Chapter - III

THE GROWTH OF HEALTH  DEPARTMENT

Since the assumption of the government by the British, the surgeon to the Mysore Commission was stationed at Bangalore and had in charge of the Bowring Hospital, the leper hospital and a lunatic Asylum, as well as the general control of vaccination, while another medical officer was superintendent of the central jail and has the supervision of the Petta dispensary.¹

There was a civil surgeon at the head quarter of each of the other two divisions, who was also the superintendent of the local jail and inspector of all medical institutions within the limits of the division. The Deputy Surgeon-General, Indian medical department of Mysore and Ceded district personally inspected the institution at Bangalore and others which happened to lie in the routes of his official tours². He also acted as sanitary commissioner and Registrar of vital statistics.

During the year 1868, the Medical Department was attached to the commissioner office which consisted of 12 apothecaries and 23 drefers³. Among these, 10 apothecaries and 10 Defers were drawn from the Madras Government on temporary basis. It was difficult task for the state medical establishment for adjusting Madras Medical men in the department due to language problem³. To tide over these problem liberal scholarships were provided for native students who were undergoing medical training in Bombay and Madras Medical colleges.
At the time of administration passing on to the hands of native Maharaja from the British Commission. Dr. Green, Deputy Inspector of the medical department of Mysore advocated the policy of having competent local trained Medical subordinates for the future requirements of the department. He anticipated a shortage of trained man power to meet such a situation he emphasized that a group of subordinates who were natives well conversant with local language and culture to take over the responsibility of the medical department.

The Government after realizing the gravity of the situation the government established a medical school at Bangalore in 1868. The school was managed by a Principal and three sub-assistant teachers. The total annual expenditure of the Medical school was Rs.12,000 which was met by the government and supplementary fund of Rs.3000 was borne by the local fund.

The rules for the establishment of a native subordinate medical department, in the grade of hospital assistants for local service in Mysore were sanctioned in 1871 by the Govt. of India. The rules provided for the training of medical pupil to qualify them for the grade of hospital assistants on stipends. The pupils, on completing their college career and passing the prescribed examination were eligible to receive the designation of “Passed Medical Pupils” and a pay of Rs.16 was fixed till they promoted to the last grade of hospital assisted. The hospital assistants were divided in to 3 classes on a pay of Rs.25, 40 and 60 per mensem. Promotions from class to class being earned after seven years approved service and after passing a professional examination. The training consisted of two courses, one of a pre-collegiate course of two years during which period the pupils were
attached to the civil hospitals and the other of a study of two years in the medical college of Madras. 7

Among the more important of his recommendations were, in his letter dated 24th July 1874, DR. Oswal, the Deputy Surgeon General, Indian Medical Services, who was in charge of Mysore and ceded district, wrote a letter to the chief commissioner in which he had proposed far reaching changes in the medical department of Mysore. Establishment of more dispensaries.

1. Making adequate provision for the appointment of trained medical staff for the dispensaries spread all over the state of Mysore. 8

It was noted by him that there were nineteen local hospital assistants working in Mysore and projected that by 1880 Mysore may require 62 subordinate medical assistants. Oswal also emphasized the need for one year training for the new recruits who enter the service as hospital assistants, so that they can effectively manage the day to day affairs of the dispensaries. 9

In April 1880 the Deputy Surgeon-General was withdrawn from his administrative duties, so far as Mysore was concerned were transferred to the surgeon to the Mysore Commission. 10 Though a complete re-organisation of the public health department was attempted after rendition in 1881, it was only in 1884, a definite scheme was laid down for a medical service composed of only qualified Indians. As per scheme three competent European medical officers were retained on to be in charge of the medical department and to act as the chief adviser to the Government, having charge of all institutions at Bangalore and the other to have charge of medical
duties at Mysore. The other officer was the durbar surgeon at Mysore, was also the chemical examiner till 1897. The services of these three British officers were continued till 1886\textsuperscript{11}.

**TABLE – I**

Reorganization of the Medical Department

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Grade</th>
<th>No.</th>
<th>Pay</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I Class</td>
<td>1</td>
<td>800-50-900</td>
</tr>
<tr>
<td>2</td>
<td>II Class</td>
<td>2</td>
<td>700-50-800</td>
</tr>
<tr>
<td>3</td>
<td>III Class</td>
<td>3</td>
<td>550-25-700</td>
</tr>
<tr>
<td>4</td>
<td>IV Class</td>
<td>3</td>
<td>500</td>
</tr>
<tr>
<td>5</td>
<td>V Class</td>
<td>3</td>
<td>450</td>
</tr>
<tr>
<td>6</td>
<td>VI Class</td>
<td>4</td>
<td>400</td>
</tr>
</tbody>
</table>

**TABLE – II**

Payment fixation table of Medical Officers

<table>
<thead>
<tr>
<th>SL.No.</th>
<th>Grade</th>
<th>No.</th>
<th>Pay</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I Grade</td>
<td>16</td>
<td>200-20-360</td>
</tr>
<tr>
<td>2.</td>
<td>II Grade</td>
<td>18</td>
<td>120-10-200</td>
</tr>
</tbody>
</table>
The grades of the native medical officers were divided as follows,

1. Surgeon of three grades on a pay of Rs 350,450 and 500.
2. Assistant Surgeon of three grades on a pay of Rs 100,150,200.
3. Hospital assistance.

The Department with the following changes in the year 1918 in order to increase the efficiency and to attract was re-organized. Two grades were created and the strength of the assistant surgeon was increased from 29 to 34.

There were fifty gazetted officers in the year 1925 of who as many as ten held professional qualifications obtained in British Universities and two had the benefit of foreign travel and study or working experience in different countries. While the rest were graduates in medicine and surgery of the Indian Universities. By the year 1928 there were 330 surgeons practicing in the state. There was a surgeon for every 18000 population. Among these surgeons 40 of them were private medical practitioners residing in Bangalore and Mysore cities. In the year 1919, the government of Mysore appointed a committee, with senior surgeon as president, consisting of three official and three non-official members to study and propose improvement in the working of Medical Health Department.

The following recommendations were made by the committee,

1. The next five years Opening up of 110 new dispensaries and to be Managed chiefly by sub-assistant surgeons.
2. Posting of sub-assistant surgeons in addition to assistant surgeons to certain Important dispensaries.
3. Development of district hospitals so as to bring them up to date standard.
4. A building to be constructed up-to-date for lunatic Asylum.
5. Medical relief through Extension of Unani, Ayurvedic dispensaries with Properly qualified Vaidyas from the Ayurvedic College, Mysore.
6. Taluk head quarter providing each with a female dispensary in charge of a lady Assistant surgeon and two midwives.
7. Each district headquarters with facilities for training in midwifery to be opened.
8. A maternity hospital at Bangalore to be constructed and provision for facilities for training days in midwifery.
9. In Bangalore Starting a medical faculty in connection with the Mysore University and establishing a medical college at an initial and recurring cost of Rs. 8, 25000 and Rs60, 100 respectively
10. A programme of expenditure was fixed as follows for the next five years as follows
11. The district Head quarter Hospital to be continued and maintained from State fund.
12. Appointment in equal share of the maintenance cost of the dispensaries in rural areas, between the State and the district funds, the initial cost being Met by State funds
13. To raise the minimum pay of the sub Assistant surgeon to Rs.50
14. Important of the pay and prospect of compounder.
TABLE – III
Program of the Expenditure for the five years (1919-1923)

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>YEAR</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>First Year</td>
<td>9,27,012</td>
</tr>
<tr>
<td>2</td>
<td>Second Year</td>
<td>9,55,094</td>
</tr>
<tr>
<td>3</td>
<td>Third Year</td>
<td>10,18,086</td>
</tr>
<tr>
<td>4</td>
<td>Fourth Year</td>
<td>10,71,048</td>
</tr>
<tr>
<td>5</td>
<td>Fifth Year</td>
<td>11,34,064</td>
</tr>
</tbody>
</table>

The Government generally approved the above recommendations of the committee and promised that the same could be given effect to as and when funds became available.

The Government opened Thirty four new dispensaries. Action was taken towards improving district hospitals at Shimoga, Hassan and Chickmagalure. A new Lunatic Asylum was started to promote Ayurvedic and Unani medicine. Special scholarships were awarded for the students to pursue education at Tabbi College, Delhi. A combined Ayurvedic and Unani dispensary was established at Shimoga. Female dispensaries were opened at Taluk Head Quarters of Chintamani and Davanagere. Four lady assistant surgeons were appointed for Malnad districts of Hassan, Kadur and Shimoga. Towards opening maternity hospitals at districts head quarter’s arrangements were made for treating maternity cases in the district hospitals at Shimoga, Tumkur and K.G.F in addition to Bangalore and Mysore. Pay scales of the sub-assistance surgeons and compounder were raised as recommended by the committee.
ROCKFELLER FOUNDATION AND PUBLIC HEALTH WORK IN THE STATE

In the year 1927 The Government of Mysore requested, the Rockefeller Foundation to undertake a Health Survey of the State with a view to the further development of public health work in Mysore. In response to this invitation the International Health Division of the Rockefeller Foundation placed at the disposal of the government the services of its officer who came to Bangalore on 12 June 1927.\textsuperscript{16} Under the direction of this officer, named Dr. Sweet, a health survey of the State with special reference to malaria and hookworm was undertaken in 1927.

