

Report of the Health Officer, Corporation of Madras Health Department.

Contributors

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ANNUAL REPORT

OF THE

[Health Officer]

Health Department.

of the City of Madras

FOR THE YEAR

1922.



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AT THE "KAPALEE PRESS,"
305, THAMBU CHETTY STREET.

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ANNUAL REPORT

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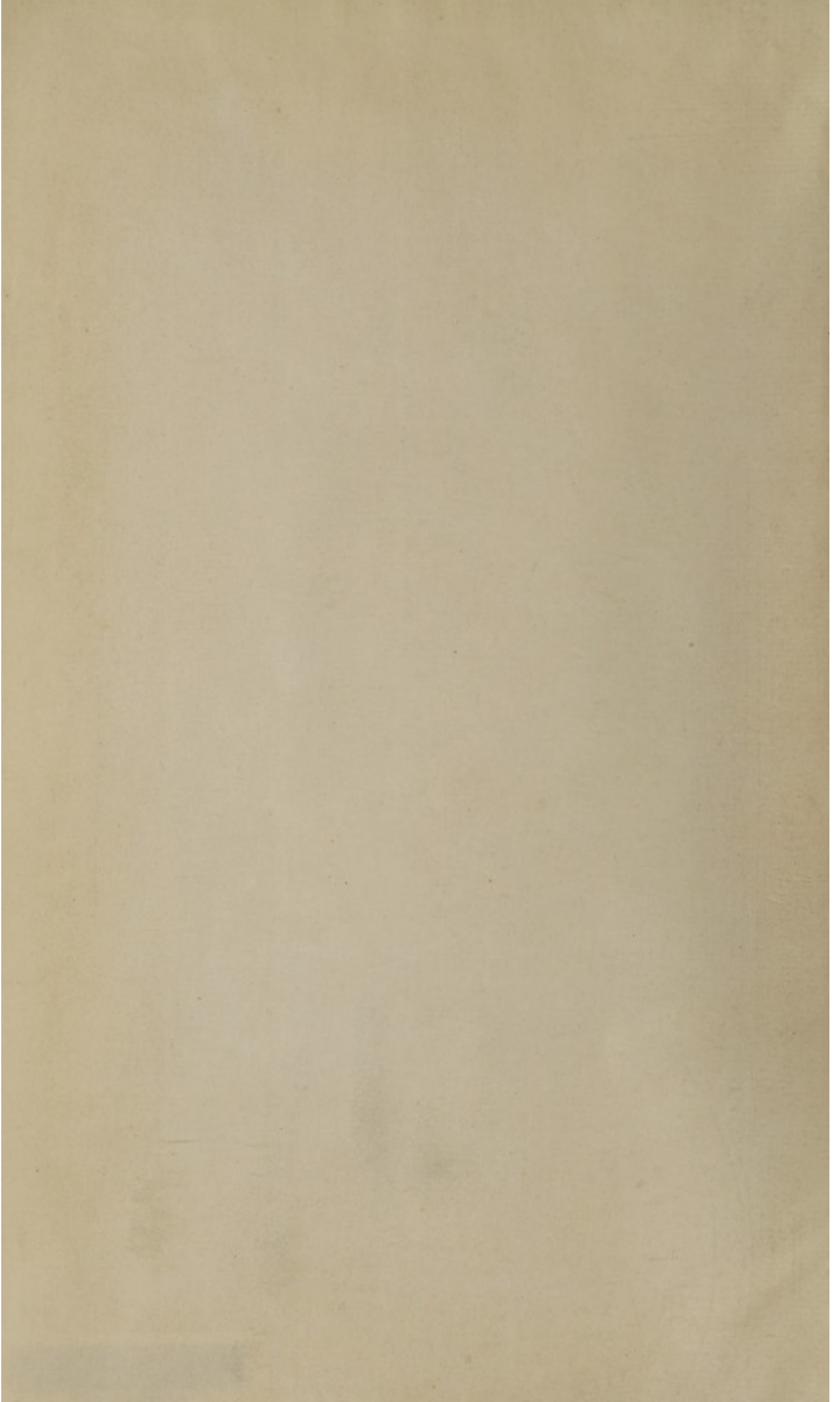
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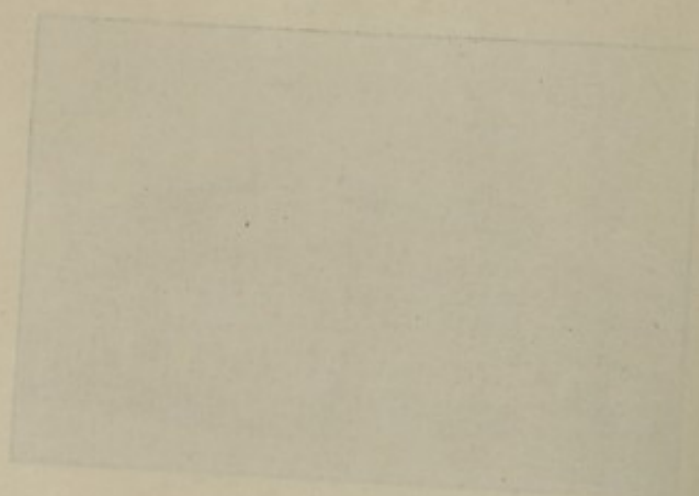
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Addenda Et Corrigenda.

- (1) In the statements furnished on pages 76, 79, 85, 86, 89, 90 and 92, the apparent increase in the mortality rate of the 14th or Esplanade district is due to the inclusion in that district of deaths of moffussil persons that occurred in the Government General Hospital.
- (2) Delete the figures furnished against the community "Chetty" in Table—D on page 110 and substitute the following in order :—

36,332—1190—32·8—1187—32·7—1478—40·7—1439—39·6.

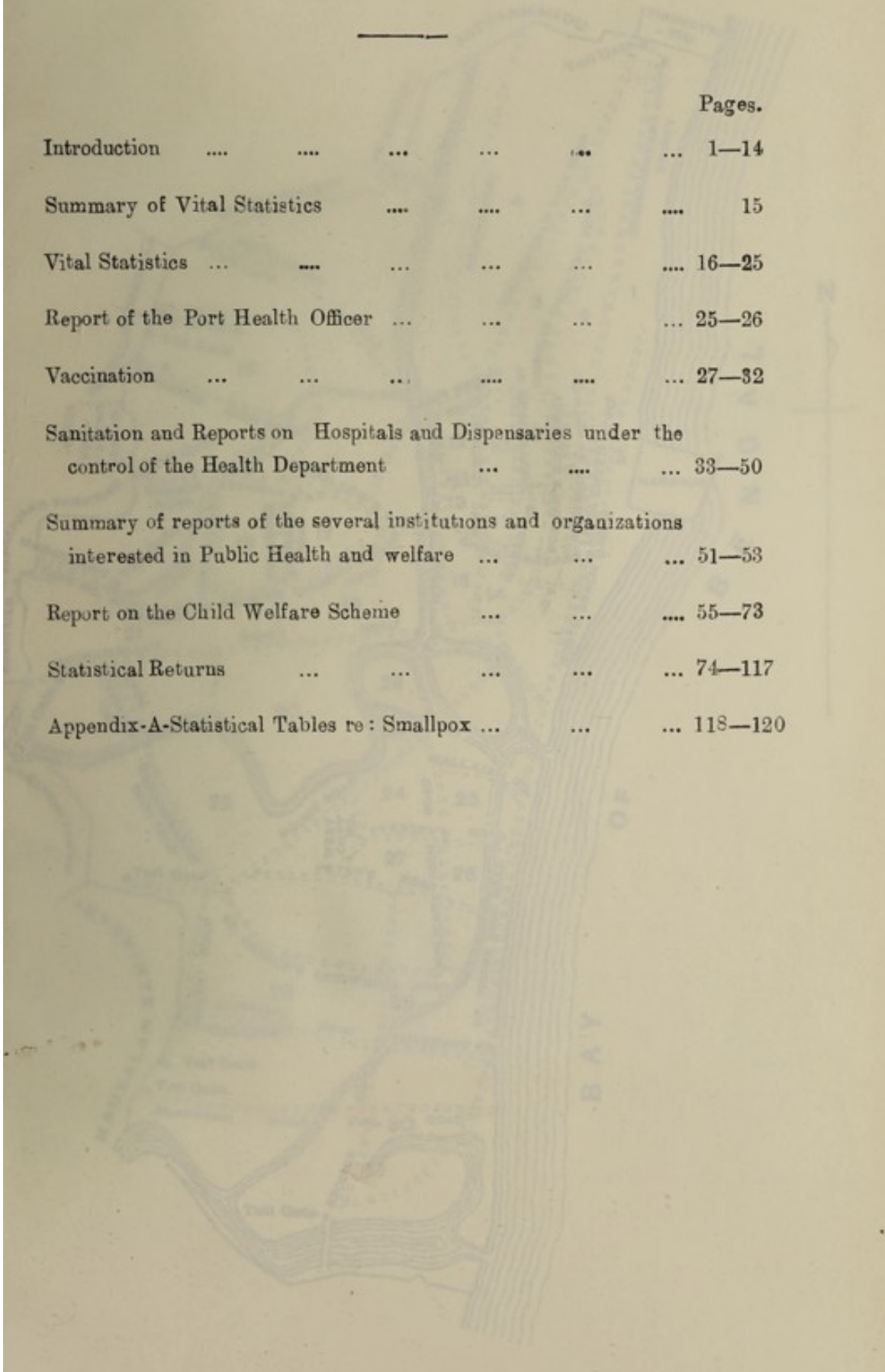
Appendix Et Corrigenda.

- (1) In the statements furnished on pages 76, 79, 85, 86, 89, 90 and 92 the apparent increase in the mortality rate of the 14th or 15th ward district is due to the inclusion in that district of deaths of non-resident persons that occurred in the Government General Hospital.
- (2) Before the figures furnished against the community "Obesity" in Table—D on page 110 and substitute the following in order:—

36,882—1100—224—1467—227—1478—407—1439—29.6.

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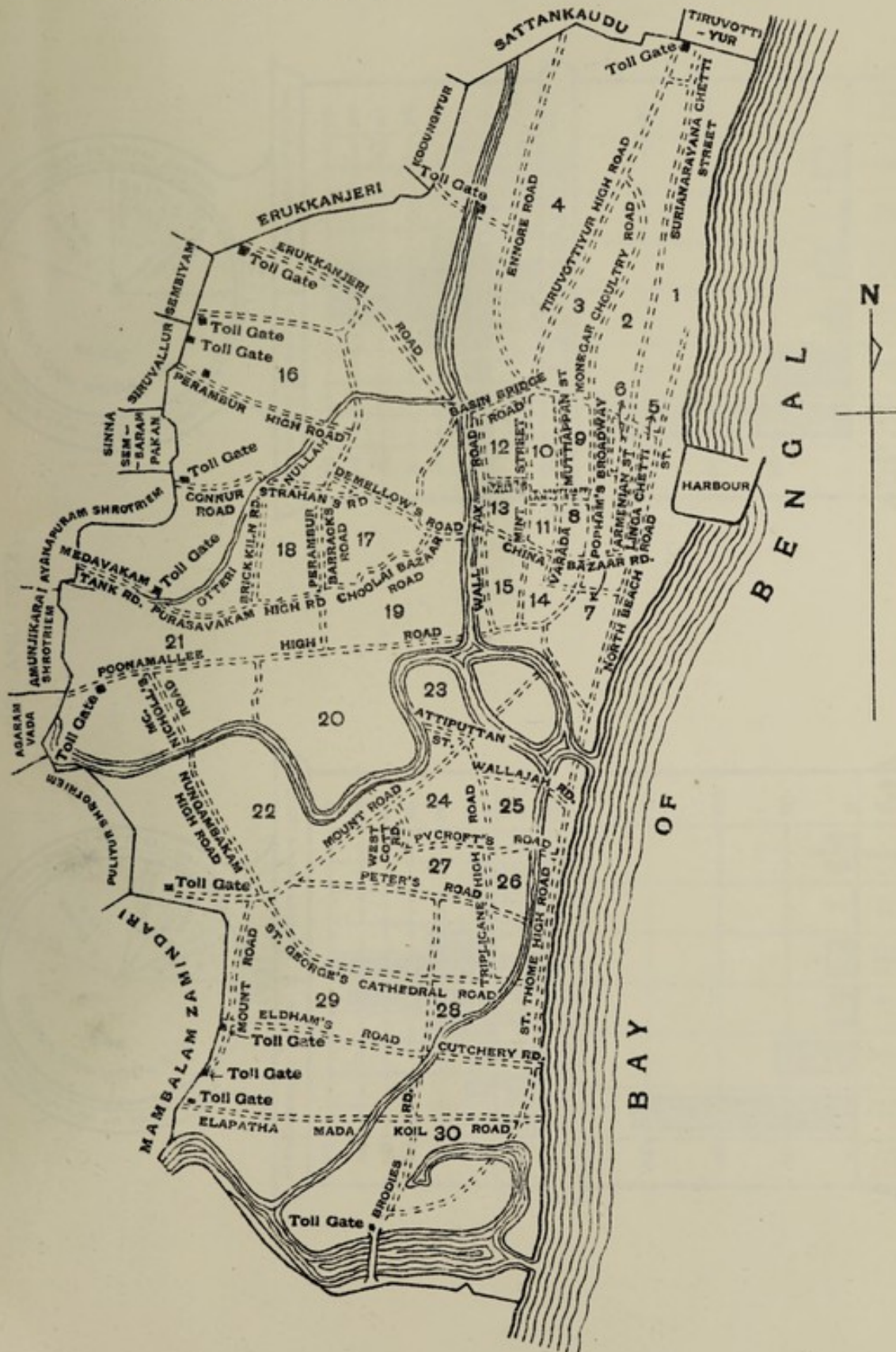


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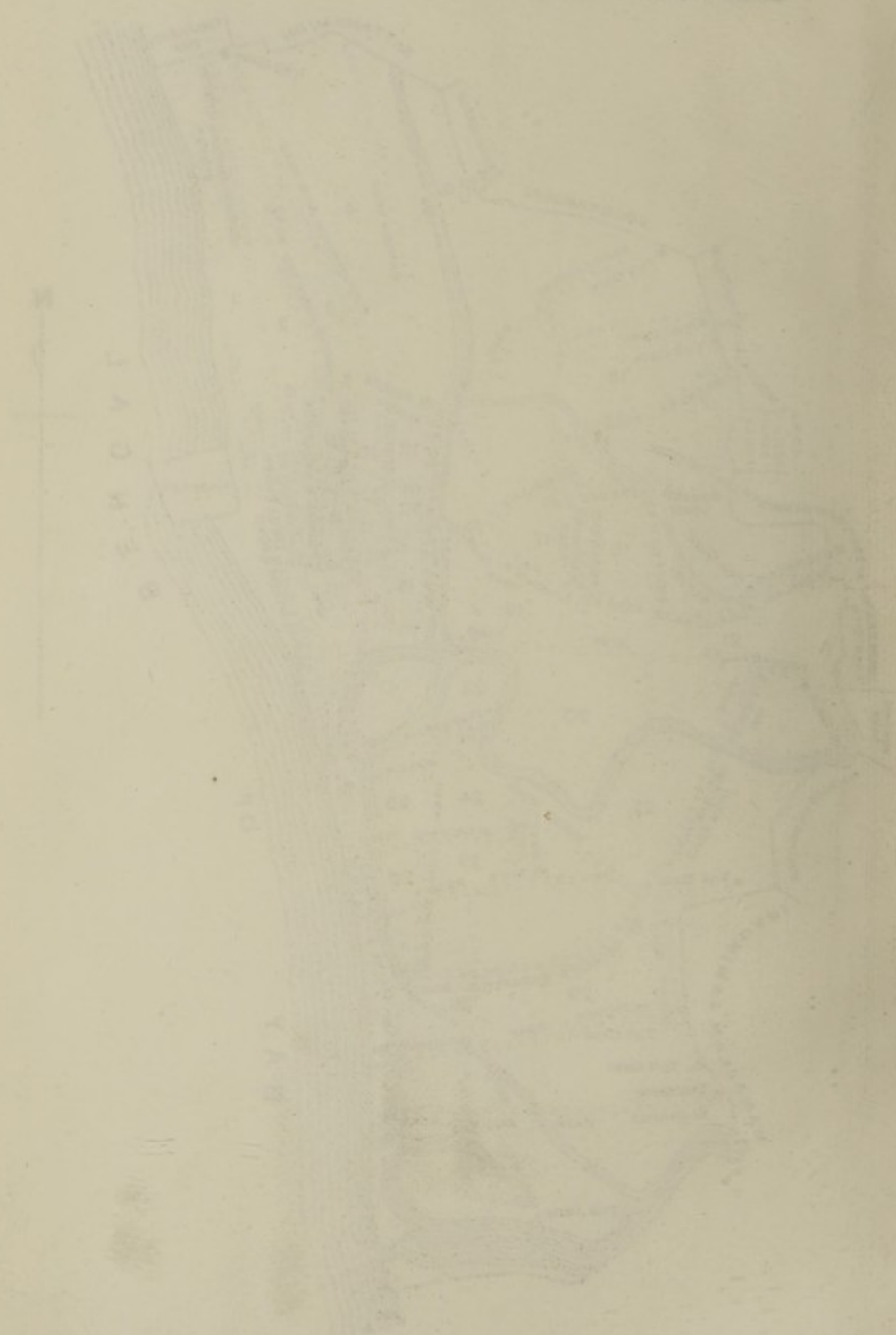
MADRAS TOWN

Scale 1 Inch = 1 Mile



MADRAS TOWN

Scale 1 inch = 1 mile



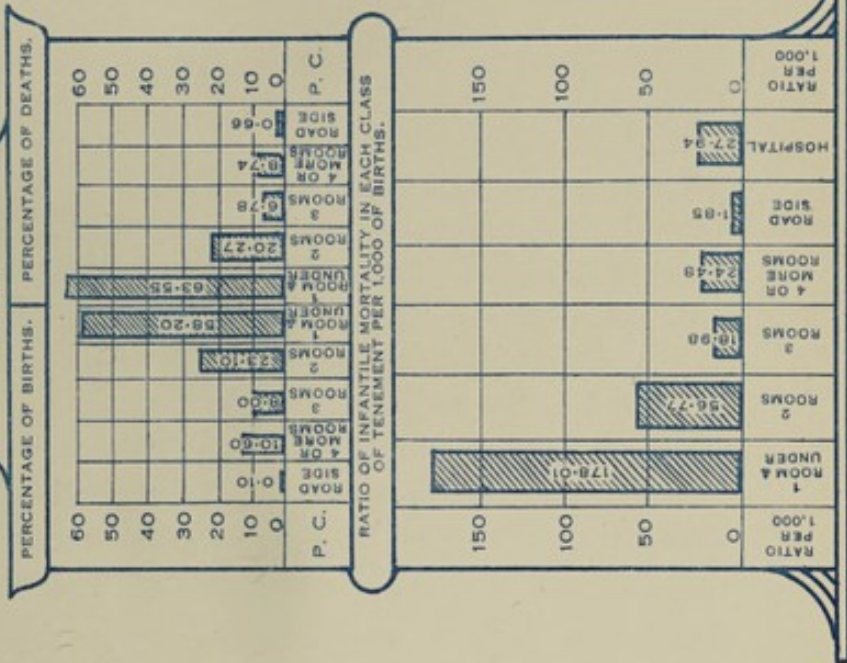
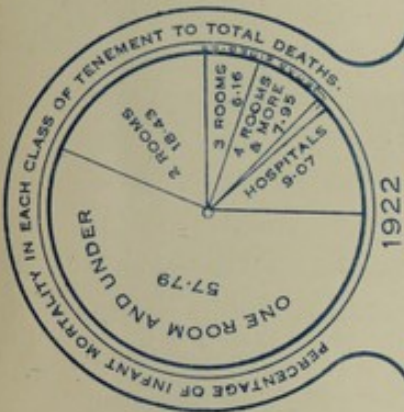
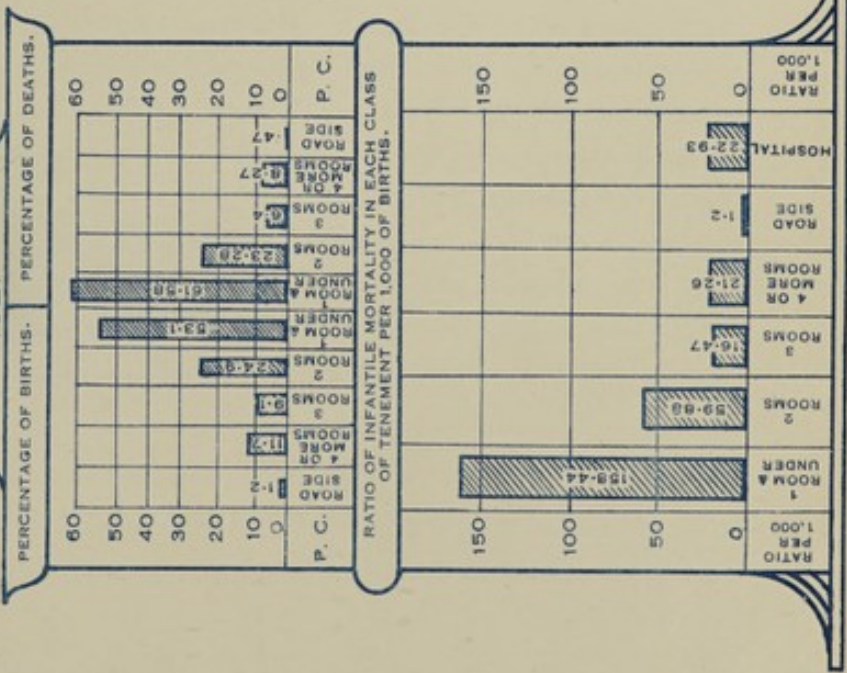
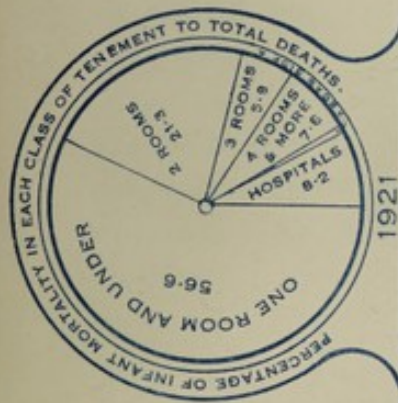
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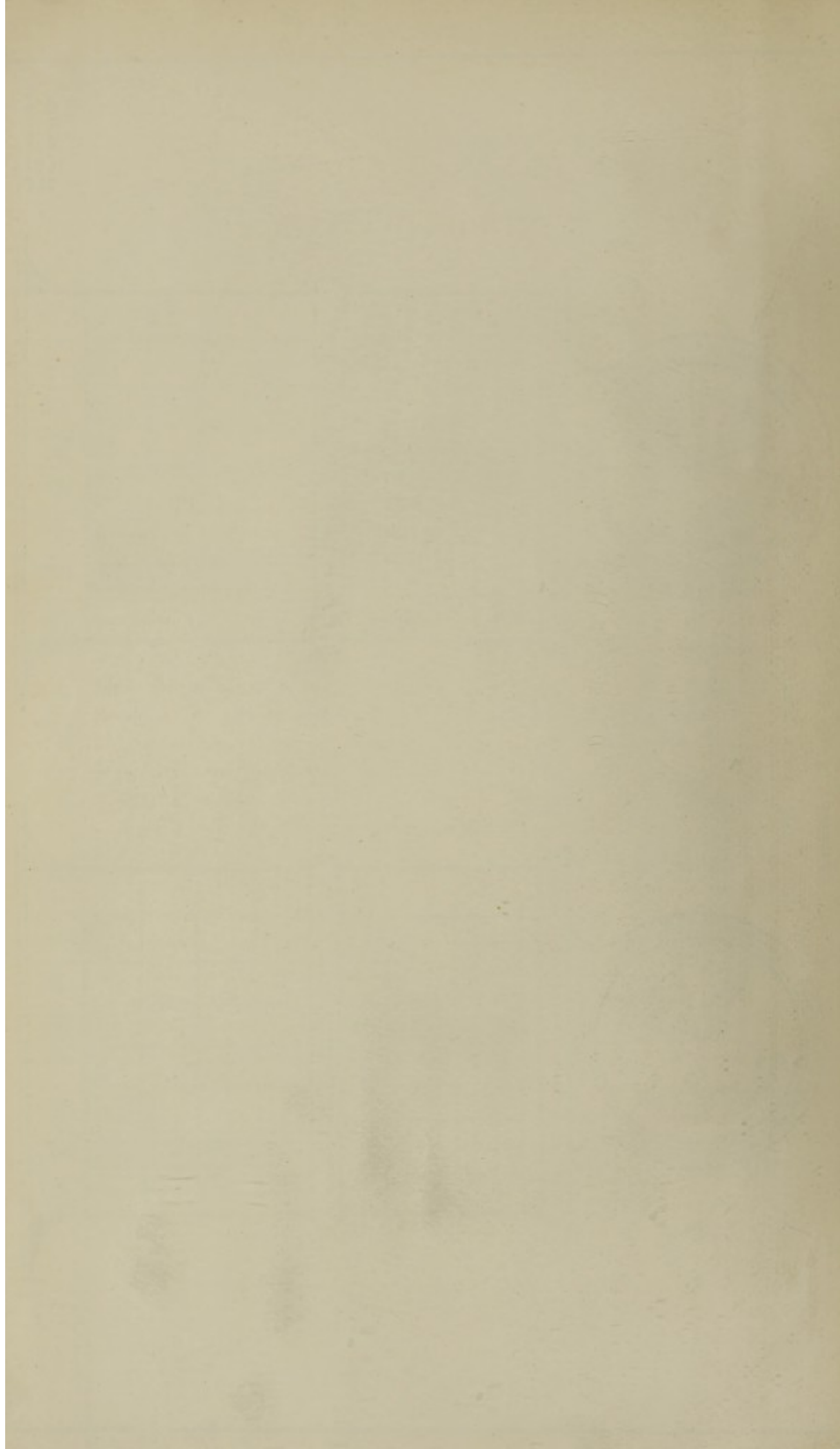
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Vertical text on the left side of the map, possibly a scale or legend.

PERCENTAGE OF BIRTHS AND DEATHS IN INFANTS AND THE RATIO OF INFANT MORTALITY IN EACH CLASS OF TENEMENTS TO TOTAL TENEMENTS TO TOTAL

1921 AND 1922.





INTRODUCTION.

The first and the foremost duty of every local authority responsible for public health is or ought to be the adequate provision of, at least, the barest and the most elementary sanitary needs of the community, such, for instance, as a satisfactory system of water-supply, an efficient system of drainage, sufficient housing, and the like. Till these vital needs are provided for, we cannot reasonably hope either for any satisfactory improvements in the statistics of our health—or shall I say our ill-health—or for the full or even appreciable betterment that would otherwise accrue from such laudable and beneficial organisations like Tuberculosis clinics, School clinics, Baby clinics, Child Welfare Centres and so on. It therefore becomes our first duty to consider what has been done during the year under review to secure for the citizens of Madras their barest sanitary necessities, such as those I have written above, in contradistinction to what we may, relatively speaking, refer to as our sanitary luxuries.

Our Water-Supply.—That the present system of water supply is not satisfactory, is, regretfully enough, admitted on all hands. It is almost 9 years since the existing system of water filtration has been inaugurated and we have not yet really solved the problem. Prior to December 1914, water from the Red Hills lake was conveyed along an open channel and thence to the mains at Kilpauk for distribution throughout the city. For some time after the opening of the new water works, the filters worked tolerably well but soon, a double difficulty appears to have arisen; the demand for water went up, while the efficiency of filter beds went down, with the result that the needs of the people were met by supplying a mixture of filtered and unfiltered water which is being continued even now. Fortunately for us, the raw water at Red Hills lake is sufficiently safe for drinking purposes except for its heavy suspended matter; and the present supply of mixed filtered and unfiltered water does not render it less safe, while even partial filtration has the advantage of removing a good deal of suspended impurities. The outstanding features of our existing water-supply are as follows:—

(1) The raw water at the Red Hills lake is tolerably safe, from a bacteriological point of view, for drinking purposes.

(2) The filtered water is bacteriologically little or no better than the raw water.

(3) The water during its transmission from Red Hills lake along the conduit to Kilpauk and then on to the city mains, gets less pure.

(4) The experiments for chlorinating the unfiltered portion of our daily requirements before mixing it with the filtered portion have been found wanting.

(5) The physical and chemical qualities of the Red Hills water are such that chlorination without previous sedimentation would be of no avail, and even objectionable, because of the too large quantity of chlorine that would be required resulting in disagreeable taste, smell or even colour.

(6) The chief cause of the undoubted deterioration which water undergoes in its transit through the conduit is the presence of algal growths, unavoidable so long as we continue to send raw untreated water of the Red Hills lake which is naturally loaded with a high organic content.

Under the circumstances, the best solution in respect of our water-supply seems to me to be a system of sedimentation followed by rapid filtration and chlorination carried out as under:—

(1) We have at present a programme of putting up 7 more filter beds with a view to filter by "slow sand filtration" the whole of our water supply. Three of these are almost completed. These new beds like their predecessors are likely to have their lives progressively shortened, so long as we continue to run raw untreated water on them. It therefore follows that a system of pretreatment is inevitable if the present method of slow sand filtration is to give satisfactory results. But with pretreatment, rapid filtration followed by chlorination is likely to give better results than slow sand filtration alone, and that for the following reasons:—

(1) From a bacteriological standpoint, chlorination is assuredly superior to filtration.

(2) No extra filter beds need be erected; for, under a system of rapid filtration, the existing plant ought to be enough to filter the whole supply required; the idea of rapid filtration is more to complete the process of sedimentation and render the water fit for effective chlorination than to obtain the required standard of bacteriological purity, which is more easily and economically obtained by subsequent chlorination.

(3) No extra cost seems to be called for since the monies proposed for completing the proposed 7 extra filter beds may be spent on erection and working of sedimentation and chlorination plants.

While I am prepared readily to admit that the adaptation of the existing plant to suit the new requirements is largely an Engineering problem which I am not competent to talk about, it seems to me that the system of sedimentation with rapid filtration followed by chlorination is the most feasible, economical and efficient under existing condition. Further, it will also allow of easy adaptation to the progressively increased demand that is likely to arise in the case of a growing city like Madras—more especially when the completion of our under-

ground drainage system will make it possible for us to replace, by a system of universal water-flushing, the present practice of hand-removal of filth which is wholly unsatisfactory and insanitary and must be ended as early as possible.

Drainage:—The new underground drainage system is under steady progress. More than half of the city is sewered and we may hope for the completion of the scheme in another decade, but till the works are completed, we cannot be altogether free from the foul smells of cesspools, overflowing side drains and syphons of which there have been frequent complaints from several quarters.

The cess-pool continues to be still the order of the day in several parts of the city or wherever this is absent the ditch drains or even the roads serve the purpose of drains for sewage. Domestic refuse and filth are either flung into or deposited into the street. As a result the surface of foot and carriage ways which are unpaved and beset with ruts and shallows become foul and the nauseous odours which emanate therefrom, especially in hot weather render the atmosphere poisonous as if inviting pestilence.

Housing:—Much has been said and more written about the extremely unsatisfactory housing conditions in Madras especially in such overcrowded localities like parts of George Town, Chintadripet and Royapuram. The picture of eight to twelve poor families in a house barely fit for a family or two at most, where every inch of available space is converted into rent-paying "rooms" by an ingenious system of screens of wood, thatti, cloth or gunnybag, where a hole in the floor and a narrow stinking iron tube running thence do duty for a latrine, where the provision of ventilation, water-supply and lighting, drainage and everything else that make for health is of the poorest description—lurid pictures like these, have been so frequently painted to the intelligent public of recent years by social workers and others that to describe them at length here would be indulging in what have now become profitless and tiresome platitudes. Of the existence of the evil itself, all are by now sufficiently aware; what is wanted is the suitable remedy.

Slums and slum-life present problems most difficult for Public Health workers to deal with. Slums have grown into existence with the aggregation of people in large centres consequent on general expansion, industrial developments and the like. The factors tending to produce and perpetuate the slum dweller are poverty, environment and training, improvidence and drink. Of these, poverty is the prime factor which compels him, his family, and children to live, move and have their being under very many adverse conditions. Children brought up in this atmosphere of dirt, squalor and degradation generally have little or no opportunities of developing cleanly or sanitary habits. The sanitary convenience used in common is one of the most degrading features in slum life and one of the strongest influences tending to make and perpetuate unclean and insanitary tenancy.

The improvidence of these people is notorious that they fall an easy prey to alcoholism, in which they often seek relief for their worries: these are the many factors of slum life which have such disastrous effects on Public Health. Poverty, ignorance, insanitary habits, improper and insufficient feeding, bad housing, worry and alcoholism follow on one another in a vicious circle; and the Public Health worker feels that the problem of slums is not a simple Public Health question at all, but a big and complicated question that can be satisfactorily solved only when all of us—the rich, the middle classes and the poor—are all educated enough for citizenship and for properly discharging our duties by one another. Meantime, we cannot sit idle till that millennium is achieved. We have to begin on a definite programme of setting apart a portion of the Corporation income on the erection of model sanitary dwellings for poor people at centres convenient to them; perhaps we may begin by building sanitary dwellings for our own employees. The present indications point undoubtedly towards extending buildings almost exclusively on the outskirts of the city and the extensions are apparently intended for the class of people who can afford to build and own a small garden house; they will not meet with the needs of the very large class of persons who are really poor and reside under housing conditions which are unquestionably inimical to health. They show no willingness to leave the centres in which they are now obliged to reside for making a living and remove to another, however superior, at a distance from their centres of business. Their arguments in favour of this decision are almost incontrovertible. They point to the difficulties in transit which there is no hope of overcoming in the near future. The cost of communications in this city of distances is a serious question, especially for the poor. Then again there is the question of not only the expense entailed but also the loss of time in travelling to and from their centres of business necessitating their leaving homes at unduly early hours and returning unduly late. More than all these, under the peculiar caste rules and social customs now existing, many of the workers cannot arrange for a midday meal, if they are away from their centres of business. It looks to me, therefore, that it is more essential to improve housing conditions first and foremost in the heart of the town where suitable water and sewerage conveniences are already available than to embark on suburban extensions. It is at least as essential to end or mend the "black" spots in the heart of the city as to create bright spots at the outskirts.

From what has been said above, it should be clear that the city of Madras is still lacking in the barest elements of its sanitary needs, let alone the question of sanitary luxuries. Under such conditions one cannot hope for any decided decline in our death rates whether general or infantile. The general death rate was 42.7 per mille. The outstanding feature which adversely affected the health of the city is the severe outbreak of Small-pox which was prevalent almost throughout the year. The outbreak itself commenced in October—November 1921 and

continued as an epidemic from 12-3-22 to 23-9-22. There were 2,727 attacks and 1,121 deaths notified. There has been a great deal of controversy both in the Council and in the Press on this subject; it is therefore sufficient to state here that all measures of known or possible utility were adopted to protect the people from the ravages of this disease and to minimise suffering. Success in the administration of sanitary measures to prevent or to control the spread of epidemic diseases is one which rests very largely upon the public enlightenment and co-operation which one is fortunate to have. As a rule, epidemic diseases, except perhaps, Plague, do not create much panic in the minds of the people of this country as in other parts of the world. On the contrary, people are apt to hush up cases either from some vague fear of municipal interference or to avoid the patient and contacts being segregated or otherwise kept under surveillance. Consequently, the occurrence of a case or cases is kept a secret as long as possible or cases are smuggled to uninfected parts of the city, thereby giving an impetus for the spread of the disease. While undoubtedly vaccination is the first measure of protection against Small pox, it seems to me that to eradicate the disease by this measure alone would be to court failure. So long as we are lacking in the barest elements of general sanitation, it is not likely we will be altogether free from the outbreak of epidemics; for under such conditions the infection will always have some place or other where it can remain in a lingering condition, ready to flare up into an epidemic on the occurrence of some other epidemiological feature or features.

The birth-rate for the year was 41.1 and compared with other cities, or other parts of the world it is high. The infant mortality rate was also comparatively high, 308 per 1000 live births. At first sight it may appear to a casual observer that this increase in the infantile mortality rate is to be attributed to the Small-pox epidemic. As a matter of fact, this epidemic influenced the returns to a very limited extent only, there being not more than 251 cases of children under one year and of these 221 were amongst those who were not vaccinated. Even if we exclude the entire deaths of infants under one year from Small-pox, the infantile mortality rate stands at 296.4. Of this, I shall speak more later on. Another disease which gave us some cause for anxiety was the outbreak of Relapsing Fever about the close of the year, a detailed report of it is found in pages 23 to 25 of the report. Fortunately the disease was limited to three small areas of the city, inhabited by people of the Audi-Dravida community, who were all employees of either the Conservancy section of the Corporation or of the Buckingham Mills or Port Trust, a factor which made control of the disease comparatively easy. Sufficiently energetic measures were taken at once and the epidemic was rapidly got under control. But we shall have to be sufficiently watchful whether the disease would recrudescence in the next cold weather.

