are in need of the same.

Colin Mackenzie's Topographical Survey.

Early in the nineteenth century, Colonel Colin Mackenzie introduced a system of detailed topographical survey, based on a triangulation of some sort. While Lambton was engaged at Madras, Mackenzie had independently measured bases in Mysore and connected them by triangulation. Mackenzie's labours resulted in a topographical

survey on the one inch scale of over 40,000 square miles in Mysore and the adjacent districts, and it was on this survey that the plane-table was employed in India. Its form, however, and method of use differed materially from those now in vogue. His map of Mysore has been referred to above.

In 1874, the question of a detailed topographical survey of the State was taken up by Sir Richard Meade, then Chief Commissioner in Mysore. The idea of such a survey originated with the Surveyor-General of India, who forwarded some specimens of the Oudh, Rajputana and other surveys, the first being on a scale of four inches to the mile and all the rest on one inch. He also sent a few sheets of revenue details on scales of 32 and 16 inches. Major B. R. Branfil, of the Great Trigonometrical Survey of India, visited Bangalore and drew up a draft scheme for the Topographical Branch of the Mysore Survey and submitted the same to the Chief Commissioner on 20th July 1874. His proposal, in brief, was to form a topographical branch of the Mysore Survey, whose duty it should be to compile a map from existing materials utilizing to the utmost the topographical details of the Cadastral Survey, particularly the boundaries, cultivated areas, etc., and to provide itself such details as cannot be adequately shewn or undertaken by the fiscal Surveyors. For this purpose, he considered it indispensable, whatever else might be required, that a minute network of minor triangulation should be spread over the country dependent on the Great Trigonometrical Survey triangulation, and so extended as to furnish sufficient accurately fixed points to render the cadastral village maps capable of incorporation in general (smaller scale) maps. This minor triangulation was to be of a double kind, primary and secondary; the primary, for filling up the great tracts left between the Great Trigonometrical

Detailed
Topographical
Survey.

Survey lines (or series) with a network of large triangles of an adequate degree of accuracy to be obtained only by a high class instrument (the 10-inch or 12-inch Theodolite) and the secondary, for breaking up the large triangles into an internal network of small triangles, and a host of fixed points accurately determined from them. The triangulation required was, in fact, designed to furnish a complete skeleton map of the State, shewing the position (latitude, longitude and height above sea) of all the conspicuous landmarks that exist, either natural or artificial. The primary triangulation was to be done at once commencing from the north-west and the secondary was to follow the survey and demarcation, the demarcation preceding the secondary triangulation. To supplement the cadastral survey work, and to some extent to make up for its deficiencies, the topographical branch of the survey was specially to take up hill-drawing, with the plane table, and other subsidiary instruments. The standard scale of the topographical maps for India, *i.e.*, one inch to one mile, was to be adopted for the State. A prominent feature of this scheme was the great multiplication of fixed Trigonometrical points, required to work up the village maps into their proper geographic position, shape and size, as well as to base the hill-drawing on. As it was also contemplated that a minute register should be kept along with the plane table, whenever that instrument (and the plane table is a true triangulating instrument) is used to fix a fresh point, or to run a traverse with, not only would hill-drawing be easily checked and errors detected but also a larger or smaller scale map could be constructed afresh without further survey. As regards the production and publication of the final topographical maps, a new map office and department for the maps produced was not deemed necessary, as it was hoped that the necessary reductions and reproduction might be done in one of the

existing map offices at Madras, Poona, Dehra Dun or Calcutta. As regards general supervision, it was suggested that the same should be under one of the Superintendents of Survey in India, either under the Surveyor-General of India, who was also Superintendent of Topographical and Revenue Surveys in Bengal, or under the Superintendent of the Great Trigonometrical Survey of India, who since the days of Colonel Waugh (1843-1861) was also Superintendent of the Trigonometrical and Topographical Surveys and had had several special topographical surveys under him, for the most part outside of Bengal, or under the Superintendents of the Madras or Bombay Revenue Survey parties. If none of these Superintendents could accept the supervision, it was suggested that a local Superintendent might be appointed to the responsibility and nominal charge "on condition that he should submit a full professional report annually to one of the abovementioned Superintendents, who would examine and report professionally on the quality of the work and the amount of progress made." Major Branfill also thought it desirable to add that "a few natives of the Province should be trained in topographical surveying, in order that His Highness the Maharaja on coming of age may find amongst his own countrymen some technical knowledge and skill in a Department closely connected with the material prosperity and progress of the country." The proposal of Major Branfill was accepted, Lieutenant Colonel R. H. Sankey, then Chief Engineer of Mysore, generally agreeing with it, except as to the scale of the map to be produced. He showed a general inclination for a map on a scale of two inches to the mile for all ordinary purposes. What made the scheme practical was the work which had already been accomplished. At the time this proposal was put forward, there were the following data available: three lines of the great triangulation of India; one from the north to

south, and one from east to west, both passing through Bangalore, and one from Chandragutti, on the extreme north-west of the State, running southward along its western boundary, as far as Coorg. There was also in progress the cadastral village maps on the scale of eight inches to one mile, besides sundry desultory Surveys for irrigation, roads, ghats, railways, or other purposes. The detailed Topographical Survey on the lines indicated above commenced in April 1876, and was carried out by officers of the Survey of India under the orders of the Surveyor-General. Triangulation was completed in 1884-85, and the detailed Topographical Survey in September 1886. The total cost of the operations was Rs. 8½ lakhs. The Survey was on the scale of one inch to the mile, except in the case of State forests, which was on the four-inch scale. The whole extended to 70 standard sheets of maps. Unfortunately, the different redistributions of districts and taluks interfered with much of their utility. The map of Mysore State published in 1893 under the direction of Colonel H. R. Thuiller, R. E., Surveyor-General of India, was laid out from this Survey (1876-1886). It is on a scale of one inch-16 inches.

