

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

Contributors

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[REPORT]

Annual Report.

OF THE HEALTH OFFICER

CORPORATION OF MADRAS

HEALTH DEPARTMENT

FOR



1914

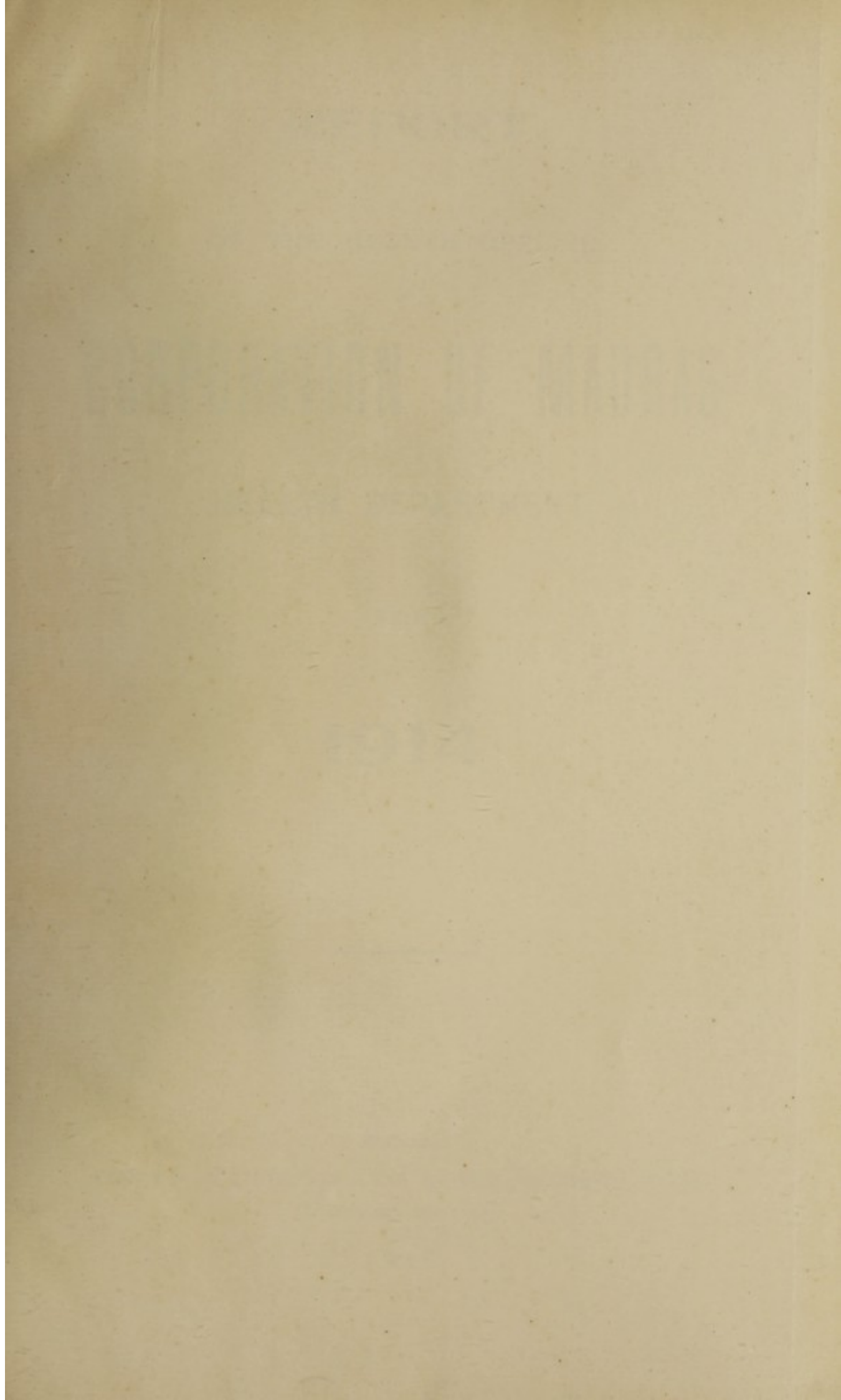
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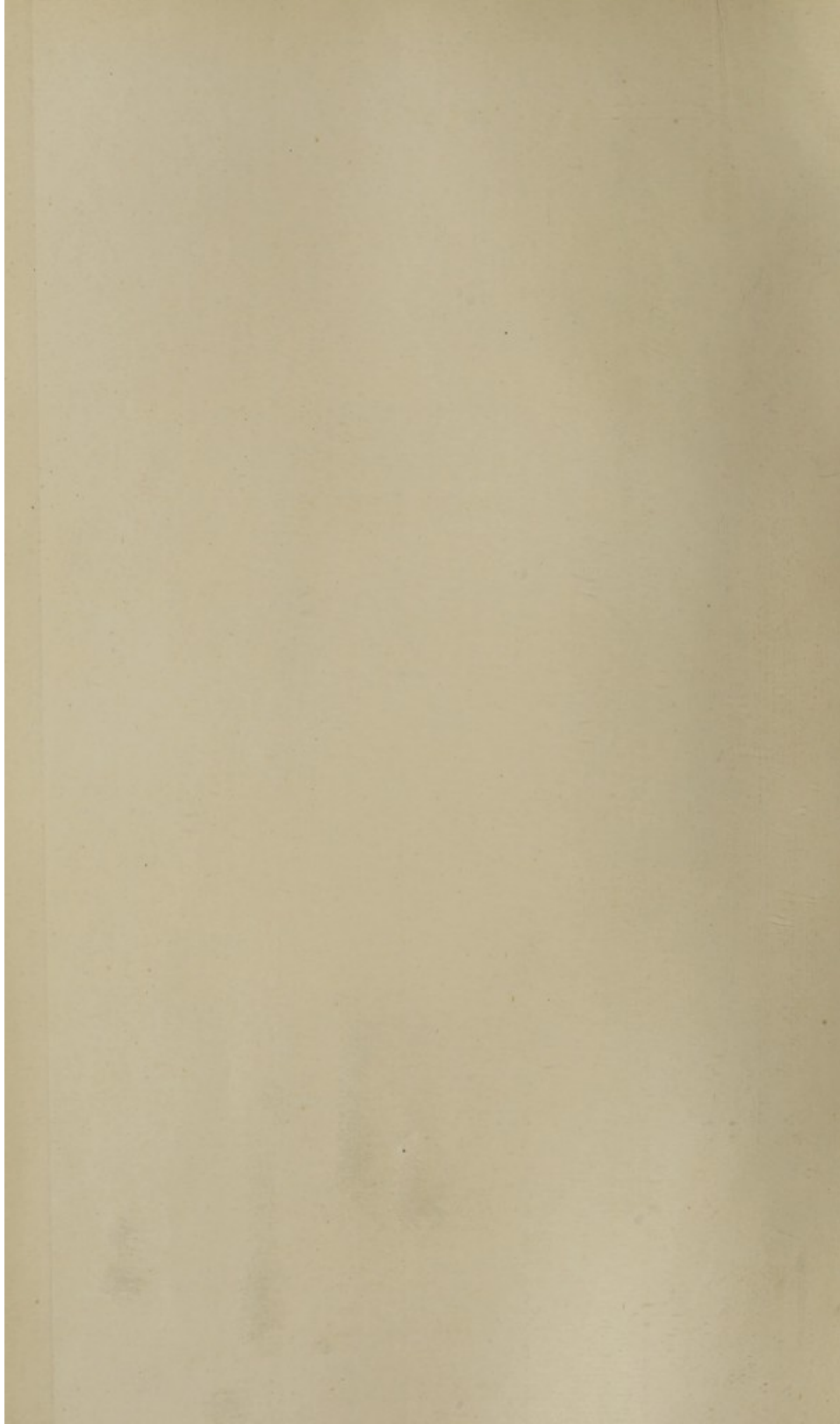
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1915



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REPORT

OF THE HEALTH OFFICER

CORPORATION OF MADRAS

HEALTH DEPARTMENT

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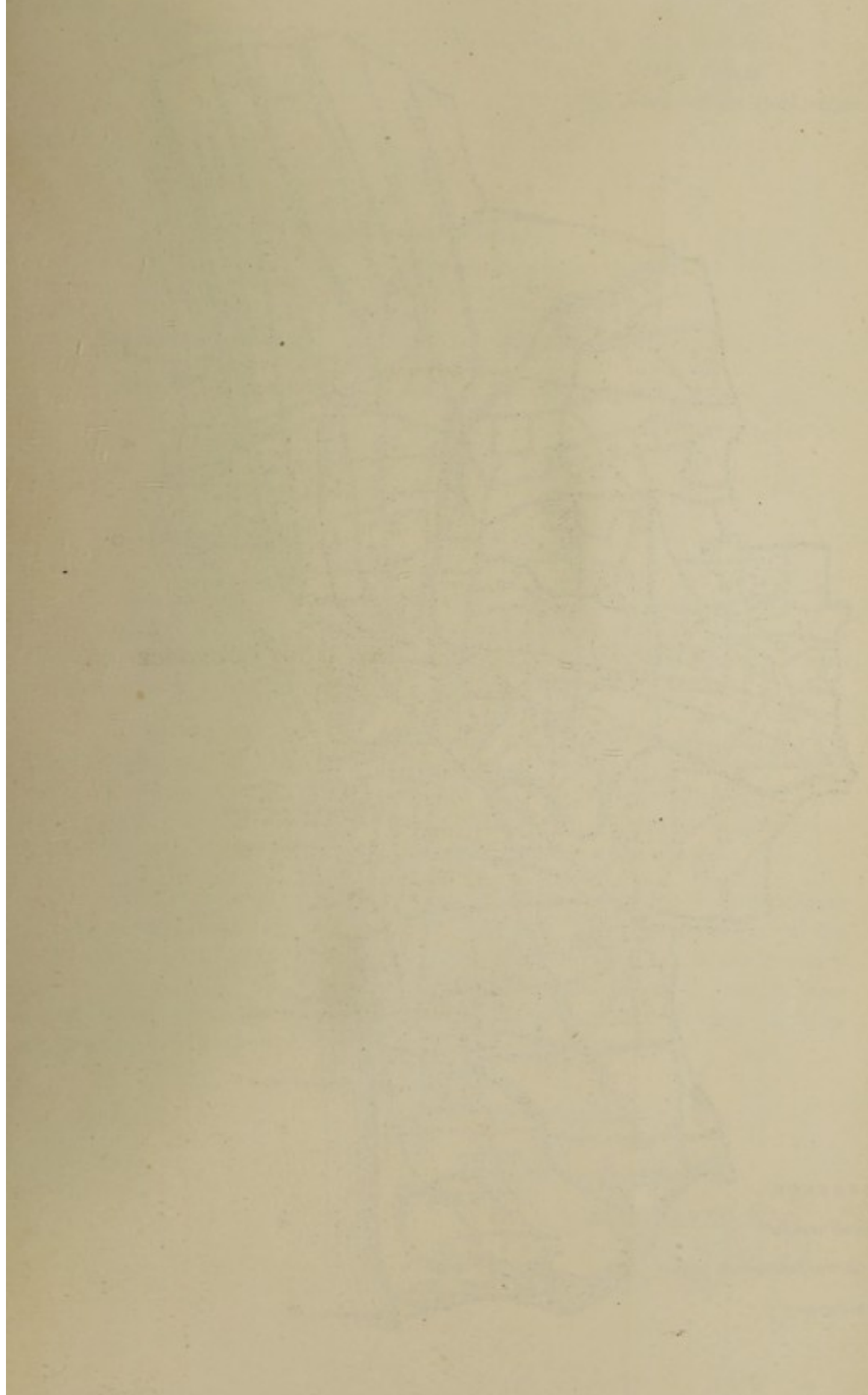
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MAP OF MADRAS

Scale 1:100,000

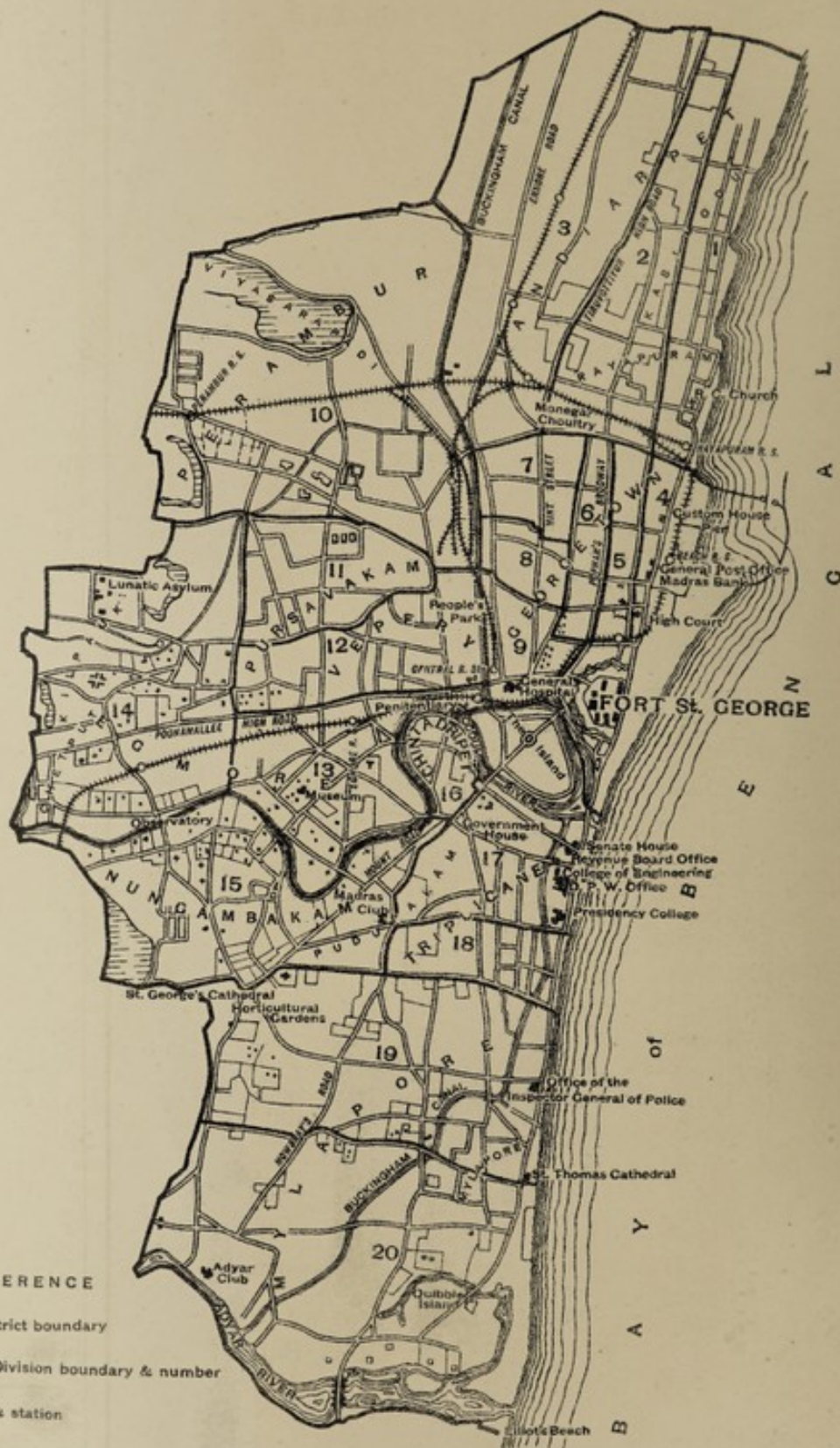
1880




MAP OF MADRAS

SCALE 1 INCH = 1 MILE

Furlongs 8 6 4 2 0 1 2 Miles



REFERENCE

- Madras District boundary
- 19 } Municipal Division boundary & number
- +++++ Rail road & station
-  Tank

CORPORATION OF MADRAS,
HEALTH DEPARTMENT,
Madras, 28th May 1915.

FROM

DR. W. R. MACDONALD, M.B., CH. B., B. HY., D.P.H.,
Health Officer,
Corporation of Madras.

TO

J. C. MOLONY ESQ., I.C.S.,
President,
Corporation of Madras,
Madras.

SIR,

I have the honour to forward the Health Officer's Report for 1914.