There is not much to record about our achievements during the year under review. Details of work done will be found in the body of the report. One more dispensary was started as also one more Child Welfare Centre, making a total of 8 and 4 respectively. Proposals for opening another Child Welfare Centre for Nungambaukam did not materialise for want of a suitable building.

There is an order of importance in Public Health projects. The first and foremost is the satisfactory provision of elementary sanitary conditions as already stated "essential for civilised social life, as concerned with a pure water-supply, effective sewage, paved streets and highways rendered dustproof, housing, removal and disposal of refuse and filth and inspection and control of food"—conditions of environment whose beneficial influences upon the individuals would be distinctly felt. These fundamentals of sanitation and control of epidemics should not be neglected for more spectacular and emotionally appealing activities. During recent years, however, these latter seem to have been brought up to greater prominence in all parts of the country while the former are thrown well into the background, thereby making progress more and more difficult than ever. Of such, one can mention the greater, if not the sole, concentration of administrative efforts to solve the problems of reducing infant mortality or of eradicating Tuberculosis, or in counteracting the diseases of school children. There is the danger of considering these problems as independent entities, and this results in centralising administrative efforts on these problems all by themselves and without correlation to general sanitary and social betterment. No one can afford to deny that the prevention and control of illness or death of the infant or child are still amongst the most neglected and yet potentially the most fruitful of Public Health administration, and it is well that the Corporation have been bounteously providing for its scheme for Child Welfare which has completed its quinquennium. But to effectively control and prevent infant morbidity and mortality, we ought to know some essentials governing the problem. Consideration of the causes of infant mortality inevitably leads to the question of care that mothers receive before, during and after child-birth, upon which largely depends the extent of maternal mortality which acknowledgedly is very high indeed. The problem of infant mortality is one intimately associated with that of maternal mortality. In Madras for instance during the year under review there were 6,669 deaths of infants under one year, 1274 still-births and 293 maternal deaths. The last figure represents only those deaths *registered* as having occurred within fifteen days of the puerperium but not those where life was lost subsequently, but more or less as a direct or indirect result of child-bearing. The remedy invariably suggested for this state of affairs is to provide competent obstetric care for every child-bearing woman in this country either free or for what she is able to pay. Indeed it was chiefly with this view that the Corporation of Madras launched their scheme of Child Welfare in

October 1917 and the work is now fairly and rapidly progressing. I must, however, deprecate that frame of mind which always looks to the early reduction in infant mortality rate, as the sole or even the chief justification for child welfare work. If such reduction occurs, well and good; if that does not occur, even then we have to go on consolidating and expanding our work. Infant mortality is more a social rather than a medical problem; and even where the medical side is adequately provided for, the infant mortality may not go down because the social factors are still there. But on that account, we cannot discount the value of our child welfare movement, which must go on on excellent social, municipal and humanitarian principles, no matter what the immediate results may be. I stress this point because I find that needless ingenuity is being wasted in showing that reduction in our infant mortality rates has already followed the inauguration of our infant welfare scheme; the fact however is that it has not and I, for one, am neither surprised nor depressed that it has not. I have no doubt that in the long run and in the wake of general sanitary and social betterment, things will improve. But to look for immediate results when we have only touched the bare fringe of a highly complicated problem is to court disappointment. It is now the fashion to hold up Bradford as a city with an ideal scheme of Child Welfare organisation, which, it is suggested, we should adopt. Of the Bradford scheme and its originators one cannot speak except in terms of the highest praise and admiration. But, those who look up to the reduction in infant mortality rates alone as the main justification of child welfare work cannot have chosen a more inapt example. Bradford is a highly prosperous and industrial city. It was very fortunate in having an admirable and devoted Chairman of the Public Health Committee in Mr. E. I. Smith and an equally devoted and exemplary Medical Officer of Health in Dr. Buchan. Under their joint care there was organised in Bradford a child welfare scheme which was a model of its kind; no other place in the United Kingdom could compare with it either in its magnitude or scientific thoroughness. Yet its infant mortality rate has not gone down. In 1920 it was 132, while in certain parts of Ireland, Connaught for instance, the rate was only 50, and that in spite of the fact, that it is notorious for poverty, ignorance, bad housing, lack of adequate medical or maternity aid and of all else that we include under a scientific child welfare scheme. That ought to make us pause and think before we look up to immediate reduction of infant mortality rate as a main justification for inaugurating the scheme that is now working. I repeat that we must go on consolidating and expanding our child welfare scheme on broad social, municipal and humanitarian considerations; in any case, we must not hold before the public such a reduction as the sole or even the main justification for infant welfare work. To do so may result in raising false hopes, which may not be fulfilled. In this connection I may usefully cite the following from a special report issued by the Medical Research Committee of the

National Health Insurance Department of the United Kingdom:—"During the past ten or fifteen years several Municipalities have inaugurated schemes for milk depots or for infant clinics, with the hope of reducing the infantile mortality. A study of the infantile death rates in towns where such measures have been adopted, e. g, Liverpool, Bradford, Poplar and Glasgow, does not, however, support the contention that these methods are of much value in seriously decreasing the evil.

"If one examines the infantile death rates of England, Scotland and Ireland generally, and of these various towns, it will be seen that about the year 1900 there set in all over the kingdom a decline in the death rate, and that the various curves follow practically the same course and are unaffected by the introduction of the measures above mentioned.

"The Medical Officer of Health of Liverpool, in his Annual Report for 1914 speaks enthusiastically of the effects of the milk depot which was started in 1901. According to the figures in the report the Depot did not become popular for some years though the decline in the death rate set in contemporaneously with its opening. In Glasgow a similar depot was opened in 1904 but the curve for this town shows just as in Liverpool, a decline commencing in the year 1900 with no acceleration of the fall after 1904 and continuing till 1912 although the depot was abandoned in 1910. An Infant Clinic was started in Bradford in 1912 and certainly the infantile death rate for that year shows a marked fall. But as will be seen from the various curves the death rate all over the country for 1912 was the lowest ever recorded until that date.

"The various charts show from year to year a wonderful uniformity in the behaviour of the different curves. In fact it is most striking how in such widely separated towns as London and Glasgow the apices and dips of the curves coincide, so that one is hardly justified in ascribing any result, which is so general, to the adoption of a particular measure in any individual town.

"It is remarkable and disappointing that in Poplar the death rate (Infantile) has continued to rise and has gone up from 83 to 117 per 1000 ever since the inauguration of the Baby Saving Campaign. The Chief Lady Health Visitor is quite candid, admitting that the increase has come about despite the amount of money and energy spent by the various organisations working directly and indirectly for the preservation of infant life. She thinks that sometimes there is too much visiting, and observes: "I myself was unfortunate enough to be the fifth to call on one mother, and the number of visitors who might call is positively staggering when you try to reckon them up."

Whatever view one may take of the utility of Health Visiting as it now exists in Madras, there is no gainsaying the fact that the maternity aid now provided by the Corporation is, with all its deficiencies, a real boon to the public. In my view, this is the part of our Child Welfare Scheme whose consolidation and expansion must be looked upon as a matter of first rate importance among the many beneficent schemes that have been suggested from time to time. If our resources were unlimited, we may perhaps be able to inaugurate all these measures at one and the same time; but, with the limited resources at our command, we have necessarily to conform to the order of importance of the various schemes in inaugurating any of them. The provision of adequate maternity aid is, in my opinion, a matter of first rate importance. It has to be realised that the economic factors involved are so tremendous and so complicated that relief cannot be expected without Municipal or State aid—not in any sense as a charity, but as a matter of wise policy and of justice to those to whom we look for the perpetuation of the family and natural life and the prosperity of the people.

The Dhai:—The work among the poor is still very largely in the hands of the unqualified or incompetent midwives or dhais, 60% or over of the cases being attended to by them. The existence of such a class of people practising midwifery is universal in all countries and has to be reckoned with and not treated contemptibly as a negligible factor in any scheme for infant welfare. For these women, such a thing as the "science and art of obstetrics" does not exist. This is true to a very great extent even in respect of many women who hold a certificate of training. Over them a cloak of ignorance, superstition and fatalism still hangs, shutting out the light of the present day. But she is still the agency which ministers to the poor such obstretical aid as she is capable of rendering. The solution consists not in treating her contemptibly as a negligible entity, but in trying to get her into our confidence. Her services, should, at the outset, be utilised as informants of actual prospective cases of labour, even at the cost of paying her a reward of a small silver piece. Even in the best of circumstances she dominates by her presence. If frightened, she hides but comes out soon after the event to give her hoary wisdom and advice. She is not exactly a professional but a woman who keeps a house and takes to maternity work in her off-hours and that only in houses where she is known. As by degrees we win her confidence, we must allow her a full privilege of watching and observing methods of cleanly midwifery practised by her qualified sister, so that in course of time they would themselves volunteer not only to seek our assistance but also learn and practise cleaner and improved methods of work. Moreover, we have to recognise that a lot of the so-called qualified material available is far from satisfactory. One should be thankful if, even in a small proportion of cases, they do not introduce sepsis where there was none. The "qualified" woman requires further training in her actual practice

equally with the unqualified or barber women. It is no wonder then that in addition to the awful mortality, immediate and remote, hundreds of women and children are invalidated and disabled. The horror of the situation becomes apparent when it is realised that all but a very small percentage of this mortality and morbidity is preventable by the proper handling of midwifery cases.

At present our child welfare centres are, to a great extent, serving the needs of the middle and lower middle classes. The very poor either go to the hospitals or are attended by the Dhai. The rich can, of course, look after themselves. In recent years there has been everywhere increase in the admissions to our Presidency Maternity Hospitals showing that maternity homes are becoming increasingly popular among our public. It seems to me that it will be a great boon to the poor if our child welfare centres are expanded into small maternity homes of about 25 beds each, especially in regions like Perambur and Vepery which are now badly served by free Maternity Hospitals, whether State, municipal or private.

Amongst other fundamentals of child welfare work, the most important ones are those which relate to natural or artificial conditions influencing the growth and development of the infant from the time of conception and of birth until it attains the age of one year—conditions which are, broadly speaking due to economical, social and environmental causes. Dr. Brownlee has shown "that the growth of the child is a continuous process commencing at least six months prior to birth to the age of about 4 years, a process not interrupted either by the act of birth or by the act of weaning". It is a remarkable fact that however great may be the degree of poverty and degradation of the parents, the great majority of children are born healthy. The English Inter-Departmental Committee on Physical Degeneration found that by virtue of some "mysterious law of transmitted impulse, the unborn child fights strenuously for its own health at the expense of its mother and arrives in the world with a full chance of living a normal physical existence. Infantile mortality, then, may be considered as largely the capitulation of the young and delicate organism to the adverse conditions into which it is born and these adverse conditions are mainly those of faulty feeding and maternal mismanagement due to ignorance."

It seems that hitherto too much importance has been placed on the actual physical state of health of the pregnant mother and too little upon the domestic or other environmental conditions that she lives and struggles under. A pregnant woman is primarily a woman in normal health; she needs no medication or interference, and unless she is absolutely or chronically ill with some wasting disease, or is attacked with an acute infectious disease, or she is normally addicted to bad ways of life, she is certain to give birth to a full grown and healthy baby, and by herself runs no risks provided that she is delivered under sweet surroundings and

kindly and cleanly management. In other words, the baby gets a good start in life; and its future entirely depends upon the environment under which it has to live.

The problem to consider is at what age are adverse external conditions most likely to cause death of the infant unborn and born. 'Supposing it were shown that the environment acting through the mother before birth had the greater influence, then the protection of the pregnant mother would be indicated as the most urgent measure for the reduction of infant mortality. But if, on the other hand, it were proved that the bulk of the deaths are due to causes acting directly upon the child after birth and that the varying conditions under which the mother has lived, have comparatively little influence, then administrative action should have a different aim.'

Doctors Brend and Findlay adduce sufficient evidence which tend to show the relative importance of post-natal influence. For, if prenatal influences were predominant, one would expect to find that where harmful conditions are present the excessive mortality caused by them would decline progressively from birth onwards. The reverse however is known to be the case. Pro-prenatal theorists might well argue that the very fact that nearly 40 per cent of the total deaths in the first year occurs within the first four weeks of life from developmental conditions which include premature birth, congenital malformations, atrophy, debility and marasmus. The first two of these sub-divisions are clearly due to causes operating before birth, while with regard to the other three, it is almost impossible to demarcate the line between pre-and post-natal influences; but there is sufficient evidence to show that environment has a great deal to do with these latter. It is quite conceivable that, on the one hand, poverty and want of homely comfort might affect the unborn infant through the mother while, on the other, the sins of the mother or father or both might fall upon the foetus in the womb resulting in prematurity, atrophy, marasmus &c. In any case, it is now well established that the death-rate among infants during the first month of life differs but little in different social classes and in different types of environment, but that as the child gets older the mortality rate in favourably situated classes becomes progressively lower. It is remarkable that vigorous efforts have, in all countries failed to lower appreciably the mortality of infants in the first month of life. Dr. Brend says "of most of these developmental conditions we do not know how to prevent the mortality". We must await further enlightenment in this matter. Our own statistics put up in page 114 demonstrate this clearly and point strongly to the post-natal and not the pre-natal environment being the predominant factor in the causation of excessive infantile mortality. This is however not to deny that prenatal conditions have an adverse influence in a certain number of children, but only to guide us in judging the order of relative importance that is to be attached to various practical measures, for reducing infantile mortality. It

should now be sufficiently clear that the measures likely to reduce infant mortality most speedily must be the clearing of slum areas, provision of open spaces, better housing, effective sewerage, prevention of atmospheric pollution, in other words the provision of the elementary sanitary environment for civilized social life, coupled with a well-ordered system of efficient maternity service. These two parts of our programme should go hand in hand if we are to hope for or deserve good results. It is radically wrong to think of infant mortality as a separate and independent entity all by itself or apart from general environmental conditions under which we live, move and have our being.

Public Health Education :—The only other topic which I wish to refer to here is the subject of Public Health Education which is, in a sense the most effective form of Public Health work. By Public Health Education, I mean propoganda work. Unfortunately it is rather difficult to carry out. During the year under review, we tried organising public lectures on health subjects but the response was poor and the results disappointing. Perhaps, better results may be expected if the proprietors of cinemas could lend us a helping hand. In the intervals between two shows at any sitting, they could put on the screens a few set slides or moving pictures dealing with health problems and that would probably be to the lasting benefit of the masses. It is not so much the dreadful pictures of disease and death that we wish exhibited as the bright pictures of healthy living, of enemies of healthy living and of modes of conquering them. The more educated the public becomes the higher will be the general sanitary standard and this higher standard is certain to make for healthier lives and happier homes.

For instance the want of such an education and enlightenment on the part of the public is a great impediment in the matter of preventing and controlling epidemic diseases. In Madras during 1922, 46.1 per cent of total deaths are due to infectious, contagious or epidemic diseases, 10 per cent of which again being accounted for by deaths from Small-pox alone. Except for a few sporadic cases, (32 attacks and 17 deaths most of them suspicious ones), the city was practically free from Cholera; and as usual the most important causes of mortality were from Respiratory diseases, Diarrhoea and Dysentery. The common infectious diseases which are notifiable are Cholera, Plague, Small-pox, Tuberculosis, Diphtheria, Typhoid fever, Influenza and Measles. We have in addition, Pneumonia, Malaria, Whooping Cough, Puerperal fever and different types of infective fevers which, though not notifiable, are responsible to keep up our mortality returns at a high figure. The true toll of the infective diseases is not only their immediate incidence and death-rate but their remote results which incapacitate and lead to invalidism. Almost the whole group of them is preventable. But for success, both the public authority as well as the citizen should be fully conversant with the details of their causation and spread and then only the application of the scientific method

to their control can be effectively carried out. This method upon which practically the whole system of Preventive Medicine is based, is represented briefly in the following steps:

- (1) Knowledge of the causes and conditions of infective disease and its accurate and early diagnosis.
- (2) Notification and registration of sickness.
- (3) Isolation of the case from the community and its effective treatment.
- (4) Disinfection of the premises &c.
- (5) Control of carriers.
- (6) Practice of prophylactic measures such as vaccination, inoculation &c.

For the application of these well-tried and orthodox measures for preventing and controlling infective diseases, we not only need education, which, in a broader sense, should include Public Health subjects, but also sufficient schooling for practising the laws of health less spasmodically and with a more thorough application than hitherto. More than all is the need for the public authority and the citizen to co-operate with each other more zealously and intensively for a successful issue.

Outbreaks of an epidemic disease frighten the public and rouse them to make active demands for immediate relief measures at the hands of Public Health authorities resulting in piecemeal effort, spasmodic endeavour or convulsive action inspired by emergency, fear or panic. As soon as the epidemic abates or ceases, the overaction of a couple of months is followed immediately by relaxation and indifference which associated with ignorance in matters concerning Public Health work in general make Public Health administration very difficult.

The duty as first seen in Public Health work is to detect disease, the next its prevention and an acquaintance with its origin; and for effective results we need the co-operation of the public. Municipal Health organisation can go only to the inner edge of public opinion and this public opinion is pushed forward by the efforts of voluntary organisation. Public enlightenment and opinion are the fundamentals for any effective sanitary progress. It is futile to hope to stop contagious disease with a Law, a Health Department and a placard: one must get co-operation of the people by persuasion and by organisation which can be obtained solely by Education.

There is yet in this country a great deal of want of correlation between the practitioners of curative and preventive medicine, although these are merely two aspects of the same thing. Curative medicine deals with the individual patient, Preventive medicine concerns itself with Communities, States, Nations, the World.

Whether it be in the sphere of controlling an epidemic or of vaccinating individuals unprotected against Small-pox or rendering the house and environment more pleasant and less uncomfortable, the one cannot do without the other. The present day doctor or he of the future should make himself more useful as a health counsellor than as an emergency man called in after disease has made serious progress. Without his co-operation, and timely warning the efforts of a Health Department would result in little or no benefit to the community. "Medicine" must extend its beneficent services from that small percentage of the population that we call sick to include the whole population, the sick and the well, relieving and curing the sick and raising the well to a higher level of physical vigor and efficiency.

Corporation of Madras, }
8-8-1923.

K. RAGHAVENDRA RAO,
B.A., M.B. & C.M., (MAD.), D.P.H. (CAMB.),
Health Officer.

VITAL STATISTICS

SUMMARY OF VITAL STATISTICS.

Area of the City	...	...	....	27.6 sq. miles or 17,626 acres.
Population (Census of 1921)	....	....	....	5,26,911.
Average density	...	...	....	29.9 per acre.
Density of Divisions 10,11,12,13,14, and 15	...	...	....	91.1 per acre.
Inhabited houses(Census of 1921)	...	...	....	64,621.
Total Births registered in 1922 excluding } still-births	...	...	....	21,650 against 19,187 in 1921.
Still-births	...	...	....	1,274 do 1136 do
Illegitimate Births	...	....	....	625 do 593 do
Birth-rate per 1000 of population	...	....	....	41.1 do 36.4 do
Total deaths registered in 1922	...	...	....	22,475 do 20,268 do
Death-rate per 1000 of population	....	....	....	42.7 do 38.5 do
Infantile mortality	...	...	....	6,669 do 5,408 do
Infantile mortality rate per 1000 live births	...	...	....	308.0 do 281.9 do
Death rate from infectious diseases per 1000 } of population	...	...	....	19.6 do 17.7 do

VITAL STATISTICS.

Table A on page 108 shows the birth and death statistics for 12 years since 1911.

Climate. A marked feature in the climatic conditions of the city during 1922 was the somewhat abnormal prolonged drought which gave misgivings as to the possibilities of a water famine, but which was luckily averted by heavy, though untimely, rains. The total rainfall during the whole year was much higher than in 1921, and the average for 5 years, the respective figures being 65.69 inches, 54.43 inches and 59.03 inches. In 1920 the total rainfall was 63.89 inches.

Table B on page 109 shows the quarterly rainfall in the city since 1917.

Registration of births and deaths. Fifteen Medical Registrars, all licensed medical practitioners, and 31 assistants were in charge of registration of births and deaths in the city.

Births. The number of births registered during the year 1922, exclusive of still-births was 21,650 being 2,463 more than in the previous year. The ratio calculated on the census population of 1921 was 41.1 per mille against 36.4 in 1921 and 41.8 in 1920.

Table C on page 109 shows the birth rate by races and Table D on page 110 shows the rate amongst principal sub-divisions of the Hindu community for two years. The Muhammadan community returned the highest birth-rate of 44.5 and the European community, the lowest, 32.0.

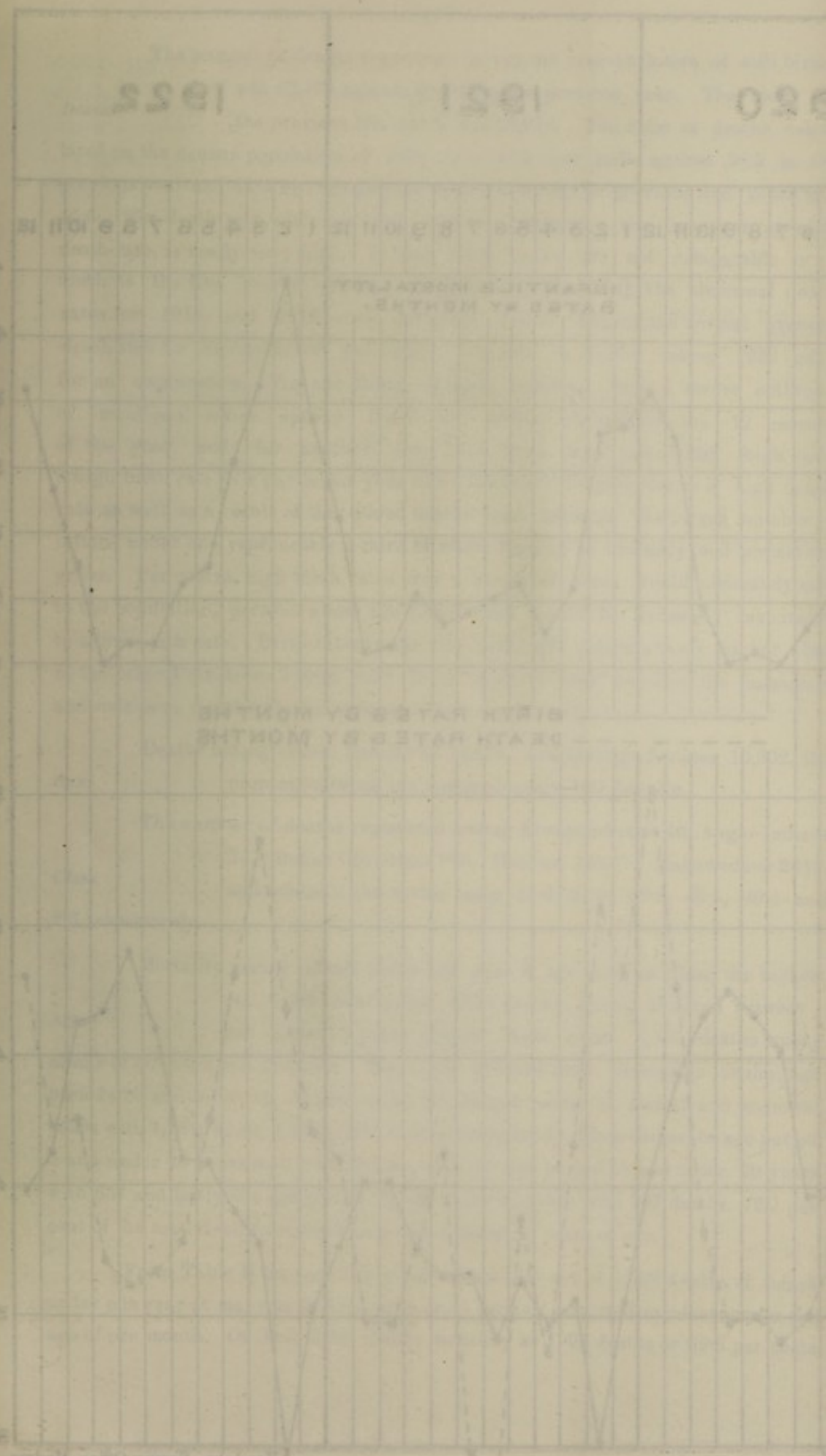
Births by sex. Out of 21,650 births recorded during the year, the number of males was 11,053 and females 10,597, the ratio of males for 100 females being 104.3.

Births by months. Table E on page 110 shows the number of births in each month during 1922 and 1921. The largest number of births was recorded in August and next in September and October.

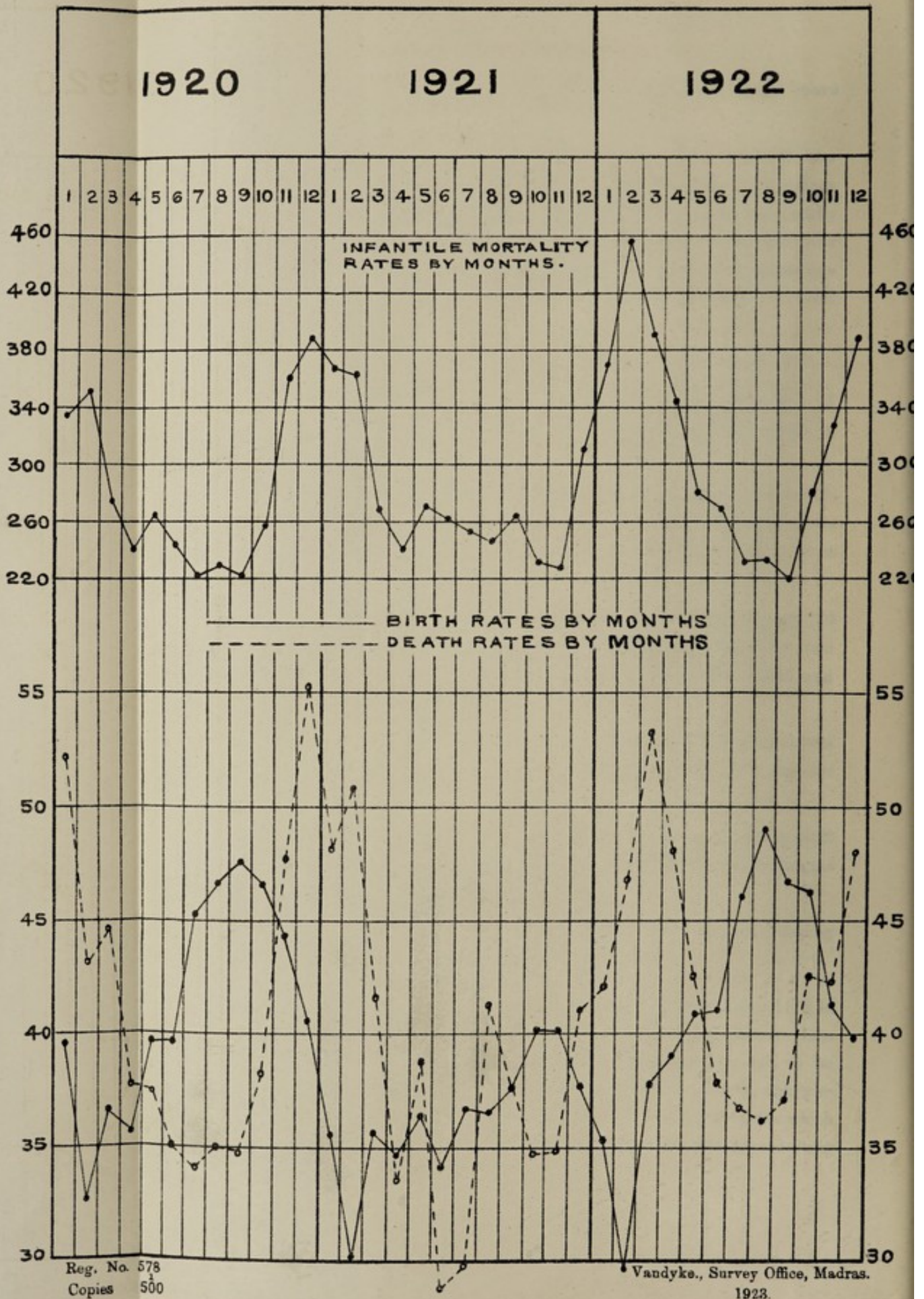
Illegitimate Births. Six hundred and twenty five illegitimate births were registered during the year against 593 in 1921 and 712 in 1920.

Still-births. There were 1274 still-births during 1922 against 1136 in 1921 and 1172 in 1920. The number of still-births has been on the increase since 1918, the causes for the same and the inferences that are to be drawn have been stated at length in the report for the year 1921—poverty, unhygienic home conditions, disease in the mother or father or both and allied causes which bring about some morbid condition in the pregnant mother, are the factors resulting in premature or still-births.

SHOWING BIRTH RATES, DEATH RATES & INFANTILE MORTALITY RATES BY MONTHS FOR 1920, 1921 & 1922.



GRAPH SHOWING BIRTH RATES, DEATH RATES & INFANTILE MORTALITY RATES BY MONTHS FOR 1920, 1921 & 1922.



The number of deaths registered during the year exclusive of still births was 22,475 against 20,268 in the previous year. The mean for the previous five years was 24,010. The ratio of deaths calculated on the census population of 1921 was 42.7 per mille against 38.5 in the previous year and 41.3 in 1920 and the mean ratio for the previous five years was 45.6. The death rate, although lower than the figure for the five year average death-rate, is really very high. In fact, these rates are not comparable in as much as the five yearly average is derived by including the abnormal death rates for 1918 and 1919—two Influenza years. Taking the normal average death rate for the city as 38 per mille, the rise in deaths during 1922 calls for an explanation. For one thing, the city suffered from a severe outbreak of small-pox which spread itself out almost throughout the 12 months of the year, and for another, the birth rate was somewhat high and a high birth rate in a particular year has a tendency to give rise to a high death rate as well, as a result of the added deaths from amongst the larger number of infants under one year, nearly a third of whom finding an untimely and premature grave. Per contra, high birth rates over a series of years would ultimately add to the population, persons whose age distribution would be generally favourable to a low death rate. Birth-rates in the city, although comparatively higher than in the other Presidency towns, vary from year to year between the minimum and maximum figures of 34 and 42 per mille respectively.

Deaths among males numbered 11,673 and among females 10,802, the proportion being 108 males to every 100 females.

The number of deaths registered among Europeans was 40, Anglo-Indians 251, Indian Christians 940, Hindus 18,627, Mahomedans 2612, and others 5, the ratios being 13.6, 27.9, 29.3, 43.5, 49.1 and 2.6 respectively.

Mortality among infants under one year of age was, as usual, the highest *viz.*, 6,669; next come 4,113 deaths among children between 1 and under 5 years of age. Next come 3,555 deaths among adults of 60 years and upwards. There is a gradual drop thereafter in the age periods 20 and under 30, 30 and under 40, 40 and under 50, and 50 and under 60 years with 1,781, 1,560, 1,335, 1,246 deaths respectively. Then comes the age period 5 and under 10 years with 1056 deaths, then the age period 15 and under 20 years with 653 and lastly the age period 10 and under 15 years with 507 deaths. 72.7 per cent of the total deaths occurred in persons under 40 years of age.

From Table H on page 113 it will be seen that out of 6,669 deaths of infant under one year as many as 2,865 deaths or 43 per cent occurred in infants under the age of one month. Of these 2,865 deaths, as many as 1993 deaths or 69.6 per cents

were due to premature births and to diseases classified under nervous system. *i.e.*, 29.9 per cent of the total deaths of infants under one year occurred from these causes and this figure keeps fairly constant from year to year under all normal conditions. 2,712 infants or 40.7 per cent of the total died between the age of 4 months and under 12 months and the causes were mostly due to respiratory diseases, diarrhoea and dysentery.

A full report on the child welfare work during 1922 will be found on *Child Welfare Work* pages 55 to 73.

Causes of Mortality—Infectious Diseases.

Malaria caused 3.4 per cent of the total deaths as against 3.2 per cent for 1921 and 2.6 per cent for 1920 or expressed in ratio per mille *Malaria*. 1.4, 1.2 and 1.1 respectively. Annual Form No. X on page 84 shows that 763 persons died of this cause against 652 in 1921.

There were 74 deaths from enteric fever during the year giving a ratio of 0.1 per mille as against 0.2 in 1921 and 0.1 in 1920. The mean *Enteric Fever*. rates for the previous 5 years was 0.1. The number of deaths returned for 12 years is given in the Table below :—

1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922
52	42	51	66	75	49	47	45	52	66	85	74

The above figures can by no means be taken as accurate since they represent only those cases notified mainly by the public hospitals. Even as they are, they show that the disease is decidedly on the increase. In most countries, this disease is taken as an index to judge of the perfection of sanitary environments under which people live, such as a wholesome water-supply and effective drainage.

Thirty three deaths were registered from this cause the corresponding *Kala-Azar*. number in 1921 and 1920 being 24 and 22, respectively.

Thirty two cases were reported in a sporadic form during the year of which 17 or 53.1 per cent proved fatal against 240 attacks and *Cholera*. 139 deaths or 57.9 per cent in the previous year, the ratio being 0.03 per mille as against 0.3 per mille in 1921. The mean ratio for the previous 5 years is 0.5, the number of deaths recorded during the year from this cause being the lowest since 1887.

CHART SHOWING THE REGISTERED NUMBER OF ATTACKS FROM SMALLPOX BY WEEKS FROM 1916 TO 1922

REFERENCE

1916
1917
1918
1919
1920
1921
1922

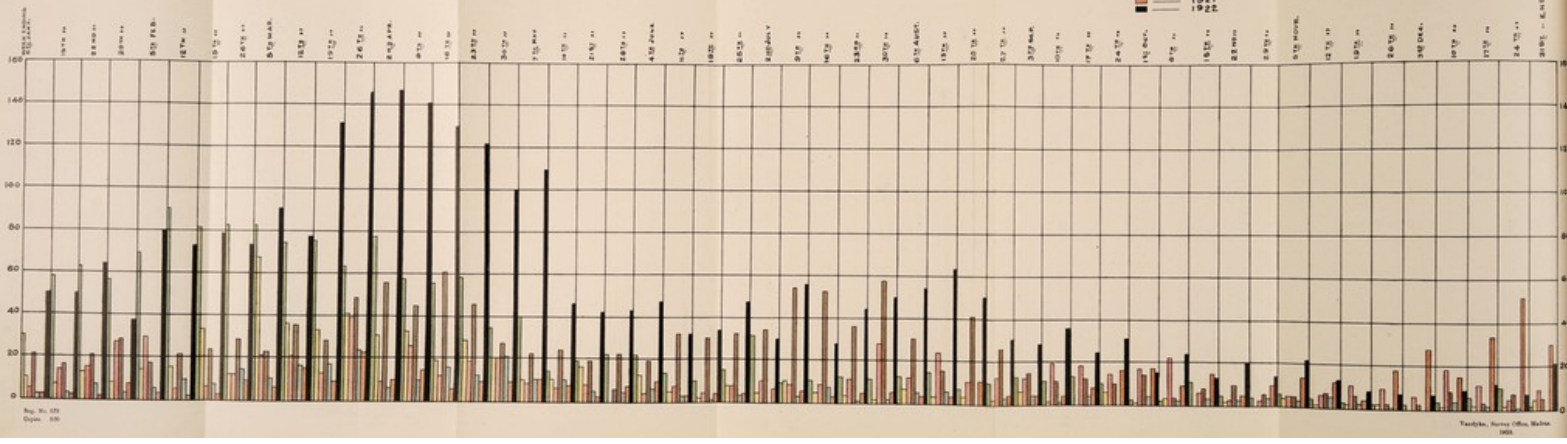


Fig. 10, 179
Dykes, 1922

Yankin, Bureau Office, Bureau
1922

Incidence :—

1922.	Under 1 year of age.		1 to 4		5 to 9		10 to 14		15 to 19		20 to 29		30 to 39		40 to 49		50 to 59		60 and upwards.		Total.	Total of Males and Females.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.		
Cholera	1	...	2	...	2	3	3	2	1	1	...	1	...	1	...	1	...	17

In the report for the year 1921 it was stated that small-pox broke out at Royapuram amongst the fisherfolk in November 1921. Between *Small-pox.* the months of December 1921 and April 1922, the disease spread itself to other parts of the city. The disease was declared epidemic during the week ending with 18th March 1922. It reached its acme in March during which month 602 attacks were registered, although the rate of mortality amongst the attacked was highest in the month of May—64·3 per cent of the registered attacks having proved fatal. 2,727 cases were registered in all during the year under review, of which 1,121 or 41·1 per cent died. The annual death rate was 2·1 per mille against 0·3 in 1921, the mean ratio for the previous five years being 0·5. 928 cases or 34 per cent of the total attacks were declared as small-pox after death from departmental enquiries instituted in every one of them. The figures for attacks and deaths may be taken as sufficiently accurate. Although very elaborate arrangements were made to trace and deal with every case in the city, there might have been a few cases here and there which might have escaped our notice, consequent on the case being concealed, especially when the patient recovered from an attack of the disease. The City Municipal Act provides for the notification of the occurrence of cases of smallpox not only by the medical practitioner who becomes cognizant of the disease, but also by the householder; yet we are not apprised of the occurrence of smallpox in a household in time to enable us to act promptly. In a large number of cases, the householder stops medical attendance on the 4th or the 5th day after the onset of initial fever when he suspects a rash showing the case has turned out to be one of Smallpox. The householder while he shuts out the medical practitioner, is very often loathe to notify to the public authority. For one thing, he pleads ignorance that the rash was due to smallpox and that the law expects him to so notify even otherwise; and for another, his belief is that no person suffering from an eruptive fever should receive medical treatment and he apprehends that by reporting to the public authority, he will be bringing on a lot of trouble to the patient and to himself. We prosecuted defaulters in several instances with the hope that our action would act as a deterrent to others, but in vain. Either the fines inflicted were nominal or Municipal prosecutions do not usually receive sufficient publicity as to rouse public

interest and enthusiasm for co-operating with the Public Health authorities. For all these reasons, we get cognisance of a case of smallpox when it is in a stage of pustulation or scabbing and all the other members of the infected house are exposed to the infection and the susceptible ones are incubating it. The measures taken by us short of isolating the patient in a hospital, are not at this stage of much avail. "There is no contagion so sure and so strong as smallpox; none that strikes at so great a distance." In the month following May 1922 the disease gradually declined in its prevalence and severity. The city was declared free from the epidemic during the week ending 23rd September 1922. The divisions worst affected by the epidemic were I, II, III, X, XV, XVI, XIX, XX, XXIII, and XXVIII.