Revenue
Survey.

As regards the system of Revenue Survey adopted in Mysore, see *ante* Chapter II—Revenue Departments, Section 1(a)—Revenue Survey and Settlement.

Forest
Surveys.

As for measures adopted in Mysore for the systematic surveying and mapping of the State Forests in Mysore, see *ante* Chapter II—Revenue Departments, Section 3—Forest Administration.

SECTION 2.—ARCHÆOLOGICAL SURVEY.

Early
History.

Though the organization of a Department for conducting a regular Archæological Survey of the State for the

purpose of studying and conserving its antiquities dates from comparatively recent times, it is of interest to note the early attempt made to get some control over them. It is related of Chikka-Dēva-Rāja, who ruled from 1672 to 1704, that he had lists and copies made of the inscriptions throughout his Kingdom. His object, however, was to check the endowments made to them and to see that the purpose of the grants was duly carried out. The register so compiled was unfortunately one of those in the royal library, which was ordered by Tīpu Sultān to be taken for boiling the *kulti*, or gram, for the horses. On the restoration of the Kingdom to the present dynasty in 1799, Colonel Colin Mackenzie, when he was in charge of the Survey operations in the State, took copies of several thousands of inscriptions he found scattered throughout the country. These formed part of his wellknown collection, which is now lodged partly at the Oriental Mss. Library at Madras and partly at the India Office Library in London. Neither of these collections, even if they were available, prove of any great value, because, for purposes of critical study of inscriptions on modern lines, mechanical facsimiles are an absolute necessity.

The beginnings of the Archæological Survey in Mysore may be said to date from the year 1865, when Mr. Lewin Bowering, Chief Commissioner of Mysore and Coorg, deputed Major Dixon to obtain photographic copies of inscriptions in various places in the State, where they were known to be numerous such as Chitaldrug, Harihar and Belgami. These photographs were placed in the hands of Mr. Lewis Rice, then Director of Public Instruction in Mysore, for decipherment and translation. In 1879, Mr. Rice issued a volume called *Mysore Inscriptions*, containing translations of all the inscriptions photographed and of some others collected by himself. In 1884, Mr. Rice was appointed Director of Archæological

The modern beginnings of the Survey.

Researches, in addition to his duties as Education Secretary to Government. In 1886, he published a volume of *Coorg Inscriptions*. In March 1888, a regular Archæological Department was formed under him. In 1889, he published the volume of *Sravana Belgola Inscriptions*, consisting of 144 Jaina inscriptions collected at Sravana Belgola. So much interest was excited by this work, that, in April 1890, Mr. Lewis Rice was, at the instance of Sir K. Seshadri Iyer, then Dewan, relieved of his other duties and Archæological work received his sole attention from then, except during a short period, when he was employed in the issuing of the second edition of the *Mysore Gazetteer*.

First Results
of the Survey.

The exploration and copying of all the inscriptions found in the country on an organized basis, district by district, were now entered upon. The results of the Archæological Survey were published in successive volumes of the series known as the *Epigraphia Carnatica* according to the list given below. The last of these (No. IX) bears the date 1905, but was actually issued in 1906. The total number of inscriptions thus collected and published with translations in the above volumes is nearly 9,000.

LIST OF PUBLICATIONS IN THE *Epigraphia Carnatica*
SERIES WITH DATES.

Number of volume	Name of volume	Date of issue
I	Coorg Inscriptions	1886
II	Inscriptions at Sravana Belgola ...	1889
III	Do in Mysore District, Part I ...	1894
IV	Do do Part II ...	1898
V	Do in Hassan District ...	1902
VI	Do in Kadur District ...	1901
VII	Do in Shimoga District, Part I ...	1902
VIII	Do do Part II ...	1902
IX	Do in Bangalore District ...	1905
X	Do in Kolar District ...	1905
XI	Do in Chitaldrug District ...	1902
XII	Do in Tumkur District ...	1904

In 1909, Mr. Rice issued a volume entitled *Mysore and Coorg from the Inscriptions* summing up the historical and other information contained in the above volumes. The results of the Survey have exceeded expectation. The discovery of the edicts of Asoka at Siddapura and other places in Molakalmuru Taluk, Chitaldrug District, by Mr. Rice in 1892 has been said to mark an epoch in Indian Archæology. It has lifted the veil for centuries back from the ancient history of India, especially that of the south. The Jaina traditions relating to Bhadrabāhu and Chandra Gupta have excited great interest in learned circles. The inscriptions at Sravana Belgola have established beyond doubt the antiquity of the Jains and their priority to the Buddhists, while at the same time, they have furnished new information of the utmost importance regarding Kannada literature and its antiquity. It is worthy of note that though the Jain sect is one of the most ancient in India, its discovery should have been first made in Mysore. The connection of the Sātavāhanas or Āndhras with this State has been established, and this has served to bridge the gap between the fall of the Mauryas and the rise of the Kadambas. The forgotten dynasties of the Mahāvalis or Bānas, and of the Pallavas and Nonambas or Nōlambas have been brought to light. The Gangas, who ruled Mysore for nearly the whole of the first millennium of the Christian era, but whose very name had dropped into oblivion, have been restored to history. Much light has been thrown on the part played by the Rāshtrakūtas. The chronology of the Chōlas has been finally fixed. Information relating to the Chālukyas and Kalachuryas has been much extended. In regard to the powerful indigenous line of Hoysala kings, their birth-place has been discovered and their annals exhibited in great detail. Of later dynasties, including those of Vijayanagar and the Mysore rulers, it is sufficient to say that new and important information has been gathered for all periods down to the latest.