The Health Survey office consisted of a Director, an Assistant Surgeon, and four Sub-Assistant Surgeons, one Reserve Sanitary Inspector, one clerk, four Microscopists, three peons and one sweeper. With the opening of two stations for the study of Malaria in October and December (1927), the staff was increased to include two additional Sub-Assistant Surgeon acting as Inspectors, five Sub-Assistant Inspector, two clerks, four peons and two sweepers. Three Sub-Assistant Surgeons, returned from a year’s fellowship in public health in the United States, were assigned as health officers to work under the Director. The total staff at the end of the year (1928) numbered 34 persons\textsuperscript{17}. The staff of the Department of Health were under the control of a Deputy Sanitary Commissioner who under the Senior Surgeon and Sanitary Commissioner. The Deputy Sanitary Commissioner was assisted by two superintendents and four health officers.
The salary and expenses of the Director was paid by The International Health Division of the Rockefeller Foundation, Who also paid a part of the budget of the Malaria Stations. The Division also bore the expense of the fellowships of the three men who returned during 1928 from the United States of America. All other expenses were borne by the Government of Mysore. Dr. L.W.Hackett of the International Health Division and the Stazione Superimentale per La Lotta Antimalaria, Rome, visited the State for ten days in January and February. He was taken on a tour which covered the various types of malarious country and gave much valuable advice in regard to the organization and problems of the proposed stations for the study of malaria. Appendix No.6 furnishes details of organization of the Mysore State Department of Health.

The Director during the parts of the months of April and May (1928), was in Kasauri, Karnal and Bombay where the Malaria Survey of India was carrying out a part of its operations. The three fellows, who had been deputed to the United States of America, completed their courses at John Hopkins and Harvard Universities and obtained the degrees of C.P.H. and M.P.H. Thereafter, they spent the summer in observing public health work in the United States and Malaria control work in Italy and reported for duty on October 16, 1928 and November 19, 1928. During the rest of the year they were assigned to the malaria station at Nagenhalli where they studied the Indian anophelines.
The following was the field work of the Health Survey office during the year consisted of three main phases: 18

2. Anopheline and spleen surveys in Bangalore.
3. The organization of two of the proposed three station for the study and Experimental control of malaria.

1. Hook – Worm Survey

In July 22, 1927 The Hook-worm survey of the State began on. By the end of the year 2, 713 persons from various parts of the State had been examined including a more detailed survey of the Shimoga district. During 1928, the various districts were visited in turn and the survey was declared complete on October 1, 1928. Proposals for control work were then submitted.

By the Willis method, Between January 1 and October 1, 1928, the survey examined fecal specimens from 2,934. These were all egg-counted by stool’s dilution method and those not showing eggs by this method were examined.

In the state, the area in which hook-worm infection was a more or less a serious problem and by large, being a parts of only Shimoga, Kadur, and Hassan and Mysore districts. In this area, there was either a heavy rainfall or else a considerable proportion of the people were employed, for part of year at least, on the tea and coffee estates of the wetter areas.
2. The Anopheline survey

In Bangalore city, the Anopheline survey was now organized as a thorough survey but was undertaken solely with a view to training the staff in the identification of larvae and adults bred from larvae. This work began on March 10, 1928 and was carried on at intervals throughout the year. The obvious breeding places in various parts of the city were visited, larvae caught and identified and adults bred out.

In the year (1928) thirteen species of anophelines were identified as adults and three additional species as larvae only; no adults had hatched. The following table 4 gives a list of the species identified as adults and gives an approximate idea of their prevalence in the various breeding places by giving the percentage of the total number of visits during which the species was caught. This percentage, though not exact, furnished a rough idea of the prevalence of dangerous species. It was noticed that A. subpictus was the anopheline most commonly found followed by A. fuliginosus, a. Pallidus, and A. Jamesii. None of these species were commonly known as being of much importance in the spread of malaria in India. The next most common species were A. culicifacies, A. listtonii and A. stephensi, all three being implicated as efficient carriers of malaria in various parts of India. The importance of the remaining species in the spread of malaria, it was concluded, was unknown. It was felt that malaria in Bangalore was due to one or all of the first species of the above table. In June and early July of 1927, schools in representative localities of Bangalore city were visited and a sample of the children in each school examined for enlarged spleens. The ages of the children varied between 4 and 12. In May and June of 1928, the same schools were visited and a sample was examined without reference to
the earlier examination. In 1928 there were 937 children examined of whom 108 (115%) had various degrees of spleen enlargement. Table below summarises the results of the examinations of certain divisions of the Bangalore City:

Table - IV

<table>
<thead>
<tr>
<th>Area</th>
<th>1927</th>
<th>1928</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of Children examined</td>
<td>No. with Percent Enlarged with Spleen enlarged Spleen</td>
</tr>
<tr>
<td>Fort area</td>
<td>166</td>
<td>14</td>
</tr>
<tr>
<td>Chamarajpet Area</td>
<td>156</td>
<td>34</td>
</tr>
<tr>
<td>Basavanagudi Area</td>
<td>164</td>
<td>25</td>
</tr>
<tr>
<td>Lalbagh area</td>
<td>152</td>
<td>57</td>
</tr>
<tr>
<td>Malleswaram Area</td>
<td>221</td>
<td>69</td>
</tr>
<tr>
<td>Total for City</td>
<td>859</td>
<td>199</td>
</tr>
</tbody>
</table>


In all the areas, there were reductions in the percentage of enlarged spleen. It was noticed that the reduction was of sufficient magnitude, in the light of the probable errors, to be significant an all expect the Fort area. The reduction in the Malleswaram area was particularly striking. No organized
measures to control malaria had been made between the two examinations. Therefore, it was felt that the reduction could only have occurred due to either accidental or natural control. Since there were not sufficient artificial changes in Malleswaram area to account for the marked reduction in spleen rates, it appeared probable that some natural control measure was at work. For some years past, it was realized, Bangalore had been affected from a relative drought. Other studies had indicated a fairly consistent relationship between various measures of malaria and rainfall in Mysore State. It appeared more or less certain that the marked increased rainfall of the latter half of 1928 would lead to an increase in the malaria which might be reflected in the spleen rates of children by about June 1929.

The findings of the subsequent two splenic surveys and the early results of the anopheline survey, certain proposals for the formation of a special malaria staff to study the situation and carry out control measures were sent to the Bangalore City Municipal Council.

The Rural Health Units should be established all over the State to render comprehensive health services to the people. In order to do so, the standards of requirements had to be established. Was One of the important recommendations of the Rockefeller Foundation\(^\text{20}\): and for this purpose the first Rural Health Centre in Mysore was started in Mandya in the year 1928 as an experimental measure for the purpose of determining the staff, equipment and budget necessary for opening eventually health units in all the taluks. Subsequent to the spleen survey of the State and recommendations made to government for the further study of malaria, three malaria stations were also started for the study and experimental control of malaria.\(^\text{21}\)
“These stations were intended, first, for the study of Mysore Malaria and second for experiments in its control. Before the second aspect could be undertaken, it was necessary to have from six months to a year of study of the existing conditions as regards the amount and severity of the malaria, the parasites causing it, the species and habits of the anophelines of Mysore and the species concerned in the transmission of malaria and their habits to breeding, biting, harborage, etc. Without this preliminary knowledge, efforts at control would be almost certainly doomed either to a too expensive success or total failure. According to the plans drawn up no control work was to be attempted for at least six months after the opening of the station.”

As explained by Dr. W.C.Sweet of the Rockefeller Foundation:22,

The three stations were placed under the direct control of three locally trained senior sub-assistant surgeons who were appointed as chief inspectors for training and three assistant inspectors were assigned to each station. These latter were passed S.S.L.C. candidates, frequently local residents, without previous training. These candidates, it was said, justified their appointment by creditable work and gave promise of a useful new class of public health personnel. Each station had a clerk of the same grade as the assistant inspectors.

From the following a brief summary of some idea of the work done in the newly set up malaria stations may be obtained:24

Each station the area covered by was divided into two zones, a central zone which could be protected by control measures and a peripheral zone which could serve as a yardstick by which to measure the amount of control attained. Various parts of these two areas were visited monthly to examine
spleens and to obtain blood slides for examination for malarial parasites. Once a week the various types of breeding places in the two zones were visited, anopheline larvae caught and identified, reared to adults and reidentified. Twice a week certain selected houses, stables and combination houses and stables were visited and adults captured. In an effort to determine the malaria vectors these adults were kept for three days and then as many as possible were dissected.

II. REORGANISATION OF THE PUBLIC HEALTH DEPARTMENT

The Government of Mysore even before it approached the Rockefeller Foundation to undertake a health survey. The question of revising the arrangements for the control of public health activities in the State had engaged the attention of. In fact, a malarial survey of the Bangalore city had been made during the year 1915-16 by the officiating Health Officer. He had, among others, suggested launching of a programme of “mass education in questions affecting public health” and observed, “It ought to be easy to flood the area with literature on all public health subjects in a readily assumable form. It ought to be easy to organize a lecture bureau that could take up mass education on a wider scale and in a more systematized manner than the rare outpouring of an executive health officer with a heavy charge and a light staff. He stressed that “a fair knowledge of the rudiments of physiology and hygiene should be made compulsory in our public schools.” He also noticed that nowhere is malaria existing as in the immediate vicinity of gardens. And also continuing the Health Officer He suggested the acquisition of those gardens, the filling up of wells and pools and sub-soil drainage of the area.
“It is unnecessary for me to dwell here on the details of work that should be carried out by the staff that is or may be appointed to carry out anti-malarial measures in the city. Such a staff is necessary not only to complete the enquiry with respect to the defects in the present investigation previously alluded to, to investigate the preponderance of benign or malignant infection, to ascertain any variations in the varieties of mosquitoes breeding in the same pool during the several seasons of the year and to elucidate the periods of the year when what may be called epidemics of malaria occur and the circumstances leading there to but also to take note of the efficacy of anti-malarial measures on the splenic index of the population and on the prevalence of malaria-carrying mosquitoes in the city. The working details of such a staff cannot find a place in this note… Work undertaken on this behalf in the city is not unlikely to be useful to the State as a whole, and it seems to me that while the cost of all preventive measures should naturally be borne by the municipality, further investigation may with advantage be taken up by the Public Health Department of the State and the preventive measures carried out by the municipality at the instance and under the guidance of the sanitary Commissioner or Director of public Health Institute.”