The Report reviews the working of the following sections :—

1. Sanitation.
2. Conservancy.
3. Vaccination.
4. Plague.
5. Vital Statistics.

The proposals for the reduction of infantile mortality by improving the "Milk Supply", and the appointment of "Municipal Midwives", should not be forgotten. The "Notification of Tuberculosis" is of equal importance. These were referred to in last year's report.

Two matters of importance have been referred to, the new Madras Water Works, and the urgent need for bringing the animals within city limits under veterinary control. It is hoped these will have the attention their importance justifies. I would also desire to direct attention to the improvements effected in the sanitary condition of the Grass Farm.

This opportunity is taken to thank the three Assistant Health Officers for their co-operation, and the assistance rendered during the latter part of the year under report. My thanks are also due to the Head Clerks of the Sanitary and Conservancy Sections, who, although handicapped in being new to their appointments, and in having to master the details of their work during the latter six months of the year, have been of the greatest value to me.

I have the honour to be,

Sir,

Your most obedient servant,

W. R. MACDONALD,
M.B., CH. B., B. HY., D.P.H.,
Health Officer.

CORPORATION OF MADRAS

HEALTH DEPARTMENT
MADRAS, INDIA

REPORT OF

DR. W. S. MACDONALD, M.B., B.S., D.P.H.

HEALTH DEPARTMENT, MADRAS

FOR THE YEAR 1912

FROM

TO

THE GOVERNMENT OF INDIA

HEALTH DEPARTMENT

GOVERNMENT OF MADRAS

MADRAS

SIR,

I have the honor to acknowledge the receipt of your letter of the 10th inst.

The report on the health of the people of Madras for the year 1912

is herewith forwarded.

I am, Sir, very respectfully,

Yours faithfully,

W. S. MACDONALD

Medical Officer

The report on the health of the people of Madras for the year 1912 is herewith forwarded. It contains a detailed account of the health of the people of Madras during the year 1912, and also a summary of the health of the people of Madras during the year 1911.

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Corporation of Madras.

HEALTH DEPARTMENT.

Annual Report for 1914.

SANITATION.

Officers of the Health Department.—Captain A. J. H. Russell, I.M.S., who acted for Dr. W. R. Macdonald, Health Officer, during his term of leave, handed over charge to the permanent Health Officer on the afternoon of the 30th June 1914.

For administrative purposes, the city is divided into two ranges, North and South, the former comprising the first 9 and the latter, the remaining 11 Divisions. The general sanitary and conservancy measures were under the immediate charge of two Assistant Health Officers, one for each range. The administration of the vaccination, vital statistics, burial and burning grounds and plague sections for the whole city was in charge of the Assistant Health Officer sanctioned in G. O., No. 924 M., dated 7th May 1913. There were only two changes among the Assistants during the year. Dr. C. Singaravelu Mudaliar, the Senior Assistant Health Officer, went on privilege leave, on the ground of ill-health, for one month, from 24-2-1914 and again, for two months and 16 days from 24-9-1914. Dr. Raman Pillai, 2nd Assistant Health Officer, was appointed to act for him during the latter period, his place having been filled up by Dr. C. M. Ganapathi, M.B., Ch. B., D.P.H. Dr. Raman Pillai, Assistant Health Officer, fell ill, and was absent on leave for one month and 19 days, from 11-5-1914 and nobody was put in to act for him, the two Assistant Health Officers (North and South) having distributed the work among themselves. He again went on leave for 5 weeks, from 11th December 1914 and Dr. N. R. Ubbaiya acted for him. Dr. S. Isaac, the third Assistant Health Officer, continued to be in charge of the South Range as *sub protom, vice* Dr. K. T. Mathew, on other duty in the Sanitary Commissioner's Office.

There were not many changes among the Sanitary Inspectors except, the death of one—Shanmugasundram Pillai—and the retirement of another—Parthasarathi Mudaliar.

The two Food Inspectors continued to do their work under the direct supervision of the Range Assistant Health Officers.

Owing to defalcation in the department, there were one or two changes in the ministerial sections, and many changes in the working of the department were brought about, new rules promulgated, new registers opened, many warnings to the public given in regard to pecuniary matters, and a careful supervision and check were placed on all sorts of collections relating to the department.

Cholera broke out, as usual, in July, and was declared epidemic in August. It continued to the end of the year with the exception of a non-epidemic break in October. The second epidemic, which was more virulent than the first, was consequent on the visit of the "Emden," when it was stated that about 60,000 of the residents of the city left for various outlying villages to return later as the nucleus of the second epidemic.

Special cholera gangs were appointed consisting of 9 Inspectors with a number of peons and coolies under "labour" for disinfecting work. The Sanitary Inspectors of the several Divisions were also asked to assist these special Inspectors. The Food Inspectors were also directed to pay surprise visits to the several markets (private) in the city to destroy rotten fish and other unwholesome stuffs brought stealthily from affected areas surrounding the city. In this connection, notices were issued advising persons to take advantage of the new kind of treatment of cholera cases, *viz.*, saline injection, in the North Range by Major R. Bryson, I.M.S., and in the South Range, by Lt. Col. C. Donovan, I. M. S. (*Vide* cholera report under vital statistics).

Drainage Sections (203-221 of the Municipal Act).—The provisions of sections 208 to 221 relating to drainage were, for the most part, carried out by the Works Department in conjunction with the Health Department. The extent to which they were worked during the year will be seen from the following statement of notices and prosecutions. Under section 218, 32 notices were pending disposal at the commencement of the year and 85 were served during the year. Of these, 31 notices were voluntarily complied with by the parties, 22 transferred to the Works Department for execution and recovery of costs, 11 cancelled and the remaining, *viz.*, 53, await disposal.

Old and objectionable ditch drains were replaced by masonry drains in 5 cases, *viz.*, in the 8th, 11th, 13th and 20th Divisions. The following places require masonry drains for the better sanitation of the place:—

(1)	Ranga Pillai Garden Street	...	...	...	7th Division.
(2)	Sabapathy Mudali Street	...	...	...	7th Do.
(3)	1st Narayanan Street	...	...	...	7th Do.
(4)	Perumal Koil Hutting Ground	...	...	...	8th Do.
(5)	Hospital Plain	...	...	...	11th Do.
(6)	Batcha Sahib Street	...	...	...	13th Do.
(7)	Meer Madanale Sahib Street	...	...	...
(8)	Police Commissioner's Office Road	...	...	...
(9)	Gengu Reddi Road	...	...	...
(10)	Poonamallee High Road	...	...	...	16th Do.
(11)	Narasingapuram Paracherry	...	...	...
(12)	Abdul Karim Street	...	...	...	17th Do.
(13)	Yusuf Lubbai Street	...	...	...
(14)	Owlian Sahib Street	...	...	...
(15)	Mean Sahib Lane	...	...	...
(16)	Dera Junga Lane	...	...	...
(17)	Pycroft's Lane	...	...	...

- (18) The lane running into Rama Naick Street in the 2nd Division. This lane is highly insanitary and particularly bad during rains and has been the subject of frequent complaints, the last being from the Social Service League.

Paracherries and Hutting grounds.—Much improvement has been effected during the year with regard to the paracherries and insanitary hutting grounds in various parts of the city, which had hitherto been a source of nuisance to the public, through the agencies of the Social Service League, the Triplicane Social Brotherhood and other agencies. The streets in Rope Godown Paracherry in the 2nd Division were widened by acquiring land at a great cost, and the Model Paracherry is being extended on the eastern side of the Cemetery Road; a small hutting ground in Odaikal Street opposite to Muthumari Chetti Street (5th Division) was removed, and the ground acquired by the Corporation; a portion of Vasamodu Paracherry was acquired and the construction of a Model School has been proposed on the site. Construction of Model Anglo-Indian quarters in Narian-gadu Paracherry (13th Division) is in progress. A portion of Patter's garden belonging to Lodd Govindoss, for housing the people to be evicted from Supari-gunta, was proposed for acquisition. The insanitary hutting grounds in the Cutcherry Road, 20th Division, were removed. There was a further proposal to acquire land for a new paracherry near Barber's Bridge, but this was not agreed to by the Standing Committee. This is a beginning in the way of removing congestion in the city. However, much has yet to be done in this direction; for example, there are about 15 paracherries in the 19th Division demanding attention. If funds permit, the question of these paracherries should be considered during the coming year.

Public latrines and urinals (Sections 222 and 223).—Three new public latrines were built during the year by the Corporation, one at Polu Naick Street, 10th Division, the 2nd at Dhoby Khana, Chetput, and the third at Ellapatha Madah Koil Paracherry, 20th Division. Five combined latrines and urinals of the new flush-out type were provided at the places mentioned in the margin. Unless the

Sydenham's Road, Napier
Park, Harris Road, Bells
Road, Ice House Road.

public learn to use the flush-out latrines properly, the working of the system cannot be to the satisfaction of the Corporation. Some of the old patterns in use were not satisfactory, and their conversion into the flush-out type, wherever there were the necessary sewer connections and an adequate water supply, was decided on. The nuisances caused by the misuse of public latrines are being mitigated by the issue, and the circulation of pamphlets in English, Tamil, and Telugu among the residents of the localities, where it is most needed. At the same time, more stringent measures have been adopted for the proper conservancy and regular disinfection of these places.

Private latrines and urinals (Sections 224—227).—During the year, the provision of latrines by persons employing workmen or labourers, by owners or occupiers of dwelling houses, of markets, and of cart stands, was insisted on. 145 notices under sections 224, 225 and 226 remained pending at the beginning of the year, and 319 were served during the year; 231 were complied with, 87

of them being only after prosecution ; 22 were transferred to the Works Department for execution of work and recovery of costs, after conviction of the parties, and 84 were either cancelled or withdrawn. The remaining 127 were pending disposal at the end of the year. Under section 227, 14 notices were carried over from 1913, and 145 were issued during the year. Of these, 95 were voluntarily complied with, 35 were transferred to the Works Department, 17 cancelled, while the remaining 12 stood over.

Draining of private Streets (Section 245).—14 notices for the effective draining of private streets were served on owners. One was voluntarily complied with, 8 were transferred to the Works Department after conviction of the parties concerned. Five were pending at the end of the year. There is yet a good deal of work to be done in this direction. Among the landlords who are solvent, it is only a matter of time to have much of this insanitariness removed ; but we have a class of poor people who own superstructures, and not the land, and, who are in too straitened circumstances to meet the expense of paying their share of the construction of drains, and the removal of cesspits. It is a matter for consideration whether these insanitary areas should be included under the general policy for improving paracherries, or whether the Corporation should meet the expense of removing the sanitary defects in the case of the poverty-stricken, the well-to-do landlord being compelled to pay his share in full, when he has property in these areas. It sometimes happens that we have to refrain from applying pressure on well-to-do landlords as the Corporation have not framed a policy of how best to deal with the poor, when it chances that the property of the wealthy, as well as the poor, is often intermingled in one insanitary area.

Building Regulations (Sections 260—265).—2019 applications were referred to, and dealt with, by the sanitary staff during the year. An important resolution was passed during the year by the Corporation in regard to the Regulation one-third open space. An extract from the resolution is appended below.

I. (a) Every domestic building, which is to be constructed or reconstructed subsequent to the commencement of this Act, shall be so constructed that every room therein shall have at least one side abutting for the whole of its length (which shall in no case be less than 8 feet) on an open space, either external or internal, or abutting on an internal or external verandah, provided that such verandah shall not ordinarily be more than 5 feet wide. Where the room abuts on an internal verandah, such internal verandah shall in its turn abut for the whole of its length on an internal open space. The internal open space shall in no case be less than 8 feet across in any direction. The external open space shall in no case be less than 8 feet across in any direction, except when such external open space abuts for the whole of its length on a street or other public space, not less than 15 feet across in any direction. Every open space, external or internal, required by this rule, shall be, and be kept free from any erection thereon, and open to the sky, except that a portion of the external open space nearest to the building may be covered by a verandah which may not be more than 5 feet wide.

(b) The side of every such room abutting on an external or internal open space or on an external or internal verandah shall have at least one-fifth of its area

occupied by doors, windows or ventilators, but in no case shall the area so occupied be less than 24 sq. ft. When, in the opinion of the President, it shall be considered necessary, additional ventilators of a type approved by the President shall be provided in the remaining sides of such room. Such ventilators shall communicate directly with the open air.

II. In the case of a domestic building which has been constructed before the commencement of this Act and for which application is made for alteration or addition thereto, Rule I (a) may be relaxed at the discretion of the President, provided he is of the opinion that the means of ventilation are sufficient. This rule does not apply to a case where the proposed alterations or additions come under the provisions of re-construction as herein defined, in which case Rule I (a) shall apply.

Definitions.

"Domestic building" means, a dwelling house or an office building or other out-building appurtenant to a dwelling house, whether attached thereto or not, or shop or any building not being a public building, or a building of the warehouse class.

"Dwelling house" means a building used or constructed or adapted to be used wholly or principally for human habitation. The expression "re-construction," when used with reference to a building, includes—

(a) the re-construction of a building after more than one-half its cubical extent has been taken down, or burnt down, or has fallen down ;

(b) the addition to a building of more than one half its cubical extent ;

(c) the conversion of one or more huts or temporary structures into a permanent building; and

(d) the conversion into a place for human habitation of any building not originally constructed for human habitation.

*Explanation :—*Clauses (a) and (b) apply whether the re-construction takes place (after the commencement of this Act) entirely at the same time or by instalments at different times, and whether more than half the cubical extent has (after the commencement of this Act) been taken down, or burnt down, or has fallen down, at the same time or at different times ; and whether additions to the building have been made aggregating to more than half the cubical extent (after the commencement of this Act) at the same time or at different times."

This new rule was introduced with the view of relieving the house owner from the pressure of the building rules then in existence. The building rules applied formerly were eminently suitable for the one-storied Madras house with open yards. With the increase of population, the need for building of upper storeys followed, with the result that the landlords in submitting plans came in conflict, especially with the rule regarding one-third open space. It remains to be seen how long this new rule can remain in force, for, if the effect is to be that of reducing the space of court yards, it will not be in the interest of sanitary

dwelling to have existing spaces interfered with, in the majority of Madras houses.

In the course of the year, applications have been submitted for building in areas, which were distinctly insanitary, or which would soon become so, after buildings had been erected. In the case of the Hospital plain—Purasawalkam, no surface drains, and no sewers, were provided before permitting houses to be erected. An insanitary tank overflows during the rains mingling with all the sewage of the locality. Another instance was the application to build houses at Mirsaibpet, 19th Division, where there were neither roads, or conservancy lanes provided, nor surface drains, or sewers. The third instance was that of Pycroft's lane where good class houses were being built, yet no street drains, or sewers were connected. Adjoining is a low-lying land which fills up, and floods the locality during the rains. I understand that the sewers are now being laid on in this area, and the street drains provided. The low-lying land is being reclaimed with ash and screened earth.

Before building plans are passed in any new area which is to take the formation of streets, good roads should be provided, and street drains and sewers introduced. Any other sanitary defect in the land should be removed, and conservancy lanes should be insisted on at the rear of houses. Unless these principles are followed, the Corporation will be creating insanitary areas probably faster than they can remove the existing ones.

Prohibition against accumulation of filth and allowing sewage to flow in streets (Section 300).—Under section 300, sub-sections (5) and (6), 103 notices were carried over from 1913, and 153 were served during the year. Of these, 150 were voluntarily complied with, and 46 only after prosecution. 23 were transferred to the Works Department and 5 were either cancelled or withdrawn. 32 thus remained undisposed of at the end of the year. A very large number of these pending notices is for prohibiting sewage from flowing in streets and part of the delay must be attributed to the situation regarding the provision of underground sewers with house connections throughout the city, and part due to the Act not being strong enough to get at the owners. Precautionary measures in this direction, *viz.*, the accumulation of filth, were taken by the issue and circulation of pamphlets in the various languages prevailing in the city.

Unwholesome sources of water-supply and stagnant water (Sections 301—304).—*Tanks, wells, ponds, pits, pools, &c.*—This matter was the subject of special attention during the year owing to the prevalence of cholera (about which see *ante*), when wells, tanks, pools, pits, drains and cesspools had special attention, especially in the affected areas.