Attention was also paid to the collection and transcription of several ancient works in manuscript in Kannada and Sanskrit. These works were sent to the Oriental Mss. Library at Mysore for preservation. The following classical works in Kannada language were also published in the series known as *Bibliotheca Carnatica* series :—

Karnātakabhāsha Bhūshana by Nāgavarma	...	1884
Karnātika Sabdānusāsana by Bhattakalanka-		
dēva	1890
Pampa Rāmāyana by Nāgachandra	...	1892
Pampa Bhārata by Pampa	...	1898
Kavirājamārga by Nripatunga	...	1898
Kāvyaśvalōkana by Nāgavarma	...	1903

With regard to the ancient architectural monuments in the State, brief descriptions of a few of the most important of these were given in the introductions to the volumes of *Epigraphia Carnatica*. A list of *European Tombs and Monuments in Mysore* was compiled in 1906, with the epitaphs and inscriptions on them, to form one of the Indian Monumental Series of the Imperial Government. In the conservation of ancient buildings and monuments of archæological interest in the State, some of the important items which have received attention are :—(1) The restoration of the ruined temple of Kēdārēsvara at Halebid, (2) renewing the ornamental watch-towers erected on crowning heights at the four cardinal points round Bangalore by its founder Kempe Gowda and placing them under proper custodians; and (3) putting up a railing round the Asoka inscriptions at Molkalmuru.

Progress
during 1906
to 1922.

Mr. Rice retired from service at the end of June 1906 and was succeeded by Mr. R. Narasimhachar, his former Assistant. During the period of sixteen years ranging from July 1906 to July 1922, the work of the search for

inscriptions was continued with vigour and several inscriptions which had so far escaped notice were collected. Some of the inscriptions which had not been satisfactorily deciphered during the earlier years were now thoroughly revised. A summary of the contents of these inscriptions and, in the case of important epigraphs, their facsimiles, were published in the *Annual Reports* of the Department, which owing to this and other causes attracted wider attention both in India and Europe. Large numbers of records having been collected for each District, it was arranged to issue *Supplements* to the various volumes of the *Epigraphia Carnatica* Series with the texts, transliteration, translation, etc., of the new records. Under this arrangement, the Kannada texts of the inscriptions of the Mysore and Hassan *Supplements* have been fully printed, those of the Bangalore and Tumkur *Supplements* have been sent to the Press and those of the Kolar *Supplement* have been got all but ready for the press. The *Sravana Belgola* volume has been thoroughly revised with 350 new records included and sent to the press. A general *Index* to the inscriptions published in the *Epigraphia Carnatica* volumes and an *Index to the Annual Reports* of the Department from 1906 to 1920 have also been completed and sent to the press. The newly discovered inscriptions have brought to light several facts, not known before, with regard to the Kadambas, the Rāshtrakūtas, the Chālukyas, the Cholas, the Santāras, the Kongalvas, the Chengalvas, the rulers of Punnād, Vijayanagar and Mysore, besides the chiefs of Avati, Bēlūr, Hadinādu, Hole-Narsipur, Hulikal, Sugatur, Ummattur and Yelahanka. They have added considerably to our knowledge, especially with regard to the Gangas, whose history may now be regarded as almost definitely settled. The work of the Department in connection with this dynasty has been appreciated by several competent scholars.

Collection of
Mss.

Attention has also been paid to the collection and transcription of manuscripts. With regard to these, it may be stated that two of Bhāsa's dramas, namely *Svapnavāsavadatta* and *Pratijnayaugandharāyana*, were discovered by the Department before they were published in Travancore. Another important find has been the Jaina work, *Lōkavibhāga* which supplies the date *Saka*. 380 as the 22nd year of the reign of Simhavarma, the Pallava King of Kānchi, thus furnishing a welcome clue to Pallava Chronology. Among other manuscripts of interest are the medical work *Kalyānakāraka* of Ugrāditya, a contemporary of the Rāshtrakūta King Amoghavarsha I and of the Eastern Chālukyan King Kali Vishnuvardhana, in which the distinction between prevention and cure is regarded as the fundamental basis of the healing art; and *Alankārasudhānidhi* of Sāyanāchārya, which gives helpful information regarding the Vijayanagar prince, Sangama II, and Sāyanāchārya's younger brother, Bhōganātha. The revision of the important Kannada work *Sabdānusāsana* has also been in hand during this period.

Nummatics.

Numismatics also received considerable attention. The coins relating to the Āndhrabhṛitya Kings Mudānanda and Chutukadānanda and to their Viceroys, probably stationed at Chitaldrug; the Mahārathis, Jadakana Kalaya and Saijakana Chalaka; the silver *dinari* of the Emperor Augustus; and the Chinese coin supposed to have been issued during the reign of the Emperor Han Wuti, were discovered at Chitaldrug. Some Hoysala gold coins, including *panams* not noticed before, were found at Halebīd. The silver coins in the Bangalore Museum were examined and identified by the Department. A coin cabinet was formed for the use of the office, containing a large collection of gold, silver and copper coins which have been from time to time described and illustrated in the *Annual Reports*.