The Health Survey of Mysore and the consequent reorganization of the Public Health Department. Dr. Sweet, whose services had been lent by the International Health Division of the Rockefeller Foundation, after thoroughly examining the matter, formulated a scheme best suited to local conditions. The main features of the proposals submitted by him were:28
1. The separation of medical from the Sanitary Department.
2. The Department of Health to be divided into bureaus dealing with different aspects of Public Health activity.
3. The appointment of District Health Officers Establishment of local units Health Officers in Taluk and Municipalities.
4. The Health Officers for certain of the larger Municipalities and special area such as the Kolar Gold Field to be continued.

Dr. Sweets proposals was concurred and the Government of Mysore also agreed that the re-modeling of the department in the manner suggested would result in an all-round improvement of the sanitary condition of the State. However, the immediate expenditure involved of over ten lakhs of rupees for carrying out the proposed scheme in full persuaded the government to implement it in stages.

Two government orders were issued. As a result, in 1929 which changed the status and organization of the Department of Health. The first order, effective on February 1, 1929, separated the Sanitary Department from the Medical Department and re-established the post of full-time Sanitary Commissioner. This action was taken at the time that Dr. B. Mohamed Usmon, who had been Senior Surgeon, Sanitary Commissioner and Inspector General of Prisons, retired from service. The former Deputy Sanitary Commissioner, Dr. J.V. Karve, became Sanitary Commissioner. Since then the Health Services have been an independent department working under the secretary to Government.

On November 28, 1929, the second order, 29 concerning the interval organization of the Department of Health were issued. By this order the Sanitary Department came to be known as the Department
of health and Sanitary Commissioner designated as Director of Health. He became thus the chief controlling authority in the Department of Health. A Central Health Committee was created to be an advisory body to Government and Department.\(^{30}\)

The Public Health Department was divided into seven bureaus, each under an assistant director of Health of first class Health Officer, under the director of health.
The establishment of the following bureaus:

1. Bureau of Administration.
2. Bureau of Epidemiology and Communicable Diseases.
5. Bureau of Health Education.

With a specific functions and for the effective working of the department a number of Bureaus were set up within the department. They were as follows

1. **The Bureau of Administration**: This Bureau which worked under the direct supervision of the Director of public health, administers the general direction, control, co-ordination, finance, supplies and the personnel required for the department.

2. **The Bureau of Epidemiology and Communicable Diseases** was to study the diseases prevalent in the state, undertake experimental measures for their control, deal with the control of epidemic and endemic diseases, receive and publish reports on them and attend
to such other duties as might be assigned to it. The three Field Stations for the study and experimental control of malaria were to form part of the

3. **Bureau of Laboratories**: This bureau was headed by a deputy director of public health. This bureau manufacturers plague, cholera and T.A.B. vaccines and examines samples received for medico-legal and chemical examinations. Bureau of Epidemiology. The hook-worm control programme too was placed under the Bureau of Epidemiology as a temporary measure. It was expected that it would be taken over by local Health Units as and when organized in the infected districts.

4. **The Bureau of Vital Statistics** was charged with the supervision of the registration of births, deaths, marriage, undertaking the compilation of vital statistics in the State and taking all necessary measures to improve such registration: the receipt, filing and tabulation of all records of such occurrences for publication and study the effect of disease control methods from a statistical stand point. The Vital Statistician and staff constituted the staff of the Bureau of Vital Statistics.

5. **The Bureau of Health Education** was charged with the duty of health propaganda work by means of Cinema Publicity, Lecturers, Health Education and Publicity in Schools, Newspaper Publicity, Leaflets and Posters and organization of Health Weeks, Baby Shows, Exhibitions, etc.

6. **The Bureau of Sanitary Engineering** was given the functions of reporting upon all public and private systems of water supplies and sewage disposal, examination of all sources of water supply, and
preparation of proper maps and drawings for permanent record: investigation of all sources of pollution of water supplies: scrutiny and reporting upon all town-planning, irrigation or other schemes that affect the health of the people: investigation and reporting upon the engineering aspects of disease control: supervision over the water-sheds or water supplies and over the sanitary arrangements, ventilation and lighting of schools, jails and other public buildings.

7. The Bureau of rural Health was entrusted with the duties of supervision, organization and reporting upon the rural health administration of the State. The Bureau was expected to work in close co-operation with the district and other agencies engaged in carrying on health work or that might be organized and also exercise supervision over the local work in their respective spheres of activity. The Rural Health Unit in Mysore district constituted the staff of the Bureau of rural Health as a temporary measure.

It was the intention of the Government to establish other Bureau such as Maternal and Infant Hygiene, Child Hygiene, venereal Diseases, Tuberculosis, etc. It was also the intension of the Government to transfer local health work to taluk and municipal health units under health officers. It was intended that these health officers would have direct charge of all health work in their areas and would be responsible to and work under the direct control of district health officers, as and when appointed. It was planned to establish a minimum of about six local Health Units per year according to the recommendations of the Direct of Health.
The health organization of the Bangalore and Mysore cities and the kolar Gold Field, however, were left untouched by these new measures.³³

The Director of Health was given general administrative charge over the entire Bureau and pending the appointment of assistant directors of health, was also charged with the duties of looking after the Bureau of Administration, Laboratories, and Health Education and of Communicable Disease Control. Dr. Sweet of the Rockefeller Foundation, Consultant in Health to Government of Mysore, was in direct charge of the Bureau of Vital Statistics, Rural Health Work and Epidemiological Work.³⁴ For the post of the Sanitary Engineer, who was to be placed in charge of the Bureau of Sanitary Engineering of the Department of Health, the Rockefeller Foundation came forward to provide the services of a qualified person.

The progress of the Health Department from 1930-1947

1. BUREAU OF ADMINISTRATION

The bureau was directly under the Director of Health and consisted of the City Health Organisation in Mysore, Bangalore and Kolar Gold Field and the District Health Organisation. To begin with only Mysore and Shimoga districts had full time health officers in charge of health work, while in the other six districts, namely, Hassan, Kadur, Chitradurga, Tumkur, Kolar and Bangalore the district medical officers continued to be ex-officio district sanitary officers. The particulars of the Bureau of Administration in 1932 were as below: ³⁵
(a) Central Office:
   Director of Health
   Three Health Officers, II Class
   Subordinate Establishment

(b) City Health Organisation:
   (Cost met by City Municipalities)
   
   i. Bangalore City -
      Health Officer
      Establishment
   ii. Kolar Gold Field –
      Health Officer
      Establishment
   iii. Mysore City –
      Health Officer
      Establishment

(c) District Health Organizations
   Two Health Officers
   Establishment

   The Bureau was for the general direction, control and co-operation of the activities of the various sections of the department, namely, Bureau of Epidemiology and Communicable Diseases, Bureau of Laboratories, Bureau of Vital Statistics, Bureau of Health Education, Bureau of Sanitary Engineering and Bureau of Rural Health. Table 24 below exhibits the Organization of the Mysore State Department of Health.
When the reorganization of the Public Health Department was carried out in November 1929, certain items had been left out in the statement appended to Government Order. The Director of Health in Mysore pointed that out and forwarded a statement showing the redistribution of the Establishments sectioned in the Government directed the inclusion of the omitted items. The staff of the Health Department was rearranged according to Bureau and received the appendix to this Government Order is reproduced as Appendix No…

The Duties of City Health Officers

The city health officer’s duties are thus summarized:

“The Health Officer will supervise and control all health work in the Municipal Area, including conservancy, registration of births and deaths, vaccination, etc. He will attend to the cleanliness of the Municipal Area, the abatement of all nuisances and the prevention and suppression of epidemic diseases. He will supervise public markets, slaughter-houses, burning and burial grounds and bathing places. He will take measures for preventing the sale of unwholesome food and drink and shall control and regulate the carrying on of dangerous and offensive trades in the Municipal Area.”

Concerning the powers of the Health Officer it is stated to consist of:

“Inspections of new buildings: regulation of huts: Improvements of huts: municipal control over drains: powers of making drains” drainage of houses: permission to owners and occupiers of buildings or lands to drain into municipal drains: provision of privies, etc.: altering, repairing and keeping in proper order privies, etc.: power to close existing private drains:
power in respect of sewers, etc.: unauthorisedly constructed, rebuilt or unstopped: inspection of drains, etc.: troughs and pipes for rain water: removal and trimming of hedges, trees, etc.: powers and duties with regard to dangerous, stagnant or insanitary sources of water supply, etc.”

The Health Officer could also exercise powers for the prevention of the following nuisances: 41

Depositing dust, etc.: discharging sewage, etc.: non-removable of filth, etc.: removal of sight soil: filthy buildings, etc.: deserted and offensive buildings: power to enter and inspect, etc., buildings: fouling water: abatement of nuisances: using offensive manure, etc.: tethering cattle and keeping swine: consumption of smoke: Search for and inspection of unwholesome articles: prevention of dangerous diseases, etc.: prevention of diseases among horses, dogs, cattle, sheep’s or goats.”