The patients were isolated in the Infectious diseases hospitals, home isolation being permitted only in the cases where it could be done without risk. Contacts were all vaccinated and re-vaccinated and warned against attending public offices and schools and were further kept under surveillance. Vaccination of infants was regularly done and all facilities for revaccination were afforded to the public. As many as 16,985 cases of primary vaccination and 33,905 cases of re-vaccination were done. The infected house was disinfected immediately after a case was reported and again after it was declared free from infection. Surprise visits were paid by the Asst. Health officers and the Health officer to see that the instructions given were duly carried out. Leaflets and handbills on smallpox and re-vaccination were freely distributed. Also lectures were given and demonstrations made in the vernacular in different parts of the City. The sanitary staff made also house to house inspections.

There has been a great deal of discussion in relation to the outbreak and control of smallpox. My reports dated 28th April 1922 and 27th July 1922 on the epidemic of smallpox and my further note to the Council dated 10th October 1922 with reference to G. O. No. 1598 L. & M. dated 5th September 1922 which appeared in the press and were merely talked out, go a great way in clearing the ground.

Statistical Tables re: smallpox are shown in Appendix A- Pages 118 to 120.

There were 150 deaths during the year. The annual death rate was 0.23 per mille as against 0.08 per mille in the previous year. The mean ratio for the previous five years was 0.1

Measles.

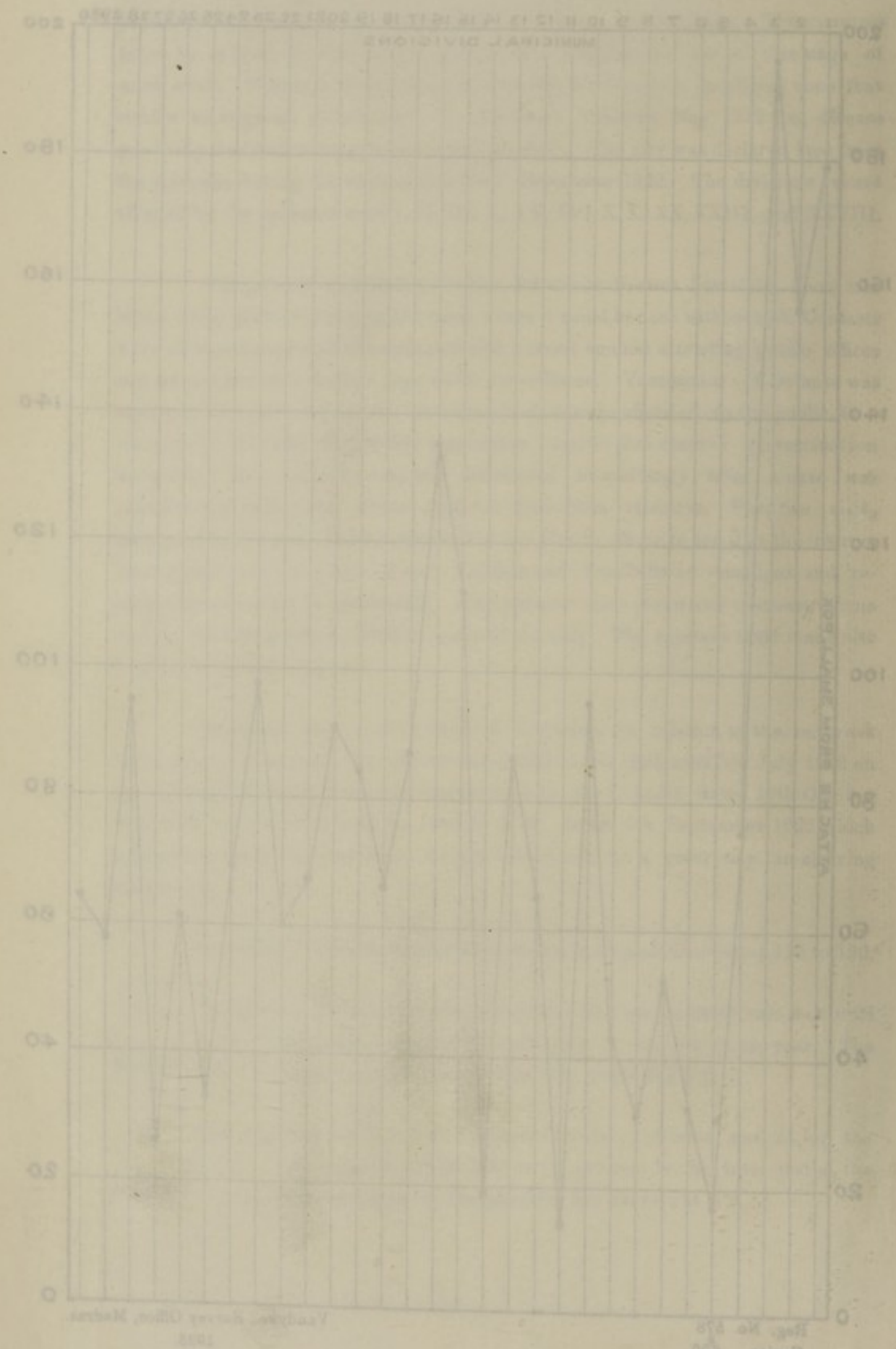
The total number of deaths registered under Influenza was 24 for the year against 110 in 1921 or 0.1 per cent to the total deaths, the mean average for the previous five years was 4.2.

Influenza.

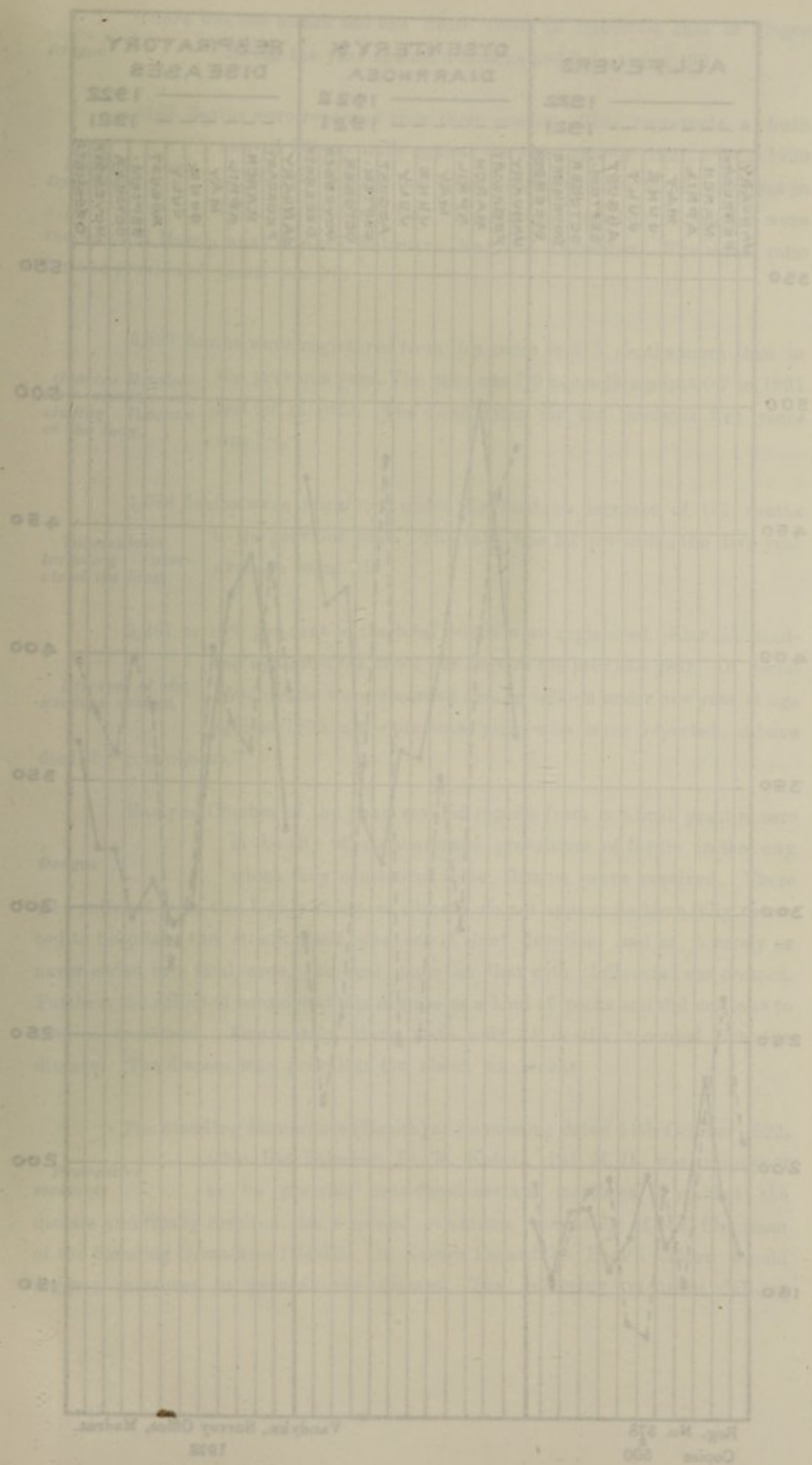
CHART SHOWING THE REGISTERED
 NUMBER OF ATTACKS FROM SMALLPOX
 IN EACH OF THE DIVISIONS OF THE CITY
 FROM NOV^r 1921 TO JUNE 1922.



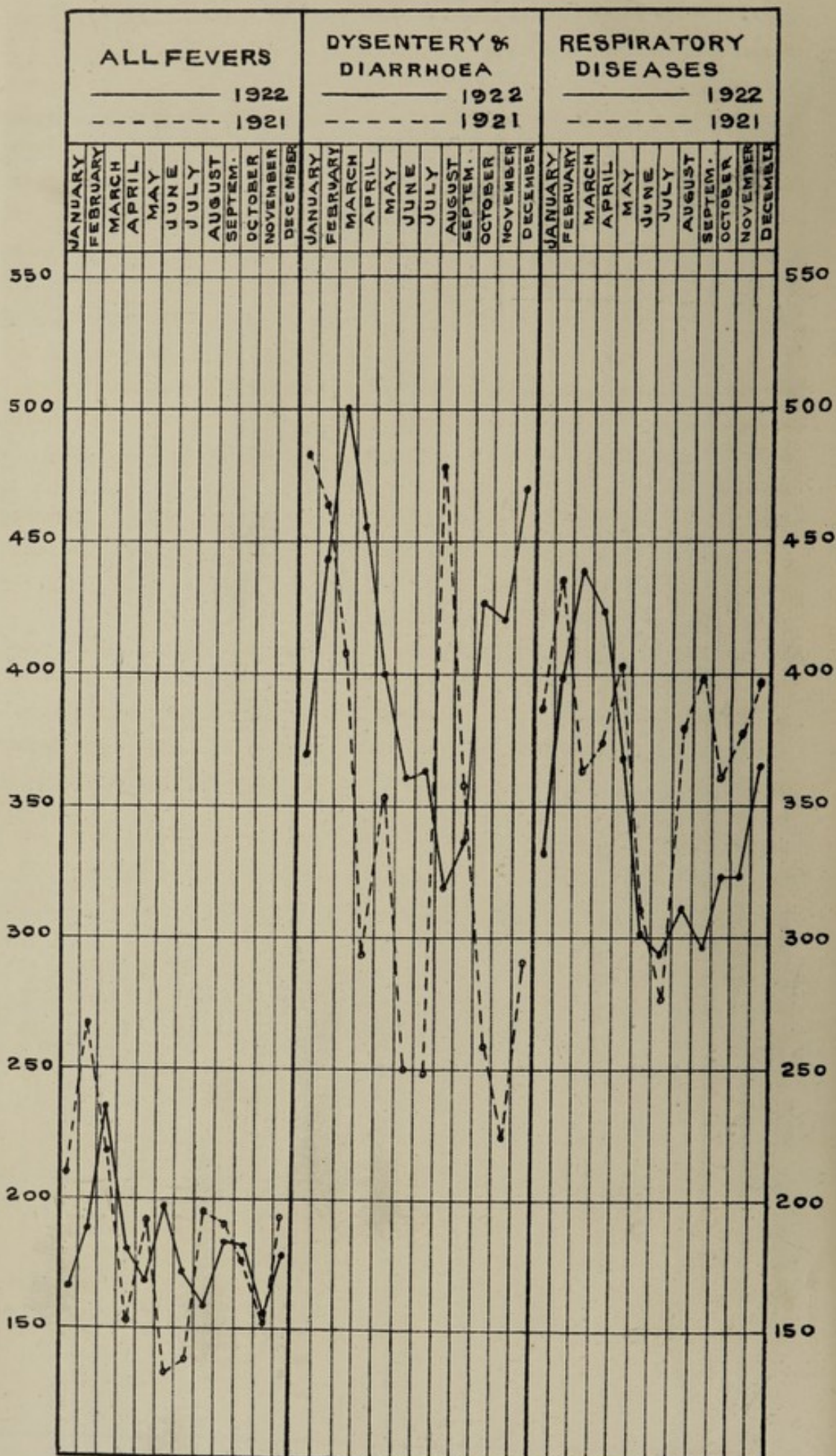
CHART SHOWING THE REGISTERED
 NUMBER OF ATTACKS FROM SMALLPOX
 IN EACH OF THE DIVISIONS OF THE CITY
 FROM NOVEMBER 1921 TO NOVEMBER 1922.



GRAPH SHOWING THE TOTAL DEATHS BY MONTHS FROM



GRAPH SHOWING THE TOTAL DEATHS BY MONTHS FROM



There was one attack and one death from an imported case of *Plague* during the year against 4 attacks and 3 deaths in 1921.

4167 deaths were recorded from these causes. This represents a death rate of 7.9 per mille against the same rate in 1921, 9.0 in 1920 or 18.5 per cent to the total deaths against 20.47 per cent in 1921 and 21.8 in 1920. The largest number of deaths were recorded in March, next in April, February, May and December. The mean ratio for the previous 5 years was 9.2.

3,823 deaths were registered from this cause or 313 deaths more than in the previous year. The ratio was 7.3 per mille against 6.7 in 1921 and 6.6 in 1920. The mean ratio for the previous five years was 7.4.

1,088 deaths were registered under this head, an increase of 131 deaths to the previous year. The ratio was 2.1 per mille, the five year average being 2.2.

2,261 or 10.6 per cent to the total deaths were registered under the heading against 1971 or 9.7 per cent in the previous year. Of these, 1504 deaths were recorded among infants under one year of age against 1058 in the previous year who were reported to have died of "convulsions."

Early in October of the year several reports from medical practitioners in the city of an increased prevalence of fevers in the city which they considered to be *Dengue* were received. Those who suffered from this highly infective disease do not appear to have fully resorted to hospitals; the attack itself was one of short duration, and as it rarely or never ended in a fatal issue, no real panic as that with *Influenza* was created. Further, the afflicted considered this disease as a kind of pox and did not take to medical treatment. Fortunately, there were only 14 deaths recorded from the disease. The disease was prevalent for about six weeks.

The Standing Committee (Health) at its meeting dated 11th October 1922, when Rao Bahadur Dr. M. Kesava Pai M. D. was requested to be present, considered certain measures to combat the disease and finally resolved that a special committee consisting of the Chairman of the Standing Committee (Health), Dr. Kesava Pai and the Health officer should suggest measures to prevent the disease. The following recommendations

of the special committee were adopted by the Standing Committee (Health), at its meeting dated 16th October 1922 :—

“1. Request Principal, Medical College whether he can give us the services of the final year students to visit the poorer quarters and distribute medicine to people suffering from Dengue.

2. *Placard* to state that *medicine* can be had free for Dengue at the nearest Corporation Dispensary.

3. Handbills about Dengue.

4. Tom-tom in cherries about 2.

5. Letter to medical men to advise poor people and the general public whom they come in contact with as to the facilities available at the Corporation dispensaries for medicines and also that Corporation will make arrangements for distributing medicines at the houses of such persons who have no means of procuring them from the nearest dispensaries.”

The above recommendations were all given effect to as far as possible with the exception of item No. 1, as it was considered inexpedient to entrust unqualified men with the task of finding out the patients really suffering from Dengue and distributing medicines to them.

Considering the aetiology of this disease, one can easily understand that the ordinary preventive methods that are in vogue for controlling dangerous diseases such as isolation and disinfection are not of much avail. Dengue is an acute fever attributed to infection of an yet unknown virus communicated from person to person by a variety of mosquito called *Stegomyia Fasciata* or *Calopus*. The only measure that could be effective is the wholesale destruction of this mosquito and its breeding grounds; but such operations started for this purpose after the fever actually commences cannot be of much practical benefit. Firstly because the outbreak itself lasts for a very short period—6 to 8 weeks at the longest, secondly, the disease spreads so rapidly that several households and probably all the members thereof would be down with fever by the time the Public Health authority becomes cognisant of the disease. Thirdly, the breeding places of the *Stegomyia* mosquito are limited to small but temporary collections of water, broken tins, chatties, flower pots and such other disused objects usually found in the lumber or uncared for parts of the household. They do not breed in natural collection of water of any dimensions such as ponds and tanks and wells as is the case with the *Anopheles*, the malaria carriers, nor in drains or other collections of sewage contaminated waters as the *Culex* mosquitoes, the filaria carriers. The real solution, in short, seems to be one of individual effort and prophylaxis to a very large extent. To this extent, pamphlets and handbills were distributed calling upon every householder to try and prevent small collections

of water being left unnoticed in his premises. It is no doubt true that any attempts made by the public authority towards the eradication, if not at least minimising the mosquito, would go a long way not only to prevent to a great extent diseases like Malaria, Filaria &c., but also save the public from nuisance from the mosquito which may be termed a pest. But this is a matter depending entirely on financial considerations.

Report of the first case of Relapsing fever was made to this office by a telephone message from the Government Royapuram Hospital on the 7th December 1922. The patient, a female aged 35, an Audi-Dravida cooly, was admitted there for fever and the pathologist of the hospital who examined the blood discovered the Spirochaetae Carteri which are known to be the specific organism causing the fever. This case was traced by us to a hut in the scavengers' lines, Old Slaughter House Road, 2nd Division wherein were discovered two other persons as well suffering from fever and three others said to have had fever a week or so before and to have subsequently recovered from it. All these cases and the immediate contacts were at once removed to the Infectious Diseases Hospital, Royapuram where their blood was examined. But the spirochaetae were found in only one of the patients who was then suffering from fever. Further enquiries showed that the patient reported from the Royapuram Hospital had come to Madras from Ponnur Taluk in Guntur District, a month previous to the attack and that she had by then 2 bouts of fever from which she had recovered. Contacts removed to the hospital were kept in a separate place. Their clothes were disinfected and these and their bodies deloused by an application of turpentine and soap followed by a good hot-water bath. The Sanitary Inspector of the Division was instructed to keep the place under observation and to send to the hospital any who exhibited symptoms of fever. The infected huts were opened out to the sun and necessary disinfection carried out. Arrangements were made to clean up the other huts in the line. A free supply of turpentine was given to all the residents for delousing people in the affected locality as far as possible and a strict surveillance maintained. All fever cases in that locality were ordered to be removed to the Infectious Diseases hospital for observation, diagnosis and treatment.

On 24th December 1922 a telephone message from the Raja Sir Ramaswamy Mudaliar Lying-in-Hospital was received that a case of fever was admitted there on the 22nd December 1922 and died on the 23rd and that the blood of the patient showed spirochaetae of Relapsing fever. The patient, an Audi-Dravida, female, aged 25 years, who was seven months pregnant and who was living near the scavengers' lines in the same locality as the above, complained of uneasiness in the stomach and was taken to the Rajah Sir Ramasamy Mudaliar Lying in Hospital on the 22nd December 1922 by her husband for treatment as an inpatient. She died there on

the 23rd December after an abortion, and an examination of the blood showed the presence of the spirochaetae of Relapsing fever (*Spirochaetae (spirochaeta) Carteri*) as referred to above. It would appear that the deceased was in close touch and association with the first case and contacts. The place where the deceased was living, was thoroughly disinfected and the only contact, her husband, a cooly in the Port Trust limits, was sent to the Infectious Diseases Hospital, Royapuram for observation.

Five cases of Relapsing fever were reported during the last week of December 1922 from amongst the Krishnampet and Barbers Bridge Road Conservancy coolies living in the South Range. The first case was one Ankiah, male, aged 28 years living in one of the huts near Barbers Bridge Road Municipal Cattle Depot. He was admitted into the Krishnampet Isolation Hospital on the evening of the 22nd December in a condition of severe collapse with subnormal temperature. He was under observation in the above hospital and nothing definite regarding the cause of his illness could then be made out. He was, therefore, kept under observation. He developed fever on the 31st December and his blood taken on that day showed the presence of the spirochaetae carteri.

While the above said patient was under observation, a woman aged about 50 years, Kondi by name, a resident of Krishnampet hutting ground was admitted into the above hospital on the 23th December 1922 in a moribund state. Her general condition almost resembled that of patient Ankiah and feeling suspicious that she might have been suffering from Relapsing fever, a sample of her blood was examined by us and it revealed large numbers of spirochatae. This patient, however, died within a few hours after admission before the specific treatment could be given. On this, patient Ankiah was further detained in the hospital and he developed the fever as already stated.

Three more cases from the same locality were admitted into the Krishnampet Isolation Hospital and from an examination of the samples of blood taken on admission from each case the diagnosis of Relapsing fever was confirmed in all of them. All these cases with the exception of Kondi were given the specific treatment with Neosalvarsan and they recovered.

In addition to the measures taken by us with a view to delouse the affected class of people, their houses, clothing and other belongings, the Officer in charge of Conservancy was requested to use his influence to educate the scavengers to have their bodies and clothing cleansed and freed from verminous conditions so largely prevalent amongst this class of people. He was also requested to direct any one who developed fever to go to the Isolation Hospitals for treatment and further to make special arrangements to thoroughly cleanse up the affected localities in the North and South Ranges of the City. By the close of the year under review there were

8 attacks and 2 deaths from Relapsing fever and the diagnosis in all the cases was arrived at after noting the presence of the spirochaetae in the blood of patients. The outbreak continued till about the middle of April 1923, and in all 67 attacks and 4 deaths were registered. Every case diagnosed as Relapsing fever was promptly treated with Neosalvarsan given intravenously.

Relapsing fever is known to be a filth disease closely associated with dirt, filth or other verminous conditions generally concomitants of famine, pestilence or severe poverty; hence also called Famine Fever. Since also it is understood that the vector of the infection is the louse infesting the hair or body of the human being the propagation of the disease is usually limited to such class of people who are verminous and harbour this insect-pest and it is easy to comprehend that once it broke amongst the scavenger class of people, its spread was limited to their class. The fever itself is somewhat insidious in its onset and spread and only those who come in a very close association with the actual patient bearing also lice at the time or often one who might carry accidentally or otherwise infected lice, are susceptible to the disease. It is necessary to remember that man is infective only when the fever is on and it is high, as it is then that the infective organism is circulating in the peripheral blood in large numbers and it is also true that treatment to be effective should be applied only at this time. It is for these reasons and for the fact that we were able to trace cases at their earliest occurrence and promptly treat them and the contacts and their belongings that we succeeded to arrest the disease from spreading into other parts or to other class of people.

The number of deaths certified by qualified medical men was 2347 or 10·4 per cent of the total number of deaths in the city. Of these, 523 *Certified deaths.* were certified by private medical practitioners and 1824 were certified by public hospitals.

323 applications were received during the year for extracts of entries from the birth registers, 373 from the death registers. Out of *Extracts from birth and Death registers.* these the number of birth extracts granted was 225 and of death extracts 311. In 79 cases extracts were not granted as the parties failed to pay the fees. In 81 cases entries could not be found and the parties were informed accordingly. The fees collected during the year for such extracts amounted to Rs. 1,100-1-0.

The Administration Report of the Port Health Officer.

Incoming vessels :—486 vessels arrived here during the year from Plague infected parts with 35,963 crews and 53,365 passengers against 499 vessels with 50,696 crews and 93,311 passengers of the previous year.

Outgoing vessels:—265 vessels with 28,990 crews and 21,338 passengers were inspected and granted bills of health during the year against 246 vessels with 25,818 crews and 16,132 passengers of the previous year.

Epidemic and Infectious diseases:—One case of Smallpox, 13 cases of Chickenpox with 23 contacts, one case of Measles and 20 cases of Influenza were found in steamers that entered the harbour during the year under report. All these cases were sent to the Infectious diseases hospitals at Royapuram and Krishnampet for treatment and observation. The necessary precautions were taken to disinfect the cabins and decks occupied by them. The disinfection of bedding and clothing of deck passengers and crews landing and embarking from here is continued. The disinfection shed is in charge of a sub asst-surgeon and a nurse is employed for examining female passengers.

Rats on Steamers:—No unusual mortality was found on any of the vessels that entered and left the harbour during the year under report.

The Clayton apparatus was used twice during the year.

VACCINATION.

The city is divided into fifteen combined medical registration vaccination districts each under a qualified Sub-Asst. Surgeon, designated the Medical Registrar Vaccinator. There were 2 female vaccinators and 31 assistant vaccinators. The female vaccinators worked in ghosha and muhammadan quarters.

Vaccine lymph for the operations was obtained from the King Institute of Preventive Medicine, Guindy.

The total number of vaccinations performed during the year 1922 was 51,863 (33,598 males and 18,265 females) against 26,991 for the previous year. The increase is entirely due to more operations performed in and around houses affected with Smallpox, during the months it was epidemic.

The number of attacks from smallpox was 2,727 against 569 in 1921. Of the total operations performed in the city, 50,890 cases were vaccinated by the Corporation staff and 973 reported by the medical officer in charge of Penitentiary. Of the former number 16,985 cases were primary vaccinations (16,459 in 1921) and 33,905 were revaccinations (9,756 in 1921). Of the total number of primary vaccinations, 15,688 were performed at the depots and 1,297 outside and of these again 188 were domiciliary vaccinations performed on payment of fees, the remaining being cases performed in infected localities and in slum areas.

The Assistant Health Officers and Medical Registrar Vaccinators verified the results of vaccinations performed by them in 16,323 primary cases of which 14,146 were brought to the depots as required by the bylaw—occasionally the Health Officer has himself verified, the results of vaccination in several depots. Of the 16,323 primary cases verified, 15,781 were successful and 542 unsuccessful the percentage of success being 96.7 against 93.9 during 1921. This figure includes as in previous years, persons with one or more scars being taken as having been successfully vaccinated.

The Assistant Health Officers verified 10,320 cases against 9,065 in 1921. The percentage of success in primary vaccinations and revaccinations of all cases verified including those reported by the Government Penitentiary was 96.7 and 45.3 respectively as against 93.9 and 35.02 in 1921.

Of the total number of primary vaccinations (16,985), 13,305 were among children under one year of age against 14,704 in the previous year. The percentage of success in the cases verified was 96.8 against 93.7 in the preceding year. Of 13,305 children vaccinated under one year, 9,931 were born in Madras and 3,374 in moffussal. The

number of children under one year vaccinated was 26.2 per mille of population against 27.9 in 1921 and the number of them successfully vaccinated per mille was 24.5 as against 24.9 in 1921.

Out of 15,781 cases considered as successful under primary vaccination, the number of persons who had one or more vaccination cicatrices and their percentage to the total successful cases is furnished in the Table below :—

Number of persons who had one vaccination cicatrix.	Number of persons who had two vaccination cicatrices.	Number of persons who had three vaccination cicatrices.	Number of persons who had four or more vaccination cicatrices	Total successful.
430	1428	1526	12397	15,781
Percentage to total successful cases	2.7	9.0	78.6	96.7% or 96.7% of the cases verified.

From the above it will be seen that in only 78.6 per cent of cases, primary vaccination has resulted in 4 or more cicatrices and these alone can be said to have had good protection, lasting for 5 to 7 years, in the others the immunity or protection obtained is in direct proportion to the number of scars; and attempts made to give additional protection by a secondary vaccination soon after the effects of the first vaccination, would not give satisfactory results. The reason appears to be that cases even with one successful scar will have sufficient protection for the time being to prevent the following operation to take: and we should have to wait for a time when the child should be traced and revaccinated. But such a procedure is not only not practicable but is against the existing law. Firstly, we do not know exactly as to how long this partial immunity remains and secondly under the law, a child who is vaccinated once and who shows even a single positive result is judged successful and therefore a second notice for vaccinating the same child again, is illegal. The solution seems to be, to try and do the operation sufficiently carefully and leisurely and with lymph of certified potency. We cannot, however, minimise the personal factor involved in as much as the parents or guardians concerned should realise the importance of the operation so that they co-operate with us by all means to suitably protect the vaccinated parts of the child or individual in a manner so that good vesicles are formed resulting in well defined scars.

The total number of births verified during the year was 15,367 against 16,252 in 1921. Of them 3,360 or 21.9 per cent died during the year, 2,829 or 18.4 per cent were reported to have been permanently removed out of the city (for 1921 it was 3,354) and 270 were not traceable

at the addresses given in the birth counterfoils. Of the remaining 8908, the number vaccinated was 8072 or 52.5 per cent of births verified and 59 cases were found vaccinated elsewhere and 37 cases were found protected by Smallpox. Vaccination was postponed in 592 cases against 745 in 1921. Of these, 224 were verified by medical practitioners and 279 by medical vaccinators and 89 had temporarily left the city. In the remaining 148 cases which were pending at the end of the year, the parents were warned to have the children vaccinated without delay. From enquiries made to find out the vaccinal history of 1514 children born in the city but removed out of it before being vaccinated, it transpired that only 72 were reported to have been vaccinated outside the city.

Hospital births numbering 4934 were verified during the year. Of these 812 or 16.5 per cent were reported to have died, 904 or 19.3 per cent were reported to have been permanently removed from the city and 1456 were not traceable at the addresses given in the birth counterfoils, leaving 1,762 available for vaccination. Of these, 1604 were vaccinated during the year, 10 cases were found vaccinated elsewhere and 1 case protected by smallpox. Vaccination was postponed on medical certificates in 39 cases, 48 children were found sick by the medical staff and 42 had temporarily left the city. Vaccination was pending in 18 cases. As usual, the number of untraced cases was large in the case of hospital births which in many instances was due to insufficient and incorrect addresses furnished by the medical officers in charge, the percentage of untraced cases in 1922 being 29.5 against 28.5 in 1921.

Times out of number we have brought to the notice of the hospital authorities that reports of births sent by them did not furnish the correct residential address of the mother or father of the new born baby and that we could not therefore, trace the births and have further requested them to comply us with correct information. The response from them has always been that the mother of the new born baby had been discharged from the hospital and no additional information was possible beyond that already furnished. Every birth report has to be verified for purposes of registration and for vaccination later on. By the time we fail to trace the said birth at the address furnished by the hospital authorities and communicate with them, it happens that the mother will have invariably left the institution and naturally enough we get no redress. But it should be possible for them to obtain correct information as to the address as far as possible while the mother was admitted into and remained at the hospital itself so that the information furnished to us would be accurate. Our attempts in the past to obtain this co-operation has not, however, been successful. It is earnestly hoped that Government will issue necessary instructions to the hospital authorities in the matter in order that they might render enough assistance to us to enable us to trace children born at the

hospitals or institutions so that greater percentage of them could, in future, be vaccinated.

The statement on page 115 furnishes information as to the number of births verified by the vaccination staff during the year 1922 and the number of children vaccinated before they attained the age of one year.

Out of 51,863 cases vaccinated, 39,400 were Hindus, 4,295 Mahomedans, 5,258 Indian Christians, 2,908 Europeans and Anglo Indians and 2 others. The vaccination of Europeans and Anglo-Indians was proportionately larger than that of any other class, the number vaccinated among them being 24.3 per cent of their population whereas the percentage among Indian Christians, Hindus, Mahomedans and others being 16.3, 9.2, 8.1 and 1 respectively.

Two thousand seven hundred and twenty seven cases of smallpox were reported during the year as against 569 cases in the previous year. Of these, 1515 or 55.6 per cent of the cases were treated in the two Infectious Diseases Hospitals of which 220 or 14.5 per cent of the cases proved fatal. 939 cases were treated in the Infectious Diseases Hospital, Royapuram and 526 in the Isolation Hospital, Krishnampet.

There were 32 cases of prosecution during the year for non-compliance with the by-laws under section 349 (26) of the Madras City Municipal Act IV of 1919. Of these, 17 cases were convicted with a total fine of Rs. 20-8-0 and 15 cases were withdrawn. In a large number of cases legal steps could not be taken and even in those where such action was possible and prosecutions instituted, they had to be withdrawn as the parents produced at the court or in advance certificates from registered medical practitioners recommending postponement of vaccination on grounds of ill-health. The municipal bylaws permit the grant of postponements on the strength of certificates granted by registered medical practitioners. The number of such certificates received is on the increase from year to year. Nearly 500 certificates have been received during the year. I would earnestly request those practitioners granting such certificates to co-operate with this department as far as possible in procuring the vaccination of children. Advice from them to the parent or guardian on the importance and urgency of getting the child protected against smallpox in preference to having it postponed on trivial complaints of bodily ailments or, as is often the case, of an imaginable apprehension of probable danger by subjecting a young infant to vaccination, is surely to go a long way to help us in our work. Or the medical practitioner or the family physician, might as well vaccinate the child himself or otherwise cause the child to be so vaccinated and we will even be ready to render

all assistance by supplying lymph to them or by sending vaccinators to the houses, especially in view of the fact that the Corporation has decided to carry on vaccination at private houses free of charges.

The fees for primary vaccination at private residences under by-law No. 11 of the bylaws under section 349 (26) of the Madras City Municipal Act and for vaccination certificates issued, amounted to Rs. 327-8-0 which was credited to the Corporation. The abolition of fees for performing primary vaccinations at private residences was approved by the Council at its adjourned general meeting dated 23rd November 1922, as already stated and the amendment of the by-law in question will soon be ratified by the Council. After this bylaw is amended, primary vaccination of children will be freely done at their residences by the corporation staff and this will be a step wisely taken towards popularising primary vaccinations.

The cost of registration and vaccination during the year was Rs. 37,366-12-11. Debiting half this amount to vaccination, the cost amounted to Rs. 18,683-6-6 and deducting from this amount the fees referred to in the previous paragraph, the expenditure on vaccination was Rs. 18,355-14-6 and the net cost of each successful vaccination was Rs. 0-11-2 as against Rs. 1-1-9 in the previous year. The decrease in cost is due to a larger number of revaccinations performed during the year and also to the fact that special precautions were effected to prevent unnecessary waste of vaccine lymph.

The Government have, recently, drawn our attention to the unnecessary wastage of vaccine lymph but it has to be stated that under the present method of supply, wastage is to some extent inevitable, in spite of all care being exercised. Indents for lymph are made from day to day on a probable estimate of the number available for vaccination for the following day or two days and the lymph received at a central depot and issued out to the other centres of vaccination in required quantities. At these latter places, it is notified that vaccination is performed on 3 days in the week and on these days little or no lymph is wasted. But it almost invariably happens that persons do go for vaccination on nonscheduled days at all depots and our orders are that none whoever volunteers should be refused. The lymph is sent to us in tubes or capsules holding quantities enough for 5 or 10 cases. When once it is opened up and a part used the balance is rejected for fear that it might have been contaminated during its being handled and naturally, therefore, some amount goes to waste.