924 notices were served during the year, in addition to 336 carried over from 1913. Of these, 326 were complied with voluntarily and 175 only after prosecution. 190 were forwarded to the Works Department for execution of work and recovery of cost, 466 cancelled or withdrawn and 103 remained undisposed of at the end of the year. Since the inauguration of the Special Malaria Staff, a definite and systematic policy has been adopted in treating wells, and tanks of

an injurious nature. This work is being done of late, under strict vigilance of the Special Malaria Officer, and the President, owing to a lot of complaints from the owners. The particulars of the action taken in this direction will, however, be dealt with by the Special Malaria Officer.

Abandoned places. (Section 305).—Excluding 18 pending cases, 72 cases under this section were served during the year. Of these 34 were complied with either voluntarily or after prosecution. 8 transferred to the Works Department; 12 cancelled; 36 remained at the close of the year.

Unwholesome lands (Section 306).—305 notices under this section for the removal of filth, prickly pear or other noxious vegetation were served during the year, besides 15 left over in the previous year. The terms of 265 of these were complied with voluntarily, 22 after prosecution, one transferred to the Works Department, 7 cancelled or withdrawn, remainder being 25.

Limewashing and cleansing of buildings (Section 307).—As the result of action taken under this section, 1,239 houses were whitewashed and cleansed during the year, as against 794 last year. 15

Insanitary buildings (Section 308)—and buildings unfit for human habitation (Section 309).—666 notices were pending on the 1st January 1914. 3,251 houses were inspected in the course of the year with a view to remedying sanitary defects. 2,639 houses were improved either voluntarily or by prosecution, while 142 notices were transferred to the Works Department for the work to be done at owners' cost; 270 were cancelled or withdrawn, leaving a balance of 866. 31 cases were pending last year under section 309. 108 houses were condemned as unfit for human habitation during the year. Of these, 108 were vacated either voluntarily or by prosecution, 11 cancelled or withdrawn, leaving a balance of 20.

It may be mentioned here that the circumstances under which notices become cancelled or withdrawn are as follow :—

- (1) Death of parties.
- (2) Change of ownership.
- (3) Thorough alteration on submission of fresh plans.
- (4) Compliance with the terms of the notices, after charge-sheeting, but before prosecution.
- (5) When parties are declared insolvent, the notices are not transferred to the Works Department, after conviction and fine; but fresh notices are issued.

If these are not complied with, the matter is dropped.

Overcrowded buildings (Section 310).—Much in the removal of congestion in crowded parts of the city has to be done. 4 notices were issued, of which 3 were complied with after prosecution.

Fishing (Section 311).—127 prosecutions for fishing and washing animals in the Cooum were instituted during the year. With the assistance and co-operation of the Police authorities, though they did not do much themselves owing to

inability from want of power under the Police Act, much has been done in this direction and the evil complained of is on the decrease.

Destruction of Stray Swine, Dogs' Homes and Lethal Chambers (Section 313).—56 swine owners were prosecuted for keeping swine within the Municipal limits, without permission. 57 stray swine were destroyed by the Sanitary Inspectors, under section 313. 2,810 dogs, 2,922 bitches and 352 pups were destroyed during the year, by means of hydrocarbon. The right of feeding dogs while in Lethal Chambers was not let out on contract, as usual. The dogs were fed departmentally. This method is not only good in the interests of the animals themselves but minimises the expenditure under that head. During the year, expenditure on feeding was Rs. 589-10-9 while the total amount realised by sale of skins and rewards for dogs claimed, was Rs. 613-3-9.

Cattle yards, cow sheds, &c. (Sections 314 and 315).—There are 551 cattle yards (cow houses) in the city. 16 were refused licenses, 418 conditional licenses, and 91 granted unconditional licenses. 26 applications for licenses remained pending disposal on the 31st March 1915. The stringent measures taken to prevent stabling of milch cattle in dwelling houses continued to be enforced. 995 prosecutions were launched, and 379 convictions under sections 314 and 316 obtained, during the year, to enforce the terms of licenses. On the 29th April 1914, it was suggested that the Fiji Emigration Depot in Tondiarpet be taken up on rent as a model yard for milch cows, in the north of the city. In their proceedings dated 1st May 1914, the Standing Committee recommended that the building be purchased by the Corporation.

After several adjournments and inspections of sites, the Standing Committee recommended that the old Fiji Emigration Depot in Tondiarpet and the 'B' Depot for conservancy bullocks, near the Basin Bridge, be selected for the construction of model houses for milch cows as an experiment. The latter was approved by the Corporation on 17th July 1914 and the former on 25th August 1914. A grant of Rs. 50,000 was sanctioned by Government in May 1914 for the construction of these model cow houses. The construction of the cow houses in 'B' Depot has been begun, and is in progress. When this cow house is completed, the Corporation will have the cows in the adjacent divisions of Georgetown stabled there.

In G. O. No. 432 M., Mis., dated 18th May 1915, Government approved the proposal of the Corporation to acquire the old Fiji Emigration Depot. This acquisition is in progress now.

Stables and cart stands (Section 315).—Similarly, if not more so, insanitary conditions are found in stables, and cart stands, as in cattle yards. There are 187 hack stables in the city, while the number licensed is 159 showing an addition of 28 stables, most of them being in the South Range. Special attention is being paid to the daily, and regular, cleansing of these stables.

Public bathing and washing places (Sections 318 and 319).—There are only three bathing places, at present, in use and one more under consideration. This is a totally inadequate number for the requirements of the city; but, with the

progress of the extension of the new water mains throughout the town, a provision of these must have first consideration in areas where waste water can be efficiently disposed of. Without good sewerage arrangements, it would be inadvisable to multiply these, as they would only give rise to dangers, like soil and well pollution, or lay the foundation for new foci of malaria. It is also desirable that modern flush-out latrines be provided. Unless this were done, the bathing places would be misused, and would consequently develop dangers to the people, instead of blessings, which the Corporation desire to confer.

Dangerous or offensive trades (Sections 320—324).—1,181 applications for licenses were received. 14 were refused. 819 unconditional licenses, 286 conditional, were issued, 62 being pending.

Among dangerous or offensive trades, may be noted, storing of wool, skins, hides and horns. These may be regarded as dangerous inasmuch as they can convey diseases communicable to human beings from animals; besides they can be the medium of conveyance of ordinary zymotic diseases from mofussil areas into the city. This is a danger which, I know, is not appreciated, but nevertheless it will be well to give it recognition. Another aspect of the trade is, a large number of good-class dwelling houses are utilized as godowns, and when this is taken into consideration with congested areas, and general overcrowding in the city, it has to be recognized that for the reasons given, this trade will be better relegated to parts other than residential areas.

There are streets which are essentially laid out as godowns in the vicinity of the Harbour which could be occupied with less public danger. I am, however, of opinion that it will be better for the Corporation to come to some arrangement with the Port Trust authorities to erect godowns for this particular trade, as it will be more convenient for the shippers to have their trade premises abutting on the wharves.

Dyeing pots in inhabited localities.—Notices were issued to all dyers in the north of the city—Tondiarpet, allowing them a month's time to remove their dyeing pots from residential areas. The reason for this action was that these pots were often neglected, and contained water specially during the rains, in which myriads of *Astephensi* were found to be breeding. This is a notorious malaria-carrying mosquito.

On representations from the dyers, it was decided not to remove them at present but to put them under greater sanitary restrictions with regard to the filling up of pits, and destroying, and filling up of unused earthenware pots. During heavy rains, despite these precautions, will be the most dangerous time of the year as dyeing operations will be suspended from time to time, and those pots are then sure to be neglected. The condition of license, however, will cover that period, so that if the dyers do not realize the dangerous part they may enact in the spread of malaria, there is very little likelihood of further representations from them being considered.

Paddy-boiling houses.—254 applications were received for the licensing of paddy-boiling houses. Of these, one was refused, 142 were granted uncon-

ditional, 86 conditional licenses, and the remaining 25 are pending disposal. The water-supply and drainage scheme referred to in the last Administration Report, not having come into effect, no improvement was obtained in this direction, during the year. Much is expected to be done during the current year, as it is hoped the water-supply by pipes will prove ample, since the opening of the new Water Works at Kilpauk and when full pressure has been applied. This abundance of water, however, requires to be carefully looked after as otherwise it may develop breeding centres for malaria mosquitoes.

Brick and lime-kilns (Section 322).—80 applications were received; 4 refused, 76 unconditional licenses issued.

All licenses for lime-kilns have now been refused within the city proper. Lime-kilns will hereafter be practically situated in Korukupet, in the North Range, and Ellapatha Mada Coil Street, in the South Range, where they can cause no nuisance. In the case of the latter, license has been given conditionally, that on the extension of residential buildings to that area, they will have to be removed to other parts further afield.

Oil Mills.—99 applications were received during the year for the licensing of oil mills. One was refused, 70 were granted unconditional licenses, and 25 conditional licenses. The remaining three applications were not disposed of at the close of the year. To mitigate the evils in regard to these mills, enumerated in the last year's Administration Report, proposals have been made to acquire sites for oil mills both in the North and South Ranges of the city; but the Standing Committee have deferred further action meantime. All the same, this is one of the worst forms of insanitariness in the city, and calls for early action.

Aerated Water Factories (Section 328).—19 applications were received. 10 were granted unconditional licenses, while the remaining 7 were granted conditional licenses, which demanded sanitary improvements within a prescribed period and 2 remained pending. Frequent and vigilant inspections by the Sanitary Inspectors were made during the year. The sale of unwholesome waters cannot be entirely stopped until the proposed analytical Laboratory is established for, although we insist on filtering, and boiling the water used, there are unscrupulous manufacturers who evade these conditions, and will only be brought to book when analyses are conducted regularly. In the year under report, there was an important judgment by one of the Presidency Magistrates of the city in an aerated water case, in which the accused who sold impure soda was acquitted on the ground that the term "Food" did not include "Drink" and that the Act had not made sufficient provision for such articles. An appeal was preferred against this judgment in the High Court, but was unsuccessful. Government have, therefore, been moved to amend the provision of the Act in the matter. Till this is done, no prosecution could successfully be launched in the case of sale, or exposure for sale of impure, and adulterated aerated waters.

Bake-houses (Section 328).—The conditions under which licenses are granted to bake-houses are ten in number, seven of which are sanitary conditions for maintaining the premises in good sanitary order. Two of the conditions *viz.*, 8 and 9, are framed with a view to control the bakers at work.

8. "Chewing betel-nut or tobacco or spitting on the floor, &c., will be regarded as a serious offence on the part of bakers while at work and will be sufficient cause on which to cancel a Medical Certificate, or a license for a Bakery, or Confectionery."

9. "All bakers and others employed on the premises should be medically examined, and passed by a recognized Medical Practitioner. On the production of this Medical Certificate, a permit will be granted by the Health Department to engage in this trade. All employees must be furnished with this permit, which must be kept on the premises for inspection at any time. If, at any time, the licensee of the Bakery or Confectionery is found to employ any but those passed by the Health Officer or Assistant Health Officer, his license will be immediately cancelled for the year for which he is licensed."

In the case of first-class European, and Indian firms, under good supervision, all the sanitary conditions laid down in the license are carefully adhered to, and one can say with confidence that these can compare favourably with good-class bakeries in any part of the world; but when we come to the slums of Georgetown and other parts, we find that the baker's sanitary conscience is of a very low order indeed. Among these, an endeavour is made to have every condition carried out at the time when inspection takes place for the annual license. During the year, they absorb a good deal of time of the Health Department paying surprise visits, and keeping them up to a reasonable standard of cleanliness. If it were possible to have daily inspections, I doubt whether a great many of this class of baker could be allowed continuation of license.

It would be always well if people would themselves take an interest in the source of their daily bread supply by paying surprise visits, and noting the standard of cleanliness accepted among the workmen, and the general sanitary condition of the premises for which the proprietor is especially responsible. If the conditions are not found satisfactory, a threat to place orders elsewhere will be one of the most salutary lessons that this class of baker could possibly have. The public can do much to protect themselves in this matter.

54 applications were received during the year for the licensing of bake-houses, 8 were granted unconditionally, while 33 were granted licenses, subject to the fulfilment of sanitary improvements. Four were refused. The remaining nine were pending disposal on 31st December 1914. Accommodation in many cases is quite inadequate and some licenses were, therefore, withheld.

Sweetmeat Bazaars. (Section 328).—The conditions under which the sweetmeats are sold in the city are not satisfactory. The places where they are sold ought to be licensed. The present system of glass cases is a failure. What is required is—a show case with sloping glass tops, or almirahs with glass doors.

Coffee Hotels.—184 applications for sanitary certificates were received during the year, 171 were granted certificates after the defects pointed out by the Sanitary Staff were carried out by the proprietors, leaving 13 pending.

Lodging Houses.—These include hotels and emigration depots. The bye-laws, defective as they are found to be, regulating the conduct of these houses,

were strictly enforced. Government have already been approached to amend the bye-laws so as to include in its provision, many of the houses which do not now come under the term. Until this is done, many of the so-called coffee hotels cannot be brought under sanitary control. The Standing Committee is, however, being approached under bye-law 218 to restrict the number of lodgers in proportion to the cubic space available in each lodging house.

Washing.—(Section 329).—Under section 329 (1) of the Municipal Act, the Corporation maintains a Dhobykhana at Chetput. The right of using it, prior to 1912, was leased out on contract annually by public auction, the highest amount realised being Rs. 360. This system failed to effect the object in view, as the contractor's only consideration was monetary gain. The Standing Committee, therefore, resolved in March 1912, to discontinue the system of leasing and to give the dhobies living in the neighbourhood, free use of the place. Action under section 330 of the Act, which prohibits washing by washermen at unauthorised places, was taken during the year and this, coupled with the facilities afforded by the free use of the Dhobykhana, resulted in the dhobies of the 13th, 14th and 15th Divisions resorting to the place. The Dhobykhana was recently improved and extended and the proposal to charge each dhoby a small monthly fee was brought into effect from September 1914. The income for the 4 months of the year is as *per* margin. Thus, there has been a steady increase in the income derived every month. This income is derived as follows :—

MONTH.	Rs.	A.	P.
September ...	47	0	0
October ...	63	8	0
November ...	89	0	0*
December ...	81	8	0

(1) by renting rooms at Re. 1 each (*per* month) and (2) by renting washing stones at half a rupee each (*per* month). The Dhobykhana can accommodate, at present, about 100 dhobies, but is by no means adequate for accommodating 200 more, living in the neighbourhood and washing in the insanitary puddles of the silvery Cooum. It is, therefore, proposed to extend the khana by acquiring the adjoining plot of land. This proposal has, however, been deferred for consideration by the Standing Committee. If this proposal is sanctioned, 300 dhobies could be accommodated and a monthly income of about Rs. 200 might be anticipated. For the convenience of the dhobies living in the 17th to 20th Divisions, some of whom now wash cloths in the 19th Division near the cemeteries, and also at Kosapet, and others working in Saidapet, and finding it difficult to go to Chetput, on account of the distance, the construction of a Dhobykhana at Kosapet (19th Division.) was proposed. This proposal also has been deferred by the Standing Committee for consideration. The sooner the dhobies, who wash cloths for the residents of the city, are enticed within Municipal limits, the safer it will be for the residents of Madras, as Saidapet is notorious for cholera infection.

Another Dhobykhana for the use of the dhobies in the north range has also been proposed, and the site selected in Tiruvottiyur High Road has since been approved. As a temporary measure, however, the site called "Pudumanai," in Surianarayana Chetty Street, Tondiarpet, is provided with washing stones, &c.,

* Excess in this month is due to the balance of October having been credited in the Revenue Department in November.

but the dhobies find it difficult to go to this new site and persist in doing their business near the Dakshanamurthy Temple in R. S. No. 1764 of Tondiarpet, belonging to Government and in charge of the Collector of Madras. Several convictions and impositions of fines have had no effect and the subject matter is under correspondence with the Collector of Madras, who wants to get the site vacated.

Washing and storing soiled cloths.—Besides the Dhobykhanas, there are collecting centres for receiving cloths, especially in Georgetown. Besides the ordinary conditions, under which licenses are issued to the dhobies, the following additional conditions are insisted on by the Health Department.

(1) The soiled clothes before being stored shall be treated in a strong disinfectant.

(2) The place where the clothes are washed shall be intimated to the sanitary authorities.

(3) No clothes shall be washed in a place which is not sanctioned by the President.

(4) The place where the soiled and washed clothes are stored shall be kept scrupulously clean and shall be limewashed at least twice a year.

306 applications for licenses from dhobies under section 322 of the Act were received during the year; 6 were rejected, 216 were issued licenses unconditionally, 59 conditionally, leaving a balance of 25.