Architecture and sculpture did not escape notice. Several temples built in the Dravidian and Hoysala styles of architecture, most of them not noticed before, were described and illustrated in the *Annual Reports*. A large number of individual works of art, signed works of artists, portrait statues, and *vīragals*, *māstikals*, Naga stones and other sculptures of archæological interest were published for the first time. The work done by the Department under this head has induced authorities on Indian art and sculpture not only to take greater interest in the artistic works of Mysore but also to form a more favourable estimate of their merit as works of art. Three monographs on the temples at Somanāthpur, Bēlūr, and Dodda-gaddavalli, forming numbers I to III in the series entitled *Architecture and Sculpture in Mysore*, were published in 1917 and 1919. A monograph on the Halebīd temples was also projected.

Architecture
and
Sculpture.

Excavations on a small scale were conducted at Chitaldrug, Talkad and Halebīd. Old coins, pottery and other antiquities were unearthed at these excavations. A few cromlechs were also opened and ancient pottery and other relics obtained. Detailed descriptions of the work done in connection with these excavations will be found included in the Department's *Annual Reports*.

Excavation
Work.

With regard to the conservation of the ancient monuments in the State, Government passed an order in 1920, laying down a scheme for their proper preservation and systematic inspection. In accordance with this order, a revised and classified list of important monuments in the State has been drawn up and issued. Definite rules have also been passed in the matter for the guidance of Revenue and Public Works officers throughout the State.

Conservation
of Ancient
Monuments.

Recent Work
of the
Department.

Mr. Narasimhachar retired from service in July 1922 and was succeeded by Dr. R. Shama Sastry, who was appointed Director of Archæological Researches, in addition to his own duties as Curator of the Oriental Library, Mysore. The administrative control of the Department was vested in the Mysore University and in September 1922, the Archæological office was shifted from Bangalore to Mysore. The work of the department continues to be conducted on the same lines as before. Vigorous efforts are being made to complete the Supplemental Volumes of inscriptions referred to above. The completion of the revised editions of *Inscriptions at Sravana Belgola* and the *Karnāṭaka Sabdānusāsāna* was undertaken by Mr. Narasimhachar, after his retirement, and these volumes were issued by him in 1923. Rules have been issued by Government impressing on all officers of the Muzrai, Revenue and Public Works Departments the necessity for their consulting the Archæological Department in all matters relating to the preservation of ancient monuments in the State. A Museum is being formed as an adjunct of the department. A change has been made in the form of the *Annual Report* by publishing *in extenso* all the inscriptions discovered during the year in the Report of the year itself instead of giving mere notices of them in it and postponing their full publication till sufficient matter is collected for a Supplemental volume. An attempt has also been made in the *Annual Report* for 1923 to fix definitely the age of the Guptas, Bānas, Kadambas and Gangas in the light of inscriptional, astronomical and other data available on the subject.

Establish-
ment: Past
and Present.

When the Department was organized in 1888, only a temporary establishment costing Rs. 7,576 per annum was sanctioned, exclusive of the pay of Mr. Rice, who was then also the Director of Public Instruction. As the work

of the Department increased, additional establishment was sanctioned. A separate establishment costing Rs. 183 per mensem was allowed to the Government Press from the Archæological budget, for the printing of the Archæological works in the Government Press. The establishment was, in 1898, made a permanent one. The cost of the Department reached its maximum in 1903-04, when it was estimated at Rs. 40,315. As the work of the Department approached completion, a reduction of six hands, costing Rs. 265 per mensem, was effected in the establishment attached to the Department in August 1905. Again, on the retirement of Mr. Rice, the cost of the establishment was further reduced by Rs. 5,304 per annum. The whole of the establishment maintained at the Government Press for doing the work of the Archæological Department was also dispensed with. Mr. Narasimhachar was placed in charge of the Department first under the designation of the "Officer in charge of Archæological Researches in Mysore," subject to the administrative control of the Inspector-General of Education in Mysore. In December 1916, his official designation was changed to Director of Archæological Researches in Mysore. When he retired in 1923, the cost of the establishment was still further reduced and the administrative control over it was transferred to the University of Mysore. The present cost of the Department is estimated in the budget for 1928-29 at Rs. 20,900 comprising of a Director who is also Curator of the Oriental Mss. Library at Mysore, an Assistant and the necessary clerical staff.

SECTION 3.—ETHNOGRAPHIC SURVEY.

An Ethnographic Survey of the State has been completed under the orders of Government passed on 22nd May 1903. This survey was undertaken in consonance

Origin and
Progress of
the Survey.

with a general Anthropometric and Ethnographic Survey of India inaugurated by the Government of India in 1901, after the Census of India of that year, at the suggestion of leading anthropologists in Great Britain and Ireland. The Survey as a whole was under the guidance of Mr. (later Sir Herbert) Risley, and Southern India, including Mysore and the associated States of Travancore and Cochin, was placed in charge of Mr. E. Thurston, then Superintendent, Madras Government Museum. Mr. Thurston, however, undertook only the anthropometric part of the Survey in Mysore, leaving the Ethnographic portion to be done by a local officer. In 1903, Government appointed the late Mr. H. V. Nanjundayya, then General and Revenue Secretary to Government, to undertake this Survey in addition to his own duties.

Its publica-
tions.