Apart from this, we have had on several occasions brought to the notice of the Director, The King Institute, Guindy that vaccine lymph supplied by them were, sometimes, either found to contain much less quantity than what they were labelled to hold or found altogether empty. In reply, we were informed that the

tubes had been very carefully weighed at the Institute at the time of loading and reweighed by a separate staff before despatch. Sometimes, however, we have been lucky to receive fresh lymph tubes from the Institute in substitution for those complained of. I would, therefore, suggest the desirability of arranging for the supply of lymph in sealed glass capillary tubes containing enough material for a single case. This I have seen done in England and I am told that in the long run it is more economical to supply in this manner.

In pursuance of G. O. No. 1271 L Press (L & M. Department), dated the 22nd December 1920, 38 first class Vaccinator pupils were deputed by the Asst. Director of Public Health, Central Range, Madras for practical training in vaccination work for about six weeks from 13th March 1922 to 22nd April 1922 in the several Corporation Vaccine depots. These worked under the immediate supervision of the Medical Registrar Vaccinators and all of them were recommended for certificates of efficiency by the two Range Asst. Health Officers.

*Practical Training
of First class Vac-
cinator pupils.*

SANITATION.

Officers of the Health Department:—Rao Bahadur Dr. K. Raghavendra Rao, B.A., M.B. & C.M., (Mad.) D.P.H., (Camb.) continued to be the Medical Officer of Health throughout the year under report and was assisted by Doctor S. Isaac, B.A., M.B. & C.M., and Doctor P. Sadasivan, L.M. & S., who were in charge of the North and South ranges, respectively. Dr. Virasinghe Chinappa continued to be in charge of Child Welfare work in the city.

Owing to the prevalence of Small-pox in the city six Sanitary Inspectors were lent from the conservancy section, as the existing staff was inadequate. One of the Sanitary Inspectors still continues to work in the North Range.

Administration.—15 Sanitary Inspectors each assisted by a Process Server were in charge of the 30 divisions of the city. Prior to October 1919 there were 20 Sanitary Inspectors employed for the sanitary administration of the city alone. The city is growing in size and the population is increasing and consequently the work as well. Representations for bringing up the present number of sanitary Inspectors to 20 did not unfortunately meet with the approval of the authorities. Since 18th October 1922, however, 15 peons have been lent from conservancy section as a temporary measure to work under the Sanitary Inspectors.

Water-supply.—The Health Department has had no definite function to perform in regard to the city water-supply. During the year under report the Health Officer was nominated as a co-opted member along with the city Engineer on the Government Committee on water filtration and attended some of the meetings. Consequent on the prolonged drought it was apprehended that the Corporation would have to pump up water at the Red Hills, an operation generally believed to give an impetus for an outbreak of Cholera in the city. Both calamities were luckily averted consequent on the rainfall in November which, though late in its onset was sufficiently heavy. The supply of water made to the city may be taken as adequate. Complaints are often heard that the supply does not sufficiently satisfy the needs in some parts of the city more especially in parcherries and hutting grounds.

The Corporation has been doing its utmost by putting up more public fountains as far as possible in the parcherries and hutting grounds of the city, which are about 120 in number. The difficulty seems to be that in a large number of cases the areas under question are owned by landlords whose interest in their tenants stops short of collecting the rent. The Corporation itself under the constitution cannot carry their public mains in private streets. Above all, public co-operation in the matter of conserving the supply and preventing the waste is very urgently called for and unless the supplier and recipient both realise this aspect of the

problem, a day may come when the existing source of supply will be found to be wholly insufficient for the needs of a growing city.

In a number of places, and especially in some houses, water from existing wells and ponds almost all of which tap only subsoil water and therefore are greatly polluted, is in daily use for domestic purposes other than for drinking. Water from wells is freely used in some hotels and lodging houses with a view to minimise the water charges due to the Corporation. Steps taken to prevent this are rewarded only with partial success due to the various devices adopted by the proprietors concerned.

Drains.—The provisions of Sections 176 to 183 of the Act were mostly carried out by the Works and Special Works Departments. The following works were carried out during the year.

Construction of masonry drains on the bank of Cooum to drain the houses in Perumal Mudaly street.

12" side drain in Rama Naicken street Nungambakam, 4" masonry side drain in Mariappa Naicken street off Eldam's road and 4" side drain at Kumarappa Mudaly street were done during the year and masonry side drains in 2nd, 3rd and 4th Barber's Bridge lanes were constructed. The construction of an open masonry drain alongside of temple wall in Veerasami Iyer street was under progress.

The construction of additional manholes in Nattu Subraya Mudaly street was under progress.

A 4" sewer was laid in Barber's Bridge Road.

The number of house connections given during the year was 160 (1922-23).

There are yet large parts of the city which should receive the benefit of the under-ground drainage; and the earlier the drainage operations are completed, the better for the health of the city.

Latrines.—The total number of public latrines in the city was 157 of which 73 were of the flush-out type, 26 were masonry and the rest 58 were sanded ones. A flush out latrine of 4 seats behind the Grand Theatre was constructed and the sanded latrine in Veeran Paracherri was converted into a flush out-one.

Urinals:— 6 urinals were installed at the following places:—

Pillayar Coil street.

Badriah street.

General Sami Naicken street.

Bhagavathal laue.

Venkatesa Naicken street.

Portuguese church street.

Still the number is wholly inadequate and it is hoped that more will be constructed in the coming year. Action has been taken in many instances regarding the construction, repair and proper maintenance of latrines in private houses throughout the year. The earlier the existing sanded latrines are abolished and converted into either pukka flush-outs or at least into the "pail-system", the better for the health of the City.

Streets.—With the increased bus and vehicle traffic and the clouds of dust raised by them, danger to public health is becoming greater. Constant inhalation of dust and effluvia are prolific sources of lung affections and consequent morbidity. It is therefore necessary that dust of all kinds should be kept down as much as possible either by constant watering of the streets or by adopting the more recent methods of making dust-proof roads e.g., tarring, macadamising etc., and the expenditure on this score should be considered indeed well spent. The Corporation will be well advised to avail themselves wherever possible of the water from existing tanks and wells for purposes of road watering. What is needed is a good pump capable of being moved about on a motor vehicle and provided with sufficient number of hoses etc. Except for the initial cost, the recurring charges may not be prohibitive, as compared with the cost of Red Hills water at present used for this purpose. The water so pumped from these sources may also be used for our parks to water the trees and plants. By these means water from Red Hills now derived at great cost may be conserved wholly for domestic and drinking purposes.

Building Regulations (Sections 230 to 267).—As in previous years applications for construction of buildings were occasionally referred to the Health Department. These are generally dealt with by the Engineering Department, being guided in their scrutiny of plans and buildings by means of a set of byelaws, which are statutory. In cases, however, where the Health authorities find that buildings are not up to the mark from the sanitary point of view or are found to be deviating from sanctioned plans, necessary steps are taken to bring them in conformity with sanitary regulations. About 130 applications were so scrutinised by this department during the year under review.

Control over waters (Sections 262 to 268).—Since April 1921 the special establishment employed for the working out of these Sections was stopped except for a small staff to clean certain anti-malarial drains. The work is taken over partly by the Sanitary section and partly by the Conservancy section of the Health Department. Action is taken by the former in cases where complaints in regard to nuisances from wells and ponds are received and notices for cleansing them or for filling them up are issued according to each case. In the case of wells in private premises where cases of infectious diseases occur they are hankanised or chlorinated. Only 37 notices were issued.

The Cooum river and the Buckingham canal continue to be the main sources of nuisance from bad and offensive odours, especially for those parts of the city which abut on their banks. They afford shelter for stealthy washing of the animals, clothes and for fishing. It is not found always practicable to catch red-handed persons offending against the prohibitive orders; for, most of them come from outside and no addresses regarding their habitation etc., can be got out of them and the offence itself is usually committed late in the afternoon. A greater nuisance arising out of these is from the mosquitoes that breed in some parts of these water reservoirs. Complaints were received from the Government House and from the residents in the Mount Road Hotels and temporary measures of relief were taken. But what is really called for is a definite programme or policy of mending them or ending them. I believe there are proposals pending before the Government for converting the Cooum into a tidal river connecting with the sea. I am also aware that the P. W. D. engage a staff to take out silt from the Buckingham canal every year but the silting up in this and in the lower reaches of the Cooum near the General Hospital and Medical College is so great that the staff is wholly inadequate to deal with the problem. Radical measures are urgently called for and in the interests of the city, the earlier they are executed the better and in the meantime more energetic steps for conserving these two reservoirs of water in fact "cess-pools"-should be undertaken from day to day.

Abandoned lands, untrimmed hedges etc. (Sections 269 to 271). Inspection of these places and prevention of nuisance therefrom is a part of routine work of the Sanitary Inspectors and constant attention is bestowed in this direction. 66 notices under these sections were served to minimise the nuisance.

Insanitary buildings (Sections 272 to 277).—During the year under report, house to house inspections were made by Sanitary Inspectors as usual and 2,900 houses were thus inspected. 840 notices were served to rectify the sanitary defects found therein. The action taken in these cases is always prolonged as the house owners do not recognise the importance of keeping their houses clean and sanitary and always put forth one pretext or another against complying with notices, served more especially in cases where houses are let for tenements. One has to admit that the notices issued fall far short of what we wish it to be and we are often called into question for not making more house to house inspections. Firstly, consequent on the prolonged outbreak of Small-pox during the year, more attention could not be paid for this work especially with a reduced staff of Sanitary Inspectors. Secondly, most rate payers do not welcome our interference and once we begin a routine house to house inspection and issue out notices, the owners thereof by various influences set them at naught or merely touch up the more glaring deficiencies. But for space we would quote several such examples. The inspections were however carried on and

registers are maintained by the Sanitary Inspectors showing the work turned out in this direction. A good deal of congestion has to be removed in the city and the Corporation should decide upon building model houses to relieve the overcrowding in certain parts of the city. It is hoped that a decided advance will be made by the Corporation by elaborating the suggestions made by M. R. Ry. V. Tirumalai Pillai Avargal, Municipal Councillor, to construct single tenement model houses for the poor. The middle and the lower classes need better housing than what is available at present.

Cheries and Hutting Grounds.—There are about 120 cheries and hutting grounds in the city. Periodical inspections of these places form a routine work of Sanitary Inspectors and Officers of the Health Department; and registers are maintained by the Sanitary Inspectors showing the defects noticed therein and the improvements required therefor. Necessary action is also taken wherever possible. These places need immediate attention especially in regard to the provision of water taps, latrines, drainage, housing accommodation and formation of proper streets etc. The insanitary and congested cheries seem to be the centres for propagation of disease from which almost invariably epidemic diseases spread to the rest of the city.

“Housing the poor” as a problem of Municipal administration is attracting the serious attention of the authorities in all countries. The present day conditions of housing in the city do not provide for the ordinary elementary sanitary environments for a healthy living; and living as they do in the midst of dirt, filth and squalor, it is no wonder that people fall an easy prey to any disease which accidentally or otherwise gets hold of them. In this city it is only too common a sight to see hundreds of labourers cooking, washing, eating and sleeping on road sides or near big open drains, or close to public latrines or on open lands etc., and when they are cleared out of one area they occupy another place and start living there. The Corporation will do well to formulate a scheme for housing these poor classes and beggars as well. We need several poor houses and beggars homes for housing these miserable individuals.

Licensable places.—Registers have been opened in the Central Office wherein the Sanitary Inspectors have been directed to enter regularly the work turned out by them in respect of their periodic inspections of these places. In the following paragraphs, an account of work done in this direction is detailed. There are over 2,975 such places which come under the supervision of this department.

Lodging houses (Section 279).—During the year under report this Section of the Act was not made penal and the bylaws had not been approved of by the Government and hence much could not be done to bring them under sanitary control. The bylaws framed in this connection have been approved only very recently and in the current year steps to enforce the laws and regulations controlling their maintenance under clean and sanitary conditions have been taken up.

Keeping of animals (Sections 280 to 286).—This Department is, as far as it lies in its powers and as far as the local circumstances permit, enforcing strictly the provisions of law in this respect. Every endeavour was made to prevent human habitations being used for housing animals as well.

Unlicensed stray dogs, 7,500 in number, were destroyed.

Cattle yards and Cow houses.—(Section 232). Out of the 663 cattle yards under this head, licenses were refused for 25 and the rest were permitted subject to their conforming with sanitary laws. Human dwellings were effectively separated from cattle yards as circumstances permitted. The condition of the cattle yards in the city, in general, is improving gradually owing to the constant vigilance that is being kept up although it cannot be denied that there are still a large number of them maintained in a disgusting manner; and promiscuous living of men and animals may be found in some places.

The Corporation continued to maintain the model cow house, where a number of milch cattle are permitted to be housed free of cost, only a nominal rent of Re. 0-8-0 per mensem for the use of a room by the shepherd being charged. There were 195 and 124 heads of cattle on 1st January and 31st December 1922 respectively, and 71 were removed during the year. In the official year 1922-1923 a sum of Rs. 486-8-0 was collected by way of rent.

Consequent on the distance from the localities where shepherds live, more than half of this model cattle-yard remains vacant. These people find it difficult not only to attend to their animals but almost impracticable to trot them to and from the consumer's house; for, then only the milk of the animals would be saleable. Moreover one yard like this cannot meet the need of the city where cattle yards and milk vendors are scattered about. What is called for is the construction of small yards accommodating a hundred head of milch cattle in different parts of the city and at fair proximity to the present habitations. Proposals in this direction were made and their construction was engaging the attention of the Council.

Straying of cattle in public streets and thorough-fares—a menace to public health and danger to the public safety—has come to stay in spite of the efforts of the Police Department and unless very deterrent action is taken, there cannot be much improvement in this direction. The Police Commissioner was addressed on this subject on various occasions and it is hoped that the Police will do its best in the matter. The Government was requested to confer our Sanitary Inspectors with powers under the Police Act in regard to prevention of this nuisance but the request was declined. In this connection it may be stated that a proposal was submitted to the Commissioner to maintain municipal cattle pounds in several divisions of the city to minimise the nuisance from this source, pointing out how it might in course of time be a source of revenue as a subsidiary object.

Back stables were also dealt with under this Section and 88 of these were licensed during the year. Failure to execute the sanitary improvements for these places resulted in prosecution of the offenders.

Private stables for horses.—In addition to the insanitary cattle houses, there are a very large number of stables which are maintained for private use and are yet kept in an unwholesome state. A stable where horses are expected to be housed is invariably also the residential quarters of the syce and his family. In 1919 special rules and byelaws were framed and adopted by the Corporation for their construction and maintenance, but they could not be enforced since in actual practice it is found that the syce turned out of the stable takes on to the street close by. Action was taken in one instance as a test case. There were protests from influential quarters, but at the same time after a prolonged reference and consideration by the Standing Committee which under the Act is the final authority, we were told that the syce and family were turned out, only to be retenanted after a couple of weeks. A regular campaign against insanitary stables was started in 1917 but up to date little or no progress has been made for reasons stated above. The remedy seems to rest either in the Corporation closing down such stables with a high hand, or in the owner paying the syce better, so that he can find a house, or providing it himself for the syce.

Cart-stands.—15 cart stands were licensed, excepting the Elephant Gate Cart stand which is under the supervision of the Health Department, and the one near Pachaiappa's is under the Revenue Department. The right of collecting rents and fees from the former (Elephant Gate Cart stand) and the bazaars attached thereto was as usual auctioned during the year 1922-23 for Rs. 3,200 as against Rs. 7,800 for 1921-1922. Sanitary improvements in these places have been effected gradually but the progress is really slow. Except for one or two where the cart stand is really the open space round a temple whose sanctity is not in this respect questioned, the others are tolerably good.

Industries and Factories (Sections 287 to 289).—The places coming under the purview of Section 287 specified in schedule VI of the Municipal Act and those covered by Sections 288 and 289 were subjected to frequent supervision and sanitary control. These trades are dealt with in detail below so far as they related to the Health Department.

Brick and Lime Kilns. 12 brick kilns and 27 lime kilns exclusive of the Government brick kila in Poona mallee High Road were licensed during the year. The question of shifting the latter out of the municipal limits has not been solved yet and it is hoped that the Government will take speedy steps in this direction and save an excellent residential area of the city from the dangers to the public health arising from the constant fumes and lime dust.

Oil Mills.—Out of 143 applications, 2 were refused license on sanitary grounds and the rest were licensed. It was already pointed out in the previous years reports that these mills should be removed at an early date to less congested and non-populous localities in the city. The site of the oil mills in Triplicane popularly known as Checkumodu was proposed to be acquired for the construction of a vegetable market. The proposals for moving them from this congested locality to the Corporation site in Lloyds Road to the west of the Buckingham canal are not likely to materialise.

Paddy Boiling.—523 places were licensed during the year and these are chiefly confined to parts of Tondiarpet, Perambore and Purasawalkum. They were kept under frequent surveillance by the sanitary staff especially in view of the occurrence of a large number of small-pox cases amongst the residents in these localities.

Aerated water factories.—Licenses were granted in respect of 36 applications for manufacturing aerated waters and refused in two instances. Aerated waters are in some cases manufactured in bad surroundings and with dirty implements. These work spots have come under greater scrutiny during the year under report. Steps were taken to prevent the premises being used for human habitations as well. Several bottles of aerated waters were seized by surprise at the factories and at the road side bazaars and examined; and those that contained suspended impurities were emptied on the spot and in cases where no improvement was effected the parties were threatened with the cancellation of license. No prosecutions were instituted on this score during the year under review. The proprietor makes use of the public supply and to remove suspended and other impurities he is asked to filter and boil the water. The former is done more or less in a mechanical way and the latter is rarely carried out although at inspections a fire place and a boiler are shown. Prosecution could only stand on a strict proof of the proprietor violating the conditions and of the impurity of the finished product. This can be done only by frequent chemical and bacteriological examinations of samples taken at random; but in the absence of a municipal laboratory no tangible improvement can be effected or the problem solves itself if the purity of the public water supply should be guaranteed.

Bake-houses.—54 bake houses were licensed during the year. A systematic inspection was carried out by the Sanitary Inspectors and the licensees were made to carry out the necessary sanitary requirements specified by this department.

Sweet-meat bazaars and Coffee hotels.—274 bazaars including coffee hotels were licensed. In several cases these places were also converted into human

dwellings and strenuous efforts are being made to effectively prohibit their being so used. Many of these are admittedly bad and the owners make a hand-to-mouth living. The evils thereof are chiefly threefold :—

1. Want of accommodation and proper utensils, tables etc.
2. Want of cleanliness of the place, implements, of the body and person of the employer and employee.
3. Want of suitable means for protecting the eatables from access to flies, dirt and effluvia.

Since the occupation is one that calls for constant attention to cleanly methods of manufacture and sale of articles of food, no amount of vigilance from the sanitary authority can by itself undo the mischief arising out of bad environment. A Sanitary Inspector would inspect and check an evil habit that he notices but when he turns his back, the worker goes back to his own way. The authorities insist upon the provision of sufficient water supply, ventilation, drainage, ovens, smoke-outlets and last but not the least glass show cases. All these are provided but the real crux is in the manner how they are used. For instance, instead of tap water being used directly and freely for washing vessels, the water is stored in a tub or other vessels and the utensils used by several customers are repeatedly washed in it. Glass screens or panes are either broken or taken off especially in the evening when customers are many and the rush is great. It may be stated that the desired ends are easily attainable by the public feeling a sense of repulsion and refusing to buy bad articles of food or those got up and exposed for sale under dirty conditions. This would tell upon the pockets of the proprietors who would naturally adopt cleaner methods or close their business. Bylaws regulating the sale or exposure of sale of unwholesome articles of food and drink have been approved of by the Government during the current year and it is hoped that more effective control can be exercised with the help of these enactments. All places where articles of food and drink other than sweets were prepared were escaping control from this department owing to want of powers to proceed against them but with the coming into force of these bylaws they will be brought under control for effective supervision.

Ice factories.—Two Ice factories were licensed during the year and they were run in a satisfactory manner.

Flour Mills.—Flour mills worked by electricity were and have been on the increase in the city. Though the present number of the mills seem to be inadequate to meet the demands of the public, the noise produced by the working of the machine and the nuisance caused therefrom really necessitates their being restricted to certain areas of the city. It is doubtful if the Corporation would be justified in

restricting a promising industry in a city like Madras; but from a sanitary point of view innumerable mills in the midst of congested areas ought not to be allowed, more especially as even pungent articles as chillies are powdered therein. Licenses were issued for 49 such mills during 1922-23. Their working hours are restricted at present from 6 A. M. to 6 P. M. and judged from the practice in vogue the closing hour needs to be extended till 7 P. M. at least.

Sugar and Sugarcandy.—Sugar is imported into Madras in large quantities but yet there are a few places in the city where Bura sugar and sugarcandy are manufactured to a smaller or a greater extent. Reference to this was made in the previous reports. During the year 10 applications were received out of which one was refused and the rest were granted licenses. Measures were taken to prevent these places from being used for human habitation. There were several protests but still it can be said that there was a large amount of success in this direction.

Candle Manufacture.—Three places were licensed. These new trades serve to meet the demands of the city to a small extent.

Soap Manufacture.—Of late several soap factories have sprung up and inferior kinds of soap are manufactured in the city. 13 manufactories were allowed and license for one was refused. The sanitary provisions with regard to human habitation on the same premises of the soap works were enforced with a very large amount of success.

Storing of soiled and washed clothes: Laundries.—This business is on the increase in the city and licenses were issued to 80 such places. Any individual starts up a laundry on the pial or a stable of a small premises, hires out certain washermen and gets clothes washed by them to his customers once a week. License for this was issued free. The manner of storage of soiled clothes at the premises called for our attention in as much as in the majority of cases they were indifferently mixed up or put up side by side with washed and clean clothing, a common source of danger giving rise to spread of epidemic disease especially small-pox. Sanitary regulations were enforced and arrangements for the separate storage of soiled clothes were insisted upon.

Washing and bathing (Section 291 to 293).—Besides the swimming bath maintained by the Corporation in the Peoples Park compound and 19 existing bathing fountains, 14 more were constructed during the year in the following places :—

Ammen Koil Street	...	1st Division.
Rope Godown Parcherri	...	2nd „
Moolakothalam	...	4th „
Clive's Battery	...	5th „
Coral merchant street (north end)	....	6th „

Thatha Muthiappen Street	...	11th Division,
Audiappa Naick Street	...	13th ,,
Badria Garden Street	...	15th ,,
Jutka Parcherri	...	15th ,,
Chucklipalayam	...	16th ,,
Arunachella Pandaram Street	...	18th ,,
Veerabadrachari Street	...	18th ,,
Suparigunta Parcherri	...	24th ,,
Sheik Davood Street	...	27th ,,

In all, there are 33 public bathing places. These are not however sufficient and it is hoped that during the coming years more will be put up especially in cheries and hutting grounds where conditions under which the people live are much in need of improvement.

*Dhobikhana*s.—Two dhobikhana's are maintained by the Corporation one at Chetput and the other at Robinson Park. Both of them are under the supervision of the divisional Sanitary Inspectors as regards their sanitary control. In the Robinson park dhobikhana the collections are at present attended to by the Sanitary Inspector himself while in Chetput dhobikhana the Revenue Department collects the fees through the Superintendent directly. The sanction of the Government for making over an open land at Purasawalkum for the construction of a dhobikhana in that part of the city was awaited. As the dhobikhana's are quite inadequate to serve all the dhobies in Madras, the washermen are resorting to any handy insanitary pond, pool, surface well and the Coom in particular. Several places were prohibited from being used for the purpose and notice boards were also put up to that effect and offenders were prosecuted.

Slaughter Houses (Sections 294 to 295).—The only slaughter house in Madras is at Perambore maintained by the Corporation and is in immediate charge of a Superintendent with an assistant. Only sheep and cattle are allowed to be slaughtered there on payment of a nominal fee for each animal. The place for slaughtering pigs is separate but under the same management and supervision. The right of collection of rents and fees for the use and occupation of sheep, beef and pig slaughter houses was auctioned for a period of one year from 1st April 1922 for Rs. 50,900, Rs. 22,000 and Rs. 250 respectively. The number of animals slaughtered were 18,245 cattle, 4,04,555 sheep and goats and 1,317 pigs; and the carcasses were conveyed to the different markets in Corporation bullock vans as also through private butchers by means of hand carts, jutkas, baskets etc. The carcasses were conveyed under very insanitary conditions, being exposed to public view throughout the way not to speak of the dust, flies etc. It

has been proposed to introduce motor meat van service for the quick removal and expeditious delivery of these carcasses to the markets. The bullock-vans maintained for the purpose were not self-supporting. Last year it was also proposed to enhance the existing rate for removal of each carcass but it could not be put into force. The amount realised for conveyance of carcasses to the different private and public markets was Rs. 3,774-10-6.

The site for a second slaughter house which was selected near Kondi Thope was abandoned.

Sections 296 to 298.—Permission for slaughter of animals was granted free of charge on occasions of religious festivals and ceremonies and the number so slaughtered was 6 cows, 1,383 sheep and goats and 16 pigs. During festive occasions 1,203 sheep and goats were slaughtered at private residences and the amount collected therefor was Rs. 150-6-0.

Illicit slaughtering.—The Sanitary Inspectors continued to inspect frequently the markets and meat stalls with a view to detect the illicit sale of meat. 10 prosecutions were also instituted for illicit slaughtering of animals without license.

Milk trade (Section 299).—The bylaws framed to regulate the working of of this Section were under consideration of the Government. The laboratory test and standardisation of milk and milk products is necessary for enforcing the food and drugs enactments.

Markets (Sections 300 to 308).—The Corporation maintains two public markets both of which are under the control of this department so far as they relate to the sanitary administration. The collection of rents from the Moore market is attended to by the Revenue Department while that of the Smithfield market is auctioned. The latter was leased out for Rs. 2,500 for the year 1922-1923.

51 private markets were licensed during the year. The sanitary conditions obtaining in several of these markets were fairly satisfactory. Sanitary improvements can be effected only gradually where it involves large capital but slow profit. Our chief difficulty consists in preventing gangways being blocked up by stall holders and in preventing people who resort to them from spitting or otherwise causing nuisance. Not all markets are popular and overcrowded. Few only give a good return. A building in Choolai built for the purposes of a market is now entirely used for dwelling purposes and sentiment takes the vendor to another one a few yards further off although the latter is hopelessly overcrowded.

In addition to the three existing vegetable markets in the city the Corporation discussed the question of the construction of vegetable markets in Wall Tax

Road and Triplicane High Road and before long it is hoped that they will come into existence.

A great deal of circumspection is necessary in selecting sites for markets which should as far as possible be in the localities where the vendors are accustomed to put up together and expose their articles for sale: and until this is done along or by the sides of roads and drains, we cannot successfully prevent the sale of vegetables, fruits or other articles of food.

Butchers and Meat Stalls (Section 309).—Licenses under this section for carrying on the profession of a butcher in meat stalls were issued to 226 persons during the year under report. Mention might be made here that several applications were received from time to time for locating mutton stalls outside markets in various parts of the city. Apart from merely serving the needs of the inhabitants of the locality it should be noted that inspection and control of such stray stalls in the different parts of each division would be rendered very difficult especially with the existence of the present inadequate sanitary staff. During 1922 licenses were granted for 52 mutton and beef-stalls outside the public and private markets.

Inspection of places for sale of articles of food etc..—As the Food and Drugs Act is still in abeyance no special staff for this purpose could be employed. The Sanitary Inspectors carried on this work as well to deal with articles of food in so far as they fall under the above Section. The statement on pages 52 and 53 will show the quantities of each kind of food stuff destroyed by them.

Disposal of the Dead.—During the year under report 85 Vettyans or grave diggers were licensed for the various burning and burial grounds of the city. The rates for the services rendered by the vettyan and also for supply of fuel, cowdung cakes etc., have been fixed and strict supervision is exercised so that they could not demand exhorbitant rates from the public.

During the year 17,238 dead bodies, excluding 1274 still births were buried and 5,237 were burnt. The burning and burial grounds in the city were inspected regularly during the year. 141 Permits were granted for erection of tombs over graves on payment of eight annas a square foot of land and the amount realised thereby was Rs. 902.

Several of the burning and burial grounds need extension and improvements urgently in the matter of lighting, roads, compound walls etc. Unless large sums of money are allotted for bettering their condition and maintaining their sanctity no appreciable change from their existing conditions is possible.

Disinfectants.—Hycol and chloreid powder were the two disinfectants chiefly used during the year; 436½ gallons of hycol and 1095 lbs. of chloreid powder and 104 parabs of chunam were spent for purposes of disinfection.

Lethal Chambers.—Of 8068 dogs, bitches and pups caught during the year, 560 were claimed back and the rest were destroyed after retention for three days. The amount spent for feeding these dogs was Rs. 718-6-7 while Rs. 239-6-0 was recovered from the claimants of dogs on this account. Rewards for catching stray dogs are disbursed by the Commissioner of Police to whom the amount is paid in advance by the Corporation. Hydro-carbon was the chemical used for killing dogs but difficulty was experienced in procuring the stuff as the M. & S. M. Railway Co., Ltd., who were the sole suppliers of the stuff hitherto expressed their inability to continue the supply.

The Zoo.—The menagerie in the People's Park continued to be under the charge of the Health Officer. Scale of rations was definitely laid down for each animal and the Superintendent is paying strict attention to the feeding and care of the animals therein. A detailed report on the working of the Zoo is embodied in the Administration report of the Corporation of Madras for 1922-1923.

Corporation Free Dispensaries.

In addition to the existing ones a new dispensary at the instance of M.R.Ry. P. Bhakthavathsalu Naidu Garu was started at Strabans, road on 14th June 1922 to serve the 16th division, making a total of eight in all. Each dispensary was in charge of a sub-assistant Surgeon and the necessary staff. These institutions having served a very useful purpose the Corporation was pleased to sanction four more dispensaries during the current year. The dispensaries were largely attended by the people residing in and about the places where they were located. The diseases commonly treated were, all fevers including Influenza, Dengue, Pneumonia and Malaria in particular, diarrhoea, dysentery, diseases of the ear, skin affections, ulcers and various minor ailments. During the year under report Dengue fever assumed an epidemic form. Many such cases were treated at the dispensaries.

The largest number of cases treated was at the Chinthadripet dispensary as in the previous year. There was a slight decrease in Washermanpet and an appreciable fall at Vepery, the difference at the former apparently due to a Government Medical Institution having been opened close by, while at the latter the fall is attributable to the opening of the dispensary at Puhanthope. There was a proposal under consideration to shift the dispensary at Puhanthope to another place in the locality at the desire of the divisional councillor.

The following table shows the total number of patients treated during the year as compared with the previous year :—

Name of Dispensary.	Total No of cases treated.		Minor operations performed.		Remarks.
	1922	1921	1922	1921	
Washermanpet ...	36,031	36,039	1,584	1,159	The office of the M. R. V. was also held in these buildings.
George Town ...	41,367	38,474	898	619	
Vepery (Bauliah Naidu) ...	31,571	37,626	1,792	1,789	
Chintadripet ...	42,789	40,066	1,353	1,220	
Kilpauk ...	19,972	14,528	322	341	
Triplicane ...	24,816	23,664	1,096	1,035	
Teynampet ...	20,973	10,400	353	152	
Pulianthope ...	11,543	...	463	...	

With the exception of the dispensaries at Georgetown, Triplicane, Teynampet and Pulianthope, all the others are located in buildings owned or vested in the Corporation.

Infectious Diseases Hospitals.—The two hospitals one at the Old Jail Road and the other at Krishnampet did very good work during the year. A new and up to date hospital for treating infectious diseases including fevers is under construction in Tondiarpet. The Krishnampet Hospital is located in the midst of a garden and consists of five wards to accommodate different kinds of infectious diseases. The hospital can now accommodate 90 beds as against 80 in the Royapuram hospital. There is a motor ambulance available here at all hours for conveying free of cost persons suffering from infectious diseases and the hospital is connected with a telephone. The other hospital called the Royapuram Isolation hospital is situated in a building lent to the Corporation by the Government in Old Jail Road. This building consists of 2 blocks capable of accommodating 80 beds and suitably partitioned to isolate cases suffering from different maladies. Each of these hospitals is in charge of a Sub Assistant Surgeon with the required staff of nurses and attendants. The total and the average daily number admitted in these hospitals during the year were 1,896 and 5.19 respectively.

These hospitals have served the purpose for which they are intended in a very useful manner and are becoming more and more popular. They were administered satisfactorily.

The following table shows the total number of admissions etc. during the year in each hospital and the chief diseases treated as compared with the preceding year.

Names of Diseases.	Krishnampet Hospital.						Royapuram Hospital.					
	1922.			1921.			1922.			1921.		
	Total No. admitted.	Total deaths.	Death rate per 100.	Total No. admitted.	Total deaths.	Death rate per 100.	Total No. admitted.	Total deaths.	Death rate per 100.	Total No. admitted.	Total deaths.	Death rate per 100.
Cholera	13	6	46.15	45	21	46.7	8	1	12.5	31	25	30.8
Small-pox	526	71	12.95	121	16	13.2	989	149	15.1	207	25	14.08
Chicken pox	26	...	...	88	...	...	52	...	5.0	33	...	...
Measles	42	...	...	25	...	...	60	3	...	8	...	...
Plague	...	...	...	4	3	75.0	...	...	...	...	...	...
Influenza	17	...	...	15	1	6.7	...	...	...	2	...	...
Dysentery	7	1	14.28	1	...	...	...	...	...	...	...	...
Diarrhoea	11	...	...	6	...	...	...	...	...	...	...	...
Pneumonia	3	...	...	6	2	33.3	...	...	...	...	...	...
Mumps	37	...	...	8	...	...	4	...	...	5	...	...
All other diseases	35	...	...	8	...	...	31	3	9.7	52	...	...
Tetanus	...	...	...	1	...	...	...	...	...	...	...	...
Dengue	9	...	...	...	...	...	...	...	...	...	...	...
Relapsing Fever	4	1	25.0	...	...	...	...	...	...	...	...	...
Total	752	79	10.50	329	43	13.07	1444	157	13.72	374	54	...

**List of unwholesome articles of food stuffs destroyed by the
Sanitary Inspectors during the year 1922.**

<i>Name of food stuff.</i>	<i>Quantity destroyed.</i>
Apple	... 4 baskets and 30.
Plantains	... 22 baskets and 991.
Mangoes	... 23 , and 2131.
Rotten fish	... 13 $\frac{3}{4}$,, 2 trays and 20 lbs.
Cocoanuts	... 307
Onions	... 24 $\frac{1}{2}$ baskets, 3 visses and 2 big heaps.
Biscuits	... 2 cases, 337 tins, 26 baskets and 122 loose.
Oranges	... 1 basket, and 338.
Goa fruits	... 8 baskets and 88.
Eggs	... 8,236.
Wood apple	... 23
Garlic	... 1 basket.
Mutton	... 38 legs, 188 seers, 5 lbs. 3 lungs. 1 car- case and 8 plates (prepared mutton).
Aerated water bottles.	... 131
Pine apple	... 48
Pork	... 1 tray and 33 lbs.
Prawns	... 13 baskets.
Beef	... 4 baskets, 45 $\frac{1}{2}$ lbs and 14 seers.
Preserved Sauce	... 247 tins.
Butter	... 1 tin.
Glaxo	... 2 tins.
Ghee	... 3 $\frac{1}{2}$ Visses
Betel leaves	... 1100
Grapes	... 1 Basket and 4 seers
Custard apple	... 222
Canned milk	... 4576 tins and 316 cases.
Apricots	... 63 tins.
Pine apple	... 6 tins.
Plum	... 18 tins.
Peaches	... 21 tins.
Royal cherries	... 5 tins.
Salmon	... 161 tins.
Chocolates	... 865 tins and 1652 Boxes
Broken rice	... 182 bags.
Provisions	... 224 tins.

Cheese	...	...	30 cases and 1301 tins.
Redgram	...	...	2 bags.
Bengal gram	...	...	5 bags.
Barley flour	...	...	422 tins.
Cigarettes	...	...	58 boxes.
White Rice	...	...	1 bag.
Veal and ham	...	...	3 tins.
Ham	...	...	7 cases.
Sardines	...	...	37 tins.
Bacon	...	...	5 cases.
Malted milk	...	...	220 bottles
Almond	...	...	144 tins.
Broken wheat	...	...	1 bag.
Mangusthan	...	...	5 baskets.
Sauce	...	...	1 bottle.
Corn flour	...	...	1 tin.
Aspharagus	...	...	1 tin.
Tobacco	...	...	1 bale.
Brushes	...	...	303 Dozens.
Custard	...	...	3 baskets.
Melons	...	...	37
Berries	...	...	1 basket and 17
Shark fish	...	...	34
Other fruits	...	...	16 dozens.
Entrails	...	...	2 baskets.
Almond Halva	...	...	14 lbs.
Bread	...	...	143 loaves.
Condiments	...	...	$\frac{1}{2}$ basket.
Pomegranate	...	...	6
Sugar fruits	...	...	27

and various other quantities of perishable vegetables.