The city health officer exercised powers vested in the City Municipalities in respect of streets: buildings: drainage and water-works, etc.: promotion of public health, safety and convenience: prevention of nuisance: regulation of markets, sale of goods, etc.: and prevention of dangerous diseases. After the passing of the City Municipalities Act, 1933,

Further, after the passing of The Mysore Public Health Act, 1944. 42 the health officer came to exercise powers delegated by Government under section 12. The Government reserved to itself the power to inspect, control and superintend the operations of local authorities under this Act. It also reserved to itself the power to define the duties to be performed by the Director of Public Health or any member of his staff. Section 8 of the Act laid down as follows:

“The Director of Public Health may, from time to time as occasion requires, recommend for adoption, by any local authority, such measures as
may be necessary for improving the Public Health Administration in the local area, or for safe guarding the public health therein:

“Provided that if on account of financial or other reasons, any local authority is unable to carry out such measures, or if there is any difference of opinion between the local authority and the Director, the matter shall be referred to the Government whose decision shall be final.”

The Act of 1944 placed the Public Health staff of every local authority under the disciplinary control of the Director of Public Health. A local authority was bound to appoint a health officer if so directed by the Government. The Government could also appoint temporarily one or more additional health officers in the event of the prevalence or threatened outbreak of any infections disease in any areas. It could also appoint persons to carry out the provisions of the Public Health Act.43

The health officer in charge of any local area was to exercise supervision and control over all other members of the public health establishment in such area. Subject to any rules or regulations made under the Act of 1944, all appointments, transfers and punishments of the members of the public health establishment under the supervision and control of the Health officer could be made by him, subject to the approval of the executive authority.44

The District Health Officers Duty Were the following as mentioned

☐ The district Health Officer acted as the adviser in all matter pertaining to sanitation, vaccination and public health in the district.

☐ He was subordinate to the President of the District Board in all administrative matters and to the Director of Health an all technical and
professional matters. In every matter relating to the health problems of
the village panchayats he was subordinate to the Deputy Commissioner.

- The Health Officer, in his capacity as the Sanitary Adviser in the district
  performed the following duties: 45
- The Supervision of vaccination.
- The Control of epidemics including inoculations.
- On the occasion of Jatras make Sanitary arrangements.
- The selection of suitable sites for village extensions or shifting of
  villages.
- The examination of water supplies regarding their suitability for
  drinking.
- Medical inspection of schools.
- To conduct Health propaganda work.
- The Supervision of vital statistics.

He was expected to visit all the municipalities of the district at
least once a year. He was expected to submit the following
periodical reports: 46

Daily ....... Report of Epidemics in the district.
Weekly ....... Inoculation Returns.
Monthly .....Vaccination and Mortuary Returns.
Annual .......(a) Report of health conditions and vital
  statistics in the District.
  (b) Report on vaccination.
Duties of District Medical and Sanitary Office are as follows,

Where there was no separate District Health Officer, the District Medical Officer was to be ex-officio Health Officer and Sanitary Adviser to the Deputy Commissioner and the President of the District Board. As he could not be expected to devote his entire time on matters connected with his additional charge, the rules as to tours and inspections did not apply in his case: but, it was expected that he would meet the health demands of the district to the best of his ability and energy.

He was responsible for the control of epidemics and he was expected to promptly adopt, in consultation with the President of the District Board and the Deputy Commissioner, all measures necessary to control and combat the disease. He was also expected to submit the periodical reports and returns relating to public health.47

The above arrangements in board had been made for the administrative requirements of the Department of Public Works during the period under study. From time to time, however, additions to establishment were made or certain changes introduced: but, the framework and the rules applicable did not deviate from what is outlined above.

In Bangalore City, the Municipal Council sanctioned the appointment of a Food Inspector and a clerk to get through the extra work to be undertaken in that connection. Owing to the continued expansion of the sewage system in the city and extensions and the large number of flush-out latrines that came into existence, it was found necessary to maintain a separate establishment for constant cleaning of the drainage lines. Proposals made for a pipeline staff were approved by the Government in 1937.48 the post of an Entomologist was sanctioned in November 1945 to the Bureau of
Maliology. Two III Class health officers were also sanctioned to assist the superintendent of the bureau, in connection with routine work and special survey in 1945.\textsuperscript{49} during 1946; additional staff was sanctioned on a temporary basis to the Bureau of Epidemiology which was continued during 1947 also. The posting of a selection staff of sanitary inspectors for special duty in the distress areas of Tumkur, Chitradurga and Kolar districts was also sanctioned during 1946.\textsuperscript{50}

II. The BUREAU OF EPIDEMIOLOGY AND COMMUNICABLE DISEASES

The work of this Bureau comprised of the following (a) Stations for study of Malaria, (b) Hook-worm Campaign Unit and (c) The Control of Epidemic Diseases.

(A) Stations for the Study of Malaria

The Recommendations made to Government for the further study of Malaria after an extensive spleen survey of the State were sanctioned by the establishment of three stations for the study and experimental control of malaria. The first of these stations was officially opened in Nagenahalli in Mysore taluk on October 1, 1928: the second on December 10, 1928 at Mudgere in Kadur (now the Chikmagalur) district: and, the third on January 10, 11929 at Hiriyur in Chitradurga district.

Two zones were created in the area covered, a central zone, which it was hoped could be protected by control measures: and, a peripheral zone which could serve as a yardstick by which to measure the amount of control attained. Various parts of these two areas were
visited monthly to examine spleens and obtain blood slides for examination of malarial parasites. Once a week the various types of breeding places in the two zones were visited, anopheline larvae caught and identified and reared to adults and reidentified. Twice a week certain selected houses, stables and combination house and stables were visited and adults captured. These adults were kept for three days and then some of them were dissected an effort to determine the malaria vectors. The tent catching of anopheline mosquitoes was also tried at Mudgere. In that station 22 different species of anophelines were identified, but of these only two species viz., A. culicifacies and A. listoni appeared important as the likely carriers of malaria.51

Health Officers, District Medical and Sanitary Officers and the Medical Officers of Health were in charge of the Health Units. The Mysore Town Municipalities Act, 1933 (Act VIII of 1933) provided for the regulation of markets, sale of food, etc. It empowered the municipal councils to grant licenses to markets, slaughter-houses, etc. The Act lay down, that they could at their discretion from time to time grant, suspend, withhold or withdraw such licenses either generally or in individual cases52

It may also either take stall age or other rents or fees for the use of any person of such market or slaughter-house or from time to time sell by public auction or otherwise the privilege of occupying any stall or space in, or of otherwise using, any such market or slaughter-house. The municipal council may from time to time open or close any public market or slaughter-house. “Any person who, without the permission or license of the municipal council, shall sell
expose for sale any article markets, or use the said slaughter-houses, shall be punished with fine.

The Act further provided: 53 “No shop or place shall be kept for the retail sale of drugs recognized by the British Pharmacopoeia, not being also articles of ordinary domestic consumption, unless the same is registered in the office of the municipal council”.

“No person shall compound, mix, prepare, dispense or sell any drug in any such registered shop or place unless he be duly certified as a fit person to be entrusted with the duties prescribed in their behalf: and every such person shall be bound to produce his certificate for inspection where required to do so by a magistrate, a medical officer not below the rank of an assistant surgeon or the health officer of the municipality.”

Provisions against sale of UN wholesome articles of food and drink . Was also mentioned in the Act 54

(B) The Hook-worm Campaign Unit

For the recognition of the areas which needed immediate hook-worm control, measures resulted in the preparation of a plan to deal with this problem. The area of the State in which hook-worm infection might be considered to be a more or less serious. Problem was not great. A part only of the Shimoga, Kadur, Hassan and Mysore districts constituted such an area. This area was noted for heavy rainfall and for part of the year at least, a considerable proportion of the people worked on the tea and coffee estates of the wetter areas or the Malnad parts of Mysore State.
(C) City Health Organization

(i) Bangalore: In the Bangalore City, in addition to the use of Paris-Green, Experiments were conducted for ascertaining whether larvicidal fish Gambusia could be employed successfully for the eradication of anopheline larvae breeding in wells. Actual results showed that the fish compare favourable with Paris-green as a larval control measure in wells\(^55\) The experiment with the larvicidal fish Gambusia for controlling the A. stephensi mosquito breeding in wells proved satisfactorily. Therefore, the area under fish control was extended by including all wells in the northern half of the city.\(^56\) A spleen survey was also made in the city.