Slaughter-houses (Sections 331—335).—There are no private slaughter-houses in the city. The Corporation maintains a slaughter-house for sheep, goats and cattle, at Gantz Road, and a small pen for the slaughtering of pigs, at De-Mellow's Road.

The number of sheep and goats slaughtered during the year was 3,68,444, the number of cattle 14,227, and the number of pigs 1,593.

The motor meat vans, referred to in the last Administration Report, were brought into effect from 1st April 1914 and they served a very useful purpose. The meat was served to all markets quite early and in time, so that there were no complaints either from the sellers or from the public. The collections from the motor meat vans are Rs. 4,075-9-0, while the expenditure on this account is Rs. 2,039-8-1. A sum of Rs. 661 was collected as "License fees" for entry of the butchers into the slaughter-houses. The right of collecting rents and fees for the use of the slaughter-houses under section 331, and of levying license fees as required by section 334, is annually leased out and the total receipts under all heads, including that for delivery of carcasses, amounted to Rs. 80,197-10-11 for the official year. The removal of blood from the slaughter-houses is not done now, the contractor having failed to carry out the terms of his contract. It is cleared and thrown out departmentally.

During the year, permission was granted for the slaughtering of sheep, goats, and pigs in private houses on occasions of religious ceremonies, and festi-

vals, and the numbers so slaughtered were 1,676 sheep or goats and 2 pigs. Every attempt is made to ensure that these applications are strictly *bonafide*.

A great number of bullocks, cows, sheep, and goats brought in for slaughter were in a very poor condition. No cattle disease, however, was detected in any of them. The number slaughtered in 1913 was 4,27,384 while the number in 1914 was 3,84,264, the difference being 43,120. The fall in the number of animals slaughtered as compared with that of last year has been ascribed by butchers to the present European crisis. Five pairs of bullocks were maintained to convey offal matter during the temporary break down of the motor meat vans and to remove the manure to the dumping grounds. One important feature during the year, *re.* the slaughter-houses, is that partitions were provided in the beef slaughter-house to prevent the animals looking on those that were slaughtered.

A quarantine depot for animals brought into the city for food purposes was suggested by the Health Officer in 1910, but the Standing Committee in their Resolution of the 20th January 1911, decided that it could not be carried out.

There is also another aspect of the question. It is possible that animals suffering from Glanders, or Anthrax, may be taken out of Madras, to Tiruvottiyur, and other places, skinned, bled, and disembowelled there. The skin may be exposed in whatever way the persons, who take them out, like and the flesh smuggled into the city for sale, without the knowledge of the Corporation. We have not the power to prevent carcasses being brought in from outside, and in consequence cannot check the sale, or exposure for sale, of the meat or skins of animals that suffered from, or died of, dangerous diseases mentioned above. The same difficulty exists in the cases of the meat of emaciated animals. Unless the Act is amended, nothing can be done by this department in this direction.

The right of lighting and maintaining the 8 Power Lamps in the slaughter-houses was let on contract with effect from 1st June 1914 to Messrs. S. R. Sabapathy & Co., Mount Road, at the rate of Rs. 12 *per lamp per mensem*. The lamps worked satisfactorily.

Markets: Public and Private.—The Corporation maintains two markets, *viz.*, the Moore and the Smithfield Markets. The right of collecting fees from the latter was leased out for the year 1914-15 for Rs. 4,525, while the collection of rents from the former is entrusted to the Revenue Department. Both markets are, however, under the administrative control of this department and their sanitary conditions was on the whole satisfactory. Various measures to effect further improvements were carried out. There are 43 private markets within the city licensed by the License Branch subject to the control of the Health Department as to sanitary conditions, such as the two markets in Triplicane, the markets in Chintadripet, Tondiarpet, Ungappa Naick Street, &c. Vigorous steps were taken during the year to improve the sanitation of all these markets. Surprise visits were made by the Sanitary Inspectors and Food Inspectors during usual and unusual hours of the day, and the defects pointed out were remedied.

The number of licenses issued—33 conditional, 8 unconditional, 1 rejected and 1 pending. During the year vigorous attempts were made to extend some of the overcrowded markets.

Vegetable Markets.—There are two big private vegetable markets for the whole city, the Kotwal market in the North Range and the Bashiam Aiyangar's market in the South Range. The former is the chief distributing centre for vegetables imported from the mofussil. The sanitary condition of these markets is fairly satisfactory.

Sale of articles in streets.—As this is highly objectionable, vigorous attempts were made to put a stop to such sales. 100 prosecutions against defaulters were instituted under Section 351.

Foods and Drugs.—The two Food Inspectors, one for the North Range and the other for the South Range, have had more than enough to do during the year, especially during the cholera epidemic. It is proposed to recruit two more for the work. The Laboratory and the appointment of a Chemical Analyst to man it, though sanctioned by Government, have not yet become an accomplished fact, in view of the financial circumstances of the Corporation.

As usual, the Madras Port Trust, the Railway Goods Sheds at Rayapuram and at Salt Cotaurs were vigilantly watched during the year. The accompanying statement will show the work done by the Food Inspectors in these places. No doubt there was co-operation on the part of the Officers of these places. Lists of unclaimed articles of food, &c., which are to be sold in auction, are sent every month to the Health Officer for examination of the stuffs, before they are auctioned. The following new procedure was introduced during the year in regard to the destruction of unsound articles of food. The Magistrate is taken to the spot where the condemned articles lay for joint inspection and examination of the articles of food seized under section 356 of the Act instead of taking samples or carrying the articles so seized to the Court house. This has greatly facilitated the work of food inspection.

Under this head mention may be made of the grain bazaars in Wall Tax Road, 9th Division. These bazaars had no proper platforms in front of them. The evil was that grain stored, or exposed for sale, got mixed up with dirt and dust. To remedy this, notices under bye-law 171 were issued and most of the grain bazaars have now been provided with masonry platforms.

Corporation Schools and their sanitary conditions.

Four schools were opened in 1914. They are :—

1. The school in Mandavally Street, Mylapore.
2. The school in Nungambakum.
3. The school in Vaikakaran Street.

4. The school in Mint Subbarayalu Naidu Street, Korukkupet. There are two more to be opened before the 31st March 1915. They are (1) at Thousand Lights and (2) at Goyatope. There are two more under construction. While the sanitary conditions are good in most cases, many of the schools have insufficient play-ground spaces.

Opening of the New Waterworks (Vide Special Engineer's Progress Report No. 34).—The new works were opened by His Excellency Lord Pentland on 17th December 1914.

The works which were brought into operation were:—

- (a) An intake tower in Red Hills Lake.
- (b) An underground conduit.
- (c) Sand Filters.
- (d) Pure water tanks.
- (e) Pumps.
- (f) An elevated tank.
- (g) The remodelling, alteration and extension of the distribution system so as to provide all the inhabitants of Madras with an adequate quantity of water under sufficient pressure.

There yet remains to be done, the supply of filtering materials for seven filters, the completion of the subsidiary mains and the distributary pipes of the water distribution system and the installation of the waste-water Detection Meters.

The inhabitants throughout the city rejoiced in the abundance of water received after the opening of the waterworks, but the high pressure proved too much for some of the old pipes, with the result that during the Christmas holidays two large pipes burst. The pressure had to be reduced to prevent further accidents.

When large pipes burst, the damage is apparent by the volume of water gushing to the surface of the ground, but it does not follow that damage done to all small pipes will necessarily be followed with surface manifestation. On the contrary, small pipes at some depth in the ground may be damaged without any visible signs being apparent.

With the extension of the water Distribution System, and the introduction of waste-water Detection Meters, the detection of these small bursts will readily be traced by means of the district meter readings, and the use of the stethoscope, which will enable the Water Inspector to locate underground damage with certainty.

But what I wish specially to draw attention to is, that the public will not be benefited by the excellent works completed so far, for supplying a pure water, until every water pipe in the city is in a sound condition, with the addition of the appliances for detecting wastage which have just been referred to—appliances which may give warning of a possibly polluted water in the particular district affected, for wherever there is a leaky pipe in sewage soaked sub-soil, there is danger of the water-supply being polluted.

Meantime, quantity should not be confounded with quality, but the line of safety should be to boil all water used in the household for washing utensils, or for drinking purposes. As a further protection samples of water should be submitted for analyses, from every district of the city, at least fortnightly, but weekly during cholera seasons.

The need of the Veterinary Inspection of animals.—Veterinary inspection of animals is a most important branch of Public Health endeavour, aiming as it does to control diseases common to animals, and communicable to man. Among these may be mentioned, tuberculosis, anthrax, and glanders, all highly dangerous to the human. Parasites may also be included, though of secondary importance.

In Calcutta, and Bombay, veterinary control is exercised by the Veterinary Colleges under the direction of Government, I believe, while the Rangoon Municipality have their own Veterinary Department under the direction of a highly qualified European Officer with qualified assistants. In Madras City there is absolutely no veterinary control which may, in any way, be regarded as hygienic effort.

In the city there are 551 cattle yards, 99 oil mills, 187 hackney carriage stables, besides a host of private cows, horses, goats, and sheep, all capable of contributing insidiously to the mortality returns.

On a former occasion the Health Officer pointed out the necessity of placing all cattle brought into the city, in quarantine under veterinary supervision, and the proposal was rejected. The Corporation should now consider this matter seriously, and the Government might be approached in the matter as it is a question which is intimately involved in the improvement, and safeguarding of the "milk supply" in one of its aspects.

Notes on the sanitary improvements of the grass farm.—During the year many improvements have been effected in clearing rank vegetation, and the filling up of pits, and tanks. This has had the good effect of reducing the number of mosquitoes in the neighbourhood, for, even if they were not malaria "carriers," they had all the powers of tormentation nevertheless.

Twelve tanks were filled during the year, and the levels of the coconut groves raised to that of the adjoining levels.

The ground adjoining the Hindu Burial ground, which consisted of low-lying land overgrown with shrubs, rank vegetation, and pampas grass from 3 feet-5 feet in height, has been completely cleared, and replanted with hariali grass. The portion of the chappar enclosure has also been improved by the complete eradication of chappar, the raising of the low land, and the filling in of swamps, and depressions. The ground, after cultivating, has been planted out with hariali grass.

Towards the north of the farm the dense areas of chappar have gradually been cleared, and laid out with hariali. About 20 acres of this scrub has been cleared, and improved, during the year. By the end of this year the remaining area of chappar will be cleared, and hariali laid down, when this will complete the scheme of progressive improvement begun two years ago.

A great improvement is also noted in connection with the method of irrigation. The semi-circular cement pipes have been removed and the earthen channel only is utilized. This should be continued, for there is undoubtedly

no signs of "souring" of the soil where these pipes have been removed. One cannot help feeling, however, that the good results obtained in this, are due to the careful regulation of the irrigation of plots, and the avoidance of over-irrigation.

It is not within my province to speak of the commercial aspect of the grass farm. It is sufficient for my purpose to acknowledge the sanitary improvements obtained by the Superintendent of the Farm, to whom is the credit of having effected these excellent results in so short a time.

It seems rather a pity to allow the Corporation land to the west of the Grass Farm to lie fallow, as it could be converted into profitable garden land, and would not then require constant attention to keep it sanitary.

CONSERVANCY.

The conservancy of the city continued to be under the direct control of the two range Assistant Officers of Health. The immediate supervision of conservancy of each of the twenty Divisions is under an Overseer aided by 3 to 7 peons according to the extent of the Division. There are 103 conservancy peons.

The details of the staff of coolies are given below:—

Sweeper maistries ...	...	...	20
Street sweepers ...	...	...	303
Side cooly maistries ...	...	...	20
Side drain coolies ...	...	...	286
Side drain boys ...	...	...	27
Syphon coolies ...	...	...	61
Cesspool boys ...	...	...	42
Silt trap coolies ...	...	...	44
Main drain coolies ...	...	...	30
Latrine men ...	...	...	90
Latrine women ...	...	...	95
Box-cart men ...	...	...	103
Sewage-barrel-cart men ...	...	...	63
Sewage hand-cart men ...	...	...	33
Reserve coolies ...	...	...	30
Night conservancy sweepers ...	...	...	26

Bullock and cart depot staff:—

To each range is attached four conservancy bullock and cart depots, each being in charge of a Superintendent. These Superintendents continued to be under the control of a Chief Superintendent, who is directly responsible to the Health Officer for the proper conduct of the depots and of the health of the bullocks under his charge.

During the end of the year under report, the Basin Depot was merged in the Cochrane Road Depot as the former place was taken up for construction of a model cow shed, thus leaving three bullock depots for the North Range. This has necessitated the extension of the Cochrane Road Depot and it is proposed to take the adjoining low land, which has been reclaimed by the working of small incinerators.

The details of the carts are as follow:—

For the removal of rubbish.

Rubbish carts ...	...	...	323
Trollies ...	...	...	40

For the removal of filth.

Cylindrical night-soil carts ...	...	...	66
Iron night-soil carts ...	...	...	207
Lorries ...	...	...	24
Night-soil hand-carts ...	...	...	26

For removal of drain silt, sewage and side scrapings.

Box-carts	...	...	160
Sewage-barrel-carts	...	...	21
Sewage hand-carts	...	...	33

Conservancy bullocks:—1,353 bullocks remained on 1st January 1914; of these, 47 died from natural causes, 30 from contagious diseases, and 42 were sold as unserviceable to conservancy work. 90 bullocks were purchased, thus leaving a balance of 1,324 bullocks on 31st December 1914.

These numbers do not, however, include the 18 bullocks belonging to the Works Department.

Health of bullocks:—The general health of bullocks was as good as in the last year. Early in the year, an outbreak of rinderpest occurred in B., H. and G. depots, which resulted in 15 deaths. Again in August 1914, there was a similar outbreak in the E. Harris Road Depot. There were 121 attacks, of which 4 proved fatal, the small percentage in casualty being due to the inoculation of the bullocks, with anti-rinderpest serum, early in the year.

Maintenance of bullocks.—The total expenditure incurred during the official year for the maintenance of the bullocks was Rs. 1,52,453-11-9. This does not include the expenditure on purchase of bullocks (Rs. 10,185) and the wages paid to drawers (Rs. 62,288 approximately).

The budget complement of bullocks during 1910-11, 1911-12, 1912-13, 1913-14 and 1914-15 was 725, 616, 634, 678, 721, and this statement is instructive. A great reduction in the bullock complement for 1911-12 was due to the introduction of small incinerators in the several divisions which resulted in considerably shortening the distance of the places of disposal, and thus enabling carts to make more trips than one, for purposes of efficient conservancy. In after years as the incinerators in existence fulfilled the purpose for which they were intended, and as fresh sites for new incinerators were not available, the complement had to be increased till in the year 1914-15 it has reached 721—approximating to the number in 1910-11. Thus it is clear that the bullock complement has been steadily increased according to the growing needs of the situation year after year.

Maintenance of labour.—The amount spent on labour employed for conserving streets and public latrines was Rs. 1,02,408-12-6. This includes drawers' wages amounting to Rs. 62,288 which are debited in the accounts to the head "Maintenance of bullocks."

Improvement of cattle depot:—The low-lying land in the centre of F. Krishnampet Depot was raised by a height of 18 inches without any cost to the Corporation. The place, which was formerly submerged during wet weather, is thus made dry and forms a very good grooming ground, and outside standings for the bullocks of this depot.

Scarcity of conservancy labour:—The difficulty in obtaining an adequate number of cart-drivers, and coolies, reached its acme during the year under review. The several steps taken in years past, to meet the ever-increasing difficulty, having proved futile, our efforts had to be directed to get the rate of wages of the coolies substantially increased, and to provide them with housing

accommodation, which are the two very essential requirements for procuring, and maintaining an efficient conservancy staff. A perusal of the following statements (*vide* pages 68 and 69) detailing labour conditions, more particularly in the North Range, for the first six months of the year, will communicate to some extent an idea of the adverse circumstances under which conservancy has been conducted. In June 1914, 26 per cent. of the conservancy night-soil carts had to be stopped for want of drivers. Taking the sixth, and seventh Divisions, out of the 31 drivers of rubbish carts, 16 were absent on an average, during June 1914, and necessarily, the conservancy of these important, and congested George-town Divisions, abounding with business centres, was in a miserable plight.