A brief summary of the public health work done by the various institutions in the city during the year is detailed below :—

Unani Darushshifa, Triplicane (Unani Free Dispensary).—This is a private institution financed by the Muslim community and managed by Haji Hakkim Sayed Mugdoom Ashraff, the Secretary of the Committee. Shaukar C. Abdul Hakim Saheb Bahadur is its President. Unani medicines are dispensed here free of cost to all classes of people. From 1st May to 31st December 1922 the total number of persons treated in this dispensary was 35,688 and the average daily attendance was 145.67. The average monthly expenditure for patients treated here was Rs. 2-1-4 and the average daily expenditure per patient was Re. 0-1-1. The Corporation also financed the institution to a certain extent.

Gosha Hospital :—63 labour cases sent by the Child Welfare Scheme were admitted and treated in this hospital in addition to the general routine hospital work. This institution was also financed to an extent of Rs. 500 this year by the Corporation.

Venkatramana Dispensary, Mylapore :—This is an Ayurvedic dispensary where medicine is dispensed according to the Ayurvedic system. The total attendance at the dispensary during the year was 63,326 and the average daily attendance was 174. There is also a minor surgery department attached to this institution. The Corporation contributed a sum of Rs. 200 to this institution.

Calavala Cunnan Chettiar's Free Ayurvedic Dispensary, Triplicane :—The total number of patients treated during the year was 82,091 with a daily average attendance of 225 and the cost per head per day worked to Re. 0-0-9½. This institution was helped by a contribution of Rs. 100 by the Corporation.

Friend-in-need Society, Madras :—The Society aims at giving temporary help to Europeans and Eurasians who are by misfortune or otherwise stranded, such as the provision for old or infirm persons who are no longer able to earn their living of a pension sufficient to keep them from want, the provision of a home for incurables and the setting up in life of young persons without means and the assisting of poor parents with the education of their children. The receipts and expenditure of this institution during the year was Rs. 65,466-4-3 and Rs. 56,265-7-6 respectively.

The Madras Depressed classes society :—Two day and six night schools are run by this institution at a few cherries in the city. The members and workers of the society frequently inspect the cherries and impart homely advice to the residents thereof in matters of sanitation, personal hygiene, prevention of diseases etc.

The Madras Society for the Protection of Children :—The society receives an annual contribution from the Corporation to help them in their cause

of rescuing, protecting, educating and bringing up destitute children. The strength of the society stood at 74 as against 82 in 1921. The receipts during the year was Rs. 2355-14-0 and the amount spent was Rs. 4706-6-3 leaving a minus balance at the end of the year. The number of cases rescued was 33 and the number of children in the society's home at the end of the year was 43.

The Madras Social Service League in the report for 1921-1922 states that with this year the league completes its tenth year of activities. The group of workers in different cases concentrate in the following areas and try to improve the conditions of the people living therein by combating the four main evils of debt, dirt, drink and darkness i. e., indebtedness, insanitary conditions, intemperance and ignorance.

Nallan cheri

Ellapathamadakoil cheri

Kattukoil cheri

Nochikuppam

Krishnampet

Kalimancheri

Halls road cheri

Nariangadu

Goyatope

Kilpauk

Pudumanaikuppam of Royapuram.

Maintenance of schools, hospital work on a small scale, mission propaganda work are all done by this society. The receipts and expenditure was Rs. 5494-9-9 and Rs. 4671-14-8 respectively.

Sri Ramakrishna Students Home.—The building of the new home was completed during the year, and all the students are now lodged there. The internal management of the home is mainly in the hands of the boys themselves thus cultivating in them habits of self-reliance and self-sacrifice. Religious instructions are also given to them. A residential high school has been started within the home and vocational training classes have been commenced. Apart from the 68 boarders remaining on 1st January 1922, 68 were admitted while 14 left the home after the completion of their studies. There is a hospital attached to the home with provision for 12 beds. The inmates of the home, students, staff and servants as well as a few poor people of the locality receive free medical aid. The boarding and incidental charges work out an average of Rs. 15-8-0 per month per boarder. The expenditure amounts to Rs. 27,716-8-4.

Chengalroya Naicker's orphanage and Dispensary.—This institution is rendering free medical aid to all classes and castes under Ayurvedic system. The

total number of patients treated was 1,20,702 with a daily average of 331. The expenditure on establishment and medical charges was Rs. 5,125-2-1. The dispensary also renders medical aid to 100 inmates of the orphanage which is maintained under these charities.

United Free Church Mission Rainy Hospital:—This institution helped the Corporation by rendering medical aid to cases sent by the Child Welfare scheme. This is managed and run purely by lady doctors in the northern part of the City, and serves a very useful purpose in the treatment of the diseases pertaining to women.

Boy scouts Association.—The Association tries to instil character, discipline and fellow feeling with individuals giving healthy environment and encouraging healthy activities such as will help them to develop citizenship. A number of students are trained likewise. These scouts render useful work wherever needed.

Sri Kannikaparameswari Devasthanam Management Committee:—This committee has been maintaining an Ayurvedic dispensary (out-patient) ever since 1898 where all classes of persons are treated free of charge. The total number of persons treated was 27,488 with a daily average attendance of 160·6. The expenditure amounted to Rs. 5,111-12-2.

Calavala Cuman Chettiar's Babies Home, Triplicane. This institution continued its free supply of milk to infants though on a smaller scale owing to the lack of sufficient funds which was decreased after the demise of the founder.

The People's Service League.—The sphere of work of this league was confined to the following cherries:—

Kallarai cheri	...	Periamet.
Vasamodu	...	Broadway.
Adaikalapuram	...	(Checkumodu) Broadway.
Cox cheri	...	Chintadripet.

The Indian Christian Temperance Association.—Its work consisted in the holding of the meetings for delivering lectures on temperance, moral and intellectual subjects and distribution of tracts in the slums of the city at the festivals both here and the mofussal.

total number of patients treated was 120,502 with a daily average of 331. The
expenditures on hospital care and medical charges was \$1,113,214. The
department also rendered medical aid to 100 inmates of the hospital which is
maintained on a separate basis.

The hospital is a large building with a central hall and
departments of medicine, surgery, obstetrics, and pediatrics. The hospital is
managed and the care of the patients is under the supervision of the Chief
Physician and the staff of the hospital. The hospital is a very modern building
and carries a very good patient in the treatment of the disease pertaining
to women.

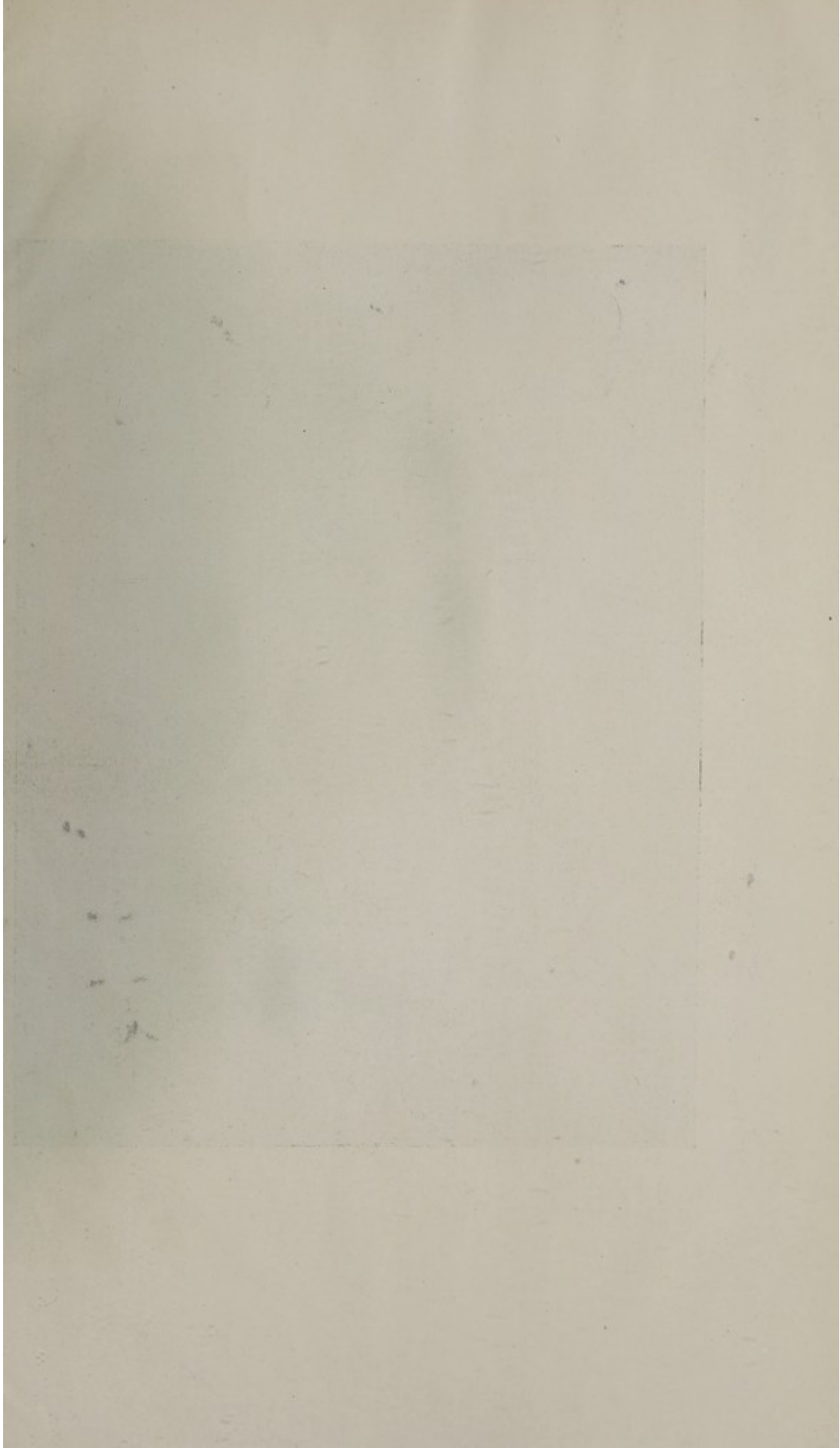
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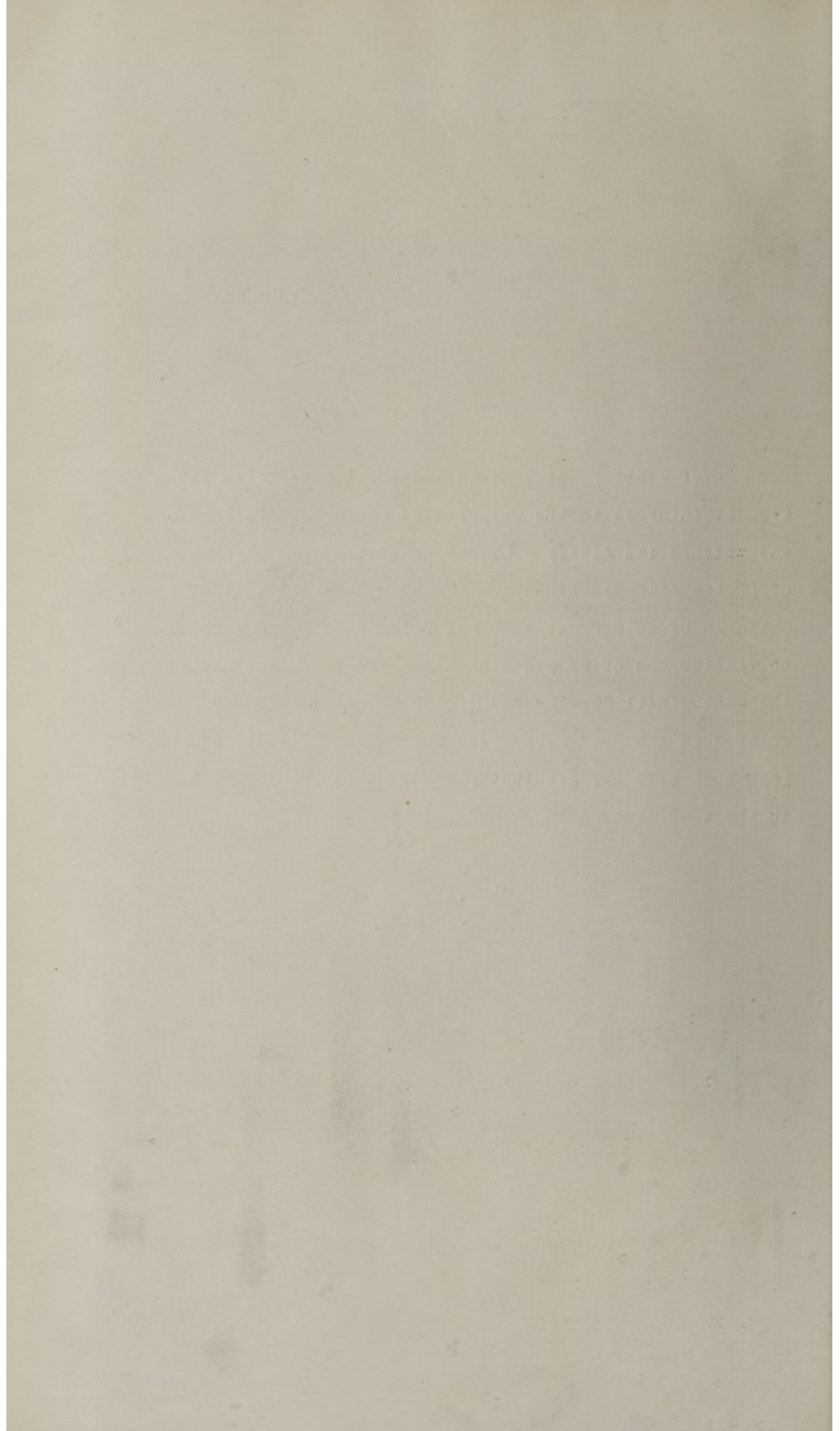


GOVERNMENT HOUSE

"Ever since my arrival in Madras, I have taken the keenest interest in the Corporation Child-Welfare Scheme and watched its steady progress under the able management of Dr. Veerasinghe-Chinappa. To know that the little children of this great city are being well cared for, is to realize one of my greatest hopes and so I trust that the scheme will develop and I wish all those who are engaged in the good work every success and I shall always look back with the greatest pleasure to my many visits to the baby centres in this Presidency".

Marie Perle

July. 1923.



Annual Report on the Working of the Child Welfare Scheme by the Superintendent For the year 1922.

Review.—It is gratifying to be able to report of another year's progressive work carried on by the Child Welfare Scheme; last year the primary item in the report was the permanency of the scheme sanctioned by the Council in February 1921; and this year the two most outstanding features are the opening of (1) a Health School recognised by the Government and (2) the new Centre in George Town, both these being long looked for and eagerly awaited developments. It may not, therefore, be out of place to begin this report with a few remarks about the Health School.

The Health School:—Five pupils were admitted into the School on 1st May 1922. Their examination and success in May 1923, although not strictly within the year under review, may well be recorded here. The Board of Examiners as approved by Government consisted of Lt. Col. C. A. F. Hingston, I. M. S., Superintendent, Government Maternity Hospital, Dr. MacNeil, M. B., Ch. B., Superintendent, Rainy Hospital, Dr. O'Brien Beadon M. B., W. M. S., Superintendent, Victoria Gosha Hospital, Dr. C. Natesan, L. M. & S., M. L. C., and myself. Two of the pupils were scholarship holders from the Madras Maternity and Child Welfare Association. Three were probationary Health Visitors working in the Child Welfare Scheme. Of these three, Mrs. S. John had passed her School Final (English) and Mrs. L. Asirvatham held diplomas in both General Nursing and Midwifery. The others satisfied the minimum requirements of the school. On the whole both the general education and social status of applicants for Health Visitor's places have grown higher since the scheme was started, and the Madras Maternity and Child Welfare Association, besides giving us invaluable support for which we are much grateful, has given the Child Welfare movement *throughout the whole Presidency* a great push, the good effects of which cannot but be felt in both the Nursing and Health Visitors' professions. It may be mentioned here that the training of Health Visitors for employment in the Child Welfare Scheme of the Corporation of Madras had been carried on in the Scheme since 1919. But the training was given the much-needed Government recognition only last year.

The Medical Staff:—The appointment of a Lady Doctor to be in charge of Triplicane centre relieved me of the medical charge of that centre and enabled me to supervise better the work of all centres, at each of which infant clinics were held personally by me twice a week. Miss. Kolandavelu, Lady Apothecary, and Mrs. Rodrigues, Lady Sub-Assistant Surgeon continued to be in

charge of the Purasawalkam and Washernmanpet centres respectively; work at both these centres has been carried on efficiently during the year. Miss H. V. Kamalammal, Lady Apothecary joined us in November 1922 in place of Mrs. Ferreiro who left us to better her prospects and has already shouldered the responsibility of running the largest of all the centres, viz., Triplicane centre, with no less than 2207 cases of midwifery last year, creditably. Health Visitor, Manonmaniammal was in charge of the fast growing George Town centre from the date of its opening in May 1922 till a doctor was sanctioned by the Council in November 1922. Miss Mac-Kendray, Lady Sub-Assistant Surgeon joined us early in 1923; the centre has grown increasingly popular since the appointment of a doctor, and often of a morning we have now so crowded a dispensary there that better accommodation has had to be sought.

I also recommend that in order to ensure permanency of medical staff the pay of the Lady Doctor be placed on a graded scale according to service.

While recording these advances it seems as if mention must be made of the fact that although it is July 1923, yet it has not been possible to open even the new centre sanctioned during the revised budget of 1922-1923 (i. e. in November 1922) owing to the difficulty of finding a suitable house.

The Work of the Health Visitors:--Nine Health Visitors were sanctioned by the Council in April 1922. Five probationary Health visitors completed their training in April 1922 and were promoted to the grade of Health Visitors. Health Visitors Manonmaniammal and Gopi Bai were the only trained Health Visitors on the staff therefore till last April, and even when the five who were working as probationers till then were promoted to the permanent list in May 1922, there yet remained two places which again had to be filled with probationers. These in their turn completed their training in April 1923, and were promoted to permanent places only in May 1923. The staff of Health Visitors on the whole has shown itself to be more worthy of trust and responsibility, and this is especially encouraging to note after days, in the past, of dark questioning despair as to what the future of Health Visitors may be. A total of (Statement VII) 51,964 visits to the homes of the people was made by Health Visitors in 1922. They register the names of pregnant women, advise both expectant and nursing mothers and pay monthly visits for a year to infants at whose birth the staff of the scheme attended whether these were removed to hospital, or brought to our care after barber women had conducted labour. Owing to the shortage of staff, much as we wished to do it, it was not possible for Health Visitors, to undertake regular visiting of all infants born in the city and our ideal of having one health visitor for every Municipal division has yet to be realised.

The Midwifery Work of the Scheme:—The midwifery practice of the scheme continued to be increasingly popular. A total of 5549 cases came under the care of the scheme in 1922, as against 4112 in 1921 and 3828 in 1920. Table I gives a comparative statement of midwifery cases undertaken by the staff of the scheme from the first whole year of its work, in 1918, when it was 681, to the fifth year of its work in 1922, when work carried out increased itself nine fold. The number of midwives on the staff however only rose to 30 from 6; the enormous amount of work to be turned out by each midwife can therefore be well imagined. The sanction of the Corporation for four more centres in the city from April 1923 is therefore a welcome relief to the present over-worked centres. It has become a matter of almost daily occurrence for some calls registered at a centre either to go unanswered or to be answered late for lack of nurses. The opening of four new centres (although not sanctioned within the year under review) by lessening the working area of each centre, which at present is 7 to 8 square miles, would make concentrated work in a smaller area possible, and also render the centres less unwieldy. Triplicane centre chiefly needs to be split up. In 1922 no less than 2207 cases of midwifery were under its care. According to the new plan of work for the city this working area will be roughly divided into three, so that the radius of the working area of any centre will not be more than three fourth of a mile. In the 24th division alone, where the Triplicane Centre is at present situated 65.3 % of births in the division came under our care whereas in the 29th division parts of which are 2 miles distant from the centre only 9.9% of births came under our care. This clearly shows that distance from the centre matters much to the people needing our services.

An attempt has been made by the Nurses' Association of Madras to raise the educational status of applicants for a midwifery training in Government Hospitals, and as an authority employing such a large staff of midwives and requiring a still larger number of efficient ones, the Corporation would do well to maintain its reputation of offering the largest salaries to midwives. For, any one can see that one reliable skilled worker whose employment costs perhaps just Rs. 5 or Rs. 10 more per mensem is worth more than half a dozen poorly paid uneducated women, unable through no fault of their own to make the most of the training awarded to them, unskilled in their profession, and often unconsciously a source of danger to the poor women left in their charge, however eager they may be to do the best to their patients. A good general education therefore is a valuable asset to a nurse; for a great deal has to be left to her own power of judgment, resourcefulness, and sense of responsibility.

The practice of the barber woman is not so great an obstacle in our way as it was in the past. For the value of trained assistance has been brought home to the people, the hospitals have become increasingly popular; whereas in the

early days of the scheme removal to hospital was a great difficulty. Now instances are not wanting of patients who have of their own accord left for the hospital if no nurse was available in time. Removal to hospital was a difficulty for two reasons; on the part of the poor it was fear, since in those days it was moribund cases that were mostly taken to hospital, and of course these died: on the part of those who considered themselves well to-do, a false sense of dignity often preferred death in the house after a certain amount of money spent in obtaining any sort of medical relief however inadequate it may have been. I must frankly admit that this harmful ignorance has not been broken through to the same extent as the fear of the poor. Yet there has been a most encouraging response, and I am sure there is not one maternity hospital in Madras but would like its accommodation for maternity cases increased.

Table VIII shows that 6457 cases were conducted in all the Hospitals in Madras in 1922 as against 4796 cases in 1918; 3968 cases were conducted by the Child Welfare Scheme staff in 1922 as against 560 in 1918. Detailed figures for cases taken by barber women are not available, but it is obvious from the above figures, number of cases taken by barber women has markedly dropped between 1918 and 1922, and this with the Child Welfare Scheme working only in certain parts of the city. The displacement of the practice of barber women by trained service is therefore but a question of time, and one feels no hesitation in saying that if the accommodation in our hospitals were doubled, as also the midwifery staff of the Child Welfare Scheme, practically every woman in the city would have trained assistance at child birth, leaving aside those who can afford to be attended by private medical practitioners.

The ignorance and superstition of the people, however, yet form no small obstacle to our work. The staff of the Child Welfare Scheme does not work within the four walls of a hospital, where supervision is easily carried out, where patients and friends, enquirers and well-wishers are all subject to a certain amount of discipline and necessary regulations. The difficulty of a nurse in a house full of ignorant, questioning, interfering men and women ready to welcome and accept the opinion of every passer-by on the road in preference to that of the nurse, may therefore be well imagined. In one instance a nurse had to wait in a house fully four hours to remove a patient to hospital, simply because after the woman had been put into a cart, a Brahmin on the road sneezed. This being considered an ill-omen, she was brought back into her miserable room till a more auspicious hour for removal arrived! In another instance, where unavoidable haemorrhage due to Placenta Praevia was apprehended and where nurse, Health Visitor, Doctor-in-charge and I had visited for two days and advised removal to hospital, people of the house, husband included, refused our attendance and preferred awaiting the arrival a few days later of an old man from a distant village.

The inevitable result was that the woman died of haemorrhage before the old man arrived. Both these instances occurred in George Town, where the advice of the staff is yet not so readily accepted as in other parts of the city where we have worked longer.

The thanks of the scheme are again due in no small measure to the Government Maternity, the Victoria Gosha (which admits the largest number of our cases, the Rainy, the Kalyani and the Raja Sir Ramaswamy Mudaliar's Hospitals for prompt admission and treatment of cases taken by our staff. I have already pointed out the difficulty that nurses sometimes have in removing a patient to hospital; hospital authorities have kindly recognised this, and admitted our cases without any question whatever; otherwise the tendency on the part of the nurse would have been not to use much persuasion but readily to leave the patient to the devices of half a dozen interfering old women. According to present rules the nurse may not leave a bad patient (unless her attendance is flatly refused) till she has been handed over to the care of a hospital, a private doctor or to the doctor-in charge of the centre.

61,766 visits were paid by the midwives of the scheme during 1922. Out of a total of 5,549 cases that came under our care, 368 were taken to hospital either for difficult labour, or lack of accommodation, 1213 came to us after barber women had conducted delivery, either for complications, or for general oversight and 3968 cases were conducted by the staff. Out of the total of 5549 cases, only 29 died including deaths in hospitals of cases taken there by the staff, giving a maternal mortality rate of 0.5% (Table III)—a low rate, which shows what just a little intelligent care can do to save life. If with this be taken into account the greater extent to which the damage rate, incalculable owing to evident reasons, is lowered by timely and efficient care in well-equipped hospitals, such as we are privileged to possess in this city, and in the homes by the staff of the scheme, it must be owned that apart from its ultimate effect on the general health of the community, trained midwifery service is a veritable boon to the silent suffering women in this city. 1499 women were treated for various diseases and ailments of pregnancy in all the centres.

Our thanks are also due in no small measure to the Madras Maternity and Child Welfare Association for their willing co-operation, at all times and for the help they have given to our work through their several "Baby welcomes" opened in this city.

The Health of our Infants.—It is in the health and survival of infants who die in such large numbers owing to the ignorance of mothers, that the good effects of the work of the Health Visitors are perhaps best seen, although the daily clinics in the centres, the weekly mothers' classes, the instruction regarding infant feeding in the milk depots must react in a hundred ways directly and indirectly on the life and health of the people. The infantile mortality rate for infants in the

care of the scheme is 222.7 per mille while the city rate for all infants is 308 (Table VI). Out of a total of 4112 infants in the care of the scheme born during 1921 and supervised for a whole year after birth 229 were still-born. Of live births, 197 died during the first ten days after birth, 115 were known to have died of Pneumonia, 126 of Enteritis. Small pox alone claimed no less than 73 victims as against 11 in 1921, and I have no doubt that in some at least of 115 cases where cause of death was not correctly known death must have been due to small-pox: the mother perhaps did not recognise the disease as such (it is often mistaken for Chicken-pox, or, in its early stage, for Measles) was afraid to own it to a Corporation authority. Till all mothers learn to inform the centre whenever their infants are ill, correct causes of deaths occurring between two monthly visits of a Health Visitor must remain unknown, the infants being reported by mothers to have died of "Thosham" "Jali" "Janni" Convulsions etc.

Milk Supply.—The milk depot at the Triplicane centre has again supplied a most urgent need. A total of 142 infants out of 2,207 were taken on for milk supply. As stated in my report for last year only the infants of really needy parents, who have been found either to lose weight or to remain stationary in weight during a period of observation are given a supply. The supply is graded according to weight and age, increased systematically after regular fortnightly weighings. The general health of the child, dentition and power to digest other foods are taken into account before milk is stopped. In April 1923, after much delay over which the scheme seemed to have no control, milk depots were opened in Washermanpet and Parasawalkam centres, where rickety ill-nourished babies are already swelling the list. The selection of cases for supply, quantity supplied, fortnightly weighing of infants and increase of milk are all done by me personally at all the centres. George Town centre has yet no milk depot. It is hoped that one will soon be opened there, for the difficulty of obtaining pure milk is even greater in George Town than in other parts of the city.

The Dispensaries.—The total number of new cases admitted for treatment (of minor ailments only) in the dispensaries open at all the centres reached 14,372, of which 4995 were infants, 3387 under five years of age, 1457 between 5 and 12 years, and 4533 expectant and nursing mothers. The total attendance for the year was 25,919, as against 18,616 in 1921. It gives a daily attendance of 84 (Table IV).

The Health of our mothers, their food and housing.—In my report for last year, I pointed out how very great was the loss of infant life just before birth and after (during the first ten days) compared with that during the subsequent 12 months; attention may be drawn to the fact that in this year also our figures show that of a total number of 743 deaths of infants viable at birth, 197 died during the first ten days. There were also 229 Still-births, i.e., 426 infants died just before birth or after and 546 older infants died during the first year

of their life. This undoubtedly points to a very low standard of health and vitality in our mothers. Small wonder either that this should be so when so many of them spend sickly miserable lives in little dungeons on meagre improper food. As for some of the houses in George Town, one sometimes wishes a "great fire" would destroy the hundreds of dark, disease-breeding cells which are not fit for even storing refuse and where human beings (and children also, alas!) are now required to spend wretched lives. Any casual visitor to the centres can easily remark that among those who attend the George Town centre there is a larger number of anaemic women and children, several of them with enlarged spleens. The causes of this high morbidity cannot be accurately stated without proper research, but Kala Azar, (the nurses report that bugs creep up their clothes and person while conducting cases in some of these houses), Malaria, and Tubercle may be correctly guessed as contributing in no small measure to this melancholy state of affairs. There is perhaps not a home that I have personally visited in George Town, but I have asked "Have you bugs?" and the answer has invariably been "Oh yes, heaps." A description of one of the most pathetic little sick rooms I ever had occasion to visit may help to explain what a boon, a real boon mere *space* would be to most people in George Town. Down a narrow corridor where two could not walk abreast and on one side of which ran the open drain of the house I walked to the second or third "Kudam" of a house to see a patient. The corridor almost without widening terminated in a closed door, which opened into the room. But before this could be done, the poor woman, with a temperature of 104.5 *lying stretched the full length of the room* had to draw up her legs. When eventually she did so and nurse and I had gone into the dark cell which was about 5½ ft. long by 4 ft. broad with no outlet or inlet for air or light besides the door already mentioned, we half closed the door to gain space much needed. I then noticed while examining my patient, that at her head the wall of the room assumed a convex shape for a height of three feet. On enquiry I was told that was the wall of a well half of which projected into this room. The other half of the masonry of the well belonged to some one else equally unfortunate! Of course the patient was taken to hospital. But what a dangerous waste of the builder's art it is that one notices while getting in and out of hundreds of houses in George Town? If there is any evil which the social customs of our country have heightened to positive danger, it is perhaps the absolute ignorance of one class or caste regarding the lives of another. The best organised Child Welfare Scheme, hundreds of Health Visitors, up-to-date dairy farms, first grade colleges for women's higher education, votes for women etc, cannot save our infants so long as such hovels of misery are allowed in the heart of the premier city of the Presidency. And yet that room fetched a rent to some landlord who in the most placid manner would have pocketed the glistening silver rupees and the next moment discussing matters of civic concern considered himself a great

patriot. Surely ignorance could not be more harmful, nor public spirit reduced to greater degradation than this. In fact, the housing of the people receives little or no thought, from the point of view of health of tenants, from capitalists and landlords in the city, and much as poor mothers struggling hard against poverty, disease, adverse social conditions, and ignorance may be blamed for the loss of the infants they blindly but dearly love, the campaign against such thoughtless building of airless, sunless rooms, and the insanitary herding of human beings which must result from high rent, needs to be carried on more vigorously. The importance of ventilation and the absolute necessity of fresh air and sunlight needs to be taught to those in whose power it lies to convert such dangerous dungeons into "homes", for their tenants to live in. The Corporation has wisely sanctioned the Mambalam Scheme. One wishes definite steps could be taken, and first and foremost as soon as the cheap residences in Mambalam are ready, certain of the worst portions of George Town be vacated. This would surely be economy in every sense of the word and enormous sums of money now spent in trying to cure hundreds of patients with Tubercle, Kala-azar and a host of other diseases, in the various hospitals and dispensaries of the city year after year would be saved and a portion spent far more profitably in building healthy homes for the well-being of the people.

Home Making and Mother Craft, The Training of the Child.—Till and not till these dark dangerous "kudams" where cow and calf with all the filth necessarily present are tied next to the newborn baby and mother, where all sunshine and fresh air are also kept out by a thick dirty canvas hanging serving as curtain for purposes of privacy, open wells containing dark water in the very heart of the city, and latrines common to the seven or eight families living in a house, cease to exist, can the women in these houses be expected to do any "house-keeping", in the proper sense of the word. The mother of the family is more often than not the family slave, subject to the whims and fancies of the youngest of her sons, who even when four or five years old thinks nothing of threatening his fond, foolish smiling mother in order to obtain what he wants. This is especially the case in poor Muhammadan homes, where the gosha woman is often entirely dependent on her little boys and girls for everything to be brought from outside the home, whether it be milk from the depot for her infant, or a small bundle of firewood, or her betel and nut. A little urchin who calls at the Triplicane depot for milk for his baby brother, has had to be reported to me more than once by a despairing nurse for his endless pranks on other little people who also come to the depot. I have no doubt he imagines himself doing a great favour to his mother in taking baby's milk and the petty tyranny to which he subjects her I can well imagine. And yet while talking to him, between his mischievous winks may be seen a pair of most intelligent eyes, full of childish fun. What an enormous waste of child life even though their bodies are alive, is going on daily in our midst, simply because our mothers

are not fit, and even where willing and fit, seldom have the facilities for turning the productive capital of child life in their care to the profit of the race. I have no doubt that even if our vigorous education committee succeed in getting compulsory education for girls as well as for boys in this city, a very large proportion of our mothers would do their utmost to keep their girls at home to help them in their daily drudgery. It is only culpable thoughtlessness that leads us to believe that mothercraft always comes by instinct and that anyone in a saree can manage a home and do justice to its children. The most capable wife and mother blessed with a good education, a house conveniently adapted to domestic needs, and devoting the whole of her time to the hundred and one duties of her office knows how far her best efforts fall short of the ideals she would fain realise. For home-making is an art, efficient housekeeping needs as much preliminary training as skilled carpentry, domestic economy is too important and too useful a science to be neglected, and training young minds is too sacred and difficult a duty to be left to the ignorant. These are facts that people who would willingly convert every woman into the house slave would do well to ponder, for the time is coming, nay, has come, when we must choose between mothers and mere female drudges. The position of the woman and mother needs to be raised in Indian society, and both womanhood and motherhood in reality held more sacred, if a higher home life, so absolutely necessary for the welfare of our children and the future of our race, is to be developed. Infantile mortality among Jews and Quakers has been found to be markedly less than among others living in the same surroundings, for the simple but potent reason that among these communities, the woman and mother were always given the highest place in home life, and a happy ordered home life itself treasured and prized above all wealth or possession. We would do well to realise this fact. Does it not strike one as pitiful that while the cow which is held sacred may not be yoked to draw heavy water carts down our streets, women are?

An Ideal Scheme of Child Welfare Work.—Although the Corporation has every reason to be proud of the progress it has made in child welfare work during the past five years, it is just as well to compare ourselves with an ideal scheme, and see how far we fall short of it. Such a scheme is that under the Bradford Corporation. The scheme itself was inaugurated in 1912 by the Corporation taking over four voluntary institutions known as "Babies' Welcomes" and it has since developed into what may be called a complete system of child welfare work half the cost of which is met by the Local Government Board. The important details of the scheme are as follows:—

An ante-natal clinic; ante-natal supervision in the houses; a maternity home; an 'infants' department consisting of a milk depot; clinic and infants' hospital; the cooking depot for the supply of the meals to expectant and nursing mothers; the pre-school clinic; the eye department; the creche; the school clinic; the post school clinic; a special department in the city hospital for special treatment of eye, ear, nose, throat etc.; a dental department; an adequate staff of women

health visitors and other subsidiary establishments such as Sanatoria, Dairy Farm Poultry Farm etc.

Our Needs.—Conditions in Madras differ widely from those in Bradford, yet compared with this elaborate scheme perhaps the greatest of our needs which are within reach of fulfilment in the near future are as follows:—

(1) Buildings suitably planned and owned by the Corporation for our centres and resident quarters for our staff. The Triplicane centre has already within its history of little more than five years been shifted to six different places and twice because during wet weather the buildings we were in then collapsed. I have already mentioned how the opening of new centres sanctioned by the Council has had to be postponed month after month owing to the difficulty of finding suitable house in the locality where we needed them. At least one model centre may be built in the next year and I would suggest that if owing to difficulties of obtaining suitable pasture land the dairy farm sanctioned in the last Budget cannot be opened. Rs. 50,000 set apart for that purpose in the year 1923-24 may not be allowed to lapse back into savings but used for erection of a model centre the grant for the dairy farm being as a matter of course budgetted for again next year.

(2) Our ante-natal work could be made a great deal more effective by the feeding of expectant mothers.

(3) Our staff of Health Visitors needs to be greatly increased so that not only is every infant born in the city taken on for regular visiting but older children also supervised till they reach the school-going age. Here again it may be repeated that we need at least 30 Health Visitors *i.e.* one for each Municipal division.

(4) A motor ambulance—the need was mentioned last year but unfortunately it has not yet been supplied.

Rome was not built in a day, and although it may not be possible to have all these needs met in a single year, yet past experience and the sure advance of the Corporation in child welfare, year after year, justifies the hope that, ere long, we in Madras shall have Child Welfare Scheme fit to compare with one so excellent as the Bradford Scheme.