The number of houses inspected by the sanitary staff was 8,940. Notices issued under the Municipal Regulation for sanitary defects were 5,468. In the Bangalore city, there were 19,500 inhabited houses with an average number of 8.8 persons per house. Prosecutions were launched in 1,184 cases, 262 of which ended in conviction.\(^57\) during the year 1932-33, eleven lepers and 65 vagrants were removed to the Epidemic Diseases Hospital. Seventeen samples of ghee, 14 of butter and samples of other foodstuffs were examined regarding their fitness for human consumption. In 16 cases, action was taken under the Prevention of Adulteration Regulation and the Municipal Regulation. At a marriage party some 150 persons suffered from food poisoning causing diarrhea, vomiting and collapse. On bacteriological examination, the food was proved to be contaminated with bacillus prodigious. One thousand and eleven stray dogs were Culled\(^58\)

In Bangalore City During the year 1934-35, 10,969 premises of all classes were inspected against 9,869 in the previous year. Sanitary defects were noticed in 2,337 premises and notices were issued under different sections of the municipal regulation. The terms of the notices were complied
with in 724 cases and prosecutions were launched in 1,328 cases. Seven hundred and eighty-seven stray dogs were destroyed.\textsuperscript{76} in 1937-38, the question of construction of an update slaughter house was taken up and a sum of nearly Rs. 15,000 was provided for this. During the year 3,787 stray dogs were destroyed.\textsuperscript{77} In the year 1939-40, 464 hotels and coffee clubs, etc., were inspected as against 911 places in the year previous.\textsuperscript{78} During the year 1940-41, one thousand one hundred and eighty-two hotels, coffee clubs, etc., were inspected. During the year 1942-43, sanitary defects were noticed in 1,774 premises and notices were issued for rectification of defects. Strict supervision was maintained over hotels and coffee clubs, aerated water-factories, bakeries and sweet-meat shops. Under the provisions of the Food Adulteration Act, 467 food-stuffs were analyzed. Three thousand six hundred and seventeen stray dogs were culled. As a routine measure, 10,532 wells, 627 cisterns and 88 pools were restocked with larvicidal fish both in the Bangalore City and extensions.\textsuperscript{59}

In addition to exercising strict supervision over hotels, coffee clubs, bakeries, etc., 657 samples of food-stuffs were analysed and 2,225 stray dogs were destroyed in the year 1943-44, further, arrangements were made to make a special survey of all mosquito-breeding places in the area and to re-stock all wells with larvicidal fish, to drain off all temporary collections of water and to spray pyrocide mixture in all the houses in the locality.\textsuperscript{60}

The scheme of weekly intensive cleaning campaign was carried on in Bangalore city in the year1945-46. Three thousand and two hundred and two notices were issued. Strict inspections of hotels, coffee-clubs, markets and slaughter houses were conducted and defects noticed were promptly rectified. The numbers of stray dogs Culled were 2,464. The malaria mosquito control works were continued as usual. The annual spleen survey
in Bangalore City was conducted in July 1945. Three hundred and twelve samples of food stuffs were collected and analysed. 61

The sanitary staff maintained strict vigil against outbreak of epidemics and took measures for regular cleaning, rectification of defects and prompt inspection of places of public resort. In Bangalore city, Four thousand and sixty-three stray dogs were destroyed. The malaria mosquito control operations were continued. The usual spleen survey in Bangalore City was conducted in July 1946. Three hundred and ninety nine samples of food stuffs were collected and analysed. 62

The two milk centers, one in Purnaiah Choultry, and another on Bellimutt road, were started in June 1945 to supply milk to poor children free of cost. 63

**Mysore City:**

In year 1930-31, a malaria survey of Mysore City was made and recommendations for malaria control work in the city were sent to Government. A consignment of Gambusia fish was successfully taken to Mysore and a hatchery was established in the pond within the Ayurvedic Herb Gardens below the Kukkarahalli tank. Special malaria surveys of the Body Guard Lines 64 and princess Krishnarajammanni Tuberculosis Sanatorium in Mysore city were also constructed during the year 1931-32.

In the year 1932-33, 1,730 houses were inspected and 189 notices issued under various by-laws under the Municipal Regulation. In 234 cases prosecutions were launched, and out of them 89 ended in conviction. In the laboratory attached to the Health Office, 317 samples of water and 3 of milk were bacteriologically analysed. One thousand four hundred and fifty-two stray dogs were Culled. 65

In the year 1933-34, in the Mysore City 800 premises were visited by the Health Staff: and 685 notices were issued under the sanitary section of the
municipal regulation. The terms of the notice were complied with in 460 cases and 225 prosecutions were filed, of which 2 ended in acquittal: 104 were withdrawn and 72 ended in conviction. During the same year, 233 samples of water, 1 sample of motion and 14 samples of urine were examined in the laboratory of the Health Office. 66

During the year 1934-35, the health staff visited 1,568 premises of all classes. The terms of the notices were complied with in 900 cases. The Health Laboratory undertook the analysis and examination of 258 samples. The number of stray dogs culled was 2,276 as against 1,515 in the previous year. 67 The work of the City Health Organizations did not differ much in subsequent years. However, flush latrines were brought into use: 54 (1938-39), 455 (1939-40) and 1,108 (1940-41). This changeover continued in subsequent years. During 1945-46, the spraying of anti-malarial insecticide pyrethrum and Paris-green was done in several mosquito breeding areas of the city. Several other measures, such as, draining of pools by excavating trenches to control malaria, removal of silt in drains and swamps and filling up of pits, stocking of fish in various ponds to improve the sanitation of the city were implemented. 68 In subsequent years, Similar sanitary measures were undertaken

(i) **Vaccination:** The Vaccination continued to be compulsory in all urban areas, including city municipalities and in rural areas in the whole of the Shimoga district and parts of Kadur, Hassan, Kolar and Bangalore districts and in the Sanitary Board areas of the Kolar Gold Field. The average number of vaccinators employed in the State was 177, of whom 46 worked under municipal councils. During the year 1930-31, the largest number of vaccinations performed was in the Mysore district, viz., 38,567 (of which 33,532 were primary vaccinations) and the smallest number, viz.,
13,030 in the Chitradurga district. The number of vaccinations performed by medical subordinates in the different dispensaries was 8,694 of which 5,732 were primary, 2,962 re-vaccinations, against 7,518 in 6,321 primary and 1,197 revaccinations.

The Table below furnishes details of vaccination work performed during the years 1929-30 to 1947-48: in Mysore.

**Table- V**

**Vaccination Work Performed (1929-1947)**

<table>
<thead>
<tr>
<th>Years</th>
<th>Primary Vaccinations</th>
<th>Revaccinations</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>1,75,559</td>
<td>27,864</td>
<td>2,03,423</td>
</tr>
<tr>
<td>1930</td>
<td>1,77,447</td>
<td>33,480</td>
<td>2,10,927</td>
</tr>
<tr>
<td>1931</td>
<td>1,17,020</td>
<td>22,847</td>
<td>1,69,867</td>
</tr>
<tr>
<td>1932</td>
<td>1,56,433</td>
<td>88,645</td>
<td>2,45,079</td>
</tr>
<tr>
<td>1933</td>
<td>NA</td>
<td>NA</td>
<td>2,66,165</td>
</tr>
<tr>
<td>1934</td>
<td>NA</td>
<td>NA</td>
<td>3,17,073</td>
</tr>
<tr>
<td>1935</td>
<td>NA</td>
<td>NA</td>
<td>4,06,814</td>
</tr>
<tr>
<td>1936</td>
<td>1,84,580</td>
<td>85,682</td>
<td>2,70,262</td>
</tr>
<tr>
<td>1937</td>
<td>NA</td>
<td>NA</td>
<td>2,47,784</td>
</tr>
<tr>
<td>1938</td>
<td>NA</td>
<td>NA</td>
<td>2,50,780</td>
</tr>
<tr>
<td>1939</td>
<td>1,95,915</td>
<td>1,65,503</td>
<td>4,25,632*</td>
</tr>
<tr>
<td>1940</td>
<td>NA</td>
<td>NA</td>
<td>5,34,519</td>
</tr>
<tr>
<td>1941</td>
<td>NA</td>
<td>NA</td>
<td>3,15,598</td>
</tr>
<tr>
<td>1942</td>
<td>2,00,500</td>
<td>2,14,435</td>
<td>4,14,935</td>
</tr>
<tr>
<td>1943</td>
<td>2,03,543</td>
<td>3,20,221</td>
<td>5,23,564</td>
</tr>
<tr>
<td>1944</td>
<td>1,53,531</td>
<td>1,62,839</td>
<td>3,16,370</td>
</tr>
<tr>
<td>1945</td>
<td>1,47,989</td>
<td>1,50,663</td>
<td>2,98,652</td>
</tr>
<tr>
<td>1946</td>
<td>2,00,420</td>
<td>4,80,939</td>
<td>6,81,259</td>
</tr>
<tr>
<td>1947</td>
<td>1,48,852</td>
<td>2,07,857</td>
<td>3,56,709</td>
</tr>
</tbody>
</table>

*Source: Compiled from Report on the administration of Mysore State for the respective years.*
A mass inoculation of anti-cholera vaccine in Borwingpet town (6,405) in 1931 brought quickly under control an epidemic of cholera that might otherwise have decimated the population. During 1932, in Dodballapur town nearly the whole of the population (8,672) was protected by vaccinations varied from year to year as may be seen from the details collected at random.  

The number of vaccinators in service in 1942-43 was 184. Government sanctioned during the year the appointment of 15 additional vaccinators for starting a vaccination drive in all the municipalities.

III BUREAU OF LABORATIRIES

(i) The Public Health Institute

The Public Health Institute carried on work in connection with the examination of samples of water from water supplies, examination of sputa and urine, Wassermann and Widal tests on blood specimens, bacteriological work pertaining to the Civil and Veterinary Department and analyses of food stuff suspected of poisoning, etc.  

A Superintendent and Chemical Examiner headed the Institute, it was done in three main sections-Bacteriological, Chemical and Medico-legal. In the Bacteriological section, 1,352 samples of water were examined quantitatively in 1931 to determine the number of colonies per c.c. on Agar plate and qualitatively for the presence of lactose fermenters and for cholera vibrios. Lactose fermenters were invariably present in 5 c.c. samples. For cholera, 28 samples the results were positive.
Research work on bio-chemical standards was done as also the study of the nature of filterable viruses, both in vitro (by tissue culture) and vivo (by animal experiments). A few specific types of phages were cultivated for conducting experiments. 73

The Public Health Institute used to conduct training course of three months duration for the benefit of sub-assistant surgeons from the Medical Department.