Many of the coolies, especially drivers who draw adult pay in conservancy work, are mere boys, and striplings, not to mention of those who are physically weak, and unfit for hard work. Yet under present conditions of this class of labour, neither selection, nor authority, could be exercised, to improve the conservancy staff. The effect of the want of sufficient labour is specially noticeable in the inability to utilise to the full, the 57 additional conservancy carts provided in the year's Budget.

Further, much difficulty was experienced in recruiting labour during the last cholera season, in the 2nd Division, when coolies were not available, even when they were offered nearly Rs. 12 *per mensem*.

To combat this serious drawback, and to maintain adequate and efficient labour, the allowance of an extra remuneration of one anna for each half day, to a cooly who did additional work as a driver, or sweeper, was continued. Further facility was afforded to the coolies by the introduction of weekly payments to ensure their not having recourse to money-lenders, but, with no advantage, and the system had therefore to be dropped. The only consideration ultimately left was to increase the rate of wages to keep them on a par with the coolies of large employers of labour in Madras. An all-round increase of Rs. 2 *per head per mensem* was, therefore, proposed. The increase of Re. 1 *per head* sanctioned by the Corporation has not been productive of much good, and it is, therefore, yet a matter worth consideration if the original proposal may not be given effect to.

Cooly Lines:—Estimates were prepared and plans were made for the acquisition of land for, and erection of, cooly lines for the housing of conservancy coolies. The proposal for the acquisition of land at the junction of Barber's Bridge Road, and Lloyd's Road, and that in Ammen Coil Street was submitted by the Health Officer on the 4th September last; but these proposals were rejected by the Standing Committee, on 2nd October 1914, who declared the sites unsuitable. As this was one of the most important proposals in connection with efficient conservancy, it is to be deplored that more importance was not attached to the Health Officer's proposals.

Removal of Rubbish :—The total number of cart loads of rubbish removed during the year was 2,41,803, against 3,24,202 in the previous year. All rubbish, whether combustible, or incombustible, was removed direct to the

incinerators and there separated to aid easy incineration. Conservancy is bound to be below mark so long as the people continue to dump all sorts of house refuse direct into side drains, or misuse the bins intended for the reception of refuse. The only possible remedy is the enforcement of section 293 (1), when marked improvement will result.

The proximity of the place of final disposal of rubbish to the part of the city wherefrom rubbish is removed has a direct bearing on the effective conservancy of the said locality. Soon after the cessation of dumping rubbish at the foreshore adjoining the Christian College Athletic grounds, the Georgetown carts had to cover longer distances. The result was that coolies worked later in the day. This continuous strain has told upon the labour of Georgetown, and made it scarce. To meet this situation, additional carts were provided in the budget, but they served no useful purpose in the absence of sufficient labour. The only possible means of relieving pressure is by the introduction, and working, of motor lorries at convenient temporary depositing sites, adjoining affected Divisions.

Disposal of Rubbish:—Passing on to the disposal of rubbish, a very small part of the collected matter was dumped in rubbish depots where it was levelled and covered with layers of silt, side scrapings, or earth, the great bulk being incinerated. The two large incinerators at Basin Bridge, and Krishnampet worked satisfactorily during the year. Dead rats, and dogs destroyed in the lethal chambers, were burnt in the furnaces of the Incinerators.

Five small incinerators were constructed at party's cost during the year, making a total of 28 at work. The incinerators in the 13th, 14th, and 15th Divisions were under repairs in the latter part of the year, under report. The total quantity of mixed rubbish received at the large and small incinerators amounted to 1,29,826 cart-loads: of this quantity, 98,596 cart-loads were consumed by the furnaces, leaving 34,189 cart-loads of earth, &c. The resultant ash amounted to 16,688 cart-loads. With the ashes, and screened earth, from the small incinerators 2,54,890 c. ft. of land was reclaimed, and 5,923 cart-loads of screened earth, and ash from the Krishnampet Incinerator was sold to private parties for reclamation purposes.

To facilitate proper disposal of rubbish, and to ensure early reclamation of low lands, some more incinerators in the 3rd, 15th, 18th, and 20th Divisions may advantageously be constructed.

Removal of Filth:—1,29,361 cart-loads of filth were removed during the year: considerable difficulty is experienced in fixing temporary depositing places, as contemplated under section 292 of the Act, so as to be within easy reach of the private *thoties*, and as not to cause any discomfort to householders. The present arrangement of making a night-soil cart follow a rubbish cart in some places, will not give satisfaction unless the *thoties* conserve the private latrines at the time the carts work in the streets. Otherwise, dumping of night-soil at unauthorised places is inevitable, as the night-soil carts move along only at specified periods of the day. The question of night conservancy depends, to a

large extent, on street lighting, but the habits of the people, and the situation of house latrines, are also factors to be considered in this connection. Night conservancy is carried on only in those places where there is proper provision for storing filth in suitable covered receptacles, and where the latrines are accessible to night conservancy carts.

A suggestion was made to make and supply two, or, more iron drums to each house at party's cost, and to substitute motor traction, or ponies for purposes of draught. An experiment has been sanctioned by the Standing Committee and will shortly be carried out with a motor, and buckets somewhat on the lines mentioned by the Engineer.

Disposal of Filth:—Night-soil is dumped in trenches, and buried, and the filth in them is allowed to be removed for manure when six months old, or the filth is crushed, liquified, and flushed into sewers at the Ice House Road Pail Depot. In the former case, everything possible is being done to cover up these trenches. The Brick-kiln Road trenching ground, situated as it is in the midst of residential quarters, and adjoining a public road, is a standing nuisance, and a menace to public health. The air, and soil, right round the trenching area is constantly rendered impure. The nuisance is enhanced during rains on account of the water-logged condition of the trenching ground. This longstanding nuisance can never be removed, unless a Pail Depot is constructed, and worked in the locality. If this is not possible, the Trenching ground should be removed outside the Municipal limits, and night-soil conveyed by motor lorries.

The Standing Committee recommended the installation of a temporary pumping station to remove the nuisance near the Engineering College caused by the discharge of sewage into the Buckingham Canal. This was approved on 17th July 1914, and this new Pycroft's Road Pumping Station meant to check the overflow of sewage into the Buckingham Canal is nearing completion. This will reduce the nuisance to a minimum. We shall still require the co-operation of the Engineering, and Presidency Colleges, whose latrines often add much to this nuisance. The "Victoria Hostel" authorities would also be well advised to prevent their students answering calls of nature in their own compound abutting the canal.

Treatment of filth will not be complete without a mention of the condition of the public latrines. The sanded type of latrine is a serious drawback to good conservancy, not to mention the time taken to get the latrine sanded; and the question of converting such of those as are near to sewers to flush out ones demands consideration. There are several latrines in each of the Municipal Divisions except 4, 5, 6, 7 and 14, which can be so connected. The cost of such conversions of the type and connections to sewers will not be prohibitive from the financial point of view, as there will be much savings from the present scale of expenditure due to the consequent reduction of night-soil carts, and the labour attached to them. This matter deserves early and serious consideration, as otherwise these latrines will be far from satisfactory.

Of the private latrines attached to hutting grounds, there are 22, conserved by the parties themselves and 5, by the Corporation.

The amount realised by the sale of manure from the trenching grounds during the official year is Rs. 16,957-14-10, against Rs. 15,195-9-3 in the previous year. The shortage in realisation from the expected amount under this head is due to the contractor for the right of removal of manure from the Mylapore wharf having been unable to remove manure from May 1914.

Removal and disposal of silt, side scrapings and sewage:—108,701 cart-loads of silt, &c., were removed during the year, against 61,603 in the previous year. The greater quantity of silt removed was due to heavy rains during the latter part of the year.

Throughout the city, large quantities of sewage soak into the ground either because the drains are lacking or they are in a bad state of repair. The Engineer has been sent a list of drains that demand immediate attention. The problem of proper disposal of sewage should come up early for settlement. There are several areas in sewered localities containing cesspools. It is desirable that they should be first connected up.

On the 29th May 1914, a resolution was carried that with a view to remove sewage from cesspools more efficiently, and to discharge it in unobjectionable places, the number of barrel-carts be sufficiently increased to meet all requirements. This raised a question which had to be considered in connection with the general sanitary policy already adopted for the city's improvement by means of the Drainage Scheme on hand. Now that the Government have sanctioned the whole City Main Drainage Scheme, the time seems ripe to provide in the case of detached paracherries, masonry surface drains, with levels so arranged as to suit future connections with the sewers when extended, and pending connection with sewers, septic tanks could be provided for the disposal of the waste water, the effluent of which can be discharged into the sea or disposed of sanitarily. The Kuppams in the 1st Division, Nungambakam, Robertsonpet and Sadayappa Mudali Street, in Mylapore, could be considered in this connection. The septic tank system in these cases is decidedly the best from the financial, as well as sanitary point of view, unlike the hand removal of sewage in barrel carts which is more expensive.

Overflow of sewage:—In view of the serious consequence to public health and comfort due to the overflow of sewage on to public thoroughfares and its stagnation thereon, steps were taken in the latter part of the year to open the old open side drains in the 17th (Triplicane) and 11th Divisions, where it was not objectionable to do so. This overflow of sewage was due to the inefficiency of pumping engines in DeMellow's Road Pumping Station and to want of proper fall in Pycroft's Road sewers and was aggravated by the heavy rains at the end of the year. The Corporation also moved in January 1915 a resolution with respect to which the President said that steps will be taken.

At the Special Meeting of the Corporation held on 25th September 1914, it was resolved that the work of cleaning the syphons may be transferred to the Engineer. The Health Department was doing the work with 61 coolies for cleaning the syphons; the Standing Committee has since sanctioned the entertainment by the Works Department of additional 59 men and 10 peons to

supervise this work. The transference did not, however, take effect till 1st March 1915. The necessity for this transfer was explained so far back as July 1913 when the Government were also addressed.

Collection and removal of horse and cow dung in congested public thoroughfares:—A number of boys were posted in the main public thoroughfares to maintain them in a tidy condition. These boys were directed to remove even bits of papers found strewn on the streets. On the representation of the South Indian Motor Union, they were ordered to remove scraps of iron also that may be found on these streets. Subsequently the Secretary of the Union asked the Corporation to contribute towards the maintenance of a separate establishment for the purpose, and the Standing Committee has since sanctioned an expenditure of Rs. 400 *per annum* therefor, the cost to be met from the provision for maintenance of roads.

Conservancy carts:—In the place of 11 rubbish carts, 11 trollies, each of the capacity of two rubbish carts, were substituted. Twenty-five rubbish carts of improved pattern, and 32 box carts with new pattern wheels of 3 inches tyres and lined internally with zinc sheets to prevent leakage of sewage were added to the complement of the previous year. No advantage was derived from the provision of 57 extra carts in the absence of adequate labour.

Rubbish bins.—Twenty fly-proof bins and 675 corrugated iron dust-bins were supplied during the year against the indented number of 24 and 695, respectively.

Notices and Prosecutions:—During the year, 57 notices were served, of which 51 were complied with. The number of prosecutions instituted was 1,668 against 1,635 in the previous year.

Scavenging of Public Institutions:—The amount realised by the supply of conservancy carts and coolies to private parties under section 294 (b) and 295 of the Act was Rs. 7,007-3-7, against Rs. 7,069-9-4 for 1913-1914. The expenditure under this head was Rs. 2,358-10-4, against Rs. 2,108-10-6, for 1913-1914.

Indoor Staff:—Defalcations were found in the Department which consequently necessitated the overhauling of the whole staff. The absence of a Demand Register for private conservancy charges resulted in the want of control over the collections and mainly contributed to the money transactions in this section not being brought to the notice of the Officers of other Departments. Steps have since been taken to put a stop to all money transactions between the in-door staff and the out-door staff, or the public, and a Demand Register has also been opened.

Out-door Staff:—Four Conservancy Overseers left service during the year for various reasons.

Many of the defects in conservancy noticed in the previous year's report continued to exist. It was not possible to bring about marked changes in view of the reorganisation of the Conservancy Department being under the consideration of the Corporation.

Recruitment of adequate and efficient labour, through agencies, on payment of commission, increase of wages to be on a par with what such coolies draw elsewhere, the requisite provision of lines for coolies, the co-operation of the public, further aid from the Police, and the Magistracy, with stringent legislation, will obviate the chief defects, the existing conservancy system is labouring under.

VACCINATION.

Throughout the year 1914, the Medical Vaccinators were in charge of the depots and of the operations generally. The year ended with satisfactory results in vaccination, judged by the total number of cases vaccinated, and by the percentage of success in primary vaccinations. The net cost of each successful case vaccinated was smaller than in 1913. The appointment of medical men as vaccinators, and the direct supervision of the operations by the Assistant Health Officer are expected to produce better results in the quality of vaccinations.

A marked increase is noticed in the vaccinations among children under one year of age, as compared with those of 1913. In the verification of births, it is noted that a smaller number of children were reported as "permanently removed" from the city, as also those that were "not traceable." The number of children that were "found sick" on inspection has fallen considerably, and likewise the number that "left the city temporarily." The success of the vaccinations among children will depend upon the degree of thoroughness of the registration of births in the city, and the vigilance of the outlying districts to intimate the removals of children to Madras. Only a small fraction of the latter are intimated to this city. And the newly introduced system of house-to-house enquiries for births by the 20 conicopillais may be expected to produce some improvement.

The advantage of medical men over laymen as vaccinators is beginning to be felt from the fact that the former are in a better position to judge of the fitness of children to undergo vaccination. The public also are realising that there is little danger to be feared from entrusting themselves to the trained professional who understands what surgical cleanliness is, and what it means to introduce septic poisons into the blood. The fees received from domiciliary vaccinations was Rs. 183-8-0 in 1914, as compared with Rs. 53-8-0 in 1913. To a certain extent, the medical vaccinator is an expensive luxury. But scientific security is not to be had without paying for it. It is economy in the real sense. On the whole, it may be said that the confidence of the public in the medical vaccinators is likely to increase.

Total cases for the year:—The total number of cases vaccinated by the Corporation Staff during the calendar year, excluding secondary vaccinations, was 28,277 against 23,584 in 1913, showing an increase of 4,693 cases. Of the total number vaccinated, 24,669 cases were successful and 1,944, unsuccessful. In the remaining 1,664 cases, the results could not be verified and are shown as "unknown."

Including the vaccinations performed in the Penitentiary (693) and at the Fiji Government Emigration Depot (910), the total number of primary vaccinations and re-vaccinations in the city was 29,880—17,570 males and 12,310 females—against 24,465 in the previous year, showing an increase of 5,415. Of the

total, 25,496 were successful and 2,608 were unsuccessful. The remaining 1,776 were returned as "unknown."

Of the 28,277 cases vaccinated by the Corporation staff, 19,577 were vaccinated in the Depots and 8,700 in the Divisions. Of the 19,577 cases vaccinated at the depots, 16,397 were primary and 3,180 re-vaccinations. In the case of the former, notices were served, according to the bye-laws, to the parents or guardians to produce the children for verifications of results at the depots, and 8,721 were so produced against 8,243, in the previous year, showing an increase of 478 cases. The cases vaccinated outside the depots were verified in the divisions and operations in these cases were confined as usual to the poorer classes located in Paracherries, Hutting grounds and Kuppams and to the floating population who could not be compelled to attend the depots.

The total number of cases verified by the Assistant Health Officer in charge of Vaccination was 457. Prior to the re-organisation of the Vaccination Department in 1913, there were one Deputy Inspector of Vaccination and three Assistant Deputy Inspectors for performing this verification work. These four men were in exclusive charge of vaccination work. Further, they verified cases both at the vaccination depots and at residences. They were, therefore, able to return a larger number of verifications. But since the re-organisation, this work devolved solely on *one* Assistant Health Officer, who has charge of Plague and Vital Statistics sections also. Further, he could not find time to verify cases at residences. Hence this low figure of verifications. Arrangements have, however, since been made to increase this number, by compelling the production of all vaccinated children at the depots at certain hours fixed for the inspection of the Assistant Health Officer, though a certain amount of opposition is met with from the public in this direction. But yet this high standard cannot be attained within the hours and days with one Inspecting Officer.

Percentage of success:—The percentage of success obtaining in primary and secondary vaccinations and in re-vaccination cases, excluding the unknown from the total, was 98.59 and 53.63, respectively, against 97.19 and 58.43 in 1913. The fall in the percentage of successes in re-vaccinations is due to the unwillingness of the public to submit to re-vaccination, which is not compulsory. The lymph used in all these cases was the glycerine lymph obtained from the King Institute.