Our Visitors.—Since writing my last report we have had several visitors to our centres. To some of them we are very grateful for their understanding sympathy and support and to others, leading medical men and women of India, we owe not a little for their opinion on a work which even after five years cannot yet be called “pioneer work”

M.R.Ry. V. Tirumalai Pillai Avargal, Municipal Councillor visited us and wrote as follows:—“ I visited this institution this day and found everything satisfactory. The records contain minute particulars of the cases attended by the staff both here and in the houses of the patients, which particulars give the doctor the necessary

data upon which to base her treatment. From the records I see that a great deal has been done in the short time this institution has existed. Not only treatment has to be given but the people have to be instructed in the benefits of Maternity and Child Welfare. Dr. Vira Singhe Chinnappa has taken up a work which would have broken the heart of many another by the apathy of the very people which this scheme is intended to benefit."

M.R.Ry. G. A. Natesan, Municipal Councillor, visited us later and wrote.—
"I paid a surprise visit to the Triplicane Centre this morning and was delighted to find that the institution was popular and the arrangements very satisfactory."

Lt.-Col.F.F. Elwes, C.I.E., I.M.S., Principal, Medical College, Madras wrote.—
"I have been very interested indeed in seeing the work actually carried out and in learning all that is being done in the surrounding district, by the midwives and Health Visitors. There is a very complete record of the work maintained, and I am struck by the organisation of the scheme."

Lt.-Col. C.F. Standage, I.M.S., wrote.—"I have been very interested in all I have seen, and especially in the very elaborate and careful statistics, over which a very great deal of time and labour has been expended. I have carried away many "tips" for our work in Bangalore."

Lt.-Col. C.A.F. Hingston, O.B.E., I.M.S., Superintendent, Maternity Hospital, Madras, wrote.—"I have visited all the centres. There is real good work carried out. I have carefully gone into the records kept in all registers. This splendidly organised scheme is costing the Corporation about Rs. 55,000 a year, and it is greatly to the credit of the scheme that it is entirely worked by Indian Lady Doctors and nurses. District Boards and Municipalities should be encouraged to send women to be trained at this school for Health visitors."

Dr. Weyms Grant, Organising Secretary, Lady Chelmsford All Indian League for Maternity and Child Welfare visited the Triplicane Centre and Health School in August 1922 and wrote.—"I visited this centre (Triplicane) last year and am delighted to find Dr. Vira Singhe Chinnappa firmly established with an Assistant Doctor to help her. My visit has been primarily to go into the question of Health Visitors who are under training. The scheme was started last May, and there are five students in the school. The syllabus of study has been carefully gone into by me, and seems very complete, I hope, though that the authorities will consider having a uniform course, and standard examination and diplomas in conjunction with the Delhi Health School. Dr. Vira Singhe Chinnappa and her co-workers have my best wishes for the continued success of the good work which they have now placed on a firm basis."

Last of all Her Excellency the Lady Willingdon C.I., D.B.E., visited all our centres in October 1922 and wrote as follows in the Triplicane Centre Visitors,

Book:—"I was so interested to visit the Triplicane centre again though in a different building. I was delighted to see how much it has grown and the wonderful work it was doing. I was so glad to see the Corporation health workers and nurses and I also visited their hostel. Dr. Chinnappa's work has my warmest admiration."

Special attention is also invited to our frontispiece which grace this report and to the message from Her Excellency, who has always taken the keenest interest in child welfare, and whose inspiring example in such service has been a great encouragement to all child welfare workers. We would take this opportunity to assure Her Excellency of the heart felt gratitude of our mothers and children for her gracious and noble services.

The amount of public interest aroused in Child Welfare work has also been a great source of encouragement. I was asked by Dr. Gilbert Slater, Publicity Officer to give a lantern lecture on Child Welfare. The meeting which was very largely attended and at which the Surgeon General also spoke a few words was presided over by the Hon'ble the Rajah of Panagal, Minister, Local Self Government. Besides this, I gave lantern lectures at the Madras Medical College, Queen Mary's College, Women's Christian College, Bentinck Girls' High School, the Theosophical Society Buildings, Adyar, and at the All India Social Workers's Conference held in Madras.

The total cost of the Scheme for 1922 was Rs. 51,026-4-2. Taking this total cost as distributed over cases of midwifery that came under our care, the cost per head is Rs.9 approximately. But this total cost includes that of a milk depot, the treatment in our dispensaries of 14,372 mothers and infants, of regular house to house visiting and instruction of mothers. Surely, none can be so ungenerous as to grudge the spending of even twice this sum on our mothers and children!

Conclusion.—It is the great value and importance of *prevention* that we have yet to realise. We need homes for our people instead of dark, disease-breeding cells; open play-grounds for our children instead of "cherries;" fresh milk and fresh air for our babies instead of tinned tapioca, rice congee and the incantations and mantrams of the Vythian; and fresh nutritive foods for our mothers and children instead of drugs with Latin names; we need clean bodies and skins instead of matted hair covering ezematous scalps (dedicated alas! to an all suffering deity!). We need to educate and train young minds rather than make feeble, sporadic and fruitless, but expensive, attempts to core the evils of ignorance and superstition. All these we need to undertake not as charitable deeds to merit heaven but because it is our plain and simple duty to the land we love.

L. N. VIRA SINGHE CHINNAPPA, M.B., B.S.,

Superintendent.

Child Welfare Scheme,

Corporation of Madras.

STATEMENT No. I.
 Showing the Cases of labour conducted by the staff of the C. W. S. from 1st January to 31st December 1922 with
 Comparative statement.

Period.	Centres.	How Conducted.			Total Cases.	Caste.	
		By Nurses of the C. W. S.	Taken to Hospital.	Taken over after barber women had conducted labour.		Mahamedans.	Non Mahamedans.
From January to December 1922	... Triplicane	1,553	160	494	2,207	721	1,486
	Washermanpet	937	101	425	1,463	162	1,301
	Purasawalkam	1,038	60	231	1,329	156	1,173
	George Town	440	47	68	550	35	515
Total for ...	1922	3,968	368	1,213	5,549	1,044	4,475
"	1921	3,060	256	796	4,112	831	3,281
"	1920	2,953	203	672	3,828	...	...
"	1919	978	87	108	1,173	561	612
"	1918	550	54	77	681	...	...

STATEMENT IV.

Table showing the total attendance of Children and Mothers at the Child Welfare Centres, Triplicane, Washermanpet and Pursawalkam.

Centres.	Age.				Total attendance (New cases).	Nature of disease.									Total attendance for the year.	Average Daily Attendance.	Pregnant Women treated at the centre.		
	Under one year.	1 to 5 years.		5 to 12 years.		Women.	Respiratory.	Alimentary.	Skin affection.	Influenza.	Ear and eye disease.	Syphilis.	Malaria.	Anaemia.				Tuberculosis.	Other causes.
																	
From 1st January 1922 to 31st December 1922.																			
Triplicane ...	2,511	1,715	977	2,162	7,365	1,033	3,258	1,458	69	180	8	50	466	15	828	14,372	40	482	
Washermanpet ...	916	897	241	1,320	3,374	602	1,036	254	48	68	11	...	...	...	1,355	5,330	15	380
Pursawalkam ...	1,338	710	213	557	2,818	612	513	250	72	175	5	150	179	...	862	6,844	19	641	
George Town ...	230	65	26	494	815	110	39	35	...	6	...	85	154	...	386	1,592	4	216	
Total for 1922 ...	4,995	3,387	1,437	4,533	14,372	2,337	4,846	1,997	189	429	24	285	799	15	3,431	28,133	78	1,719	
Do. 1921 ...	5,474	2,533	1,203	5,564	14,774	2,719	3,133	1,087	494	433	34	...	...	...	6,375	25,919	34	1,420
Do. 1920 ...	4,079	1,762	1,355	3,934	10,636	1,912	1,160	874	533	308	29	...	...	...	5,715	18,816	73	1,040
Do. 1919 ...	1,617	858	316	1,174	3,365	295	139	250	31	37	12	...	...	...	253	8,442	241	322
Do. 1918 ...	222	207	52	235	716	77	27	55	14	8	4	...	...	...	37	1,558	18	116

STATEMENT V.
Ages at death of infants born during 1921 and kept under observation during the first year of life.

Centres.	Total Number of cases taken.	Still-born.	Premature Still-born.	Deaths within					Total deaths (excluding still born).	Not traceable.	Number of living children traceable.
				10 days	1 to 3 months	3 to 6 months	6 to 12 months	6 to 12 months			
Triplicane	1,846	64	24	93	75	63	86	317	234	1,208	
Washermanpet	1,250	64	7	73	63	44	78	258	204	717	
Purasawalkum	1,016	58	12	81	37	87	63	168	105	673	
Total	4,112	186	43	197	175	144	227	743	547	2,593	

STATEMENT VI.
Causes of death among infants born in 1921 and kept under observation during first year of life.

Centres.	Numbers of cases taken	Still-born.	Premature still-born.	Died within 10 days.	Pneumonia.	Influenza.	Enteritis.	Syphtis.	Pyæmia.	Small-pox.	Causes unknown.	Jaundice.	Bronchitis.	Malnutrition.	Malaria.	Whooping cough.	Measles.	Enteric.	Diarrhoea.	Total deaths (excluding still births).	Not traceable.	Number of living children.	
																							Triplicane
Washermanpet	1,250	64	7	73	48	1	40	1	1	24	38	...	28	2	...	...	1	1	...	258	204	717
Purasawalkum	1,016	58	12	81	50	...	29	...	3	16	10	1	17	...	...	...	...	...	...	168	105	673
George Town
Total	4,112	186	43	197	115	6	126	1	7	73	115	1	74	15	2	2	1	9	1	743	547	2,593	

Infantile mortality rates.
For City In C. W. S.
1918 855.2 276.8
1919 329.0 281.9
1920 279.3 173.7
1921 281.9 222.7

Total live births in Scheme during 1921 (infants traceable in the 1st year of life) 3336.
Deaths among them 743.
Rate of Infantile mortality for infants in care of C. W. S. 222.7 per mille.
Rate of " " for city for 1922 308.0 " "

STATEMENT VII.

Visits paid by the staff of the Child-Welfare Scheme from January to December 1922.

Centres.	Midwives.	Health Visitors.	Lady Doctors.
Triplicane	25,584	25,020	604
Washermanpet	15,767	12,260	425
Purasawalkum	14,512	12,332	400
George Town	5,903	2,352	10
Total	61,766	51,964	1,439

Visits paid by Superintendent to abnormal difficult cases in all centres 55.

	Triplicane	Washermanpet	Purasawalkum	George Town.
Forceps	{ 2 By Lady Doctor in charge { 1 By Superintendent	2 (by Lady Doctor in charge)	1 (by Superintendent)	1 (By Superintendent)
Manual extraction of monster.				
Manual Removal of Adherent placentae.	{ 1 By Superintendent { 5 by Lady Doctor in charge	13 (by Lady Doctor in charge.)		

STATEMENT VIII.
Table showing details of all births in the Municipal Divisions in which the Scheme was working for one year ending with 31st December 1922.

1 Municipal Divisions and working area.	2 Total No. of births from 1-1-1922 to 31-12-1922.	3 No. attended by Corporation mid-wives.	4 Percentage to total births.				5 Qualified Nurses or Doctors.			6 Barber women.			7 Hospitals.					
			1921	1920	1919	1918	1921	1920	1919	1921	1920	1919	1921	1920	1919			
			Percentage to total birth.				Percentage to total birth.			Percentage to total births.			Percentage to total births hospital.					
Washermanpet Centre	1&2	1906	286	12.4	15.7	8.9	1918	1.1	.4		1918	41.2	55.5		1918	41.9	85.1	
	...	3	367	29.7	35.8	20.9		.4				39.0	57.8			24.9	21.8	
	4	889	178	21.2	22.1	20.5		.45				55.9	61.0			21.5	18.5	
	5	3980	781	19.6	25.2	16.7	5.7	.7	.14	1.1		44.1	57.9	68.8		29.9	25.2	282
	6	269	5	1.9														
	7	365	27	7.4														
	8	500	32	6.4														
	9	157	2	1.8														
	10	781	58	7.9														
	11	678	77	11.4														
	12	182	9	5.0														
	13	772	122	15.8														
	14	667	67	10.0														
	15	97														
	16	581	88	6.5														
17	4999	487	8.7															
18	1078	242	22.4															
19	1182	316	27.9	18.6	15.9													
20	880	221	25.1	26.7	18.4													
21	863	106	12.6	24.7	25.2													
22	1814	54	4.1	8.6	10.8													
23	723	9	1.8	1.8	3.5													
24	5990	1038	17.4	14.8	14.1													
25	1229	124	10.1	8.2	6.6													
26	1298	524	40.4	41.5	42.0													
27	680	225	38.1	30.7	28.5													
28	691	181	19.0	20.7	16.8													
29	791	247	31.2	28.1	27.9													
30	928	176	19.1	16.2	14.9													
31	950	94	9.9	9.4	11.0													
32	1368	81	2.2	...	...											
33	7555	1552	19.5	21.7	21.3	16.4	4.6	3.3	4.9	68.4	50.4	58.9	56.0	68.4	23.2	21.3	19.2	16.9

Note 1. Total number of births in the City for 1922

Conducted by the Child Welfare Scheme

Note 2. 1 out of every 4 births in the city was brought to the care of the scheme.

Note 3. Correct figures for births attended by trained medical practitioners and barber women are not available for 1922.

Conducted in Hospitals ... 6457.

Cases brought to the care of the Child Welfare Scheme ... 5549.

STATEMENT IX—1922.

Municipal Division number.	Live Births registered in 1922.	Deaths under 1 year in 1922.	Infantile mortality rate per 1000 live births.
1	814	233	286.2
2	966	274	283.6
3	1178	390	333.1
4	796	242	304.0
5	260	89	342.3
6	350	135	385.7
7	472	155	328.4
8	146	50	342.5
9	696	210	301.7
10	637	238	373.6
11	166	72	433.7
12	728	225	309.1
13	681	267	423.1
14	90	45	500.0
15	532	192	360.9
16	1001	262	261.7
17	1067	352	329.9
18	825	253	306.7
19	831	276	332.1
20	1218	315	258.6
21	676	210	310.7
22	703	198	281.7
23	1162	376	323.6
24	1245	318	255.4
25	632	138	218.4
26	646	178	275.5
27	764	231	302.4
28	870	272	212.6
29	902	267	296.0
30	646	206	318.9
Total	21650	6669	308.0

Annual Form No. A.—Meteorological Data—Madras for 1922.

Latitude 13°4' North.
Longitude 80°15' East.

Months.	Barometer.		Reading of Thermometer.						Difference between dew point temperature and mean air temperature.	Degree of humidity complete saturation being 100.	Prevailing direction of wind.	Number of days on which rain fell.	Rainfall.		
	Inches.	Mean daily reading reduced to 32° F.	Dry.			Dew Point.		Mean Maximum Solar radiation.					Total fall of rain during the month.	Inches.	In. Date
			Maximum.	Minimum.	Mean daily range.	Mean daily value.	Mean daily value.								
January	29.978	83.5	68.4	15.1	75.6	67.2	145.0	8.4	77	N E	7	3.42	1.18 9th.		
February	86.8	86.8	67.8	19.0	77.0	64.8	148.8	12.2	68	E by N	...	...	...
March	885	91.4	71.9	19.5	81.0	69.9	150.9	11.1	72	S E	...	...	...
April	815	93.8	78.2	15.6	84.9	73.8	151.6	11.1	73	S E	...	...	...
May	733	99.0	80.8	18.2	87.2	72.6	151.4	14.6	66	S S E	4	1.18	0.85 31st		
June	680	100.9	80.9	20.0	87.7	70.6	146.1	17.1	61	SW by S	12	1.30	0.27 29th		
July	705	97.1	79.0	18.1	85.6	69.8	138.7	15.8	63	W S W	15	3.22	0.91 24th		
August	710	96.2	78.0	18.2	84.8	71.2	147.3	13.6	67	S N by S	21	3.83	1.02 29th		
September	740	95.4	77.9	17.5	85.0	71.9	156.1	13.1	69	S	13	1.87	0.33 28th		
October	868	87.2	74.8	12.4	80.3	72.9	141.2	7.4	81	E N E	16	17.68	4.38 28th		
November	880	83.4	73.6	9.8	73.1	72.5	138.2	5.6	85	N E by N	20	33.13	8.92 16th		
December	983	82.8	66.8	16.0	74.7	65.4	146.6	9.3	75	N by E	1	0.06	0.06 1st		
Annual	827	91.5	74.8	16.7	81.3	70.2	146.3	11.6	71	S E	109	65.69	...		

Annual Form No. 1.—Births registered by divisions during the year 1922.

1	2	3		4		5		6	7	8	9		10	11		
		Males.	Females.	Total.	Males.	Females.	Total.				Males born to every 100 females born.	Excess of births over deaths per 1,000 of Population.			Excess of deaths over births per 1,000 of Population.	Mean ratio of births per 1,000 during previous five years.	Values.	Females.	Total.
Divisions.	Districts.	Population according to the Census of 1921.		No. of Births registered.		Ratio of births per 1,000 of Population.		Number of Males born to every 100 females born.	Excess of births over deaths per 1,000 of Population.	Excess of deaths over births per 1,000 of Population.	Mean ratio of births per 1,000 during previous five years.	Values.	Females.	Total.	Still-Births.	Illegitimate Births.
1	Royapuram	10,400	10,401	416	398	814	448	37.9	38.7	104.5	1.8	38.7	37.9	40	30	
2	Tondiarpet	8,536	8,363	478	483	966	504	58.5	57.2	97.95	...	57.2	58.5	86	12	
3	Washirampet	11,992	11,785	607	571	1,178	700	48.5	49.5	106.3	...	49.5	48.5	67	30	
4	Kerakupet	8,667	7,973	420	376	796	590	47.2	47.8	111.7	...	47.8	47.2	43	24	
5	Harbour	5,032	2,266	140	126	266	2.8	63.2	35.7	116.9	...	35.7	63.2	9	1	
6	Muthalpet	9,670	5,981	196	155	350	20.6	27.7	2.4	125.8	...	27.7	20.6	15	8	
7	Kachalavarappet	7,102	5,963	13,055	255	472	31.0	39.5	29.2	117.5	...	39.5	31.0	28	11	
8	Kochaval Bazaar	3,120	1,997	6,117	76	145	23.8	37.6	94.7	94.7	...	37.6	23.8	11	5	
9	Amman Koil	8,005	7,725	15,821	359	696	44.3	49.7	44.0	106.5	...	49.7	44.3	35	16	
10	Seven Wells	9,748	9,889	19,628	328	667	33.6	31.3	32.4	105.1	...	31.3	33.6	41	36	
11	Sorampet	4,283	3,177	7,460	89	166	20.8	24.2	22.2	115.6	...	24.2	20.8	16	5	
12	Poddunackonpet	8,953	8,622	17,575	372	728	41.6	41.3	41.4	104.5	...	41.3	41.6	44	22	
13	Trevilva Basin	8,762	8,510	17,272	311	621	35.6	37.6	30.6	97.2	...	37.6	35.6	26	29	
14	Esplanade	1,548	1,116	2,664	52	38	33.6	34.1	39.8	136.8	...	34.1	33.6	7	1	
15	Park Town	9,588	7,959	17,544	269	263	28.1	33.1	30.3	102.3	...	33.1	28.1	49	10	
16	Perambur	15,492	13,967	29,459	480	521	30.9	37.3	33.98	92.1	...	37.3	30.9	77	46	
17	Chalai	12,306	11,715	24,021	554	518	45.0	43.8	44.4	108.0	...	43.8	45.0	65	35	
18	Purasawakkam	10,475	10,181	20,656	421	406	40.1	39.8	37.9	103.7	...	39.8	40.1	55	18	
19	Vepery	10,075	9,224	19,299	414	417	41.1	45.2	48.1	96.3	...	45.2	41.1	32	42	
20	Egmore	19,870	11,757	25,627	617	681	44.5	51.1	47.5	102.7	...	51.1	44.5	96	27	
21	Kilpank	9,657	8,873	18,540	333	343	34.4	38.7	36.5	97.02	...	38.7	34.4	42	19	
22	Nungambakkam	11,036	10,186	21,222	265	388	33.1	33.2	33.1	107.58	...	33.2	33.1	22	32	
23	Chintadripet	12,249	11,531	23,780	596	663	48.6	49.4	48.8	105.3	...	49.4	48.6	67	24	
24	Tiruvuttavaranpet	12,346	11,689	24,135	620	625	49.4	53.7	51.5	99.2	...	53.7	49.4	53	21	
25	Cherak	7,054	6,223	13,277	331	301	46.7	48.4	47.5	109.96	...	48.4	46.7	48	11	
26	Triplicane	8,675	7,831	16,506	324	322	37.3	41.1	39.0	100.6	...	41.1	37.3	45	46	
27	Anni Mahal	7,591	7,693	15,284	390	374	51.4	48.8	50.0	104.3	...	48.8	51.4	27	8	
28	Mirambipet	9,286	9,345	18,631	448	422	48.2	45.2	46.7	106.2	...	45.2	48.2	63	17	
29	Rayapetab	10,875	10,440	21,315	458	444	42.1	42.5	42.3	103.2	...	42.5	42.1	48	15	
30	Mylapore	9,394	8,444	17,838	341	365	36.3	39.0	36.2	111.8	...	39.0	36.3	22	14	
	Total	2,76,107	2,50,804	5,26,911	11,063	10,597	40.0	42.3	41.1	104.3	...	42.3	40.0	1,274	635	

* Included in the total number of Births shown in columns 4 and 10.

Annual Form No. II.—Statement of Deaths by divisions during the year 1922.

1	2	3	4	5		6		7	8												9									
				Population according to the census of 1921.		No. of Deaths registered.			Number of deaths of males to every 100 females.	Deaths per 1,000 of Population from												Mean ratio of Deaths per 1,000 during previous five years.								
Divisions.	Districts.	Area in acre.	Density per acre.	Males.	Females.	Total.	Males.	Fe- males.		Total.	Cholera.	Small-pox.	Measles.	Plague.	Malaria.	Bacterial Fever.	Other Fevers.	Dysentery & Diarrhoea.	Tubercle.	Respiratory Diseases.	Injuries.	Deaths from Child Birth.	All other Causes.	Males.	Females.	Total.	Males.	Females.	Total.	
1	Royapuram	532	39.3	10,400	10,401	20,801	400	376	776	106.4	0.1	3.4	0.05	...	2.6	0.1	1.3	7.4	1.1	3.9	0.1	0.4	16.3	38.6	35.8	37.1	...	...	...
2	Tondiarpet	458	36.9	8,595	8,368	16,963	650	481	1,031	114.3	...	6.6	0.18	...	3.3	0.1	1.3	11.8	3.7	6.6	0.5	1.0	27.5	64.4	57.5	61.0	...	...	...
3	Washermanpet	321	74.1	11,932	11,785	23,717	612	530	1,202	103.7	...	7.7	0.13	...	0.6	...	2.6	7.1	12	10.1	...	0.3	1.0	18.6	51.0	50.1	50.6
4	Korukupet	2062	7.9	8,697	7,973	16,670	423	389	812	108.7	...	4.1	0.01	...	0.9	...	2.6	7.3	2.2	8.2	0.7	0.3	22.4	48.7	48.8	48.6	...	...	...
5	Harbour	114	63.9	5,682	2,265	7,947	202	147	349	137.4	...	...	...	...	0.7	...	0.6	8.8	3.6	13.8	0.4	3.1	17.2	40.1	35.2	40.5	...	...	...
6	Muthishpet	194	80.6	9,670	5,901	15,571	230	221	451	104.1	...	0.9	0.13	...	0.8	...	1.0	2.8	1.6	7.6	0.3	0.8	13.9	23.8	37.1	28.9	...	...	...
7	Kachaleswaranpet	112	116.6	7,102	5,353	12,455	288	243	532	119.0	...	2.1	0.08	...	1.2	...	1.7	6.1	2.3	9.5	0.5	0.8	17.5	40.7	40.8	40.7	...	...	...
8	Kothawall Bazaar	96	53.3	3,120	1,907	5,027	122	97	209	140.2	...	1.4	0.2	...	3.3	...	3.0	8.4	1.4	5.9	...	1.5	17.6	39.1	43.6	40.8	...	...	...
9	Amman Koll	110	143.8	8,095	7,725	15,820	383	412	795	53.0	...	1.3	...	...	2.7	...	2.7	0.6	4.2	7.5	0.5	1.9	23.3	47.8	53.3	50.3	...	...	...
10	Seven Wells	123	159.6	9,748	9,880	19,628	549	516	1,065	106.4	...	...	...	...	3.3	...	3.0	0.5	7.8	3.8	0.7	2.2	25.1	59.3	52.2	54.3	...	...	...
11	Sowcarpet	55	135.6	4,253	3,177	7,430	138	141	279	37.9	...	0.8	0.18	...	1.7	...	0.1	4.8	4.2	1.7	5.8	0.3	1.9	16.9	32.2	44.4	37.4
12	Peddunakottipet	156	113.4	8,553	8,622	17,175	413	429	842	56.3	1.6	...	0.6	0.6	2.7	8.9	10.5	0.3	1.7	18.3	40.1	49.8	47.9
13	Trevelyan Bazar	114	151.5	8,702	8,510	17,212	366	414	800	3.2	2.6	...	0.1	4.9	7.8	2.0	9.6	0.2	1.6	15.9	44.1	48.6	46.3
14	Eppanade	335	8.0	1,548	1,116	2,664	267	191	368	264.4	...	1.6	0.38	...	4.3	...	3.4	9.0	5.0	7.8	15.0	0.2	0.9	75.1	122.3	90.5	136.1
15	Park Town	129	146.2	9,688	7,956	17,644	359	296	655	121.1	...	5.0	0.4	...	1.3	...	0.2	3.0	3.8	2.5	7.1	0.2	2.0	15.6	37.4	37.2	37.3
16	Perambur	2769	10.6	15,492	13,067	28,559	536	504	1,040	10.8	...	1.0	0.2	...	1.2	...	0.6	11.9	0.9	6.1	0.1	0.2	1.6	12.5	34.6	36.1	35.3
17	Chudai	231	104.0	12,306	11,715	24,021	679	533	1,212	103.6	...	...	...	...	1.0	...	0.9	13.7	1.8	7.7	0.4	1.9	17.7	47.1	44.6	46.7	...	...	...
18	Purnaswakkam	268	77.1	10,475	10,181	20,656	392	408	800	96.1	...	0.6	0.3	...	1.1	...	1.1	10.1	1.2	5.8	0.3	1.1	16.6	37.4	40.1	38.7	...	...	...
19	Vijay	502	38.4	10,675	9,224	19,899	433	398	831	103.1	...	...	...	...	1.8	...	0.8	8.8	1.8	10.2	0.2	0.7	16.5	41.0	43.1	43.1	...	...	...
20	Egmore	208	123.2	13,870	11,757	25,627	448	452	900	99.1	0.6	...	0.2	1.4	5.9	1.2	5.5	0.2	1.4	16.6	32.3	33.4	35.1
21	Kilpank	1069	16.9	9,607	8,873	18,480	390	336	685	132.2	...	...	...	...	1.2	...	0.7	1.0	2.4	6.8	0.3	0.3	16.9	32.3	33.1	37.0	...	...	...
22	Nanganalakkam	1832	11.6	11,036	10,186	21,222	310	325	635	15.1	0.3	...	0.1	7.7	6.1	1.8	6.1	0.4	0.2	11.2	28.1	33.0	30.0
23	Chintadrpet	201	118.4	12,259	11,531	23,790	581	546	1,127	106.4	1.4	...	0.3	3.7	9.0	1.6	8.9	0.2	1.5	18.7	47.4	47.4	47.4
24	Thiuvattiswaranpet	332	72.9	12,556	11,053	23,609	666	500	1,096	113.2	3.1	...	0.3	4.3	8.6	2.1	4.7	0.2	0.4	18.4	45.1	43.0	44.1
25	Chespank	705	18.8	7,054	6,233	13,277	235	243	478	96.7	...	...	...	...	0.8	...	1.8	5.1	2.5	6.4	0.08	1.6	17.5	43.3	39.0	36.0	...	...	...
26	Triplicane	168	98.2	8,675	7,881	16,556	322	299	591	119.7	...	0.6	0.55	...	0.8	...	0.4	1.8	4.2	3.2	5.7	0.4	1.4	17.6	37.1	34.6	35.8
27	Anir Mahal	169	90.3	7,591	7,663	15,254	368	288	645	124.4	...	1.0	0.4	...	1.6	...	0.1	3.1	8.0	3.0	6.2	0.4	...	18.0	47.2	36.3	42.5
28	Mirambalpet	680	27.4	9,286	9,345	18,631	468	447	915	102.6	...	1.8	0.7	...	1.4	...	6.4	9.9	1.7	8.6	0.4	0.1	17.6	43.3	47.8	48.6	...	...	...
29	Royapuram	2006	10.6	10,875	10,440	21,315	333	425	808	90.1	0.6	...	0.1	4.1	7.6	2.1	3.8	0.2	1.1	17.8	35.2	40.7	37.9
30	Mylapore	1525	11.7	9,394	8,464	17,858	359	325	684	110.5	...	1.9	0.4	...	0.5	...	4.2	7.3	1.6	6.6	0.8	0.7	15.2	38.2	38.4	38.3	...	...	...
	Total	17620	29.9	2,76,107	2,50,804	5,26,911	11,672	10,802	22,475	108.1	0.08	2.1	0.28	0.01	1.4	0.1	2.5	7.9	2.1	7.3	0.34	1.2	18.0	42.3	43.1	42.7	45.5	47.8	45.6	45.6

Annual Form No. III.—Deaths registered by divisions during each month of the year 1922.

1	2	3												4	
		Divisions.	Districts.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.		November.	December.	Total Deaths registered during the year.
1	Roysapuram	...	58	59	74	80	63	60	73	59	65	58	52	75	776
2	Tondiarpet	...	112	82	105	94	76	82	69	70	72	84	87	98	1,031
3	Wachermanpet	...	71	90	118	125	103	86	123	99	103	93	86	105	1,202
4	Korukupet	...	54	49	66	73	60	73	29	70	63	74	20	83	812
5	Harbour	...	27	19	30	27	44	27	29	32	30	29	20	35	349
6	Muthialpet	...	47	27	43	35	41	31	24	31	44	39	53	37	451
7	Kachaleswarupet	...	38	46	48	44	52	25	27	38	43	65	69	46	532
8	Kothawal Bazaar	...	21	17	27	12	17	19	19	8	9	26	25	20	209
9	Annen Koil	...	68	84	75	78	57	49	53	66	58	75	68	64	795
10	Seven Wells	...	55	89	89	88	80	99	90	90	73	98	105	109	1,065
11	Sowcarpet	...	28	21	19	26	25	16	16	14	22	37	20	35	279
12	Peddinaikeupet	...	58	60	65	67	70	58	78	75	73	86	70	82	842
13	Travelyan Basin	...	57	78	72	65	50	62	56	66	70	74	81	69	800
14	Esplanade	...	29	20	45	31	27	26	34	38	38	25	33	32	368
15	Park Town	...	57	67	76	52	48	49	44	46	38	49	57	72	655
16	Perambur	...	97	75	101	126	128	64	68	66	67	98	64	86	1,040
17	Chennai	...	99	159	170	98	78	64	47	76	58	84	92	87	1,122
18	Purasawakkam	...	73	83	82	76	73	50	48	41	43	61	72	96	800
19	Vepery	...	53	90	73	89	73	60	63	61	63	61	68	77	831
20	Egmore	...	90	93	97	75	70	69	62	53	62	73	73	83	900
21	Kilpauk	...	46	90	78	45	45	51	48	48	50	68	50	66	685
22	Nongambakkam	...	62	62	61	62	43	43	60	37	52	38	45	62	636
23	Chintadripet	...	105	114	145	108	73	87	60	74	75	82	92	112	1,127
24	Tiruvattesarupet	...	94	96	132	123	96	61	65	56	74	89	90	91	1,066
25	Chepauk	...	34	31	59	32	34	54	38	30	33	34	51	48	478
26	Triplicane	...	54	42	67	45	59	44	39	42	50	40	49	60	591
27	Amir Mahal	...	69	75	70	68	51	46	45	31	37	43	58	53	646
28	Mirshibpet	...	81	88	106	104	76	65	61	56	59	74	53	82	905
29	Rayapettah	...	67	69	64	79	62	64	60	71	63	60	61	88	808
30	Mylapore	...	45	62	66	73	72	58	52	41	42	59	61	53	684
	Total	...	1,849	2,037	2,322	2,099	1,850	1,649	1,611	1,585	1,629	1,876	1,862	2,106	22,475

Annual Form No. IV :—Deaths registered according to age by divisions during the year 1922.

1 Divisions	2 Districts	3 Under 1 year.		4 1 year and under 5 years.		5 5 years and under 10 years.		6 10 years and under 15 years.		7 15 years and under 20 years.		8 20 years and under 30 years.		9 30 years and under 40 years.		10 40 years and under 50 years.		11 50 years and under 60 years.		12 60 years and upwards.	
		Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
1	Royapuram	135	98	67	76	17	33	7	6	5	8	31	39	22	26	35	19	29	14	60	57
2	Tondiarpet	158	116	110	106	27	31	8	14	16	13	43	41	34	27	51	25	28	19	75	89
3	Washermanpet	205	185	155	146	32	32	13	11	13	18	29	55	39	20	82	21	28	21	66	81
4	Korakupet	138	104	82	68	30	23	7	10	8	15	25	46	25	28	16	17	27	16	65	62
5	Harbour	48	41	31	37	5	6	4	6	6	13	19	12	19	7	16	5	6	2	28	18
6	Muthialpet	75	60	28	33	8	10	3	6	8	6	14	20	16	15	13	17	23	10	42	44
7	Kachaleswaranpet	88	67	44	42	11	11	7	8	9	9	17	14	22	16	22	17	27	12	47	47
8	Kothawal Bazaar	28	22	16	12	8	5	5	7	1	5	6	5	14	8	16	3	7	6	21	14
9	Ammon Koi	116	94	51	55	18	14	6	7	9	21	33	44	30	35	26	24	29	30	65	88
10	Seven Wells	123	115	60	75	19	12	8	9	17	23	44	54	67	49	50	37	53	39	108	103
11	Sowcarpet	42	30	10	21	4	8	1	1	5	9	12	13	10	11	15	3	14	14	25	32
12	Peddannaikeupet	116	109	87	80	20	25	9	14	6	13	29	48	31	19	32	23	26	19	57	79
13	Travelyan Basin	127	140	48	67	25	25	13	9	7	15	28	35	29	30	31	24	24	16	54	53
14	Espanade	25	20	11	10	10	6	5	...	11	2	52	11	53	18	53	11	25	9	22	14
15	Park Town	111	81	54	61	22	18	12	5	10	8	21	32	25	16	28	11	24	22	52	42
16	Perambur	136	126	122	135	20	26	15	9	12	16	30	42	45	30	31	15	33	16	92	89
17	Chulsi	190	162	135	122	25	28	16	21	9	19	34	38	36	22	24	22	30	20	80	79
18	Purasawakkam	126	127	89	74	16	18	10	12	5	19	21	23	16	26	24	21	24	12	58	76
19	Vepory	152	124	74	68	16	14	10	10	15	13	39	31	29	39	19	18	30	17	49	64
20	Egmore	165	150	75	71	13	18	6	11	8	17	29	52	36	36	30	19	39	14	56	64
21	Kilpauk	118	92	58	45	14	10	...	6	8	9	23	28	51	25	29	14	26	11	63	55
22	Nungambakkam	100	98	69	69	12	15	5	8	10	7	21	25	17	18	16	16	18	19	40	52
23	Chintodripet	197	179	116	101	20	24	14	10	16	19	32	43	45	30	31	27	31	27	79	86
24	Tiruvattoswaranpet	172	146	118	78	19	23	16	10	13	12	50	53	25	19	39	24	34	27	79	86
25	Chepauk	68	70	32	37	9	6	8	7	5	9	16	27	14	17	16	11	10	13	81	107
26	Triplicane	96	82	54	45	17	11	8	6	13	13	15	23	16	12	30	11	24	15	49	51
27	Amr Mahal	136	95	57	47	17	11	3	4	6	5	25	24	27	19	16	22	14	12	57	49
28	Mirshibpet	140	132	94	91	30	37	13	11	6	13	30	34	32	26	16	15	27	25	70	60
29	Rayapettah	137	130	54	80	18	15	7	6	8	17	27	31	21	28	28	25	14	24	71	69
30	Mylapore	111	95	84	56	17	22	13	8	9	10	21	23	21	22	15	17	23	1	45	51
	Total	3,579	3,090	2,105	2,008	519	587	255	252	274	379	816	965	867	693	801	534	723	523	1,734	1,821
	Ratio per 1000	323.8	291.6	104.2	96.8	18.4	19.0	9.2	10.5	11.1	15.0	14.3	17.7	18.2	24.6	20.3	38.4	32.9	132.0	159.4	159.4

In the case of children under one year of age the ratios are calculated on the number of live-births during the year, in all other cases on the number living at the time of the census of 1921.

Annual From No. V.—Deaths registered according to class by divisions during the year 1922.