The analyses of cases received in the Medico-legal section showed that arsenic was the poison by choice. It was complained that the inquest and post mortem reports often clouded the issues as regards the nature of poison suspected. As a result the Chemical Examiner was hard put to arrive proper conclusions. 74

With effect from August 1936, the cholera section of the Vaccine Institute was transferred to the Public Health Institute and cholera vaccine came to be prepared and supplied to the different parts of the State. 75

The post of Bacteriologist was created in June 1939 in the Public Health Institute. Samples of water from the taps in Bangalore City were examined from day to day throughout the year for the residual chlorine content. 76 the periodical examination of water samples from the municipalities in the State was an important work of the Public health Institute. In 1939, all the samples received were specially tested for the first time for the presence of ‘fluorides’ using the standard technique of Sanchi’s method as adopted by the workers at the Guindy Instituite, Madras (Chennai), and no samples was found to contain ‘fluorides’. 77
Particulars of work done in the Public Health Institute during the year 1939 from which an idea of the nature and quantum of work turned out by it may be gained.

In addition to anti-cholera vaccine, anti-typhoid nad anti-plague vaccine, the Institute also prepared a large quantity of pyrethrum extract and supplied to the Bureau of Malariology for use in the work of malaria control. 78

(ii) The Vaccine Institute

In the year 1892 the Vaccine Institute had been established. It was transferred to the Health Department in 1918. It was headed by a superintendent. The work done could be divided under production and distribution of lymph for vaccine against small pox. It produced only lanoline lymph in quantities sufficient to meet the demand. In times of small pox outbreaks, when there was great demand for vaccination or in times of outbreaks of reinderpest and foot and mouth disease, supplies of lymph from Guindy or Belgaum used to be obtained. The problem of general issue of glycerin lymph which was widely known to be superior to the lanoline lymph was also being worked out gradually. The Superintendent, Vaccine Institute, supervised the vaccinations in the Model Range to test the several strains of lymph produced in the Institute. That Range comprised of about 111 villages within a radius of about 16 miles from Bangalore.

The glycerin lymph was produced at the Institute and the need of the State were fully met from January 1936 the quantity produced was 55,440 grains at a total cost of Rs. 20,760. The animals used for producing the lymph were cow calves purchased from an approved contractor. Rabbits were used for producing the seed virus. About 35
of buffalo calves used In the Model Range, constituted under the Bangalore District Boards; vaccinations were done for testing the potency of the several strains of lymph produced at the Institute. A total of 1,223 primary vaccinations were thus performed with glycerin lymph in the Model Range. About 97 percent was the success rate.

The demand for vaccine lymph was unusually high due to mass vaccination undertaken at the instance of the Department about 97 percent. As in the year 1938, vaccine lymph from buffalo-calves was produced on a large scale.

IV. THE BUREAU OF VITAL STATISTICS

The population of Mysore enumerated at the censuses of 1931, 1941 and 1951 is shown below:

Table – VI

<table>
<thead>
<tr>
<th>Census years</th>
<th>Population</th>
<th>Density</th>
<th>Males</th>
<th>Females</th>
<th>Sex Ratio*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1931</td>
<td>6,423,189</td>
<td>223</td>
<td>3,284,554</td>
<td>3,138,635</td>
<td>955</td>
</tr>
<tr>
<td>1941</td>
<td>7,338,483</td>
<td>249</td>
<td>37,63,318</td>
<td>35,65,822</td>
<td>947</td>
</tr>
<tr>
<td>1951</td>
<td>9,074,972</td>
<td>308</td>
<td>4,663,854</td>
<td>4,407,820</td>
<td>949</td>
</tr>
</tbody>
</table>

* Females per 1,000 males

The total area of the State was 29,489 square miles. There were 58 houses per square mile and 6 persons per house in 1951. The lowest density of 63 per square mile was in Narasimharajapura taluk in Chikmagalur district: the highest
density of 441 was in Bangalore taluk. Bangalore City had 30,548 persons per square mile. In 1941 the urban population of the State was 13, 46,206 and the rural population 59, 82,974 or respectively 18.4 percent and 81.6 percent of the State. During the next census (1951), the urban population was found to have increased to 21, 78,727 or 24 percent and the rural population to 68, 96,245 or 76 percent.

There were, as in the year previous, 2 City municipalities (Bangalore and Mysore), 38 town municipalities and 66 minor municipalities, at the end of the year 1932-33, from 1, August 1933. Thus making a total of 106 municipalities. In June 1933 three separate bills for City, Town and Minor Municipalities received the assent of the Maharaja and came into effect. The Bangalore City Municipality had 31 councilors of whom 10 were nominated and the rest elected. The Bangalore City Municipality had a non-official president. The Mysore City Municipality had 29 councilors of whom 9 were nominated and the rest elected. It had an official president and a non-official vice-president. Of the other Municipal Council, those of Tumkur, Anekal, Chikmagalur, Dodballapur and Malur had non-official presidents in 1932. Municipal finances were supplemented by grants Government on occasions from Government. For administrative purposes the State was divided into 8 districts under Deputy Commissioners, who were also assisted by District Boards under non-official presidents. The districts were divided into 80 taluks under
Amildars and sub-divided into village Panchayats, 10,582 in number (1931)\(^8^0\) the chairman headed each panchayat.

(A) Registration of Vital Statistics

For many years past the registration of vital statistics was a problem which had engaged the attention of Government. Various attempts had been made since 1879 with a view to suggest agencies for the effective supervision of the registration and compilation of vital statistics. On the recommendation of the Standing Committee of the Economic Conference, Government appointed a Committee in 1915 to study the question of registration of vital statistics and the rules therefore were published. In 1918, the Mysore Registration of Births and Deaths Regulation (No.III) was passed.\(^8^1\)

The vital statistics In City Municipalities were collected by sub-registars who compiled the figures for the Health Officer. Town municipalities did not employ paid registrars as it was rather too costly for them and the Revenue Patel did the registration work in addition to his other duties as in villages, the bill collector or the octroi collector attended to this work also, in some municipalities.\(^8^2\)

In 1929 a preliminary survey for reporting of vital statistics in Mysore district had shown that only 50 percent of deaths and still fewer births were actually reported. With a view to improve this defective registration, the patels’ registers came to be thoroughly revised and simplified forms of reporting were introduced. As follows however, the reporting
of the births and deaths did not improve much. Thus, we learn from the Census Report (1941).  

B. Reporting of Epidemic Diseases

The epidemic diseases like plague, small pox and cholera, daily reports of outbreak were required to be sent by the village Patel to the Amildar of the taluk and the nearest medical officer. The taluk Amildar sent a consolidated report of such attacks and deaths from epidemic diseases to the president of the District Board, who in turn sent a consolidate daily return for the district to the Director of Health. Similarly, the Health Officers of cities sent daily reports of epidemics to the Director of Health. Abstracts of such returns were sent daily to the Member in Council and Secretary in charge of Public Health and to the Private Secretary to the Dewan. In addition to these, the Director of Health sent to Government weekly and quarterly reports on the State of public health in Mysore Weekly telegrams on the epidemic situation in Mysore State and weekly and monthly statistics of attacks and deaths were sent to the Public health Commissioner with the Government of India. In 1933, triplicate cards, printed in Kannada, were introduced for the notification of epidemic diseases which required the village patel to report all attacks and deaths till infection subsided. This system was put to actual practice from January 1, 1934 and enabled prompt and accurate reporting in the future years.
The ‘infectious diseases meant, According to the Mysore Public Health Act, 1944, \(^8\)

(a) Acute influenza pneumonia, (b) anthrax, (c) cerebrospinal fever, (d) chicken-pox, (e) cholera, (f) diphtheria, (g) enteric fever, (h) leprosy, (i) measles, (j) plague, (k) rabies, (l) relapsing fever, (m) scarlet fever, (n) small-pox, (o) tuberculosis,(p) typhus or (q) any other disease that may be notified by Government from time to time as an infectious diseases’.

The Act also made it obligatory for every medical practioner to give information with the least practicable delay as soon as he became cognizant of the existence of any case of enteric fever or tuberculosis in any private or public dwelling to (1) the executive authority, the Health Office or a Sanitary or Assistant Sanitary Inspector in municipal areas: (2) in non-municipal areas, to the Health Officer, the Sanitary or Assistant Sanitary Inspector or the village patel. Further, it prohibited the use of water from suspected source, provided for the removal of infected persons to hospital, prohibited the exposure of other persons to infection in such public places as any market, theatre or other place of entertainment or assembly: any school, college or play ground: any hotel, hostel, boarding house, choutry, rest-house or club: and any factory or ship. \(^9\)

Next, the Act laid down: 124 “No person shall suffering from or in circumstances in which he is likely to spread, any
infectious disease (a) to make, carry or offer for sale or take any part in the business of making, carrying or offering for sale, any article of food for human consumption: or (b) engage in any other occupation without a special permit from the Health Officer of the local authority concerned.…..”

The Mysore Public Health Act, 1944, also declared the notified infectious diseases as consisting of (a) cerebro-spinal fever, (b) chicken-pox, (c) cholera (d) diphtheria, (e) leprosy, (f) measles, (g) plague, (h) rabies, (i) scarlet fever, (j) small-pox, (k) typhus or (l) any other disease that the Government might by notification declare as such. 87

Provisions for the control of notified infectious diseases were similar to those applicable to infectious diseases in general. In case of notified infectious diseases, the Act empowered the Health Officer to order destruction of hut or shed to prevent spread of infection: closure of lodging houses: or to prevent infected persons not to use public conveyance, etc.