A comparison of the work performed in the several vaccination depots shows that the Vepery Depot has the highest total, with 4,258 cases. The highest percentage of success, *viz.*, 96.67 was obtained in the Mylapore Depot.

Out of 29,880 cases vaccinated, 23,690 were primary and 6,190 were re-vaccinations. In 267 of these re-vaccinations, a reward of four annas each, sanctioned in G. O. No. 149 M., dated 5th February 1909, was paid. A register was maintained showing the names and addresses of all persons to whom such rewards were paid, and these people were mainly inhabitants of localities where small-pox broke out. The rewards were paid by the Assistant Health Officer, in person.

Children under one year of age:—Vaccination among children under one year numbered 19,696, including 1, in the Penitentiary and 16 in the Fiji Government Emigration Depot against 17,003 in the previous year, showing an increase of 2,693 cases. The percentage of success among these, excluding the unknown from the total, was 98.73 against 97.86 in 1913. Of the total number of children vaccinated by the Corporation staff, 11,837 were born in Madras and 7,842, in the mofussil. The number of children under one year vaccinated was 37.94 per mille of the population, compared with 32.8 in 1913. The number successfully vaccinated was 36.68 per mille, against 31.0 in 1913.

Verification of births:—The total number of births verified was 15,609. Of these, 3,502 children died during the year; 2,639 were reported to have permanently left the city (for 1913 it was 3,030) and 698 were not traceable at the addresses given in the birth counterfoils (818 in the year 1913). Of the remaining 8,770, 7,739 were vaccinated. Vaccination was postponed on Medical Certificates in 239 cases, 421 were found sick by the vaccination staff (compared with 684 for 1913) and 168 had temporarily left the city (compared with 442 in 1913). The remaining 203 children were found healthy, and the parents were warned to have them vaccinated without delay. The system of making enquiries to find out whether children born in the city and removed out of it before vaccination were vaccinated outside, was continued during the year under report, and resulted in the vaccination of 121 cases. The results of such cases were noted in the registers.

Hospital births:—Hospital births numbering 1,652 were verified. Of these, 257 children died during the year; 289 were reported to have permanently left the city and 577 were not traceable at the addresses given in the birth counterfoils, leaving 529 available for vaccination. Of these, 494 were vaccinated. Vaccination was postponed under Medical Certificate in the case of 2 children, 7 were found sick by the vaccination staff, and 16 temporarily left the city; the remaining 10 children were found healthy and the parents were warned. Among the various causes for which vaccination was postponed may be mentioned, the wide prevalence of skin diseases such as scabies, eczema, etc.

The large number of untraced cases among hospital births is due in many instances, to the insufficient and incorrect addresses furnished by the hospital authorities, but this is very probably due to parents and friends themselves giving erroneous information.

The attached vaccination statement (I) furnishes information as to the number of children born in the city in 1914, who were vaccinated before they attained the age of one year.

Analysis of totals according to race:—Out of 29,880 cases vaccinated, 1,862 were Europeans, Anglo-Indians and Indian Christians. 2,835 were Muhammadans, 25,044 were Hindus and 139 other classes. For every 1,000 of the population according to the census of 1911, 57.61 were vaccinated. The vaccination of "other classes" was proportionately larger than that of any other class, the number vaccinated being 7.85 per cent. of the population, while the

percentage among the Hindus was 6.26; among Muhammadans, 4.79 and among Europeans, Anglo-Indians and Indian Christians, 4.45.

Small-pox cases:—Small-pox was present in the city throughout the year and the disease showed itself in a somewhat virulent form during the months of February, March and April, but timely adoption of precautionary measures checked the progress of the disease.

There were 146 attacks and 66 deaths from small-pox during the year against 136 attacks and 34 deaths in the previous year. Of these attacks, 64 were amongst children under 12 years of age of whom, 22 were vaccinated in infancy and 42 were not vaccinated. Of the vaccinated, 13 died and of the unvaccinated, 23. The remaining 82 attacks were among persons over 12 years of age. Of these, 48 were vaccinated in infancy and 34 had never been vaccinated and 16 of the unvaccinated, proved fatal.

Attacks and deaths from small-pox:—The following table is a statement of attacks and deaths from small-pox among the vaccinated and the unvaccinated at the various age periods:—

	VACCINATED.		UNVACCINATED.	
	Attacks.	Deaths.	Attacks.	Deaths.
Under 1 year	3	3	11	10
Above 1 year & under 5 years ...	10	7	9	3
Above 5 years & under 10 years ...	8	2	15	8
Above 10 years & under 12 years ...	1	1	7	2
Above 12 years & under 15 years ...	4	2	2	1
Above 15 years & under 20 years ...	18	3	11	4
Above 20 years & under 25 years ...	8	2	7	3
Above 25 years	18	7	14	8
Total ...	70	27	76	39

Admission to Isolation Hospitals:—Information as to the vaccinal condition of small-pox patients admitted into the Corporation Hospitals during the calendar year 1914 is hereunder furnished, as required in G. O. No. 992, Public, dated 21st October 1910.

I. *Kistnampet Isolation Hospital:*—There was one case of small pox remaining on 1st January and 24 were admitted during the year, making a total of 25. Of these, 17 were protected and 8 were unprotected. There was no death among the protected cases while there were five deaths among the unprotected.

II. *Native Infirmary*:—Of the 24 cases admitted into the Native Infirmary, 15 were protected and the remaining 9 were unprotected. There were 6 deaths among the protected and three among the unprotected.

Prosecutions:—The total number of prosecutions instituted during the year under report was 76 against 53 in 1913. The fines imposed amounted to Rs. 43-12-0 against Rs. 44-12-0 in the previous year. In 56 of these cases, prosecution was resorted to for failure to have children vaccinated, with the result that 41 of them were subsequently vaccinated. In five cases, the children left the city. In four cases, the parties were warned and discharged. In two, the prosecutions were withdrawn and in four cases, the children died before the case was called for hearing.

Fees:—The fees charged for primary vaccinations at private residences under bye-law 233 amounted to Rs. 183-8-0. The amount was collected and credited to the Corporation.

Total cost of vaccination:—The cost of vaccination was 14,532-6-7. If the amount realised by vaccination at private residences is deducted, the net expenditure amounts to Rs. 14,348-14-7. The net cost of each successful vaccination was 9 annas and 3 pies against 10 annas and 5 pies in the previous year.

Though this was the first complete year in which the staff of Medical Vaccinators, as organised in August 1913, was in operation, the results when compared with those of previous years can be considered satisfactory.

During the year a generous offer was made to the Corporation of Rs. 125 by Mr. Zainul Abedeen Saib for the purpose of paying rewards to poor children who would come forward to get themselves re-vaccinated. The offer was thankfully accepted, and the money so far, has only been utilized among a class of people who are recognised as most likely to disseminate the disease among their more fortunate fellow-creatures. Rewards were strictly confined to this class, and only given when small-pox actually did exist. No good can be attained by promiscuous distribution of rewards, although there would be no difficulty in disposing of many hundreds of rupees if this were not kept in view. Better to distribute when most good can be done, and, without creating an idea among all classes, that re-vaccination may be made a profitable addition to their regular pay.

So far Rs. 24-12-0 have been spent, but as time goes on, and opportunities arise, the remainder will be utilized. In working among a special class of people, donations of this kind can be applied for the public good.

PLAGUE.

Plague measures continued to be administered by the 2nd Asst. Health Officer under the supervision of the Health Officer.

The Plague Passport system continued to work till the end of May and was replaced by the Plague Notification system. With the advent of the new system, the passport stations at Basin Bridge, Perambur, Ponneri, Washermanpet, and Chetput were abolished, as also the plague detention camp at Rayapuram. For the observation and verification of arrivals from plague infected areas under this notification system, ten Plague Inspectors and six Plague Nurses were appointed from 1st June 1914.

2. No case of indigenous plague occurred in the city, during 1914, but three cases of suspected plague were imported from Vaniambadi, Vellore and Calcutta. In the first case the body was buried before it could be detected, in the 2nd, there was much opposition for taking blood and in the 3rd, bacteriological examination demonstrated the presence of plague bacilli and the patient was admitted in the Plague Hospital, Egmore, on 5th April 1914, and was discharged on 2nd May 1914, after complete recovery.

The Passport System :—Under the old system of passport, very few of the travellers arriving in Madras from plague infected areas escaped the observation of the City Plague Staff. Only 2.181 per cent. of the city passports were left untraced out of a total of 51,161 issued till May 1914. 63,830 passports were issued from 1st January to 31st May 1914, at Basin Bridge, Perambur, Chetput, Ponneri, and the Madras Harbour. Of these 12,669 related to the mufassal, The number of mufassal passports dealt with by the city staff was 942, of which 2.866 per cent. could not be traced as against 0.684 per cent. in the previous year.

The issuing of the passports at the passport stations around the City, by our own staff who were more or less familiar with the city, facilitated the search for the passportee by the Plague Inspector. Hence the percentage of untraced passports was small. This is not the case with the new system of Plague Notification.

The Notification System :—The traveller, under this system, is bound to notify his arrival from an infected area, and report any case of suspicious sickness or rat fall in the house within one month of his arrival. The notifications are issued at certain stations adjoining infected areas, the notification issuing staff being maintained by the local plague authority. Between June and December, 21,316 notification triplicates were received in Madras from the notification stations. Of this number, only 12,190 gave any addresses and 10,239 were traced to the parties answering to them.

The important defect to be noticed in the present notification system of plague prevention is the high percentage of travellers that could not be

traced out in the city. 33·44 per cent. of the notification holders escaped observation for one or other of the following reasons :—

1. No addresses were given.
2. Misleading addresses.
3. Illegibility of notification entries.
4. Failure of travellers to obtain notifications from the issuing stations.

District Officers of the notification stations have been informed of the influx into the City of numbers of travellers, likely to introduce infection, without the city staff being notified of the same. As a result, there has been a decrease in the percentage of notifications disposed of as "untraced". From 50·2 per cent. in June the figure has fallen to 15 per cent. in December. When it is observed that with the passport system the percentage of "untraced" passports was only 2·866 or less, it will be conceded that the notification system as at present worked, gives room to more chances of infection—at least ten times as many as the old system.

The revised plague regulations for the city came into operation only from February 1915. It is to be hoped that, when these are enforced, the public will realise the importance of abiding by the rules prescribed, and an improvement be effected in the working of the system. But it is to be remembered that, however alert the City Plague Staff may be in the watch for arrivals from the infected areas, the advantage of this system over the old one would very much depend upon the care exercised at the notification issuing station. No one who is responsible for the health of the city would rest secure on the supposed natural protective advantages of Madras, from its climate, and its low elevation. The fact that there have been, so far, 103 indigenous cases of plague in this city, coupled with the high susceptibility to plague of the Madras rats, gives us no faith in the theory of natural immunity of Madras against plague. Colombo may serve as an example of this supposed immunity proving unsafe to be relied upon.

The isolation of actual plague cases, and the segregation of plague contacts were being carried on in the Egmore Plague Hospital till 31st May 1914. The Government required the building, and grounds of this hospital in February 1914, and they could not permit the Corporation to retain them until the Corporation Infectious Hospital was ready. Other arrangements had, therefore, to be made temporarily for the housing of the plague hospital and segregation camp. Plague cases, according to these arrangements, are to be isolated in the Krishnampet Isolation Hospital, where cholera and small-pox cases are usually isolated. And, the Old Plague Detention Camp in Old Jail Street, Rayapuram, is retained for use as a segregation camp for plague contacts, should such a contingency arise. The staff of the Plague Hospital was transferred to the Krishnampet Hospital, excepting the nurse who resigned her appointment, and the cook, and a toty. The mixing up of plague cases with other infectious diseases is highly objectionable. It is not right to isolate the public who are attacked with one infectious disease in a hospital where there are risks of other kinds of infection. Such a procedure is likely to make the Isolation Hospital unpopular, unless the institution is so constructed and organized, as to minimise, or prevent the possibility of mutual infections. Cholera, small-pox, and plague cases are treated at the Krish-

nampet Isolation Hospital. If two or more epidemics of these diseases prevail simultaneously, the necessity for separate hospitals would be keenly felt. As the proposed Infectious Hospital at Ammanjeekaray is not likely to take shape for some time to come, a temporary hospital for plague cases will have to be thought of.

Port Health Officer's Report.

The Port Health Officer reports as follows :—

188 out-going vessels carrying 19,402 crew and 21,070 passengers were inspected and granted Bills of Health; and 304 vessels, arrivals from plague infected area, carrying 26,050 crew and 46,406 passengers, out of which 43,056 landed here were inspected and granted pratique during the year. The bedding and the effects of the deck passengers and native crew that embarked at this place for ports out of India, as also of those that had come from the infected ports, were disinfected.

One case of suspected plague, one case of measles, one case of small-pox and four cases of chicken-pox and nine contacts were sent to the Krishnampet Isolation Hospital during the year and also five cases of chicken-pox with 14 contacts to the Fiji Emigration Depot, at Kassimodu. All these cases were importations by sea.

First and 2nd class passengers were given notification papers in place of passports, in conformity with the new Government Order on the subject. The number of passports and notification papers issued at the Madras Harbour during the year was :—

City, 1147 ; Mofussil, 784.

(Sd.) A. CHALMERS,
Major, I. M. S.,
Port Health Officer.

Rat Destruction.

On 1st June 1914, when the Plague Hospital at Egmore was vacated for being handed over to the Government, the office of the Special Plague Medical Officer, which was till then located in that building, was removed to a rented building in the Poonamallee High Road. The work of destruction of rats was carried on during the year under the supervision of the Special Plague Medical Officer. Two Assistants on Rs. 10 were sanctioned by the Government to work under him. The rat destruction work in the Harbour premises was also supervised by the Special Plague Medical Officer. The number of rats caught during the year was 123,389 as against 124,217 in the previous year, thus bringing up the grand total to 1,826,974 from the beginning of the operations.

VITAL STATISTICS.

FOR THE CALENDAR YEAR 1914.

Area of the City	...	...	27.6 sq. miles or 17,664 acres.
Census Population of 1911	...	...	5,18,660.
Average Density	...	...	29.4 per acre.
Density of the 7th, 8th and 9th Divisions	...	...	132.6 per acre.
Density of the 14th & 15th Divisions	...	...	10.1 per acre.
Inhabited houses	...	...	59,595.
Number of persons per house	...	...	8.6.
Births	...	...	18,847 (including still-births) against 20,112, in 1913.
Deaths	...	...	24,174 against 20,675 in 1913.
Infantile Mortality	...	...	308.9 deaths per 1,000 infants born alive in the year against 293.4 in 1913.
Estimated Population for the middle of the year 1914	...	...	5,21,687.

General Remarks:—The statistics of vital occurrences in India do not include the records of marriages in addition to those of births and deaths. Many a problem of social and sanitary advancement depends for its solution on the data that have to be derived from a study of the marital statistics in collaboration with those of births and deaths. In the absence of any records relating to the part that marriage customs play in the vitality of the individual and the hygiene of his person and surroundings, we have to draw what inferences we can get out of the information obtainable about the births and deaths of the population. Although the sanitarian is not supposed to probe into the inner evils of social customs long prevailing, it may be stated that a quickening of the "sanitary conscience" of the people need not be looked for in India until society is educated how to live for the sake of the community as well as for that of the individual. A community that cannot help itself against the evil consequences of its own ignorance and prejudice, requires a thorough schooling in the art of living a healthful life in harmony with the interests of mutual welfare. Heavy returns of mortality may create alarm for a time; but the general public remain unconvinced of the relationship so painfully demonstrated as existing between an epidemic and a programme of habits directly favouring the conditions of disease. It is to be hoped that the inclusion of elementary hygiene in the school curriculum will contribute towards an improved state of matters relating to health.

Registration of Births and Deaths in Madras:—The ten Medical Registrars were in charge of the registration of deaths. The number of Conicopillays employed for the discovery of births was raised from fourteen to twenty on 1st April. These Conicopillays were placed under the direct supervision of the Medical Registrars of the Divisions concerned.