1	2	3				4				5						
		Population (according to Census of 1921.)				Number of deaths registered.				Ratio of deaths per 1,000 of population.						
		Christians.	Hindus.	Mahomedans.	Others.	Total.	Christians.	Hindus.	Mahomedans.	Others.	Total.	Christians.	Hindus.	Mahomedans.	Others.	Total.
1	Royapuram	5,612	14,266	896	117	20,801	183	539	54	776	32.4	37.8	60.3	37.1	37.1	
2	Tondiarpet	363	15,183	1,346	7	16,899	17	884	180	1,031	49.6	58.2	96.6	61.0	61.0	
3	Washermanpet	1,197	21,148	1,427	5	23,777	32	1,098	72	1,202	26.7	51.9	50.5	50.6	50.6	
4	Korukpet	377	13,844	2,395	24	16,640	8	693	111	812	21.2	50.1	46.3	49.8	49.8	
5	Harbour	335	3,876	2,954	104	7,269	4	106	238	349	11.3	27.3	80.6	40.5	40.5	
6	Muthialpet	1,103	12,349	2,179	...	15,631	3	415	33	451	27	33.6	15.1	28.9	28.9	
7	Katchaleswarmpet	1,859	10,259	879	58	13,065	46	456	30	532	24.7	44.4	34.1	40.7	40.7	
8	Kothawal Bazaar	190	3,943	951	33	5,117	6	192	11	209	31.6	48.7	11.6	40.8	40.8	
9	Amman Kovil	1,977	11,140	2,927	67	16,820	62	551	182	795	31.4	49.4	69.3	50.3	50.3	
10	Seven Wells	1,410	17,207	931	80	19,628	68	590	67	1,065	48.2	64.1	72.0	54.3	54.3	
11	Sowcarpet	10	7,056	41	333	7,460	...	279	...	279	...	39.5	37.4	37.4
12	Peddunackuppel	30	17,281	247	37	17,576	1	831	10	842	33.3	48.1	40.5	47.9	47.9	
13	Trevelyan Basin	23	17,032	112	105	17,272	2	794	4	800	87.0	46.6	35.7	46.8	46.8	
14	Esplanade	12	2,480	100	72	2,654	37	314	15	368	3083.3	126.6	1.60	27.8	138.1	
15	Park Tow	831	16,372	262	59	17,544	14	840	1	855	16.5	39.1	3.6	35.3	35.3	
16	Perambur	1,986	22,557	5,722	98	29,450	24	1,070	13	1,122	30.6	48.2	29.7	46.7	46.7	
17	Chulai	1,410	22,167	437	7	24,021	29	1,070	13	1,122	30.6	48.2	29.7	46.7	46.7	
18	Puraanwakam	3,088	17,146	282	40	20,696	66	723	11	800	21.3	42.1	28.8	35.7	35.7	
19	Vepery	4,682	18,682	2,938	125	25,627	133	691	76	900	29.0	37.0	34.0	35.1	35.1	
20	Kemoro	2,604	15,534	471	31	18,540	57	611	17	685	22.4	39.3	36.1	37.0	37.0	
21	Kilpaak	3,027	16,594	1,470	131	21,222	68	539	88	686	22.5	31.9	25.9	30.0	30.0	
22	Nanganahakam	2,011	20,726	960	63	23,790	65	1,003	59	1,127	32.3	48.4	69.6	47.4	47.4	
23	Chindripet	776	15,249	8,115	55	24,155	16	610	440	1,066	20.6	40.0	54.2	44.1	44.1	
24	Tiruvattieswarmpet	412	9,561	3,004	...	13,277	6	290	182	478	14.6	28.4	60.6	36.0	36.0	
25	Chepaak	60	16,060	883	18	16,966	2	869	20	591	40.6	35.4	52.2	35.8	35.8	
26	Tripligave	536	8,956	5,752	10	15,254	11	382	258	646	20.3	42.6	44.0	42.5	42.5	
27	Amir Mahal	1,146	13,988	3,452	45	18,631	18	681	206	905	15.7	20.6	59.7	48.6	48.6	
28	Mirshahpet	1,885	17,893	1,464	78	21,315	51	681	75	803	27.1	38.1	51.2	37.9	37.9	
29	Royapettah	2,671	14,640	528	19	17,868	88	574	22	684	33.7	39.2	41.7	38.8	38.8	
30	Mylapore	44,136	4,27,722	53,163	1,890	5,26,911	1,231	18,627	2,612	22,475	27.0	43.6	40.1	42.7	42.7	
	Total	44,136	4,27,722	53,163	1,890	5,26,911	1,231	18,627	2,612	22,475	27.0	43.6	40.1	42.7	42.7	

Annual From No. V.—Deaths registered according to class by divisions during the year 1922.

Annual Form No. VII.—Deaths registered from 'Small-pox' by divisions during each month of the year 1922.

1	2	3												4		5		6		
		Division.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Males.	Females.	Total.		Males.	Females.	Total.	Mean ratio per 1,000 during previous years.
1	Royapuram	8	6	8	13	6	4	7	6	7	5	1	2	30	41	71	29	39	3.4	Not available.
2	Tondiarpet	13	5	26	25	9	9	8	11	3	1	1	1	57	54	111	67	65	6.6	
3	Washermanpet	4	9	25	40	27	13	21	18	11	8	6	1	86	97	183	72	82	7.7	
4	Korukupet	...	2	2	11	6	7	12	14	9	4	...	...	27	41	68	31	50	4.1	
5	Harbour	...	1	1	3	1	...	4	3	4	...	...	...	11	6	17	22	2.7	2.3	
6	Muthalpet	...	1	1	3	3	...	2	2	2	...	...	...	15	12	27	0.6	1.3	0.9	
7	Kachaleswarmpet	...	3	3	3	2	...	1	1	1	...	...	...	3	4	7	1.0	2.0	2.1	
8	Kothawi Bazaar	...	...	...	5	1	...	...	...	...	...	...	...	9	11	20	1.1	1.4	1.3	
9	Annen Koil	...	5	2	7	2	...	...	...	...	...	...	...	18	20	38	1.8	2.0	1.9	
10	Seven Wells	...	...	3	2	...	...	...	...	...	...	...	...	3	3	6	0.7	0.9	0.8	
11	Sowcarpet	...	...	3	4	...	...	...	...	...	...	...	...	16	15	31	1.8	1.7	1.8	
12	Poddunaickenpet	...	...	5	4	...	...	...	...	...	...	...	...	19	22	41	2.2	2.6	2.3	
13	Trevelyan Basin	...	5	9	9	5	5	2	1	...	3	...	...	3	4	7	1.9	0.9	1.5	
14	Eplianade	...	1	1	1	...	...	...	...	...	...	...	...	23	22	45	2.4	2.8	6.0	
15	Park Town	...	10	7	8	4	...	...	...	...	...	...	...	15	14	29	1.0	1.0	1.0	
16	Perambur	...	1	2	6	13	...	...	...	...	...	...	...	15	16	31	1.2	1.4	1.2	
17	Chalai	...	4	11	13	2	...	...	...	...	...	...	...	12	16	28	1.1	1.6	1.4	
18	Poyacawakkam	...	4	15	4	2	...	...	...	...	...	...	...	16	11	27	1.6	1.2	1.4	
19	Vepery	...	4	5	7	3	...	...	...	...	...	...	...	19	15	34	1.4	1.3	1.3	
20	Egmore	...	5	7	11	5	...	...	...	...	...	...	...	8	7	15	0.8	0.8	0.8	
21	Kilpauk	...	1	4	7	2	...	...	...	...	...	...	...	11	17	28	1.0	1.7	1.3	
22	Nungambakkam	...	4	3	...	8	...	...	...	...	...	...	...	32	29	61	2.6	2.6	2.6	
23	Chintadripet	...	3	8	18	19	...	...	...	...	...	...	...	21	27	48	1.7	2.3	1.6	
24	Tirovattéswarampet	...	1	11	11	12	...	...	...	...	...	...	...	2	7	9	0.3	1.1	0.7	
25	Chepaak	...	1	...	1	1	...	...	...	...	...	...	...	13	11	24	1.5	1.4	1.5	
26	Tripliciano	...	1	1	2	5	...	...	...	...	...	...	...	13	2	15	1.7	0.3	1.0	
27	Amir Mahal	...	3	2	1	2	...	...	...	...	...	...	...	17	17	34	1.2	1.8	1.8	
28	Mirshahib	...	3	6	7	10	...	...	...	...	...	...	...	9	11	20	0.9	1.1	0.9	
29	Rayapettai	...	1	...	3	2	...	...	...	...	...	...	...	21	13	34	2.2	1.5	1.9	
30	Mylapore	...	...	...	5	11	...	...	...	...	...	...	...	550	571	1,121	2.0	2.2	2.1	
	Total	81	118	305	221	119	79	96	85	54	33	15	15	550	571	1,121	2.0	2.2	2.1	0.5

Annual Form No. X.—Deaths registered from "Malaria" by divisions during each month of the year 1922.

1	2	3												4		5		6	
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Males.	Females.	Total.	Males.		Females.	Total.
1	Royapuram	2	2	3	6	4	6	4	2	7	5	6	31	24	55	30	23	53	26
2	Tondiarpet	8	2	4	5	7	5	1	7	6	5	5	34	22	56	40	26	66	83
3	Washermanpet	...	...	2	...	...	3	3	2	2	...	...	7	7	14	0.58	0.59	0.59	...
4	Korukupet	...	1	1	1	...	1	3	3	1	...	...	11	4	15	1.3	0.5	0.9	...
5	Harbour	...	...	...	...	...	...	...	...	2	...	...	2	3	5	0.39	1.3	0.7	...
6	Muthialpet	...	...	2	...	...	1	...	...	2	1	...	7	6	13	0.72	1.0	0.88	...
7	Katchalawaranpet.	...	...	1	...	...	1	...	...	1	1	...	7	9	16	1.0	1.5	1.22	...
8	Kothawal Basbar	...	1	2	...	2	...	1	...	1	3	...	9	8	17	2.9	4.0	3.3	...
9	Amman Koil	...	4	6	...	...	...	1	...	2	5	...	16	26	42	2.0	3.4	2.7	...
10	Seven Wells	...	2	6	...	5	...	2	...	1	2	...	24	22	46	2.5	2.2	2.3	...
11	Sowcarpet	...	3	2	...	...	...	...	...	1	1	...	4	8	12	1.2	2.6	1.7	...
12	Poddunnickampet	...	1	3	...	4	...	2	...	1	4	...	14	15	29	1.6	1.7	1.6	...
13	Trevelyan Basin	...	3	3	...	4	...	3	...	2	7	...	23	22	45	2.6	2.0	2.6	...
14	Esplanade	...	2	1	...	1	...	3	...	2	1	...	8	5	13	5.2	4.5	4.8	...
15	Park Town	...	2	1	...	3	...	1	...	4	...	...	11	11	22	1.1	1.4	1.3	...
16	Perambur	...	3	2	...	2	...	2	...	8	...	...	19	17	36	1.2	1.2	1.2	...
17	Chulai	...	1	1	...	2	...	1	...	5	...	...	13	11	24	1.1	0.93	1.0	...
18	Purasawakam	...	1	1	...	2	...	4	...	4	...	...	15	15	30	0.8	1.5	1.1	...
19	Vepery	...	...	...	5	...	6	...	...	2	2	...	15	20	35	1.5	2.2	1.8	...
20	Egmore	...	4	...	3	...	...	...	...	2	...	...	5	9	14	0.4	0.8	0.64	...
21	Kilpank	...	1	5	...	5	...	...	...	2	...	...	14	8	22	1.4	0.9	1.2	...
22	Nungambakam	...	1	3	...	1	...	3	...	...	...	...	6	1	7	0.5	0.09	0.3	...
23	Chintadripet	...	6	9	...	2	...	...	...	1	...	...	21	12	33	1.7	1.04	1.4	...
24	Tiruvattewaranpet	...	13	10	...	3	...	1	...	4	...	...	41	34	75	3.3	2.9	3.1	...
25	Chepauk	...	1	...	...	2	...	...	...	2	...	...	7	3	10	1.0	0.5	0.8	...
26	Triplixane	...	...	...	...	...	...	...	...	1	...	...	2	5	7	0.9	0.6	0.8	...
27	Amir Mahal	...	...	...	...	...	...	...	...	1	...	...	8	8	16	1.7	1.4	1.6	...
28	Mirashilpet	...	1	3	...	3	...	...	...	1	6	...	13	11	24	1.5	1.3	1.4	...
29	Rayapetah	...	1	1	...	2	...	...	...	1	...	...	14	12	26	0.6	0.5	0.5	...
30	Mylapore	...	1	3	...	2	...	...	...	1	...	...	6	5	11	0.4	0.6	0.5	...
	Total ...	64	65	81	62	41	65	49	50	73	65	85	403	360	763	1.5	1.4	1.4	14

Not available.

Annual Form No. XI.—Deaths registered from "Enteric Fever" by divisions during each month of the year 1922.

1 Divisions.	2 Districts.												3			4			5		6 Mean ratio per 1,000 during previous five years.
	Districts.												Total.			Ratio of deaths per 1,000 of Population.		Mean ratio per 1,000 during previous five years.			
													Males.	Females.	Total.	Males.	Females.		Total.		
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Males.	Females.	Total.	Males.	Females.	Total.	Mean ratio per 1,000 during previous five years.		
1 Royapuram	1					1							1	1	2	0.09	0.1	0.1	0.1		
2 Tondiarpet																0.1	0.1	0.1	0.1		
3 Washermanpet																					
4 Korukupet																					
5 Harbour																					
6 Madhalpet																					
7 Katchaleswaranpet																					
8 Kothawal Bazar																					
9 Anman Koil																					
10 Seven Wells																					
11 Sowcarpet																					
12 Peddumakonpet																					
13 Trevelyan Basin																					
14 Espinardo																					
15 Park Town																					
16 Perambur																					
17 Chalais																					
18 Parasavakam																					
19 Vepery																					
20 Egmore																					
21 Kilpauk																					
22 Nungambakam																					
23 Chinidripet																					
24 Tiruvateswarapurpet																					
25 Chepauk																					
26 Triplicane																					
27 Amir Mahal																					
28 Miresalibpet																					
29 Rayapettab																					
30 Mylapore																					
Total	9	4	6	5	7	9	6	5	7	9	7	7	50	24	74	0.2	0.1	0.1	0.1		

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Annual Form No. XII.—Deaths registered from 'other fevers' by divisions during each month of the year 1922.

Divisions.	Districts.												Ratio of deaths per 1000 of Population.			Mean ratio per 1,000 during previous 5 years.		
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Males.	Females.	Total.			
1 Royapuram	1	1	4	3	3	1	3	2	1	1	2	6	12	16	28	1.2	1.5	1.3
2 Wondiarpet	2	4	1	1	...	...	2	2	1	1	3	7	9	13	22	1.05	1.6	1.3
3 Washermanpet	5	4	6	4	...	6	4	7	4	1	4	4	34	27	61	2.8	2.8	2.6
4 Korukupet	4	4	2	4	2	5	3	7	3	2	2	5	18	25	43	2.1	3.1	2.6
5 Harbour	1	...	...	...	...	...	...	...	...	...	...	1	1	3	4	0.19	1.3	0.5
6 Muthialpet	2	1	1	...	...	1	...	...	3	4	4	1	8	8	16	0.8	1.3	1.0
7 Katchalevaranpet	...	...	1	1	1	...	...	...	...	3	5	5	1	8	14	1.1	1.01	1.1
8 Kothawati Bazaar	3	2	6	2	2	2	1	...	...	1	1	...	18	8	26	5.8	4.1	5.1
9 Arman Koil	4	11	12	6	8	5	7	5	1	1	1	...	25	41	66	3.1	5.3	4.2
10 Seven Wells	...	8	3	11	4	3	4	5	2	1	1	2	22	32	54	2.3	3.2	2.8
11 Sowcarpet	5	...	2	4	7	4	1	4	3	4	...	...	14	22	36	3.3	6.9	4.8
12 Peddumackenpet	4	2	6	2	4	4	4	5	3	6	...	...	23	25	48	2.6	2.9	2.7
13 Trevelyan Basin	3	2	5	12	8	10	7	11	0	3	3	...	38	45	83	4.3	5.3	4.9
14 Esplanade	...	3	4	2	2	2	1	6	1	1	1	1	16	8	24	10.3	7.2	9.0
15 Park Town	6	9	3	2	4	3	2	7	9	3	1	1	37	15	52	3.9	1.9	3.0
16 Perambur	...	1	2	1	4	3	...	...	1	1	...	...	8	3	11	0.5	0.4	0.6
17 Chulai	2	2	4	2	4	...	...	2	1	2	2	...	6	15	21	0.6	1.3	0.9
18 Parasavakam	12	2	6	1	...	1	...	4	1	2	2	2	9	14	23	0.9	1.4	1.1
19 Vepory	1	2	...	2	...	1	...	1	2	3	2	1	7	9	16	0.7	1.0	0.8
20 Egmore	1	1	...	5	6	7	8	3	2	4	4	4	19	29	48	1.4	2.5	1.4
21 Kilpauk	1	1	1	1	1	1	2	1	1	2	2	...	8	6	14	0.8	0.7	0.7
22 Nungambakam	2	7	1	1	3	1	3	4	3	3	2	...	13	25	38	1.2	2.5	1.7
23 Chinadripet	14	5	8	6	6	14	8	10	6	4	2	6	48	41	89	3.9	3.6	3.7
24 Tiruvateeswaranpet	8	11	31	8	11	7	6	7	8	5	5	1	56	49	105	4.5	4.2	4.3
25 Chepauk	1	2	4	1	2	1	3	...	4	1	2	2	14	10	24	2.0	1.6	1.8
26 Triplicane	...	4	4	1	2	1	5	3	2	5	1	6	12	18	30	1.4	2.3	1.8
27 Amir Mahal	5	6	6	7	4	4	3	3	2	3	4	...	24	23	47	3.2	3.0	3.1
28 Mirsahibpet	4	7	10	9	10	12	11	14	12	8	8	14	61	63	119	6.6	6.2	6.4
29 Royapettia	9	12	13	6	5	7	5	9	0	4	3	6	40	48	88	3.7	4.6	4.1
30 Mylapore	1	7	5	4	9	7	5	1	7	9	12	8	36	39	75	3.8	4.6	4.2
Total	92	119	148	113	120	123	105	105	127	100	87	86	644	681	1,325	2.3	2.7	2.5

Not available.

Annual Form No. XIII.—Deaths registered from "Dysentery and Diarrhoea" by divisions during each month of the year 1922.

1 Divisions.	2 Districts.												3		4		5		6 Mean ratio per 1,000 during previous 5 years.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Males.	Females.	Total.	Males.	Females.	Total.	
1 Royapuram	15	12	13	10	13	18	17	18	14	8	9	7	82	72	154	79	69	74	
2 Tondiarpet	27	18	14	13	20	16	7	15	20	17	16	16	100	99	199	117	118	118	
3 Washermanpet	14	12	12	18	10	11	21	18	16	15	14	23	95	89	184	79	76	77	
4 Korukupet	7	5	7	12	9	17	10	8	9	12	12	14	67	55	122	77	69	73	
5 Harbour	3	2	3	3	9	7	4	4	4	10	6	10	35	29	64	70	129	88	
6 Muthialpet	3	2	5	1	7	5	2	2	6	5	2	4	21	23	44	21	39	28	
7 Katchalewaranpet	2	5	7	8	3	1	4	11	8	9	10	2	51	28	79	72	47	54	
8 Kothaval Bazaar	16	11	6	1	1	1	2	2	...	4	2	3	17	11	28	54	55	54	
9 Ammen Kovil	9	15	8	12	11	5	12	6	3	10	6	6	49	50	99	61	67	63	
10 Seven Wells
11 Sowcarpet	4	2	2	3	3	3	2	2	2	3	2	4	15	16	31	35	504	42	
12 Peddunackanpet	7	13	12	16	13	11	14	15	14	16	7	18	85	71	156	95	82	89	
13 Trevelyan Basin	7	12	16	10	14	9	11	9	9	12	15	11	71	64	135	81	75	78	
14 Esplanade	2	3	2	2	2	...	1	1	...	4	3	2	19	5	24	123	45	90	
15 Park Town	3	3	5	10	9	7	1	3	5	4	4	9	37	29	66	39	36	38	
16 Perambur	29	17	38	41	54	24	25	25	20	23	23	29	175	176	351	114	126	119	
17 Chulad	27	59	56	38	24	15	15	20	12	19	24	19	172	166	338	140	133	137	
18 Gurusawalkam	17	21	17	31	24	13	8	13	9	14	16	26	112	96	208	107	94	101	
19 Vejeri	15	25	21	23	16	8	13	8	13	10	7	11	84	86	170	83	13	88	
20 Egnore	11	12	14	14	14	12	9	13	12	11	13	18	81	72	153	58	61	59	
21 Kilpank	4	19	16	9	8	10	11	14	13	13	9	11	80	57	137	83	64	70	
22 Nanganalokam	13	12	23	12	5	8	14	7	10	9	8	9	65	65	130	59	64	61	
23 Chintadripet	12	23	28	24	12	15	13	18	20	13	15	20	103	110	213	84	95	90	
24 Tiruvattewvanpet	19	20	17	19	16	11	18	16	19	13	16	24	107	98	205	84	85	85	
25 Chepank	4	3	14	4	8	6	6	11	1	4	5	2	37	31	68	52	50	51	
26 Triplicane	9	6	12	3	9	5	4	3	4	5	6	3	45	24	69	52	31	42	
27 Amir Mahal	4	11	9	15	11	13	14	6	8	9	14	8	56	66	122	74	87	80	
28 Mirzanbilpet	23	20	30	25	15	9	12	7	13	9	9	12	81	103	184	87	112	99	
29 Royapetiah	13	15	13	22	11	13	14	16	10	6	11	17	70	91	161	64	87	76	
30 Mysapore	7	9	10	16	10	13	10	4	11	12	15	14	74	56	130	79	66	73	
Total ...	331	394	439	423	367	301	284	311	296	323	328	365	3,163	2,004	4,167	7.8	8.0	7.9	9.2

Annual Form No. XIV.—Deaths registered from "Tubercle" including Tubercle of the Lung by divisions during each month of the year 1922.

1 Divisions.	2 Districts.												3			4			5		6 Mean ratio per 1,000 during previous 5 years.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Males.	Females.	Total.	Males.	Females.	Total.			
1 Royapuram	4	3	4	7	1	4	4	3	3	3	1	3	22	11	33	21	114	135			
2 Tondiarpet	4	4	5	3	1	7	1	1	2	6	4	4	24	21	45	28	25	53			
3 Washernagarpet	4	3	3	3	3	4	3	3	2	3	3	3	16	13	29	13	11	24			
4 Korukupet	1	3	3	4	3	3	3	5	2	3	5	3	16	21	37	18	26	44			
5 Hazbuar	1	3	3	4	3	3	2	2	5	1	3	3	19	7	26	38	31	69			
6 Muthialpet	4	3	3	3	3	2	2	4	2	2	1	1	18	12	30	13	20	33			
7 Kachalavarappet	1	3	3	1	3	2	2	3	2	2	2	2	5	2	7	15	10	25			
8 Kothawal Bazaar	7	3	3	5	3	6	2	3	3	1	1	1	26	31	57	32	40	72			
9 Amman Koll	2	7	9	7	7	8	6	7	8	4	4	7	44	30	74	43	30	73			
10 Seven Wells	1	1	1	1	1	1	1	1	2	1	1	1	6	8	14	14	25	39			
11 Sowcarpet	2	5	3	5	6	3	3	4	6	2	3	3	24	24	48	27	28	55			
12 Peddunaitokampet	3	5	3	4	3	3	3	4	6	2	2	2	18	17	35	21	20	45			
13 Trevelyyan Basin	4	2	3	4	3	3	2	3	1	5	5	3	13	8	21	84	72	156			
14 Esplanade	1	5	3	4	4	3	3	3	2	2	2	2	13	8	21	21	31	52			
15 Park Town	3	5	3	4	4	3	3	3	5	3	3	3	16	10	26	10	07	17			
16 Perambur	2	5	4	3	3	3	1	3	4	3	4	3	16	16	32	22	14	36			
17 Chabai	4	2	7	4	1	4	4	4	2	2	3	3	18	17	35	17	17	34			
18 Purasawakam	1	4	4	1	3	3	3	4	4	2	2	1	15	15	30	15	17	32			
19 Vepery	2	6	6	3	3	2	4	4	2	3	3	3	18	16	34	13	13	26			
20 Egmore	1	4	4	1	3	2	4	1	4	1	1	1	31	14	45	32	16	61			
21 Kilpauk	1	7	8	3	3	4	5	2	5	3	2	2	28	12	40	23	12	35			
22 Nungambakam	1	3	3	5	4	3	4	1	3	8	5	2	22	16	38	17	14	31			
23 Chintadripet	4	3	1	3	3	3	4	1	3	3	3	2	28	25	53	22	21	43			
24 Tiruvattieswarappet	1	3	4	7	10	2	6	3	6	7	4	4	11	11	22	16	16	32			
25 Chennai	1	3	3	5	4	3	4	3	3	3	3	2	11	11	22	16	16	32			
26 Triplicane	2	2	2	4	4	4	4	2	3	1	1	1	21	16	37	24	19	43			
27 Amir Mahal	3	2	3	7	3	3	4	1	4	2	2	2	21	15	36	24	19	43			
28 Mirzahhipet	4	5	3	4	4	3	4	2	1	2	1	1	27	18	45	35	30	65			
29 Rayapettah	5	4	2	3	3	4	2	3	2	6	6	6	17	14	31	18	15	33			
30 Mylapore	1	1	3	4	3	3	2	3	1	3	2	2	50	54	104	44	44	88			
	79	98	109	103	82	90	83	59	88	90	98	110	567	491	1,058	28	15	43			
Total	79	98	109	103	82	90	83	59	88	90	98	110	567	491	1,058	28	15	43			

Annual Form No. XV—Deaths registered from "Respiratory Diseases" excluding Tubercle of the Lung by divisions during each month of the year 1922.

1	2	3												4			5		6	
		January	February	March	April	May	June	July	August	September	October	November	December	Males	Females	Total	Males	Females		Total	Mean ratio per 1,000 during previous 5 years
1	Royapuram	4	7	9	12	10	6	10	4	7	4	5	4	44	38	82	42	36	39	Not available.
2	Tondiarpet	7	13	11	11	10	13	7	8	7	8	11	6	56	56	112	66	67	66	
3	Washermenpet	13	19	24	20	17	18	32	15	11	16	19	24	123	116	238	103	98	101	
4	Kankupet	7	9	15	10	11	12	10	9	12	8	18	15	84	52	136	57	65	82	
5	Harbour	11	5	9	9	12	7	7	12	7	2	5	11	56	41	97	111	182	133	
6	Muthialpet	11	5	9	8	10	9	5	9	6	10	17	11	56	54	110	58	91	703	
7	Katchalawaranpet	8	11	9	8	14	4	3	5	14	21	17	10	63	61	124	89	103	95	
8	Kochawal Basaar	3	3	2	...	2	1	...	...	2	5	5	7	19	11	30	6-01	55	59
9	Annam Koll	8	11	4	14	5	3	...	15	15	12	11	12	59	59	118	73	76	75	
10	Seven Wells	13	4	11	14	17	17	13	18	7	18	15	24	102	69	171	105	698	87	
11	Sowcarpet	4	2	1	3	3	1	4	...	4	5	3	13	28	15	43	65	47	58	
12	Peddanaickenpet	11	11	17	12	17	14	9	14	16	23	22	18	97	87	184	108	101	105	
13	Travelyan Basin	10	18	15	13	8	13	9	16	12	13	21	17	81	84	165	92	99	96	
14	Eppalando	9	2	4	6	4	3	7	1	1	1	3	6	30	18	48	194	161	1802	
15	Park Town	14	19	14	7	9	8	8	6	5	7	8	19	69	55	124	72	69	71	
16	Perambur	19	21	14	23	18	10	13	10	12	21	11	7	94	86	180	61	62	61	
17	Chennai	22	31	26	18	13	10	13	10	7	9	12	13	98	86	184	80	73	77	
18	Purasawakam	8	11	15	7	15	9	10	4	2	11	16	11	66	53	119	63	52	58	
19	Vepery	11	18	16	26	17	17	21	17	10	15	14	14	102	94	196	101	100	102	
20	Egmore	11	19	20	11	13	6	12	5	7	19	11	17	80	71	151	58	604	599	
21	Kilpauk	9	15	13	10	11	8	7	8	6	10	13	16	65	61	126	67	688	68	
22	Nungambakam	11	13	14	11	6	10	6	9	10	9	9	21	64	65	129	58	64	61	
23	Chiradripet	11	18	27	17	18	17	15	13	11	18	20	28	121	92	213	99	80	895	
24	Tiruvattarwanpet	4	9	12	20	8	6	9	5	11	7	10	12	72	41	113	57	35	47	
25	Cherank	6	3	14	4	4	4	4	5	7	7	13	13	40	45	85	57	72	64	
26	Triplicane	7	5	12	5	13	4	6	9	10	4	6	13	57	37	94	66	47	57	
27	Amir Mahal	17	15	13	7	6	3	6	4	7	4	4	8	48	46	94	63	60	62	
28	Masabhipet	12	16	18	26	13	13	13	12	7	16	4	11	81	80	161	87	86	86	
29	Royapettah	...	6	8	9	3	9	7	4	10	12	3	10	37	44	81	34	42	38	
30	Mylapore	8	10	15	11	11	11	9	11	5	13	2	9	62	53	115	66	63	66	
	Total	289	350	391	362	318	270	280	259	248	328	328	410	2054	1769	3823	74	71	73	74

Annual Form No. XVI.—Deaths registered from 'Injuries' by divisions during each month of the year 1922.

1 Divisions.	2 Districts.												4			5			6 Mean ratio per 1,000 during previous 5 years.
	Districts.												Total.			Ratio of deaths per 1,000 of Population.			
													Males.	Females.	Total.	Males.	Females.	Total.	
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.							
1 Royapuram	4	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	0.09	
2 Tondiarpet	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.2	
3 Washermanpet	1	1	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	
4 Korukpet	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.2	
5 Harbour	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	
6 Muthialpet	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.4	
7 Kachalakeswarapur	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.4	
8 Kothawal Bazaar	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.5	
9 Ammen Koil	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.2	
10 Seven Wells	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.8	
11 Sovercarpet	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.4	
12 Peddunnickanpet	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6	
13 Trevolyan Basin	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.3	
14 Eplandade	1	1	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.3	
15 Park Town	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	0.2	
16 Perambur	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6	
17 Chulsi	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11.0	
18 Parasakwalam	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4.5	
19 Vepery	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.2	
20 Egmore	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.2	
21 Kilpauk	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.7	
22 Nungambakam	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.4	
23 Chintadripet	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.3	
24 Piravatturampanpet	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.2	
25 Chopsak	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.09	
26 Friglicase	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.2	
27 Amir Mahal	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.4	
28 Mirashibpet	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.1	
29 Royapettah	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.2	
30 Mylapore	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.2	
Total	14	18	21	31	21	11	7	10	13	9	13	14	14	64	117	181	0.4	0.34	

Not available.

Annual Form No. XVIII.—Deaths registered from "Other Causes" by divisions during each month of the year 1922.

1 Divisions.	2 Districts.												4			5		6 Mean Ratio per 1,000 during previous 5 years.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Males.	Females.	Total.	Males.	Females.		Total.
1 Rayaparam	24	26	27	32	29	22	23	22	31	29	29	47	176	165	341	16.9	15.7	16.3
2 Tondiarpet	46	34	40	32	33	28	39	29	30	45	46	58	259	205	464	30.3	24.5	27.5
3 Washermenpet	30	43	45	36	33	33	34	34	49	45	44	40	246	229	475	19.2	18.6	18.6
4 Korukpet	30	24	29	30	28	27	30	30	18	44	44	38	194	178	372	22.4	23.3	22.4
5 Ilachour	10	7	12	7	19	11	10	11	13	10	5	10	75	50	125	14.9	22.2	17.2
6 Muthalpet	23	16	20	18	19	12	14	14	22	16	26	17	112	105	217	11.5	17.6	13.9
7 Kuchalavuranpet	16	20	17	21	25	9	14	17	16	31	20	23	118	111	229	16.3	18.5	17.5
8 Kochanal Basar	11	4	9	4	8	1	2	5	6	12	6	12	51	39	90	16.3	14.5	17.6
9 Ammen Kall	28	40	37	29	27	19	28	27	28	37	34	35	196	173	369	24.2	22.4	23.3
10 Seven Wells	28	39	42	41	34	43	40	41	35	43	58	48	257	235	492	26.4	23.8	25.1
11 Sovcarpet	10	14	7	13	10	7	7	7	8	23	9	11	65	61	126	15.2	19.2	16.9
12 Peddumachampet	31	25	19	27	24	20	25	33	29	31	26	33	150	173	323	16.7	20.0	18.3
13 Trevelyan Basin	31	30	21	14	13	17	21	24	27	25	26	25	129	145	274	14.7	17.0	15.9
14 Esplanade	13	11	18	15	14	14	20	25	21	15	14	20	152	48	200	98.2	43.0	75.1
15 Park Town	18	18	38	21	15	12	22	21	18	25	34	33	154	119	273	16.1	15.0	15.6
16 Perambur	38	30	35	38	40	22	26	21	25	37	21	36	200	169	369	12.9	12.1	12.5
17 Chulal	38	42	49	25	29	32	12	40	24	42	44	47	329	155	484	18.6	16.6	17.7
18 Pucasanakam	39	21	27	28	30	20	25	16	23	30	34	40	164	179	343	13.7	15.7	16.5
19 Vepery	15	30	21	26	26	26	19	21	28	27	35	42	174	145	319	17.3	15.7	16.5
20 Emore	54	38	40	31	29	37	27	29	27	32	43	33	213	425	638	15.3	18.1	16.6
21 Kilpauk	29	41	28	13	17	26	21	18	24	34	25	32	179	129	308	18.5	14.5	16.6
22 Nungombakam	29	20	11	18	18	20	24	9	25	13	23	23	111	127	238	10.1	12.3	11.2
23 Chintadripet	46	50	53	32	24	28	20	24	34	36	45	63	231	224	455	18.0	19.4	18.7
24 Tiruvantevanpet	46	32	47	51	40	25	26	30	27	24	43	35	231	213	444	18.6	18.3	18.4
25 Chepank	19	19	24	13	17	25	21	11	20	16	23	27	123	111	234	17.4	17.8	17.5
26 Triplicane	27	20	32	22	21	25	19	19	26	20	29	31	155	136	291	17.9	17.4	17.6
27 Anar Mahal	37	38	35	22	20	21	15	15	13	20	28	27	166	119	285	21.9	15.5	18.0
28 Mirabilpet	34	28	32	26	27	25	20	15	21	34	27	38	175	153	328	18.9	16.4	17.6
29 Royapetta	35	29	23	37	28	23	29	35	28	32	36	45	192	188	380	17.7	18.0	17.8
30 Mylapore	23	23	27	24	31	20	25	17	12	20	25	19	141	131	272	15.0	15.5	15.2
Total	868	827	857	746	734	660	688	664	708	869	909	982	5,007	4,465	9,472	18.2	17.8	18.0

Not available.

Annual Form No. XIX :--Comparing the Deaths from some of the principal diseases during the year 1922 with the deaths during the preceding five years.

Years.	Cholera.		Small-pox.		Measles.		Plague.		Malarin.		Enteric Fever.		Other Fevers.		Dysentery and Diarrhoea.		Tuber-culosis other than Pulmonary.		Respiratory System.				Death from child birth.		All other causes.		Total Deaths.	
	Deaths.	Ratio per 1,000.	Deaths.	Ratio per 1,000.	Deaths.	Ratio per 1,000.	Deaths.	Ratio per 1,000.	Deaths.	Ratio per 1,000.	Deaths.	Ratio per 1,000.	Deaths.	Ratio per 1,000.	Deaths.	Ratio per 1,000.	Deaths.	Ratio per 1,000.	Deaths.	Ratio per 1,000.	Deaths.	Ratio per 1,000.	Deaths.	Ratio per 1,000.	Deaths.	Ratio per 1,000.	Deaths.	Ratio per 1,000.
1917 ...	78	0.2	195	0.4	79	0.2	6	0.01	859	1.7	47	0.09	575	1.1	4,131	7.9	91	0.2	976	1.9	3,293	6.4	203	0.4	9,384	18.1	19,917	38.4
1918 ...	503	1.0	272	0.5	104	0.2	22	0.04	881	1.7	45	0.09	4792	9.2	5,533	10.7	57	0.1	1,431	2.8	5,518	10.6	177	0.3	11,927	23.0	31,262	60.3
1919 ...	542	1.2	611	1.2	108	0.2	14	0.03	736	1.2	52	0.1	2522	4.9	5,835	11.3	131	0.3	1,178	2.3	3,839	7.4	209	0.4	11,310	21.8	27,187	52.4
1920 ...	22	0.04	109	0.2	41	0.08	8	0.02	560	1.1	66	0.1	1774	3.4	4,671	9.0	77	0.1	920	1.8	3,431	6.6	296	0.6	9,443	18.2	21,418	41.3
1921 ...	139	0.3	180	0.3	40	0.08	3	0.006	652	1.2	85	0.2	1475	2.8	4,149	7.9	52	0.1	905	1.7	3,510	6.7	241	0.5	8,621	16.4	20,268	38.5
Mean of the last five years	277	0.5	273	0.5	74	0.1	11	0.02	738	1.4	59	0.1	2228	4.2	4,864	9.2	82	0.2	1,082	2.1	3,918	7.4	225	0.4	10,137	19.2	24,010	45.6
1922 ...	17	0.03	1121	2.1	150	0.28	1	0.002	763	1.4	74	0.1	1325	2.5	4,167	7.9	61	0.1	1,027	1.9	3,823	7.3	181	0.34	9,472	18.0	22,475	42.7

Annual Form No. XX showing a complete classification of diseases arranged in the order adopted in the Nomenclature of Diseases.