With the aid of a small special staff, Mr. Nanjundayya carried out the requisite investigations and from time to time issued tentative Bulletins incorporating in them notes collected in regard to thirty-four of the main Castes and Tribes found in the State. The notes collected in connection with fifty more Castes are awaiting publication. The question of completing the Survey and of issuing a consolidated volume uniform with the " Tribes and Castes of Southern India " and similar publications has been now taken up by Government. The notes included in this volume on certain of the Castes and Tribes of the State in Volume I, Chapter VI (*Ethnology*), are partly based on the information collected by this Survey.

SECTION 4.—METEOROLOGICAL SURVEY.

Initiation of
Meteorological
observation
in Mysore.

The inception of the State Meteorological Department has to be sought for in the necessity felt, some years ago, for a widespread record of observations for the scientific study of the weather in India. The work of the local

department has accordingly been in close co-operation with the Imperial Meteorological Department. The Imperial Department grew out of a provincial system, which, quite apart from the Madras Observatory, which has been in existence since 1796, and the Bombay Observatory since 1841, was organized in 1865 under the orders of the Secretary of State for India in Council, and is the result of the recommendations of a special Commission appointed by the Government of India for considering the necessity for a systematic record of meteorological phenomena in order to furnish data for the investigation of the relations of climate and weather and disease in India and the collection of all data that might be of value in connection with proposed sanitary improvements and projects. The Provincial Departments were five in number, but they had no unifying head for co-ordinating their work. They collected some useful data, but these were found to be of little use for the investigation of the larger phases and changes of weather in India. The Government of India accordingly decided in 1875 to imperialize the system, and sanctioned the necessary arrangements for the extension of the work of observations to the whole of India, for the adoption of uniform methods of observation, and for the systematic discussion of the observations as a whole. The Imperial Department thus formed was placed under Mr. H. F. Blanford, a scientific officer of proved abilities, who securely laid the foundations for the present efficiency of the Department. Though he was invested by the Government of India with full powers to give effect to the sanctioned reforms, he was too fully occupied to give attention to extending the domain of meteorological work to the larger Indian States. To his successor Sir John Eliot, K.C.I.E., the present constitution of the Department is mainly due. As a result of his discussion with Sir K. Seshadri Iyer, then Dewan of the State, it was

resolved, in 1891, to establish a set of local stations under favourable conditions, with one of them as a first class observatory. The main object in view, in opening these stations, was to secure and record observations concerning the conditions of the weather in different parts of the State as a help to making a forecast of the character of the seasons. Mr. John Cook, who was at the time Principal of the Central College, Bangalore, was deputed to Calcutta in November 1891, and on his return he submitted proposals for the organization of a Meteorological Department in the State. Mr. Cook was placed in charge of the Department, under the designation of Meteorological Reporter to Government which was subsequently changed into that of Director of Meteorology in Mysore. Four second class observatories were established during 1892-93 at Bangalore, Mysore, Hassan and Chitaldrug. The necessary instruments were obtained from the Government of India and observations began to be recorded from 1st April 1892 at Bangalore, from 1st August 1892 at Chitaldrug, from 20th November 1892 at Hassan and from 10th May 1893 at Mysore. In 1893-94, the Bangalore Observatory was built, close to the Central College, on the model of the Meteorological Observatory at Alipore, Calcutta, and its status was on 1st January 1895 raised to the first class. The self-recording instruments which had been ordered for in the interval were also installed in the new building, and since the date mentioned, this observatory has been working uninterruptedly as an Observatory of the first class and has earned a name for itself. It is, in several respects, in the words of the late Sir John Eliot, the best equipped Meteorological Observatory in India. A high level Observatory, situated as it is in the centre of the Indian Peninsula, at the height of 3,000 feet above the sea level, its recorded results have been of the greatest value for a proper study of the Meteorology of India.

In 1907, at the suggestion of the Director-General of Indian Observatories, the two second class observatories at Hassan and Chitaldrug were reduced to the third class. In 1912, the Observatory at Mysore was, as a measure of retrenchment, reduced to the third class. As the readings taken at 8 hours (local time) were considered sufficient in the second class observatories, observations are taken at 8, 10 and 16 daily, while only one set of observation is taken at 8 hours in the third class observatories. All the meteorological observatories now in India are of the third class, except those at the Presidency towns and at the capitals of a few Indian States.

Recent changes.

The observations taken at 8 hours at Bangalore, Mysore and Chitaldrug are daily telegraphed to Simla for the preparation of the Daily Weather Report. The new method of despatching weather telegrams initiated by the Imperial Department, *viz.*, giving the actual readings of the various instruments, was adopted permanently from 1st January 1924 as in British India. The Bangalore Observatory also sends weather telegrams to Bombay and Madras. The Hassan Observatory has since 1893 been only recording observations at 8 hours as the despatch of telegrams to Madras from that Station was stopped as a measure of retrenchment. The results of observations of all the observatories are daily sent to Bangalore by post. The registers of the daily 8 hours observations with copies of the daily weather telegrams are forwarded from all the four observatories punctually every month to the Meteorological Office, Simla. The monthly Register of the daily 10 hours and 16 hours observations at Bangalore is despatched to Calcutta.

Daily observations: despatch of telegrams, etc.