The Conicopillays are now required to search for births by systematic house-to-house enquiry in their Divisions. The old practice of relying on the information of midwives and barber-women for news about births, was not giving satisfactory results in birth registration, nor was the sign of the margosa leaf on the threshold of the house where a birth took place. It is hoped that the systematic search for births will leave very few births unregistered. The registration of deaths leaves a good deal to be desired in the way of accuracy of diagnosis. The causes of death reported to the Medical Registrars are often too vague to enable them to arrive at a diagnosis with accuracy. Although the Medical Registrars are allowed to practise their profession, very few of them can be said to command a practice that would help us in registration. A medical man attending on a case of death is bound by the Act to report the death to the Health Officer within three days. But, looking at the previous years' records, one finds that the number of deaths so reported, including the hospital returns, was never higher than 12 per cent. of the total number of deaths in any of the last eight years. In 1907, for example, only 11.6 per cent. of the deaths were reported by the hospitals and private medical practitioners together. About one third of these deaths were certified by private medical men. In 1914, the percentage of certified deaths was only 8.71 of which less than one-third (627 cases) were certified by independent medical practitioners of whom there are about 170 with qualifications, and over 200 Vydyans. The Vydyans do not report causes of death: and even if they did, their classification of diseases would not be of much value to the statistician of the Western Science. If 627 deaths are taken as the number certified by the 170 qualified medical practitioners in the city in 1914, it is computed that about three or four cases fall to the credit of each practitioner. Surely this cannot mean that the majority of the deaths of the City go to the credit of the Vydyans! The irresistible inference appears to be that the qualified practitioners are not very diligent in complying with the requirements of Section 382 of the Act. The enforcement of the Act, even if it were thought advisable in these cases, is a matter of extreme difficulty on account of the complications of responsibility for treatment between a qualified medical attendant and a host of native Vydyans called in before the expiry of the life of the sufferer. Nor, shall we be benefitted in any very marked degree by a policy of vigorous prosecutions of the qualified practitioners, whose co-operation we cannot afford to lose by such a course. As was suggested in the Administration Report of the Corporation for the year 1905, "the payment of an adequate fee for each (death) certificate would undoubtedly result in a very large increase in the number of death certificates." A similar fee is paid in England for the notification of infectious diseases; and the adoption of this practice also in Madras would bring to us early and accurate information of cases of infectious diseases, large numbers of which are concealed from the knowledge of the Sanitary Inspector, to the prejudice of the health of the city. If it is thought that this system is not practicable for want of funds, the following alternative suggestion may be considered:—

"We may require that every case of death shall be certified by a qualified medical practitioner; and that nobody shall be buried or cremated until

the death certificate is produced before the Medical Registrar of the Division who shall permit the disposal of the body. When death certification is made compulsory, it will be to the advantage of the medical practitioners in every way. All the deaths under their care will have to be certified by them in return for a fee from the parties, and they will not be required to report separately about the death to the Health Officer. The poorer classes of people, who cannot afford to pay for a qualified man's certificate, will report the death to the Medical Registrar, and the latter will personally verify the cause of death in every such case. This would, no doubt, make the Medical Registrar essentially an out-door officer; and he would require a clerk (or a conicopillai) to keep his books in his Divisional Office while he is on inspection duty. During severe epidemics extra Registrars may be required to cope with the heavy mortality. This important matter was brought to the notice of the President so long ago as 1911, *Vide* Administration Report for 1910-11. It is to be regretted that nothing has been done since, to carry out this most important proposal; however, it is hoped that the matter will now receive serious and immediate consideration.

General Remarks on the Vital Statistics of 1914:—The outstanding features in the Vital Statistics for 1914 are the high death rate of 46.6 per mille, the unusually low birth rate of 35.2 per mille, and the heavy infantile mortality of 308.9. These facts are of serious concern to the health of the city. Judged by these three tests, the health of certain areas is found to be more affected than that of the others. The third Division (Korukupet) combines with a death rate of 61 per mille, a birth rate of 32.3 per mille, and an infantile mortality ratio of 441. The divisions showing markedly high death rates and low birth rates are 1, 2, 3, 7, 8, 9, 10, 11, and 17. The 13th, 14th and 15th Divisions are comparatively better. While overcrowding is a gradually growing evil, and Malaria was pronounced only in some of the divisions, the uniformly abnormal rates can only have been due to some cause or causes that have yet to be investigated. The cholera epidemic of the year was an unusual feature that swelled the number of deaths. This disease, by itself, exacted a toll of 3.4 per thousand of the lives of the city. In the year 1905, the great cholera epidemic carried off 7.2 out of each 1000 of the population; and in that year the total mortality rate was 59.0, the birth rate 45.6, and the infantile mortality 316.3. Although the cholera ratio is shown as 3.4 per thousand of the population, there is reason to believe that this factor would have been greater if *all* the cholera cases had been reported as such. The marked increase in the mortality from "Dysentery" lends aid to such a supposition, which is further supported by the experience of cases of actual Cholera that were reported by informants as "Dysentery." While the epidemic was an unusual phenomenon during the year, the usual causes of high mortality in Madras were in operation with no marked diminution in intensity—malaria, dysentery and diarrhoea were maintaining their usual reputation, and respiratory diseases have mounted up from 11 per cent. to over 15 per cent. of the total number of deaths, which seems to have a relationship to the gradual progress in overcrowding in the City.

There has been an increase in the demand for authenticated extracts of births and deaths from 384 in 1913 to 455 in 1914. Some improvement in

registration may be expected in 1915, owing to the larger number of cases being prosecuted for failure to effect registration within the period required by law.

Births in 1914.

The number of births registered in 1914, excluding the still-births, was 18,241. This fell short of the number for 1913 by 1,229. The ratio calculated on the last census population was 35.2 per mille, as against 37.5 in 1913. The mean ratio for the previous five years was 37.6.

TABLE—A.

Table of Births and Birth Rates during 1909–1914.

Year.	Population.	No. of Births Registered.	Birth rate per 1,000 of Population.
1909 ...	5,09,346	18,981	37.2
1910 ...		19,340	37.9
1911 ...		19,735	38.3
1912 ...	5,18,660	20,099	38.8
1913 ...		19,470	37.5
1914 ...		18,241	35.1

Calculated on the estimated population, the birth ratio was 35.0. This birth ratio was the lowest recorded in the last twelve years. In 1902, when the death rate was 42 per mille, and the infantile mortality ratio 303.9, the birth ratio was as low as 34.8. Since the year 1905, that is during the last ten years, the birth rate was never higher than the corresponding death rate. During the ten years previous to 1905, the annual birth rate was, on six occasions, in excess of the corresponding death rate. The "decrement of life", or the excess of deaths over births, in 1914, reached the figure 11.4 per 1,000 of the population. This decrement would seriously impair the rate of increase of population in the city, unless an unprecedented immigration makes up for the deficiency, at the next census.

It is noticed that, in 1914, there has been a fall in the births in the public hospitals.

The birth-rates for the different races are shown in Table B.

TABLE B.

Table of Birth Rates for the different races of the City for 1913 and 1914.

Race or Caste.	Population by the Census of 1911.	Birthrate for 1913.	Birthrate for 1914.
Europeans ...	4,187	22·7	18·2
Anglo-Indians ...	10,332	40·7	35·2
Indian Christians ...	27,293	30·8	30·1
Hindus ...	4,15,910	37·6	35·3
Mahomedans ...	59,169	42·0	38·7
Others ...	1,769	...	1·1
Total ...	5,18,660	37·5	35·1

Looking at Graph II, it will be seen that the months of October and November, which are months usually returning the larger birth rates during the year, show a very precipitate drop in the curve of births. The "Emden" bombarded the city on 23rd September, and the excodus from the city has probably to account for the decline in the births. We may compare the records of previous years :—

Births for October and November :—

<u>1911</u>	<u>1912</u>	<u>1913</u>	<u>1914</u>
3,681	3,963	3,577	2,588

The decrease of over a thousand births may, therefore, be attributed to the bombardment.

TABLE C.

Births by months during the years 1912, 1913 and 1914.

Months.			No. of Births registered in 1912.	No. of Births registered in 1913.	No. of Births registered in 1914.
January	...	...	1,563	1,507	1,574
February	...	...	1,285	1,107	1,220
March	...	...	1,376	1,834	1,424
April	...	...	1,348	1,492	1,398
May	...	...	1,454	1,605	1,392
June	...	..	1,732	1,577	1,565
July	...	...	1,804	1,737	1,788
August	...	...	1,945	1,920	1,611
September	...	...	1,800	1,925	1,813
October	...	...	2,042	1,941	1,163
November	...	...	1,921	1,636	1,425
December	...	...	1,829	1,689	1,868
Total ...			20,099	19,470	18,241

The 13th Division (Egmore) alone returned a birth rate in excess of its death-rate (Graph III). 818 illegitimate births were registered in 1914 (897 in 1913). Out of 18,241 births, 9,262 were males and 8,979 females, the proportion of males to every 100 females being 103.2. 606 still-births were recorded in 1914, as compared with 642 in the previous year.

TABLE D.

Years.		Still-Births.	Illegitimate Births.	Hospital Births.
1909	...	743	1,207	3,368
1910	...	673	1,166	3,347
1911	...	665	1,132	3,532
1912	...	674	1,025	3,375
1913	...	642	897	3,687
1914	...	606	818	3,330

18.3 per cent. of the registered births in the city were "hospital births" distributed as follows :—

Government Maternity Hospital	...	...	1,688
Rajah Sir Ramaswami Mudaliar's Maternity Hospital	...	...	897
Victoria Caste and Gosha Hospital	...	...	515
Christina Rainy Hospital	...	...	141
Kalyani Hospital	...	...	92
Station Hospital, Fort St. George	...	...	1
Total			3,334

In 1913 the total of hospital births was 3,687.

Deaths in 1914.

The number of deaths in the year was 24,174, compared with 20,675 in 1913. The average of the five previous years was 20,448.8. The death ratio calculated on the census population of 1911 was 46.6 per mille. In 1913, the ratio was 39.9. The mean ratio for the previous five years was 39.4. Calculated on the estimated population, the death ratio for 1914 was 46.3 per mille. Among males, there were 11,884 deaths and among females, 12,290, the proportion being 96.7 males to every 100 females. Excepting cholera there was no epidemic of any of the infectious diseases. The death ratio among Europeans was 18.6, among Anglo-Indians, 33.8, Indian Christians, 37.2, Hindus, 46.4, and Mahomedans, 58.3. The Mahomedan community suffered severely. The urgency of the demand for lady health advisers among the Mahomedans is keenly felt. The proposals made by the Health Officer for the entertainment of two nurses for peripatetic work in connection with women and children, in December 1912, and accepted by Government, but kept in abeyance till the usefulness of the Malaria Nurses was established (G. O. No. 924-M., dated 7th May 1913) may now be given effect to, as it is acknowledged that the work of the Malaria Nurses has exceeded every expectation. The Health Officer in his Annual Report for 1913, further emphasized the importance of these nurses and Government in their G. O. No. 647-M., dated 26th April 1915. In view of the urgent need of assistance among Mahomedan women and children, it is hoped that the appointment of these nurses may not be deferred any longer.

The following table shows the death-rates among the important sections of the Hindu Community :—

TABLE J.

Sect.	Population (Census 1911)	Deaths in 1913.	Deaths in 1914.	Ratio per mille in 1914.
Brahmin	32,727	782	998	30.5
Chetty	36,414	1,158	1,233	33.9
Vellala or Mudaliar	66,551	2,361	2,917	43.8
Balijah or Naidu	47,811	1,601	2,059	43.1
Vanniah or Naicker	50,209	2,330	2,650	52.8
Pariah	59,651	2,572	3,015	50.6
Patnavar	9,799	596	555	56.6
Yadhaval or Idayar	14,303	616	802	56.0
Visva Brahmin or Kammalar	15,626	577	643	41.1

Seasonal incidence, and total mortality.—In 1913, September was the month with the lowest mortality, and January, the month with the highest figure (epidemic of Malaria in Tondiarpet). But in 1914, September and October were the worst, and June the best months. In spite of the high temperature of June, the general death rate was low. (See Graph I). The temperature curve of 1914 is more or less similar to that of 1913, and no relationship is seen between the temperature and the mortality curves. There appears to be, however, a relation between the rainfall of August and the suddenly increased death rates of September and October. (Graph I). From Graph VIII, it will be seen that there is a sudden rise in the malaria fever curve, coincident with the general mortality curve of September. The heavy rains in October and November of 1913 were similarly followed by a sudden and sharp rise of the mortality curve. The malaria season generally comes on about a month after the rainy season, when the *Anopheles* mosquitoes have had time to multiply by breeding in the vast stretches of water covering the low-lying areas of the city. The abnormal increase of deaths may, therefore, be accounted for partly in this manner. Since the war began, the death rates have been higher (see Graph I) than usual, for October, November and December.

Death rates in special areas.—Graph III indicates this clearly. The third division with its extensive malarial tracts and sewage-soaked swamps occupy the most unenviable position.

The first division appears to have somewhat recovered from the epidemic of malaria of 1913. The second division still maintains its place as it did in 1913.

Mortality and age incidence.—Out of the total of 24,174 deaths in 1914, 11,316 or 46·8 per cent. were under 15 years, and 4,461 over sixty years of age at the time of death. In other words, the number of deaths that took place while in the dependent periods of life was 15,775 or 65 per cent.

Infantile mortality.—The number of deaths registered as occurring amongst children under one year of age was 5,635. The death rate, when stated as a proportion of deaths of infants under one year of age to the total number of births registered during the year, is found to be 308·9.

Graph IV shows the rates of infantile mortality per 1,000 births for the six years from 1909 to 1914. Of the 5,635 deaths, 2,948 were males and 2,687 females.

September, December, and January, were the months showing the highest death rates. The curve (Graph I) follows the same course as that of 1913, with the exception that there is a marked drop in November 1914.

TABLE E.

Table of Infant mortality by months in the year 1914.

Months.		Debility.	Nervous Diseases.	Respiratory Diseases.	Infestinal Diseases.	All other Causes.	Total.		
							Males.	Females.	Total.
January	...	29	181	94	163	154	329	292	621
February	...	13	116	81	113	114	233	204	437
March	...	12	132	73	135	80	218	214	432
April	...	9	126	91	124	123	231	242	473
May	...	16	117	68	111	94	219	187	406
June	...	15	103	69	96	79	192	170	362
July	...	28	133	81	89	69	211	189	400
August	...	15	134	79	95	138	239	222	461
September	...	14	180	85	103	207	298	291	589
October	...	12	205	89	67	101	249	225	474
November	...	17	143	71	59	128	216	202	418
December	...	18	144	51	86	263	313	249	562
Total ...		198	1714	932	1241	1550	2948	2687	5,635

Of the 5,635 deaths, 1526 or 27·1 per cent. died in the first seven days of life, while 2,522 or 44·8 per cent. died within a month of being born. 4,032 of the children died before reaching the age of six months. There was not prevalent any of the infectious diseases peculiar to infants, in an epidemic form, during the year under report.

TABLE F.

Table of Deaths among Infants under one year of age from principal causes by age periods in the year 1914.