(ii) Jatras (Fairs and Festivals)

“The time of rest when there was no work to be done on the fields coincided with the season of jataras and festivals. Rural people would seize these opportunities to bring those things which could not be had in ordinary weekly fair. Business combined with pilgrimage to holy shrines or annual festivities resulted in the promotion of considerable trade on such occasions. Some of the places which have been famous on account of a large volume of trade affected during jatras are Chunchanakatte, Ghati Subramanyam. Sravanabelgola, Melkote,
Sulekere, Naikanhatti, Sibi, Nandi, etc. at Chunchanakatte, cattle fair is annually held and the total number of cattle exhibited range from 5,000 to 10,000, most of which are sold…..” According to C. Hayavadana Rao: 88

From very early times a large number of cattle fairs, at which huge crowds assemble and business transacted, used to be held at many holy places throughout the State. At such fairs the District Boards made arrangements for general sanitation, conservancy and safe water supplies: temporary latrines were put up and the wells in the areas were cleaned and chlorinated. In the case of important fairs a medical subordinate used to be deputed to open a temporary dispensary for giving medical aid to the needy.

The District Magistrates and other officers concerned are informed that the reported prevalence of an epidemic in places at some considerable distance from a proposed Jatras should not be regarded as constituting a sufficient reason for recommending its prohibition, particularly in cases where an important cattle fair is held in connection with the Jatra. About two weeks before the Jatras the conditions prevailing at the place of the Jatra and its immediate neighborhood (which may roughly be taken as the country around within a radius of 30 miles, i.e., about two days’ march) should be carefully studied and if there are no signs of active of recent infection therein, the arrangements for the Jatra may ordinarily be allowed to proceed. No Unnecessary risks should, of course, be taken in matters concerning public health, the interests of which must be regarded as paramount. At the same time, however, the stoppage of an important
Cattle Fair involves serious economic loss to the rural population and should be recommended only if, on a detailed survey of the local conditions, the adoption of such a course is found to be clearly for the protection of the public.

“Where it is decided to prohibit a Jatra, the decision should be notified to the people of the localities concerned at least a week before-hand pending the issue of Government Orders which should be applied for in good time.”

The Mysore Public Health Act, 1944, among others, had provided that any local area or part of a local area in which a fair or festival is to be held could be a notified fair or festival centre for such period as might be specified. The concerned revenue officer could also define the limits of the area which comprised the site for the fair or festival. It was also laid down, “The person or authority in charge of any fair or festival shall, not less than sixty days before its commencement, intimate to the executive authority or Health officer of the local authority concerned or in case the fair or festival is to be held within the jurisdiction of more than one local authority, to the executive authority or Health officer of each of the local authorities concerned, the date of the commencement of such fair or festival and the period for which it will last.”

It was the duty of the local authority within whose jurisdiction a fair or festival is held to make provision for the following,

1. The demarcation and preparation of the site of the fair or festival:
2. The clearing and draining of the site:
3. The disposal of the several parts of the fair or festival, including the alignment of roads within the site:
4. The supply of water fit for drinking and cooking purposes for the use of persons resorting to the fair or festival:
5. The supply by suitable persons of wholesome food at reasonable rates and the proper supervision and inspection of all food prepared or offered for sale or stored or in course of transit within the fair or festival centre:
6. The collection, removable and disposal of refuse, rubbish and sewage:
7. The supply and maintenance of suitable latrines for the use of persons resorting to the fair or festival:
8. The detection and segregation of cases of infectious diseases and the prevention of the introduction and spread of diseases and epidemics.

(iii) Forecasting of Epidemics

It was possible during this period to forecast the occurrence of malaria and other communicable diseases. With the accumulated statistics and the method devised for analyzing them A forecast of increase of malaria was in 1931, that of probable outbreaks of smallpox in 1934; an increase of cholera in 1931. In view of the anticipated epidemic of cholera outbreaks in 1930-31, many of the Jatras were prohibited and the disease was brought under control. Similarly, cholera was sought to be controlled during 1931-32 by prohibiting the holding of Jatras. It became an established practice.
In later years, such instances of forecasting and preventive control of epidemics. The influence of climatic factors on the virulence of epidemics had been fully established and it was important to have reliable meteorological data for purposes of forecasting epidemics. Formerly, Mysore State had four meteorological stations in Bangalore City, Mysore City, Hassan and Chitradurga towns. During the period under study wet and dry bulb thermometers were installed in 46 different places throughout the State. This helped collection of representative data in respect of temperature and humidity for all parts of the State and increased the reliability of forecasting of epidemics a normal practice.

V. THE BUREAU OF HEALTH EDUCATION

The Bureau of Health Education was created in 1929 and the full staff and budget began operation in 1932 with a Health Officer in charge. The duties of the Bureau consisted of:

2. Lectures.
3. Health Education and Publicity in schools.
4. Newspaper publicity, letters, interviews and articles.
5. Editing and publication of a Popular Health Journal.
6. Leaflets, pamphlets and posters in different languages.
7. Organization of Health Weeks, Baby shows, Exhibitions, etc., and
8. Departmental Reports.

With regard to publication of educational material it was decided to confine attention in one year to about three subjects and print a number of leaflets and posters to last for some years. And the
subject chosen in the year 1932 were small-pox, plague and soil-pollution and leaflets and posters on these subjects were prepared in English and regional languages and printed. At first the Bureau possessed two films on “Malaria” and “Hookworm” only. Several new films on subjects like venereal diseases, spread of tuberculosis, value of vaccination, value of mother’s milk, social hygiene for women, rat menace, etc., were acquired and added to the Bureau’s collection. The films exhibited and the explanatory talks given were watched and heard with keen interest by the audience everywhere. And the superintendent of the Bureau acted as Assistant to the Director of Health in his duties as Secretary of the Mysore State Branch of the Indian Red Cross Society and thus helped to link the work of the voluntary health organizations of the State with the official agency. This was a great activity, namely, in the field of health education.

VI. BUREAU OF SANITARY ENGINEERING

The Rockefeller- Foundation to the Government of Mysore loaned The services of a sanitary engineer for the establishment and administration of a Bureau of Sanitary Engineering in the Department of Health. He arrived in Bangalore in February 1930 and after making a study of the public health and sanitary activities in the State, made recommendations to Government. Accordingly, a Bureau of Sanitary Engineering was created. in the Department of Health Personnel from the Sanitary and Town Planning Division of the Department of Public works were transferred to the Bureau of sanitary Engineering,
in addition to a small staff to facilitate the establishment of the Bureau.

The Bureau was entrusted with the following duties: 96

1. The planning and designing of all new works of water supply and drainage, including all schemes for the treatment and disposal of sewage and trade wastes.

2. The planning of more efficient methods of purifying existing water supplies. The inspection, supervision and alteration of all existing work of the character above described, including

3. All engineering aspects of malaria and plague involving design of drainage projects for malaria control and the design of rat-proof construction for the control of plague.

4. The approval of all plans:
   (a) improvement of extensions, For town-planning
   (b) For the sanitation, ventilation and lighting of schools, jails and other public buildings.
   (c) For works of irrigation as far as they might affect the health of a community.

5. The investigation and supervision of all water sheds supplying water for domestic purposes.

6. The collection of water samples for public and private water systems for bacteriological and chemical examinations.

In the year 1932 The activities of the Bureau were increased by a Government Order 97 which authorised that the entire control of water supplies in the State be vested in this Bureau except the Bangalore Water Supply which was allowed to be retained by the
Chief Engineer. Government directed that the work of putting down bore-holes for drinking water supplies should be done by the well-boring staff attached to the Department of Industries and Commerce in strict accordance with the instructions issued by the Bureau with whom all initiative in the matter was allowed to lie.

(i) Water Supply in Cities and Towns

(a) **Bangalore City**: The first scheme of protected water supply of Bangalore called the “Chamarajendra Water Works”, started in 1894, was designed for a maximum population 2, 50,000. The Second scheme of protected water supply of Bangalore, namely, The Thippagondanahalli Reservoir was undertaken during Sir Mirza M. Ismail’s dawanship. This reservoir was put into service from 15, March 1933. The inauguration of the water works was performed by Maharaja Krishna raja Wodeyar IV. The capacity of the plant and rising main was only for the delivery of 5 to 6 million Gallons, which could hardly give 16 gallons per head per day, Because the population of Bangalore by that time had increased to about 3, 40,000.  

Prior to this, 151 the quantity of water received at the Combined Jewell Filters was 1,286 million gallons and the consumption amounted to 1,280 million gallons, of which 627 million gallons were supplied to the Bangalore City, 590 to the Civil and Military Station (C&M Station), Bangalore and the balance of 63 million gallons represented the quantity allowed for washing filters. The consumption of water in the city was 15 gallons per head per day against 14.5 gallons during 1928-29.
The additions and improvements were effected since 1942 and the city was by the year 1952 getting a maximum supply of 12.1 million gallons for a population of 8,00,000, which secured a per capita allowance of 13 to 14 gallons of water only.

(b) Mysore City:

During 1929-30, a quantity of 899.5 million gallons of water was pumped from Belagola, which worked out to 29 gallons per head per day as against 28.66 gallons during 1928-29. From March 1932, the control of water supply to Mysore City was taken away from the municipality and vested in the Bureau of sanitary Engineering, along with those of Shimoga and Kolar Gold Field. Improvements to the distribution system were executed during 1932-33 in connection with the laying of sub-mains and providing public taps in Mysore City. A supply of 29 gallons per head was better than what the citizens of Bangalore were getting. However, by the year 1944 Mysore Water Supply was taken up again for further improvement. A committee was formed in that year to prepare a detained scheme for long-term improvements. A scheme consisting Rs. 6.64 lakhs was sanctioned by Government on the recommendation of the committee in 1945. The improvement works sanctioned were carried out. At the end of this period several schemes for augmenting the supply of water to the Mysore City were under consideration of Government.