No. in the Nomenclature of Diseases.	Causes of Death.	Nomenclature of Diseases.												Total.		
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.			
5	Cerebro-Spinal Meningitis	1	1	1	1	1	...	1	...	1	6
6	Chicken-pox	4	9	9	5	...	1	3	2	...	2	...	37
7	Cholera	6	...	1	...	2	1	1	1	1	1	1	17
9	Dengue	7	14
10	Diphtheria	4	1	2	7
11	Dysentery ...	...	178	204	257	231	178	160	153	144	168	170	191	201	2,235
13	Enteric Fever ...	...	9	4	6	5	7	9	6	5	7	9	...	7	74
14	Enteritis ...	...	153	190	180	191	188	189	140	167	126	153	180	160	1,917
15	Erysipelas ...	...	...	...	...	2	...	...	2	...	...	...	2	1	7
21	Influenza ...	...	3	3	1	6	2	2	1	1	2	1	...	2	24
22	Kala-Azar ...	...	3	...	3	3	3	6	2	2	2	1	5	3	33
23	Leprosy ...	...	7	8	10	3	8	5	4	6	7	20	11	14	103
25	Malarial Fever ...	...	57	58	74	55	41	60	54	46	46	68	60	79	698
	" with enlargement of Spleen	...	6	5	7	5	...	5	6	3	4	4	7	6	58	
	" with congestion of Brain	...	...	...	...	1	...	...	...	...	...	1	...	...	2

Infective Diseases.

Certain morbid conditions incident to various parts.														
82	Effects of Parasites.													
		NEMATODA.												
	(79) Ankiostomum	1	...	2	1	...	2	1	1	4	...	4	16
85	Effects of Poisons.—													
		VEGETABLE POISONS.												
	(37) Opium Poison	1	1
		ANIMAL POISON.												
	(a) Snake-bite	2	1	3
	(b) Scorpion-Sting	1	2	1	1	5
		Diseases of the Spinal Cord and Membranes.												
88	Meningitis	2	3	2	2	1	...	1	...	1	...	3	15
		MEMBRANES.												
		Diseases of the Brain and its membranes.												
		BRAIN.												
101	Cerebral Haemorrhage	1	3	1	3	1	...	4	...	2	3	4	3
108	Hydrocephalus	1	1
		SECTION II.												
109	Apoplexy	2	1	1	3	1	1	...	9
110	Paralysis	15	7	7	8	11	10	9	7	4	12	15	128
		Diseases of the Nervous System.												

	10	11	12	10	12	8	6	7	7	15	10	121
293 Valvular Disease ... ..	...	...	...	...	...	...	...	...	...	...	...	121
Cardiac failure	4	4	4	9	4	4	6	3	3	2	3	52
Cardiac Dropsy	2	2	4	2	1	..	...	4	2	...	3	22
Diseases of the heart (not specified)	23	20	18	18	15	19	9	11	22	30	21	212
DISEASES OF THE MYOCARDIUM.												
294 Myocarditis	1	1	...	...	1	...	1	1	1	...	1	7
298 Dilatation of the heart—	...	...	...	...	...	...	...	...	...	...	...	...
302 Angina Pectoris ... ..	...	...	...	...	...	...	...	1	...	...	...	1
304 Syncope	1	1	...	...	..	...	...	...	...	...	...	3
DISEASES OF THE RESPIRATORY SYSTEM (not Strictly Local).												
338 Asthma	15	19	11	19	7	6	7	7	6	6	5	117
Diseases of the Larynx.												
339 Laryngitis ... ..	...	2	...	...	...	...	...	...	...	...	...	2
Diseases of the Trachea and Bronchi.												
404 Bronchitis (Acute)	10	6	11	10	6	5	2	15	12	21	11	119
" Chronic	17	14	11	14	6	11	12	13	20	14	21	169
Diseases of the Lung.												
413 Bronche-Pneumonia	119	190	221	190	175	149	159	127	186	155	247	2,073
422 Atelectasis	4	2	5	5	4	4	1	5	6	6	8	55
Diseases of the Pleura.												
425 Pleurisy ... ..	...	3	1	...	2	1	1	1	...	1	2	12
426 Empyema ... ..	...	...	...	1	...	...	...	...	...	...	...	1

Diseases of the circulatory System.

Diseases of the Respiratory System.

Diseases of the Digestive System—(contd.)														
Diseases of the Intestines.														
515	Inflammation:—	...	...	...	...	...	...	...	...	...	...	...
	(2) Appendicitis	1	3	1	2	...	...	2	1	2	...	1	...	13
	Gastro Enteritis	1	1	...	1	1	1	...	3	2	...	2	2	14
	(3) Colitis	1	...	...	...	1	3	1	...	1	1	1	4	18
516	Duodenal ulcer	...	...	...	...	3	...	1	...	1	...	1	1	7
528	Hernia	...	...	...	1	1	1	...	1	1	...	1	...	6
	" Strangulated	5	6	5	3	5	4	4	2	2	3	3	1	43
536	Obstruction of Bowels	10	10	7	7	3	9	7	5	6	10	14	7	95
539	Intestinal Catarrh	...	...	...	...	...	1	1	...	1	...	1	3	7
544	Colic	...	1	1	1	...	...	...	1	1	...	1	1	7
Diseases of the Rectum and Anus.														
556	Piles	2	1	2	...	1	1	...	...	1	...	2	2	12
Diseases of the Liver.														
568	Hepatitis	4	2	1	1	1	1	...	2	3	1	3	2	21
	(b) Cirrhosis of Liver	3	2	7	8	17	7	10	13	8	3	7	10	95

Diseases of the Urinary System.														
DISEASES OF THE KIDNEY.														
651	Nephritis Acute...	...	9	10	6	3	2	5	1	4	3	6	8	66
	Renal Dropsy ...	...	9	12	10	2	5	11	3	5	15	11	9	98
652	Bright's Disease ...	...	11	3	6	5	6	2	1	2	4	6	4	57
	Sub-divisions—(1) Chronic Nephritis ...	...	3	1	2	1	...	3	1	3	...	3	1	20
659	Hydronephrosis ...	...	...	...	...	...	...	...	...	...	...	...	1	1
Diseases of the Bladder.														
676	Cystitis ...	...	...	1	...	...	1	1	...	...	1	...	...	5
685	Rupture (Bladder) ...	...	...	...	1	1	...	1	...	...	...	...	...	3
URINARY DISORDERS.														
697	Albuminuria ...	...	1	...	2	...	...	...	...	...	1	...	...	4
Diseases of the Male Organs of Generation.														
Diseases of the Urethra.														
708	Gleet ...	...	...	...	...	...	...	...	...	...	...	1	...	1
712	Stricture of Urethra ...	...	...	...	...	...	...	...	1	...	1	1	...	3
715	Extravasation of Urine ...	...	...	2	...	...	1	1	...	...	2	...	...	6
Diseases of the Scrotum.														
741	Cellulitis Scrotum ...	...	...	1	2	3	1	...	1	3	2	2	1	16

Annual Form No. XX—showing a complete classification of Diseases arranged in the order adopted in the Nomenclature of Diseases:—(Contd.)

No. in the Nomenclature of Diseases.	Causes of Death.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
		Diseases of the Generative System.—contd.												
754	Diseases of the Tunica Vaginalis. Hydrocele ... ..	...	1	...	...	...	...	...	1	...	...	...	...	2
DISEASES OF THE FEMALE ORGANS OF GENERATION.														
785	Diseases of the Uterus including the Cervix, Metritis ... ..	...	1	...	...	...	...	...	...	...	...	...	...	1
792	Displacements and distortions, (f) Prolapsus ... ..	...	1	...	...	...	...	...	...	...	...	...	...	1
797	Rupture of Uterus	1	...	1	1	...	...	...	3	1	1	...	2	10
884	Affections connected with Pregnancy, Abortion	1	...	1	2	...	1	1	...	...	2	1	1	10
852	Affections connected with Parturition, Premature Birth	131	113	114	93	90	116	109	90	103	112	133	133	1,337
	Difficult Labour...	...	1	...	1	2	...	1	2	1	2	1	2	8

Annual Form No. XX—showing a complete classification of Diseases arranged in the order adopted in the Nomenclature of Diseases.—(Contd).

No. in the Nomenclature of Diseases.	Causes of Death.	Month												Total.
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
General Injuries.	1025	2	3	5	5	...	4	1	4	2	...	2	7	35
		...	...	...	...	...	...	...	...	...	...	...	...	1
	1030	2	2	2	2	1	1	3	2	3	...	2	1	21
		...	...	...	...	...	...	2	2	...	1	...	...	9
	1031	...	1	...	2	...	1	...	...	...	1	...	...	5
	1038	1	...	2	1	1	...	1	...	2	2	2	2	14
		...	...	...	...	...	1	...	...	...	...	...	...	1
		...	...	...	...	...	1	1	...	1	...	...	...	4
		...	...	1	...	...	...	1	1	...	...	...	...	8
	Local Injuries.	1091	1	1	1	1	4
1092		...	...	8	...	2	...	1	2	4	...	...	...	14
1101		2	1	1	...	...	...	...	...	...	...	1	...	5

TABLE A.
Comparative Statement of deaths from some of the principal diseases during the past 12 years.

Years.	Births.		Deaths.		Small-pox.	Malaria.	Other Fevers.		Other Infections Diseases.		Plague.	Diarrhoea, and Dysentery.		Respiratory Diseases.		Infantile Mortality under 1 year.		Deaths of children between 1 to 5 years.		Still-Births.			
	No. of Births registered exclusive of Still-births.	Birth-rate.	No. of Deaths registered exclusive of Still-births.	Death-rate.			Deaths.	Rate.	Deaths.	Rate.		Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.		Deaths.	Rate.	Deaths.	Rate.
1911	19,785	38.3	21,771	42.0	480	0.9	2,884	5.6	1,163	2.2	1,492	2.9	3	0.005	4,854	9.4	3,011	5.8	6,027	305.4	3,233	73.7	665
1912	20,099	38.8	20,132	38.8	106	0.2	2,934	5.7	999	1.9	927	1.8	1	0.002	4,897	9.4	2,671	5.2	5,628	280.4	2,951	67.2	674
1913	19,470	37.5	20,675	39.9	34	0.06	2,788	5.4	1,043	2.0	1,232	2.4	3	0.005	5,193	10.0	2,700	5.2	5,713	283.4	3,296	75.1	642
1914	18,241	35.5	24,174	46.6	66	0.1	2,658	5.1	786	1.5	2,306	4.4	2	0.004	5,508	10.6	3,762	7.3	5,635	308.9	3,740	85.2	606
1915	18,331	35.3	18,688	36.0	92	0.2	1,686	3.3	644	1.2	555	1.1	...	...	4,208	8.1	3,062	5.9	5,244	286.1	2,748	62.6	650
1916	21,675	41.8	17,872	34.5	476	0.9	763	1.5	528	1.0	443	0.9	11	0.02	3,664	7.1	3,727	7.2	5,746	265.1	2,742	62.5	975
1917	23,296	44.9	19,917	38.4	195	0.4	859	1.7	575	1.1	654	1.3	6	0.01	4,131	7.9	4,360	8.4	6,460	277.3	2,945	67.1	1,077
1918	19,897	38.4	31,262	60.3	272	0.5	881	1.7	4,837	9.3	542	1.0	22	0.04	5,533	10.7	7,006	13.5	7,068	355.2	4,914	112.0	834
1919	18,936	36.5	27,187	52.4	611	1.2	736	1.2	2,574	5.0	1,288	2.5	14	0.03	5,835	11.3	5,148	9.9	6,230	329.0	4,595	104.7	837
1920	21,396	41.3	21,418	41.3	109	0.2	560	1.1	1,780	3.4	1,995	3.8	8	0.02	4,671	9.0	4,428	8.5	5,976	279.3	3,654	83.3	1,172
1921	19,187	36.4	20,268	38.5	180	0.3	652	1.2	1,475	2.8	708	1.3	3	0.006	4,149	7.9	4,467	8.5	5,408	281.9	3,373	79.9	1,136
1922	21,650	41.1	22,475	42.7	1121	2.1	763	1.4	1,325	2.5	612	1.2	1	0.002	4,167	7.9	4,911	9.3	6,669	305.0	4,113	100.4	1,274

TABLE B.

Rainfall.

Years.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	Total.
	January to March.	April to June.	July to September.	October to December.	
	Inches.	Inches.	Inches.	Inches.	Inches.
1917 ...	0.44	6.15	15.90	28.57	51.06
1918 ...	10.25	7.60	6.96	50.19	75.00
1919 ...	2.33	2.52	16.06	29.87	50.78
1920 ...	5.66	1.92	4.75	51.56	63.89
1921 ...	5.46	2.64	18.18	28.15	54.43
1922 ...	3.42	2.48	8.92	50.87	65.69

TABLE C.

Table of Births, Deaths and Infantile Death-rates for the different races in the City for 1921 and 1922.

Race or Caste.	Population according to Census of 1921.	1921.					1922.						
		Total No. of Births.	Birth-rates.	Total No. of Deaths.	Death-rates.	Infantile Deaths.	Infantile Death-rates.	Total No. of Births.	Birth-rates.	Total No. of Deaths.	Death-rates.	Infantile Deaths.	Infantile Death-rates.
Europeans ...	2,938	79	26.9	57	19.4	6	75.9	94	32.0	40	13.6	5	53.2
Anglo-Indians ...	9,002	378	42.0	337	37.4	84	240.3	353	39.2	251	27.9	58	164.3
Indian-Christians ...	32,116	908	28.2	895	27.8	216	236.8	1,039	32.4	940	29.3	219	238.0
Hindus ...	4,27,722	15,676	36.6	16,422	38.4	4,498	240.2	17,796	41.6	18,627	43.5	6,736	307.9
Mahomedans ...	53,163	2,144	40.3	2,549	47.9	605	282.1	2,365	44.5	2,612	49.1	651	275.3
Others ...	1,890	2	1.1	8	4.2	...	...	3	1.6	5	2.6	...	...
Total ...	5,26,911	19,187	36.4	20,269	38.5	5,408	281.9	21,650	41.1	23,475	42.7	6,669	308.0

TABLE D.

Total of Birth and Death rates of Principal Sub-divisions of the Hindu Community for 1921 and 1922.

Names of Communities.	Population.	1921.				1922.			
		Total Births.	Birth rates.	Total Deaths.	Death rates.	Total Births.	Birth rates.	Total Deaths.	Death rates.
Brahmins ...	47,969	1,244	25.9	1,058	22.1	1,354	28.2	1,323	27.6
Chetty ...	4,018	1,190	296.2	1,187	295.4	1,478	367.8	1,439	350.8
Vallalah or Mudaliar ...	69,617	2,320	33.3	2,492	35.8	2,833	46.9	27,45	39.4
Bahjah or Naidu ...	49,835	1,482	29.7	1,699	34.1	1,591	31.9	1,687	33.9
Vanniah or Naicker ...	50,058	2,193	43.8	2,332	46.6	2,700	53.9	2,670	53.3
Adi-Dravida ...	58,568	2,408	41.1	2,417	41.3	2,686	45.9	2,835	48.4
Patnavar ...	10,456	354	33.8	483	46.5	328	31.4	417	39.9
Yadaval or Idayar ...	15,269	456	29.8	539	35.3	657	43.0	674	44.1
Viswa Brahmin or Kammalar } ...	13,806	555	40.2	557	40.3	685	49.6	693	50.2

TABLE E.

Table of Births, Deaths and Infantile Death-rates by months for 1921 and 1922.

Months.	1921						1922					
	Total No. of Births.	Birth-rates.	Total No. of Deaths.	Death-rates.	Infantile Deaths.	Infantile Death rates on 1000 Live Births.	Total No. of Births.	Birth-rates.	Total No. of Deaths.	Death-rates.	Infantile Death.	Infantile Death rates on 1000 Live Births.
January ...	1,572	35.8	2,119	48.2	577	367.1	1,552	35.3	1,849	42.2	578	369.2
February ...	1,322	30.1	2,235	50.9	480	363.1	1,300	29.6	2,037	46.7	591	454.6
March ...	1,569	35.7	1,830	41.6	420	267.7	1,662	37.9	2,322	55.3	647	389.3
April ...	1,531	34.8	1,475	33.5	370	240.1	1,716	39.1	2,099	48.0	590	343.8
May ...	1,599	36.4	1,700	38.7	432	271.4	1,797	40.9	1,850	42.5	508	282.7
June ...	1,503	34.2	1,270	28.9	393	261.5	1,799	41.0	1,640	37.8	483	268.5
July ...	1,622	36.9	1,312	29.8	409	252.0	2,020	46.0	1,611	36.7	471	233.2
August ...	1,615	36.7	1,814	41.3	559	346.1	2,150	49.0	1,585	36.1	505	234.9
September ...	1,661	37.8	1,658	37.7	439	264.3	20,50	46.7	1,629	37.1	451	220.0
October ...	1,765	40.1	1,525	34.7	408	231.2	2,032	46.3	1,876	42.7	573	282.0
November ...	1,762	40.1	1,529	34.8	403	228.7	1,819	41.4	1,862	42.4	599	329.3
December ...	1,666	37.9	1,801	41.0	516	310.8	1,753	39.9	2,106	48.0	678	386.8
Total ...	19,187	36.4	20,268	38.5	5,408	281.9	21,650	41.1	22,475	42.7	6,669	308.0

TABLE F.

Ratio of deaths among Children under one year per 1,000 live births registered in each Division for 1921 and 1922.

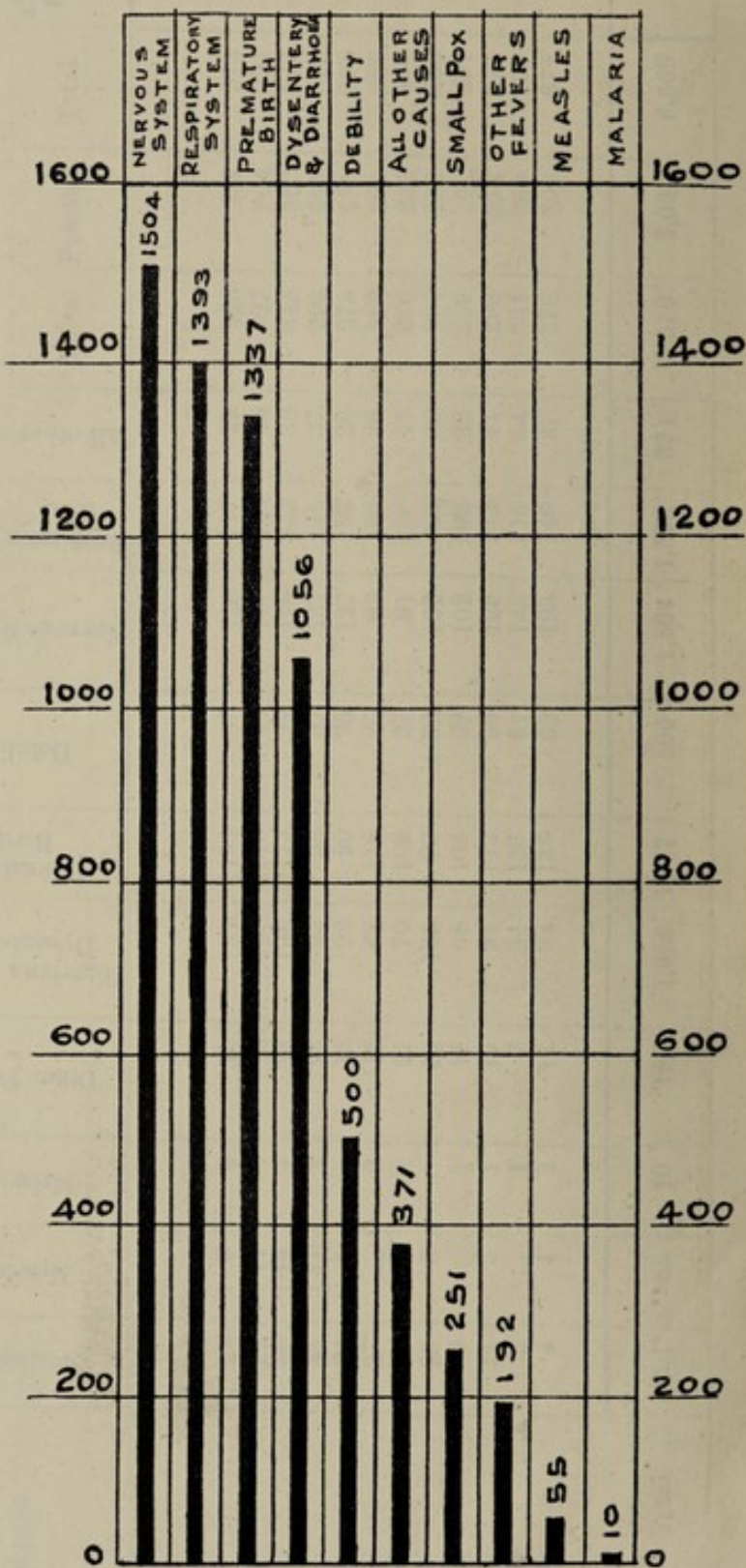
Municipal Divisions.	Ratio of Deaths 1921.	Ratio of Deaths 1922
1	310.7	286.2
2	285.5	283.6
3	286.2	333.1
4	331.8	304.0
5	456.9	342.3
6	348.8	385.7
7	390.2	328.4
8	476.2	342.5
9	337.2	301.7
10	336.1	373.6
11	522.6	433.7
12	319.6	309.1
13	377.1	423.1
14	339.8	500.0
15	296.9	360.9
16	220.3	261.7
17	289.0	329.9
18	260.1	306.7
19	269.5	332.1
20	229.0	253.6
21	239.6	310.7
22	256.4	281.7
23	267.0	323.6
24	249.0	255.4
25	206.6	218.4
26	230.8	275.5
27	264.8	302.4
28	296.3	212.6
29	251.5	296.0
30	254.4	318.9
Total	281.9	308.0

TABLE G.

Table of Infantile Mortality by months in the year 1922.

Months.	Small-pox.	Measles.	Malaria.	Other Fever.	Diarrhoea and Dysentery.	Premature Birth.	Debility.	Nervous System.	Respiratory System.	All other causes.	Total for 1922.			Total of all causes for 1921.
											Males.	Females.	Total.	
January ...	18	6	1	15.	81	131	57	118	117	29	326	247	573	577
February ...	22	11	...	12	107	113	43	127	123	38	327	264	591	480
March ...	39	12	1	14	100	114	38	139	152	38	344	303	647	420
April ...	41	11	1	23	95	93	37	137	115	37	293	297	590	370
May ...	24	6	...	15	98	90	30	127	92	26	273	235	508	434
June ...	27	...	2	18	68	116	25	93	108	26	259	224	483	393
July ...	25	2	...	21	70	109	27	91	108	18	236	235	471	409
August ...	25	3	...	20	100	90	33	102	102	30	254	251	505	559
September ...	7	...	1	17	68	103	29	102	102	22	259	192	451	439
October ...	11	3	1	19	94	112	58	122	112	41	299	274	573	408
November ...	8	...	1	7	91	133	61	148	116	34	331	268	599	403
December ...	4	1	2	11	84	133	62	198	146	37	378	300	678	516
Total ...	251	55	10	192	1,056	1,337	500	1,504	1,398	371	3,579	3,090	6,669	5,403

CAUSES OF INFANTILE DEATHS, 1922 -



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1923.

TABLE H.
Table of Percentages of Infant Deaths from Principal causes in the year 1922.

Age periods.	Small-pox.		Measles.		Malaria.		Other Fevers.		Diarrhoea and Dysentery.		Premature Births.		Debility.		Nervous System.		Respiratory System.		All other Causes.		Total.	
	Total.	Ratio.	Total.	Ratio.	Total.	Ratio.	Total.	Ratio.	Total.	Ratio.	Total.	Ratio.	Total.	Ratio.	Total.	Ratio.	Total.	Ratio.	Total.	Ratio.	Total.	Ratio.
Under 7 days.	1	0.06	....	....	....	....	2	0.12	40	2.36	1040	61.43	196	11.58	252	14.88	61	3.60	101	5.97	1693	25.39
7 days and under 1 month	8	0.68	3	0.26	....	....	14	1.19	78	6.66	267	2.78	153	13.05	434	37.03	132	11.26	83	7.08	1172	17.56
1 month & under 4 months.	32	2.93	9	0.82	1	0.90	51	4.67	241	22.07	21	1.92	79	7.23	353	32.32	247	22.62	58	5.31	1092	16.37
4 months & under 7 months.	92	8.21	19	1.69	2	0.18	60	5.35	258	23.01	3	0.27	40	3.57	251	22.39	332	29.69	64	5.71	1121	16.81
7 months & under 10 months.	74	8.92	15	1.81	4	0.48	27	3.26	226	27.26	4	0.48	21	2.53	98	11.82	322	38.84	38	4.58	829	12.43
10 months & under 1 year ...	44	6.04	9	1.18	3	0.39	33	4.98	213	27.96	2	0.27	11	1.41	116	15.51	299	39.23	27	3.54	762	11.43
Total.	251	3.76	55	0.82	10	0.15	192	2.88	1056	15.83	1337	20.02	500	7.50	1504	22.55	1393	20.89	371	5.56	6669	308.0

Statement No. I.—showing the number of births (Divisional and Hospital) verified during the calendar year 1922 and the number of vaccination of infants under one year of age.

Municipal Division No.	Total births excluding still-births.		Still-births.		Deaths under one year.		Number of infants surviving.		Number of infants vaccinated under one year.		Percentage of vaccination to births registered.	
	Divisional.	Hospital.	Divisional.	Hospital.	Divisional.	Hospital.	Divisional.	Hospital.	Divisional.	Hospital.	Divisional.	Hospital.
1	2	3	4	5	6	7	8	9	10	11	12	13
1	454	285	27	14	98	28	356	257	226	137	49.78	48.07
2	524	294	48	61	80	24	414	270	280	132	53.43	44.90
3	758	253	24	25	164	32	594	221	331	50	43.66	19.76
4	581	128	14	19	129	18	452	110	265	35	45.62	27.35
5	176	58	3	3	48	3	128	55	46	7	26.02	12.07
6	257	56	9	5	67	10	180	46	84	6	32.69	10.71
7	286	115	10	16	80	11	206	104	107	34	37.41	29.56
8	95	33	6	...	28	1	67	32	38	17	40.00	51.51
9	431	184	15	25	88	28	343	156	144	32	33.41	17.38
10	438	168	15	16	126	31	312	137	192	59	41.83	35.12
11	133	23	13	1	42	6	51	17	40	1	30.75	4.35
12	627	95	14	20	145	18	482	77	318	33	10.71	34.74
13	466	103	15	10	127	26	339	77	228	32	48.92	31.09
14	66	31	4	3	19	3	47	28	23	2	34.85	6.45
15	433	82	27	6	102	15	331	67	199	28	45.95	34.14
16	935	130	70	4	211	55	724	75	659	29	70.48	22.30
17	939	122	62	6	317	43	622	79	554	32	59.00	26.23
18	739	86	52	3	212	51	527	35	495	21	67.00	24.42
19	522	272	23	14	118	53	404	219	305	108	58.43	39.71
20	504	192	27	11	99	21	405	171	325	71	64.48	37.00
21	564	582	9	67	99	73	465	509	330	134	58.51	23.02
22	446	255	13	15	84	39	362	216	212	78	47.51	30.59
23	836	294	25	35	233	68	613	226	451	99	54.00	33.67
24	889	190	14	9	95	15	794	175	433	79	48.70	41.58
25	447	140	12	27	72	15	375	125	231	29	51.67	20.71
26	504	75	21	13	99	11	405	64	230	23	45.43	30.66
27	637	151	3	5	126	33	511	118	298	31	46.78	20.53
28	544	201	33	16	92	34	452	167	341	98	62.68	48.75
29	620	238	28	19	84	40	536	198	406	124	55.48	52.10
30	516	98	20	18	86	7	430	91	281	43	54.45	43.88
Total.	15,367	4,934	656	486	3,360	812	12,007	4,122	8,072	1,604	52.53	32.51

Vaccination Statement No. II.—showing the number of Births verified in 1922 and the number of Infants vaccinated under one year of age.

Year	Total number of births excluding still-births.	Number of children in column 2 who died before attaining the age of one year without being vaccinated.	Number of children in column 2 who left the city before attaining the age of one year without being vaccinated.	Number of children in column 2 who were available for vaccination. (column 2 minus columns 3 and 4).	Number of children in column 5 who were vaccinated before they attained the age of one year.	Percentage of column 6 to column 5	Number of children in column 5 whose vaccination was postponed beyond one year of age for medical reasons.
1	2	3	4	5	6	7	8
1920	15,586	3,284	3,018	9,284	7,881	85.35	136
1920	4,834	679	948	3,207	1,662	51.82	11
1921	16,252	3,066	3,354	9,832	8,749	89.00	82
1921	4,888	680	944	3,264	1,723	52.80	4
1922	15,367	3,360	2,829	9,178	8,072	87.97	80
1922	4,934	812	904	3,218	1,604	49.84	23

N B.—The antique figures denote Hospital births.

APPENDIX A.

Table I.—Showing attacks and deaths from Smallpox in the years, 1901 to 1922.

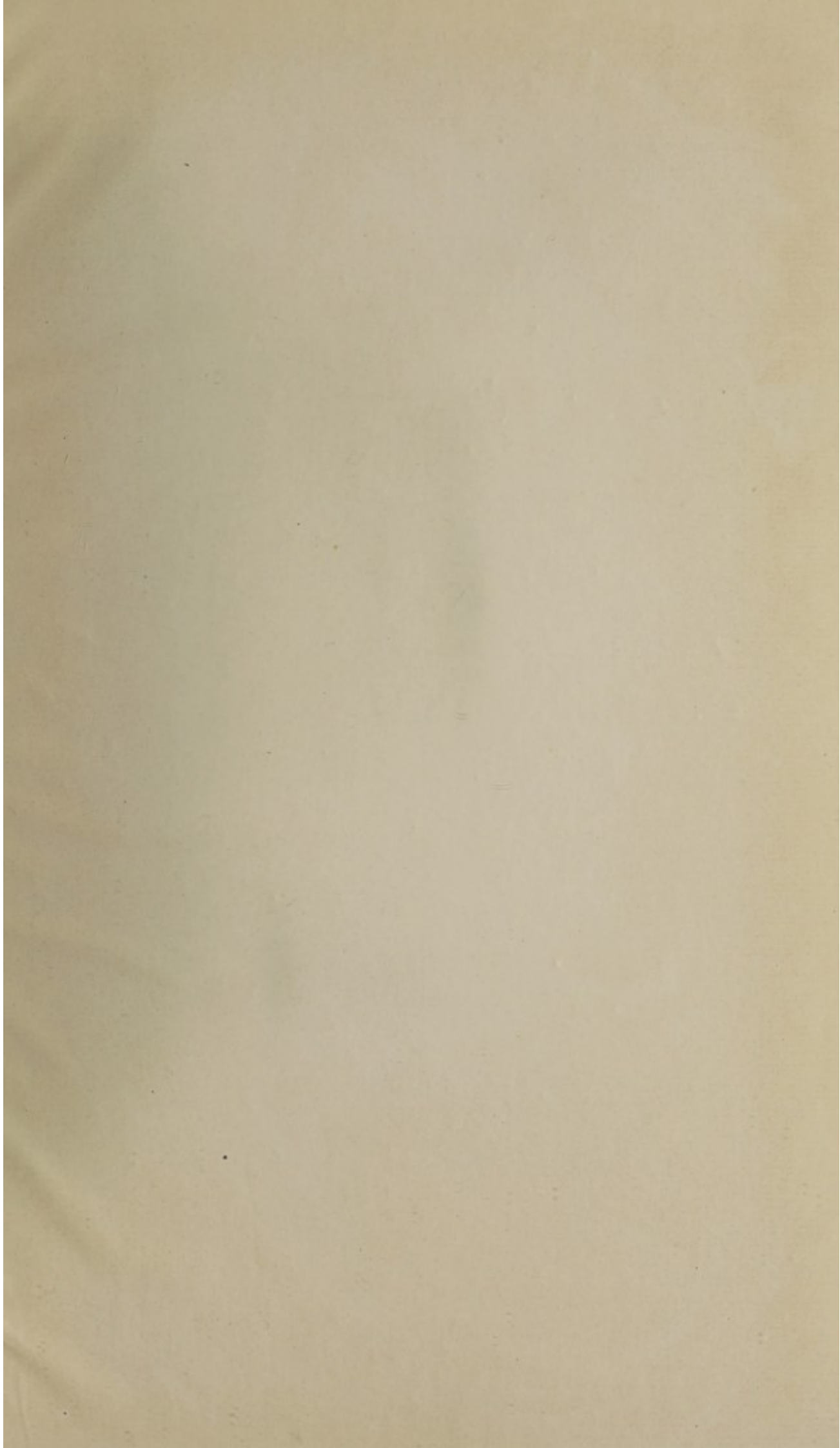
Year.	Attacks	Deaths.	Percentage of deaths to attacks,	Remarks.
1901	} Number of attacks not known.	292		Epidemic.
1902		69		
1903		7		
1904		12		
1905		329			Epidemic.
1906		620		do
1907	123	49	39.8	
1908	114	13	11.4	
1909	68	13	19.1	
1910	278	116	41.7	
1911	1,060	480	45.3	Epidemic.
1912	247	106	42.9	do
1913	136	34	25.0	
1914	146	66	45.2	
1915	314	92	29.3	
1916	1,489	476	31.9	Epidemic.
1917	582	195	33.5	
1918	677	272	40.2	
1919	1,227	611	49.7	Sp. ratic form.
1920	315	109	34.6	
1921	569	180	31.6	
1922	2,727	1,121	41.1	Epidemic.

Table II.—Showing attacks and deaths from Smallpox (by the month).

Year.	Month.	Attacks.	Deaths.	Per cent.
1921	January	21	3	14.3
"	February	18	4	22.2
"	March	66	13	19.7
"	April	44	13	29.5
"	May	32	11	34.3
"	June	20	8	4.0
"	July	24	8	33.3
"	August	21	16	76.2
"	September	47	19	40.5
"	October	48	15	31.2
"	November	64	18	28.1
"	December	164	52	31.3
	Total	569	180	31.6
1922	January	273	81	29.7
"	February	326	118	36.2
"	March	602	205	34.5
"	April	499	221	44.3
"	May	185	119	64.3
"	June	173	79	45.7
"	July	210	96	45.7
"	August	175	85	48.6
"	September	105	54	51.4
"	October	71	33	46.5
"	November	43	15	34.9
"	December	65	15	23
	Total	2,727	1,121	41.1

Statement showing the total number of admissions and deaths from Smallpox in the two Infectious Diseases Hospitals, Royapuram and Krishnampet from January 1921 to December 1922.

Months.	Infectious Diseases Hospital Royapuram.		Infectious Diseases Hospital, Krishnampet.		Total.	
	Total No. of admissions from Small-pox.	Total No. of deaths from Small-pox.	Total No. of admissions from Small-pox.	Total No. of deaths from Small-pox.	Admission.	Deaths.
January 1921	5	...	5	1	10	1
February "	4	...	5	...	9	...
March "	44	5	6	...	50	5
April "	16	2	15	3	31	5
May "	6	3	8	...	14	3
June "	19	2	3	1	22	3
July "	2	...	4	...	6	...
August "	4	1	3	...	7	1
September "	15	2	10	2	25	4
October "	10	2	8	...	18	2
November "	24	2	19	5	43	7
December "	58	6	35	4	93	10
Total	207	25	121	16	328	41
January 1922	80	10	70	7	150	17
February "	102	10	86	13	188	23
March "	211	20	127	14	338	34
April "	126	30	105	14	231	44
May "	81	10	53	9	134	19
June "	57	11	20	3	77	14
July "	94	16	17	3	111	19
August "	99	19	15	2	114	21
September "	50	13	13	2	63	15
October "	33	4	3	...	35	4
November "	25	4	8	2	33	6
December "	31	2	9	2	40	4
Total	989	149	526	71	1515	220



THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
1952

RESEARCH REPORT

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CORPORATION OF MADRAS.



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