About ten years ago, following European and American Meteorologists, the Imperial Department of Meteorology in India began the study of atmospheric changes in the

Pilot Balloon Observations.

higher levels, first by means of kites, and then with the aid of pilot balloons. This was tried at a few selected centres like Simla, Agra, etc., in Upper India and soon the need for such a centre in Southern India was felt. At the suggestion of the Director-General of Observatories, pilot balloon observations were started at the Bangalore Observatory on 19th May 1915, by means of a theodolite for investigating the velocity and direction of upper air currents at different heights. The observations thus secured give valuable information regarding the movements in the upper strata of the atmosphere. From 1st January 1924, the results of these balloon flights are being telegraphed to Simla on all the days on which the flights are possible. At Simla, they are made use of in making up the daily Forecast of Weather. On certain specified days, during the year, balloon flights are also conducted at the Bangalore Observatory, the results of which are used by the International Society for the investigation of Upper Air.

**Rain Gauges
in the State.**

In 1893, there were in the State 150 rain gauges distributed among the eight districts as follows:—Bangalore, 25 ; Kolar, 19 ; Tumkur, 27 ; Mysore, 21 ; Shimoga, 17 ; Kadur, 11 ; Hassan, 15 and Chitaldrug, 16. Till then, they were under the control of the Public Works Department. In that year, the control over them was transferred to the Meteorological Reporter. In 1924, the number of gauges stood at 226 distributed thus:—Bangalore, 30 ; Kolar, 28 ; Tumkur, 41 ; Mysore, 37 ; Shimoga, 24 ; Kadur, 19 ; Hassan, 24 ; and Chitaldrug, 23. All the rain gauges are subject to annual inspection by the Revenue Officers. The diameter of the rain gauges in the State is 4·7 inches as against 5 inches, which is the diameter of the rain gauges in British India. One advantage of the gauge in use in the State is that 10 cents of rain collected in this guage correspond to

1 oz. and an apothecary's four or eight ounce measure can be used in case of accident to the specially graduated glass. These gauges were in use before the control over them was taken over by the Meteorological Department. Their retention was specially confirmed by Government in an order dated 28th August 1896.

The observations recorded in the four observatories are published annually. In addition to this, a Report on Rain Registration in Mysore is also published every year. The Hourly Records of the Weather Elements obtained with the self-recording instruments at the Bangalore Observatory have been tabulated up-to-date and two volumes of Mysore Meteorological Memoirs embodying the Hourly Means of the various elements for the periods of 1895-1898 and 1895-1906 have been published. As Government have ordered the publication of the Hourly values in annual volumes beginning with 1907, they are being thus issued.

Publication of observations.

The work done by the Mysore Meteorological Department forms an integral part of the work done by the Imperial Meteorological Department for the benefit of meteorological science with special reference to India. Apart from the useful local work it does, the policy of the Department, as directed by Government, has been to co-operate with the Imperial Meteorological Department in collecting data for a comprehensive study of the meteorology of India as a whole. Mysore forms a Meteorological Province by itself with certain broad and well defined features. Before the Mysore Department was constituted, there were no accurate and reliable data concerning the climatological and weather conditions of Mysore. The statistics collected during the past thirty-four years have been utilized by the Revenue, Agricultural and the Public Works Departments.

General view of the Department's work.

SECTION 5.—GAZETTEERS AND REPORTS.

Earliest
statistical
account of
Mysore.
Buchanan-
Hamilton's
*A journey
through
Mysore.*

As stated above, almost the first statistical account of the State was that drawn up by Dr. Francis Buchanan-Hamilton in his work *A journey from Madras through the countries of Mysore, Canara and Malabar*. Every page of it teems with valuable information, but the disjointed style inseparable from the nature of a daily *Journal* makes it difficult to consult, and it is much to be regretted that the accomplished author had not the opportunity of throwing the work into a more suitable form for publication. The printing of the work was undertaken before he reached England, and before he could, as he desired to do, abridge it and recast it for publication. He had, therefore, to content himself with merely revising the manuscript and passing it for the press. The result is a work, which though valuable for the information it contains, is prolix to a degree. At the time Buchanan-Hamilton was commissioned to undertake a journey from Madras through the countries of Mysore, Kanara and Malabar, *i.e.*, the territories forming the restored kingdom of Mysore and the large tracts of country ceded to the British as the result of the Wars with Tipu Sultān, he was employed in the Medical service of the East India Company on the Bengal Establishment and had been well known for his valuable botanical researches in Burma and Chitagong. He was a Fellow of the Royal Society and of the Society of Antiquaries of London and was well fitted to undertake the task allotted to him. In his instructions, dated 20th February 1800, Marquis Wellesley directed Buchanan's attention to a variety of subjects on which he desired him to report after careful inquiries. Among these were agriculture including vegetation, cattle, farms, natural productions, arts, manufactures and commerce, climate and seasons, mines, quarries, minerals and mineral

springs, people, their condition, their sects and tribes, weights and measures and currency in use, etc. Buchanan began his travel on 23rd April 1800 at Madras and ended it at the same place on 6th July 1801. His work entitled "*A Journey from Madras through the countries of Mysore, Kanara and Malabar*" was published under the authority and patronage of the Honourable the Directors of the East India Company in 1807 in three quarto volumes and subsequently reprinted in two volumes octavo at Madras, in 1870. Though as remarked above, tedious in parts, it gives an excellent picture of the condition of that larger Mysore which formed Tipu's Kingdom. The disastrous effects of successive wars on the people and the country are writ large on every page of this work. Buchanan's Diary, however, is in the main, descriptive, and is written in the chronicler's vein. It can hardly be described as a regular Survey, except in the larger sense of the term. Still, it is of vast importance for a correct understanding of the condition of the country and the people, their arts and manufactures, and their habits and manners, at the restoration to power of the present ruling house of Mysore.