(c) The Mysore Public Health Act:

“Every local authority shall provide or arrange for the provision of a sufficient supply of drinking water for consumption
by the inhabitants The Mysore Public Health Act, 1944, laid down under sec.18: 101of the area within its jurisdiction.

1. Adequate provision for securing (a) that the water supply is continuous throughout the year: and (b) that the water supplied is at all times wholesome and fit for human consumption.

2. A local authority may also provide or arrange for the provision of a sufficient supply of water for other domestic purposes or non-domestic purposes.

   For this purpose it was empowered under Sec.19 :102 with the previous sanction of Government to “(a) construct, lay or erect filters, reservoirs, engines, conduits, pipes or other works without the limits of its local area, for supplying such area with water: (b) purpose or take on lease any water work or any water or any right to store or to take or convey water, either within or without the limits of its local area: and (c) construct with any local authority or other person or agency for the supply of water.” With the sanction of Government, a local authority was empowered to “declare any lake, stream, spring, well, tank, reservoir, pond or other source of water supply, from which water is or may be made available for the use of the public in all local area for the domestic purposes, to be a source of public water-supply for such purposes and every such source shall thereafter be under the control of the local authority, only to the extent necessary for such purposes”.

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(ii) Drainage in Cities To the Bangalore City: A complete scheme for the Bangalore City drainage, prepared by D. Cruz in 1917 was subjected to further scrutiny in 1927. Both J.Bhore, the then chief engineer of Mysore and Sir M. Visvesvaraya disapproved of the idea of having one outfall and a pumping sewage from the adjoining villages’ into the main valley as it involved heavy expenditure. Sir M.Visvesvaraya opined that to provide one common outfall for the entire sewage from every part of the city would be an ideal arrangement, but as it will necessitate much pumping, it would be costly to do this. It is understood the municipality is not financially in a position to carry out works which are not absolutely necessary. Gravitation outfalls already exist for Malleswaram, Chamarajpet, and Basavanagudi and these may continue to be used for the present, but the sewage in Arlepet which has no common outfall at present, may be collected and pumped into a sewer within the drainage area leading to the Sunkal tank.”

No revised scheme for the city was then prepared, mainly because its water supply problem had not been solved and it was decided that underground drainage should be taken up only after adequate water supply was made available. Several works were taken up and completed such as the laying out of sub-main No.2 of the Comprehensive City Drainage Scheme on both sides of Balepet, providing drains in certain localities, the laying of the main sewer pipe line from Sultan pet up to Sunkal Farm, etc. During 1935-36, the outfall line from the Maharaja Mills was extended and a sewage pipe line from there to the outfall of Jakarayanakere was laid, and underground drainage to the Labour Colony was completed.
During 1937-38, urinals and flush latrines in the new City Market and other crowded localities were constructed: drains were constructed in the Srirampuram and Narasimharaja colonies: \(^{106}\) and the work of the house-connections were continued in various parts of the city.

During 1938-39, combined latrines and urinals were constructed in different parts of the city: drains were constructed in Albert Victor Road and Subadar Chatram road. \(^{107}\)

The Thippagondanahalli Reservoir had been completed by the year 1940, which assured an adequate water supply and the question of the extension of underground drainage was taken up. A Comprehensive Drainage Scheme for the whole city and its extensions was prepared by N. Krishna Iyengar special officer of the City Drainage Division in 1940.

The observations of the special officer were as follows: \(^{108}\)

Bangalore “is an entirely inland town. It is not situated on a river

As Poona or Hyderabad or on sea coast as Bombay or Madras, nor has it a canal-irrigated tract, in close proximity, as Poona and Hyderabad. Again, the general lie of the land on which Bangalore has sprung up, is variance with the other towns. Poona and Hyderabad are built on more or less even-contoured surface, easily admitting of one outfall, towards the river valley through involving pumping of sewage, at not much cost, from one or two low lying tracts in the town. Bombay and Madras by virtue of their position on the margin of the coast cannot but have one disposal site into the sea and cannot avoid pumping sewage from several areas of slightly varying surface levels. Bangalore, on the other hand, has its topography very much cut up by ridges and valleys.
The whole of the old town is nicely located on both sides of a wide valley draining towards the East and easily lending itself to one gravity outfall, but the extensions have spring up all-round the old town on ridges and valleys rendering it extensively different to have one outfall, without pumping from nearly 7 to 8 different contiguous valleys with great differences in levels on the Western side and consequent heavy capital and recurring cost. It has on this account been decided that for the present, the drainage of the city and the whole or such portions of the extensions as can be easily joined by gravity to the main line, may be taken to the disposal site on the eastern side and the drainage of the subsidiary valleys which will be very limited in quantity may be disposed off in the respective valleys where lands can be easily had sewage farming."

He provided four outfalls for the disposal of sewage of the Bangalore City: 109

1. The Koramangala outfall at Koramangala tank bed draining the whole of the old town, parts of Basavanagudi, the whole of Visveswarapuram, Mavalli and Fort area, Richmond Town, Langford Town and Neelasandra in Civil and military Station.

2. The Magadi Road outfall beyond Magadi Road in Kempapur Agraahar tank bed draining High ground, Sheshadripuram, Palace-Guttahalli, Venkatarangapuram and Malleswaram.

3. The Kempambudhi tank outfall behind the tank bund draining Chamarajpet, Gavipur, Sankarpur and parts of Basavanagudi.

4. Chennammanakere outfall just south of Tata Silk Farm Extension.

The proposed main outfall near Koramangala received about two-thirds of the total drainage of the city, part of which was then
being utilized as it came, without any treatment, by the Sunkal sewage Farm and the rest went into the Koramangala tank. This tank was now recommended to be drained away thereby preventing storage and the bed thus released, together with the lands below, were intended to be used for irrigation with sewage, instead of the Sunkal Farm. It was considered necessary to subject the sewage to some method of treatment, if not to purify it to the required standard, at least to abate the nuisance caused by smell and breeding and safeguard public health, in view of the fact that the sewage was becoming charged with more and more of the contents of the increasing number of flush connections in the city.\textsuperscript{110}

It was proposed that disposal works for sewage be carried out at the different valleys. And the estimated cost of the scheme was Rs. 41, 25,141. Though provision was made in the estimate for treatment of sewage in Koramangala valley by the Simple System of activated sludge process, the Special Officer had recommended that for Bangalore conditions, disposal of sewage by land irrigation was suitable.

In year 1940-41, A Comprehensive Drainage Scheme for the City was sanctioned during and thereafter; all the works under this scheme were completed in the different valleys, namely Chennammanakere, Koramangala, Chellaghatta (C & M Station) and the Vrishabavati valley
NOTES AND REFERENCES

2. Ibid, P-432
3. Ibid.
4. Ibid.
6. Ibid.
7. Letter written by Dr. H. R. Oswal to the Deputy Inspector General, August, 1868, K.S.A. Bangalore.
8. Ibid.
10. Ibid.
12. Ibid.
13. Suggestions for improving Medical Aid in Rural areas, K.S.A. Bangalore, 1918 PP. 1-8.
14. Ibid.
15. Ibid.
17. Health Survey of Mysore, Dr. W.C. Sweet, Field Director, International Health Division, Rockefeller Foundation and Director of Health Surveys in Mysore: Govt. Press: Bangalore, 1929. P.1
18. Ibid.
22. Ibid. These three stations represented the irrigated and the Malnad malaria tract in the Mysore State.
25. He was referring to the Bangalore City.
27. Ibid.
32. Ibid.
33. Ibid.
34. Ibid.
35. Handbook of Mysore State Department of Health. P.9
40. Ibid.
41. Ibid
42. Mysore Act No. X of 1944.
43. Ibid. Sections 9-13.
44. Ibid. Sections 15.
45. Ibid. P.11.
46. Ibid. P.12.
47. Handbook of Mysore State Department of Health. 1933. P.12
48. MAR for the year 1937-38. P.120.
49. MAR for the year 1944-45. P.142.
50. MAR for the year 1946-47. P.142.
52. The Mysore Town Municipalities Act, 1933. Chapter IX, Section 148.
53. Ibid. Section 150.
54. Ibid. Sections 151-152.
55. MAR for the year 1930-31. P.63.
56. MAR for the year 1931-32. P.69.
57. MAR for the year 1932-33. P.141.
58. Ibid. PP.141 -142.
59. MAR for the year 1942-43. P.132.
60. MAR for the year 1943-44. P.162.
61. MAR for the year 1945-46. P.146.
62. MAR for the year 1946-47. P.145.
63. Vide. Municipal File No. 10 of 1994 (Sl. No. 58, 59) in the Karnataka State Archives.
64. Official quarters of the officers and men employed in the palace as Body Guards of the Maharaja’s family members.
65. MAR for the year 1932-33. P.142.
66. MAR for the year 1933-34. P.151.
68. MAR for the year 1945-46. P.147.
69. MAR for the year 1930-31. PP. 64-65.

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70. Vide Report on the Administration of Mysore for relevant years.
73. Phage (bacteriophage) is a virus that attacks bacteria. Each phage acts specially against a particular species of bacterium.
76. Ibid. P.29.
78. MAR for the year 1942-43. P.133.
80. Ibid. P. 84.
82. Ibid.
85. Act NO. X of 1944. Section 53.
86. Ibid. Sections 58-60.
87. Ibid. Sections 63.
89. Act NO. X of 1944. Section 116.
90. Ibid. Section 120.
93. Ibid. P. 56.
94. Ibid.
98. G.O.No. 4001-5, dated 8th May 1926.
100. Ibid.
101. Ibid. PP. 138-139.
104. MAR for the year 1934-35. P.62
105. MAR for the year 1935-36. P.49.
106. MAR for the year 1937-38. P.51.