While Dr. Buchanan-Hamilton was engaged in his travels, Colonel Colin Mackenzie, to whose work a partial reference has been made above, was commissioned by the Governor-General to make a survey of Mysore. He was allowed only three assistants, with medical officer as surgeon and naturalist. In spite of many difficulties, however, the survey was continued till 1807. The result was not only a valuable contribution to geographical knowledge, but considerable materials were also acquired of the statistics and history of the country. These were recorded in folio volumes transmitted to the East India Company. Copies of eight volumes, attested by Colonel Mackenzie's signature, are

Colonel Colin
Mackenzie's
Report on
Mysore and
Mss.

deposited among the records of the Mysore Residency at Bangalore. The most novel and important of the discoveries made by Colonel Mackenzie was that of the existence of the sect of Jains in India, which he was the first to bring to notice. His manuscript collections, according to the catalogue issued by Professor H. H. Wilson, include, 1,568 manuscripts of literary works, 2,070 local tracts, 8,076 copies of inscriptions, 2,150 translations, 2,709 plans and drawings and 146 images and antiquities. The manuscripts of his collection are now lodged partly in the Madras Oriental Manuscript Library and partly in the India Office Library, London. The manuscripts relating to Mysore are in Kannada, Telugu and Marathi languages, and include, besides collections of inscriptions, local tracts and historical notices. Among these may be mentioned the following few:—Account of the genealogy of Kings (Telugu); Account of Hale Bidu in Mysore (Telugu); Account of Chitra (Kal) durga (Marathi); Account of Seringapatam (Marathi); the genealogy of Vishnuvardhana (Kannada), etc.

Dr. Benjamin
Heyne's
Statistical
Fragments of
Mysore.

The first Surgeon and naturalist attached to the Mysore Survey was Dr. Benjamin Heyne, whose papers on a variety of subjects relating to Mysore and the adjoining countries were published in London in 1814 under the title of *Tracts, Historical and Statistical, on India*. His *Statistical Fragments on Mysore* was included in the *Selections from the Records of the Mysore Commissioner's Office* issued at Bangalore, under the authority of the Government of India, in 1864. It is an attempt at a brief description of Mysore, its people and products. Heyne was a naturalist and so gave some prominence in his account to meteorology, botanical features, geological and mineral aspects. Other information contained in his *Fragments* is an account of the method of "making

steel in the Mysore Country." Dr. Heyne subsequently became the East India Company's Botanist at Madras, and, in that capacity, was sent up to Bangalore to induce the people to grow potatoes. In 1805, he reported that they had actually been on sale in the bazaars, and that he would soon be able to supply Madras with them. His economic and botanical reports are included in the four volumes containing his own and Dr. Roxburgh's researches into the botanical condition of the country and the state of its indigenous industries now lodged in the Madras Record Office.

Dr. Heyne's successor in the post of Surgeon-naturalist was the gifted Dr. John Leyden. Beyond a few anecdotes and verses in his *Poetical Remains* published in London in 1819, it has been impossible to secure anything of his specially devoted to this State, though it is on record that "he drew up some useful papers, which he communicated to the Government, relating to the mountainous strata and their mineral indications; as to the diseases, medicines and remedies of the natives of Mysore, and the peculiarities of their habits and constitution by which they might be exposed to disease; as to the different crops cultivated in Mysore and their rotation; and to the languages of Mysore, and to their respective relations." Heyne's observations were confined to the north and east; Leyden's papers, if traced, would give us information regarding the south and west.

Dr. John
Leyden's
missing
papers.

It has been remarked of Leyden by Sir John Malcolm, a former Resident of Mysore, that "he rose by the power of native genius, from the humblest origin to a very distinguished rank in the literary world. His studies included almost every branch of human science, and he was alike ardent in the pursuit of all. The greatest power of his mind was perhaps shown in his acquisition of modern and ancient languages."

His end was most sad. On the conquest of Java in 1811, he accompanied the Governor-General, Lord Minto, to that island, and hearing at Batavia of a library containing a valuable collection of oriental manuscripts, hastened to explore it. The long low room, an old depository of effects belonging to the Dutch Government, had been shut up for some time, and the confined air was strongly impregnated with the poisonous quality which has made Batavia the grave of so many Europeans. Without the precaution of having it aired, he rushed eagerly in to examine its treasures, was seized in consequence with a mortal fever, and died on the 28th August, after three days' illness, in the 36th year of his age.

Southey wished "that Java had remained in the hands of the enemy, so Leyden were alive," while Sir Walter Scott paid the following tribute to his memory in the *Lord of the Isles* :—

His bright and brief career is o'er,
And mute his tuneful strains ;
Quenched is his lamp of varied lore,
That loved the light of song to pour ;
A distant and a deadly shore
Has Leyden's cold remains.

The centenary of Leyden's birth was celebrated with public rejoicings in 1875 at his native village of Denholm, on the banks of the Teviot, in Scotland.

Colonel Mark
Wilks' History
of Mysore and
Report on the
Interior
Administra-
tion of Mysore.

Colonel Mark Wilks, distinguished as the historian of Mysore, at which Court he was for a time Resident, published his well-known work under the title of *Historical Sketches of the South of India in an attempt to trace the History of Mysoor*, in three volumes quarto, the first of which appeared in London in 1810, and the last two not till 1817, owing to his appointment during the interval as Governor of St. Helena, which office he held

until the imprisonment on that island of the Emperor Napoleon Buonaparte. "It displays," as an old reviewer justly observes, "a degree of research, acumen, vigour, and elegance, that renders it a work of standard importance in English literature." A reprint, in two volumes octavo, was published in Madras in 1869. Prior to the publication of his *History*, in November 1804, Wilks had written and submitted to the Governor-General in Council, a *Report on the interior administration, resources and expenditure of the Government of Mysore*, which has been printed and reprinted twice over, once in 1861 and again in 1864. It is one of the papers included in the *Selections from the Records* referred to above. It is a most valuable document for forming a correct idea of the administration of the State during the five years immediately following the restoration of the Hindu Dynasty after the Treaty of 1799.

On the vesting of the Government in the Commissioners appointed by the Governor-General in Council in October 1831, a memorandum in the shape of *Notes on the state of affairs in Mysore* was drawn up for the information of the Governor-General. These *Notes* were intended to form a basis for revision "on passing through the country, until a complete and correct view of its actual state can be fully ascertained and recorded; for at present it has been found exceedingly difficult, from various causes, to obtain correct information either of the past or of the present state of affairs." It was framed "on information derived partly from the public accounts, but principally from the best informed persons, in and out of office; the object being to collect into one general and connected shape, all that is useful to be known" of the country and its revenue and other institutions. The *Notes* treat of Mysore under its six principal divisions, *viz.*, the Faujdaries of Bangalore, Madgiri, Chitaldrug,

Report of the
Commission
Period.

Ashtagram, Manjarabad and Nagar. There is internal evidence to believe that the Report was drawn up by Sir Mark Cubbon, probably in 1834, on his assumption of office as sole Commissioner of Mysore. The Report is a businesslike one and was followed, as foreshadowed, by three Reports, one in the *Nagar Division of Mysore* dated 19th May 1838 by Hudleston Stokes, M. C. S., who was then its Superintendent; another on the *Malnad of the Ashtagram Division* dated 19th December 1839 by Major H. Montgomery, Superintendent of that Division; and a third on the *Chitaldrug Division* dated 1st January 1842 by Captain F. Chalmers, lately Superintendent of that Division. Though styled "Reports," these are really monographs on these Divisions and would be called "Gazetteers" of the Divisions in the language to-day. Of these Reports, that on the Nagar Division is full and comprehensive and contains matter of much interest. All these Reports are included in the *Selections from the Records of the Mysore Commissioner's Office* mentioned above, which was issued, under the authority of the Government of India in 1864, by Mr. Lewin Bowring, then Chief Commissioner of Mysore. Apart from these Reports, Sir Mark Cubbon submitted in 1855 a *General Memorandum* to the Marquis of Dalhousie and since that time Administration Reports were regularly issued until 1891, when it was made quinquennial. Thirty-five years of British administration changed the aspect of the country so much that, by 1867, the need for a handy and authentic digest of extant information on the State was acutely felt. The first step taken towards supplying the want was in June 1867, when a circular was addressed by Mr. C. B. Saunders, the Offg. Chief Commissioner, to the Superintendents of Divisions, directing the compilation for each District of a *Gazetteer* similar to the one then lately published of the Bhandara District in the Central Provinces. In pursuance of these

orders, during the next two years nine manuscript volumes were prepared. Only two, however, came to be printed, namely one for Mysore District, by Mr. H. Wellesley; and one for Kolar, it is presumed, by Mr. B. Krishniengar, C. S. I. Of the remainder, those for Bangalore and Kadur were not completed; the one for Shimoga was prepared by Captain Cumming; that for Hassan by Major W. Hill; that for Tumkur by Major C. Pearse and that for Chitaldrug by Mr. Krishna Rao. The Report on the Census of 1871 by Major Lindsay naturally superseded much of the statistical information contained in these volumes, which moreover widely differed from one another in the treatment of the variety of subjects included in them. In 1872, Mr. Lewin Bowring, till then Chief Commissioner in Mysore, brought out his *Eastern Experiences*, which included much matter of historical and topographical nature.

The design to appoint an Editor who should bring out one work on a uniform plan was next adopted and eventually, in 1873, with the sanction of the Government of India, the duty was entrusted by Sir Richard Meade, then Chief Commissioner, to Mr. B. L. Rice, C. I. E., then Director of Public Instruction in Mysore, whose personal knowledge of the State, its people, its antiquities and its dominant language was unrivalled. He issued in 1876 the *Gazetteer of Mysore and Coorg*, of which two volumes were devoted to Mysore and one to Coorg. The work was well received, the late Sir William Wilson Hunter expressing his warmest approval of it. The work was divided into two volumes, the first treating of Mysore in general, and the second of Mysore by districts, eight in number. In 1897, he brought out, at the direction of Government, a revised edition, also in two volumes, bringing up the statistics to date and adding much valuable fresh information bearing on the geological,

Mr. Rice's
Gazetteer of
Mysore.

historical, and other aspects of the State. He was also responsible for the volume on *Mysore* included in the *Imperial Gazetteer of India*, which was issued in 1908.

• Other Reports
and Publica-
tions.

Since the publication of the last edition of the *Gazetteer*, much progress has been recorded in almost every Department of the State. With the cessation of the quinquennial Report on the Administration of the State, the issue of the yearly Report was resumed. Apart from the Reports on the Census operations conducted in the State in the years 1901, 1911 and 1921, which have rendered obsolete the older statistics relating to population and other general statistics, there have been issued many Departmental and other Reports of value to which special references will be found in the different chapters of this *Gazetteer*.

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