Age periods.	Small-pox.	Measles.	Malaria.	Ague and Remittent fever.	Diarrhoea and Dysentery.	Premature birth.	Debility.	Nervous system.	Respiratory system.	All other causes.	Total.	Percentage of deaths in each age period to total deaths under one year of age.
1 to 7 days ...	...	...	1	...	19	700	69	513	55	169	1,526	27·1
7 to 30 days ...	...	...	...	1	82	106	62	497	89	159	996	17·7
1 to 3 months.	1	1	2	7	155	15	24	287	139	44	675	12·0
3 to 6 months	2	4	9	19	271	3	24	232	206	65	835	14·8
6 to 9 months.	4	8	11	15	341	3	14	123	229	102	850	15·1
9 to 12 months	4	3	27	18	373	...	5	62	214	47	753	13·4
Total ...	11	16	50	60	1,241	827	198	1,714	932	586	5,635	

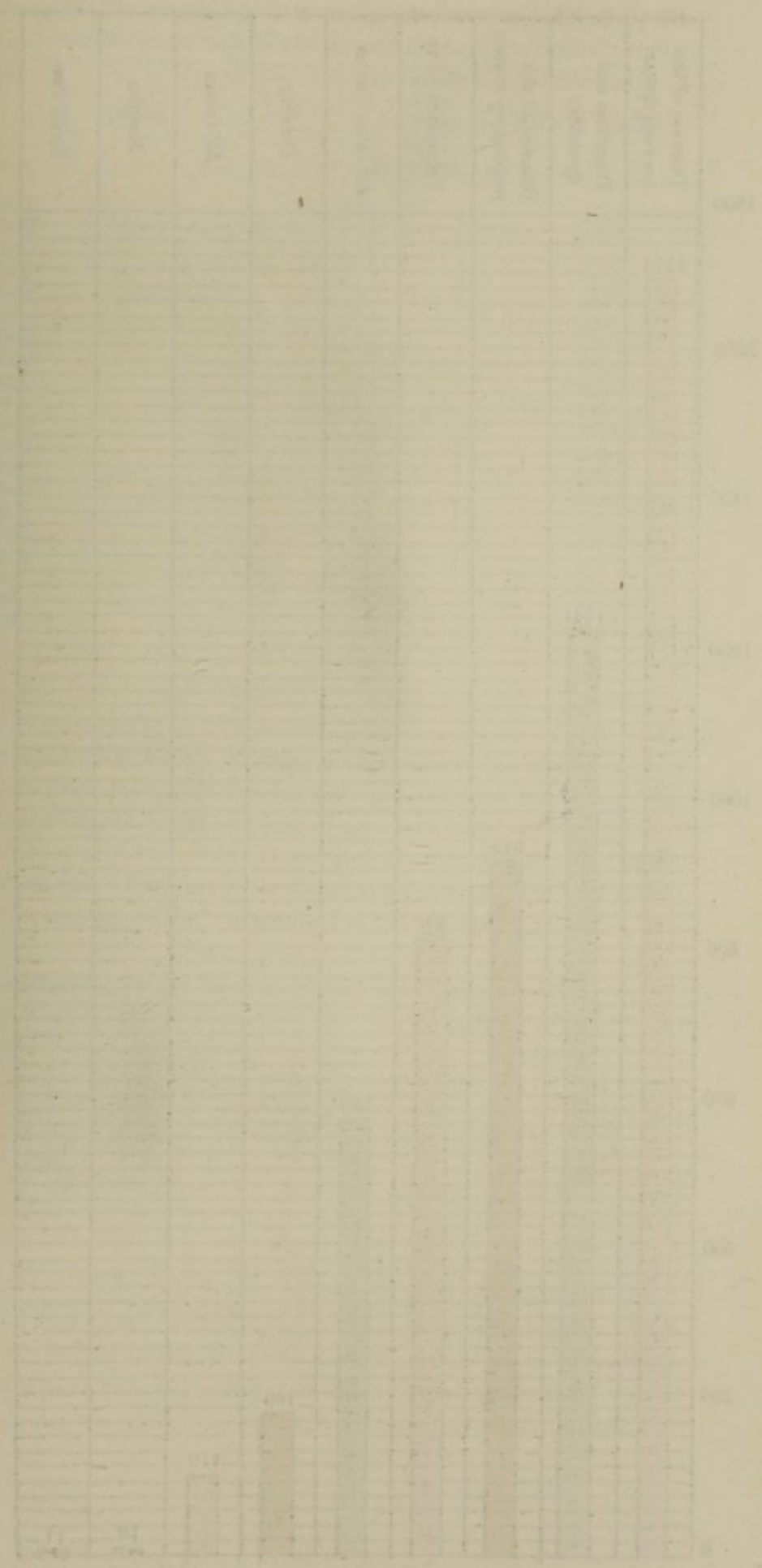
Infantile mortality according to race or caste.—From the table it will be seen that the infant death rate among Mahomedans was the highest, viz., 387·3 per thousand births. This clearly indicates the urgent necessity of district nurses, of which mention has already been made.

TABLE G.

Table of Mortality among Infants, and Death-rate per 1,000 of Births registered in each race, during the year 1914.

Race or caste.	Death under one year.	Number of births registered.	Infant mortality per 1,000 of births in the race.
Europeans ...	7	76	92·1
Anglo-Indians ...	39	364	162·1
Indian Christians ...	232	821	282·6
Hindus ...	4,449	14,685	303·0
Mahomedans ...	888	2,293	387·3
Others ...	...	2	...
Total ...	5,635	18,241	308·9

Infantile Mortality according to Municipal Divisions.—From Graph III it will be seen that in the 3rd Division the infantile death rate was 440·6, much the highest of all the divisions, while the first three divisions, which include the whole of Tondiarpet, showed a much higher rate than any other division. The lowest rates are to be found in the 13th and 15th Divisions.



Causes of Infantile Deaths

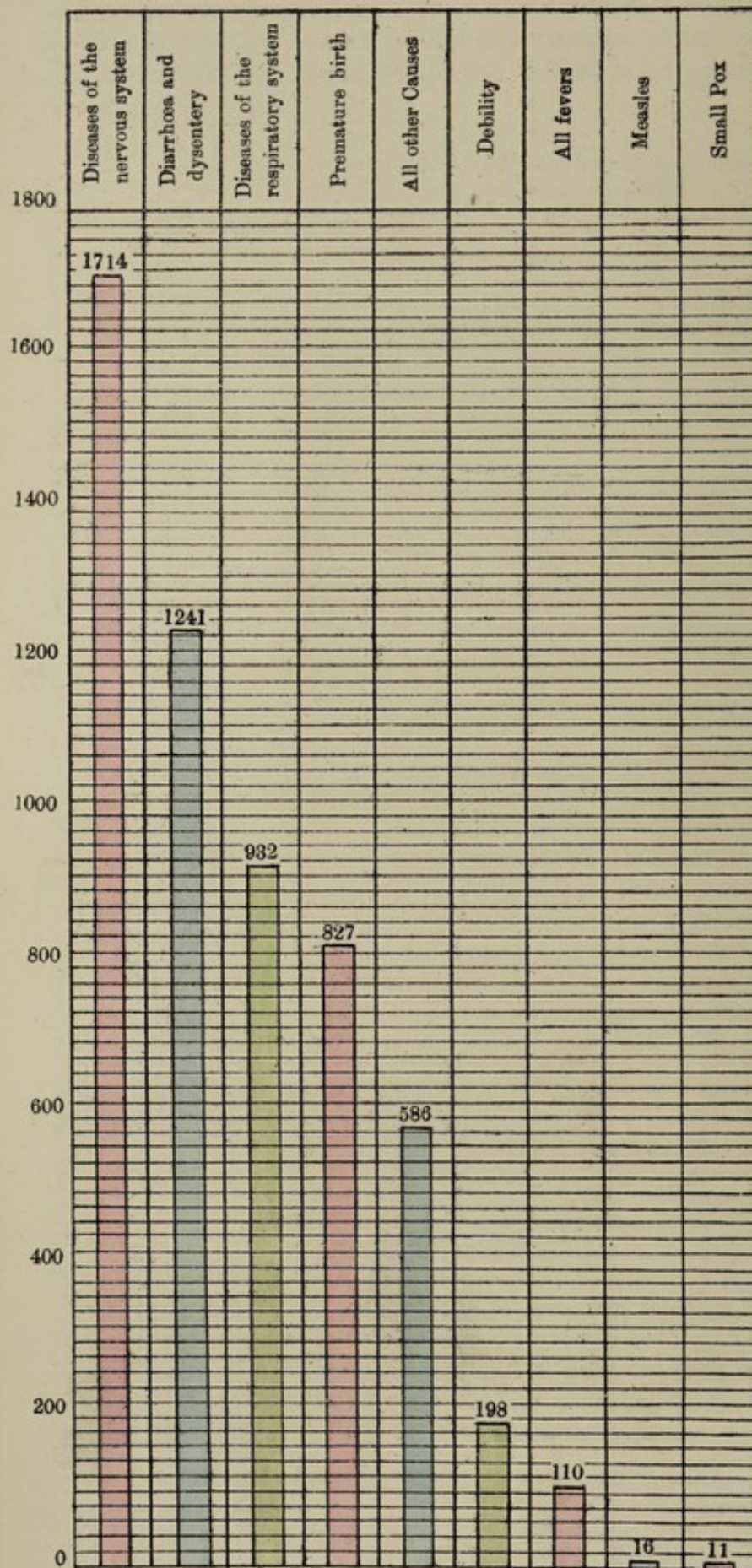


TABLE H.

Table of the Ratio of Deaths among Children under one year per 1,000 of Births registered in each Ward during 1914.

Present Divisions.	Wards.	No. of the corresponding Old Divisions.	Ratio of Deaths.
1	East Ward	...	316.8
2	Centre Ward	...	332.0
3	West Ward	...	440.6
4	East Ward	...	325.4
5	Centre Ward	...	285.2
6	West Ward	...	299.3
7	North Ward	...	309.2
8	Centre Ward	...	359.9
9	South Ward	...	326.1
10	4th Division	...	327.7
11	North Ward	...	358.0
12	Centre Ward	...	302.1
13	South Ward	...	226.7
14	North Ward	...	248.0
15	South Ward	...	225.1
16	North Ward	...	281.9
17	Centre Ward	...	303.4
18	South Ward	...	301.9
19	East Ward	...	295.0
20	West Ward	...	291.7
			308.9

Causes of Infantile Mortality. Diagram No. I shows the main causes of infantile mortality. "Diseases of the nervous system" accounts for 30 per cent. of the deaths amongst infants under one year of age. As usual, September and October were the heavy months. "Diarrhoea and Dysentery" was the cause of death in 22 per cent, and "Diseases of the Respiratory system" was responsible for 16 per cent. "Premature births" accounted for 14 per cent.

TABLE I.

Table of percentages of infant deaths from principal causes in the year 1914.

Age period.	Small-pox.	Measles.	Malaria.	Ague and Remittent fever.	Diarrhoea and Dysentery.	Premature birth.	Debility.	Nervous system.	Respiratory system.	All other Cases.	Total.
1 to 7 days	...	...	0.06	...	1.24	45.87	4.52	33.61	3.60	11.07	27.1
7 to 30 days	...	...	...	0.1	8.23	1.64	6.22	49.1	8.93	15.96	17.7
1 to 3 months	0.14	0.14	0.23	1.03	2.44	0.37	3.55	42.51	20.59	6.51	12.0
3 to 6 months	0.23	0.47	1.07	2.27	32.45	0.35	2.87	27.78	24.67	7.78	14.8
6 to 9 months	0.47	0.94	1.29	1.76	40.11	0.35	1.64	14.47	26.94	12.00	15.1
9 to 12 months	0.53	0.39	3.58	2.39	4.95	...	0.66	8.23	28.41	6.24	18.4
Total...	0.19	0.28	0.88	1.06	22.02	14.67	3.51	30.41	16.53	10.39	

The four important causes of death of infants are referable to the ignorance of mothers about certain elementary ideas of living, both ante-natal and post-natal. Cleanliness and care in feeding the new-borns, and clothing them according to the weather, can only be taught by actual demonstration and persuasion by specially trained lady health visitors. As was suggested in the last year's report, the employment of Corporation midwives promises great possibilities in the direction of preventing the wastage of infant lives. In Bombay and Calcutta, this experiment is proving a success to a certain extent. The licensing of the "Midwives" is a goal to aim at; but unless means are taken to train up a very large number (about 200 such women are practising this art at present) of Indian and other women in midwifery, the enforcement of the principle of the license would cause much hardship to the public who, at any rate, know less about parturition than the indispensable barber women. As a first step, therefore, the training up of such women should be organised at the various lying-in-hospitals in the city.

Without in any way depreciating in the least the value of special measures directed towards the care of mother and child, it would be advisable to take a broad view of the general causes of mortality, and, not to be misled into the belief that infantile mortality is a condition apart from general mortality, to which it is but necessary to apply the usual accepted remedial measures to achieve ideal results. It has to be remembered that special efforts to reduce mortality among infants are directed towards reducing conditions inimical, and peculiar to the earlier periods of life. These, however useful, will not control mortalities attributable to general causes which are always present, and associated with general insanitary conditions which operate prejudicially on all age periods.

The following figures may suffice to illustrate the point:—

Year.	Total mortality rate.	Infantile mortality rate.	Comparative ratio.
MADRAS.			
1905	59.0	316.3	5.4
1906	46.6	341.2	7.3
1907	40.5	270.7	6.7
1908	43.7	296.3	6.8
1909	37.9	295.0	7.8
1910	39.8	294.1	7.4
1911	42.0	305.4	7.3
1912	38.8	280.0	7.2
1913	39.9	293.4	7.4
1914	46.6	308.9	6.6
ENGLAND AND WALES.			
1913	13.7	108.0	7.9
RANGOON.			
1913	35.2	269.0	7.6
CALCUTTA.			
1913	29.2	274.8	9.4

Causes of General Mortality

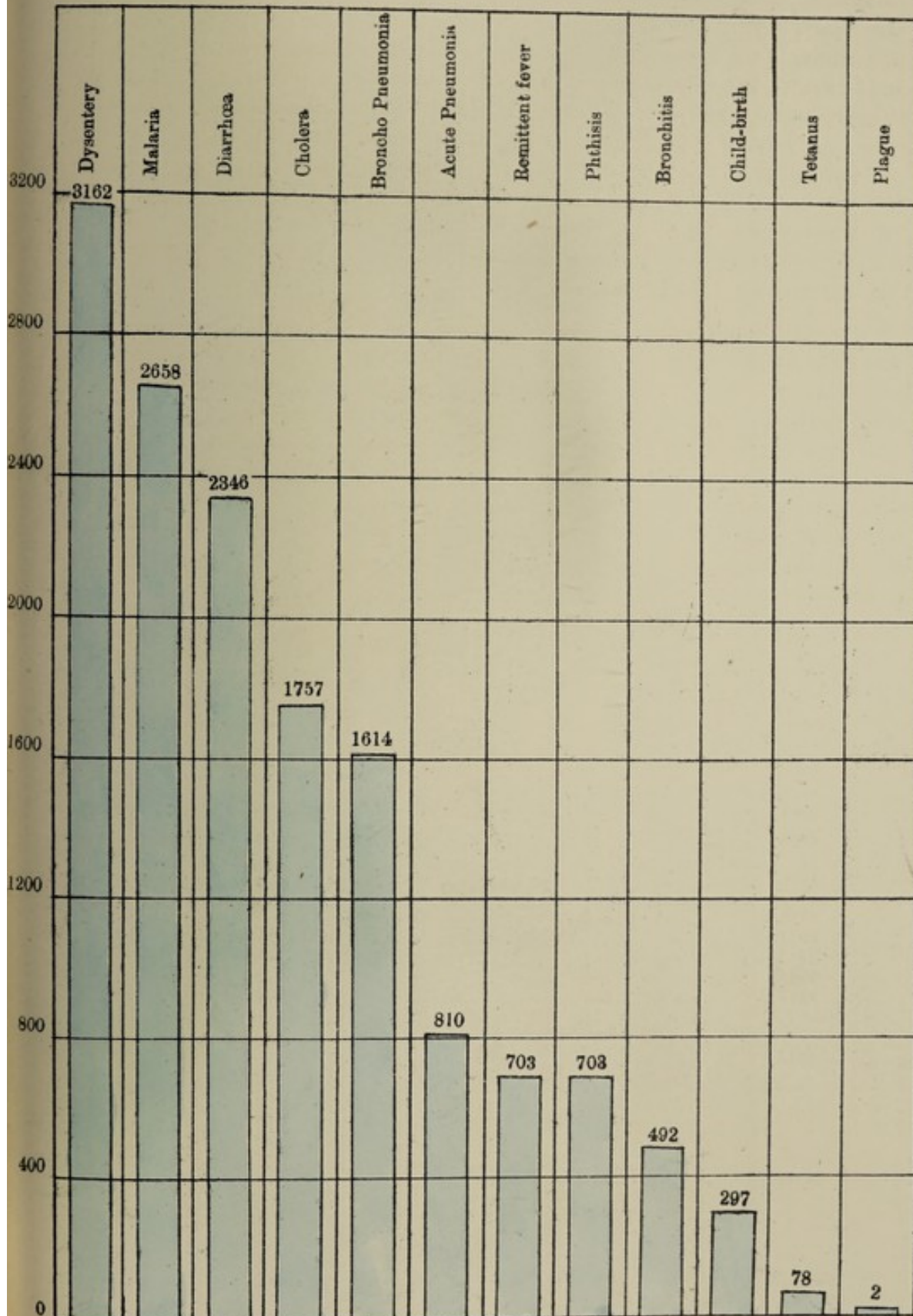
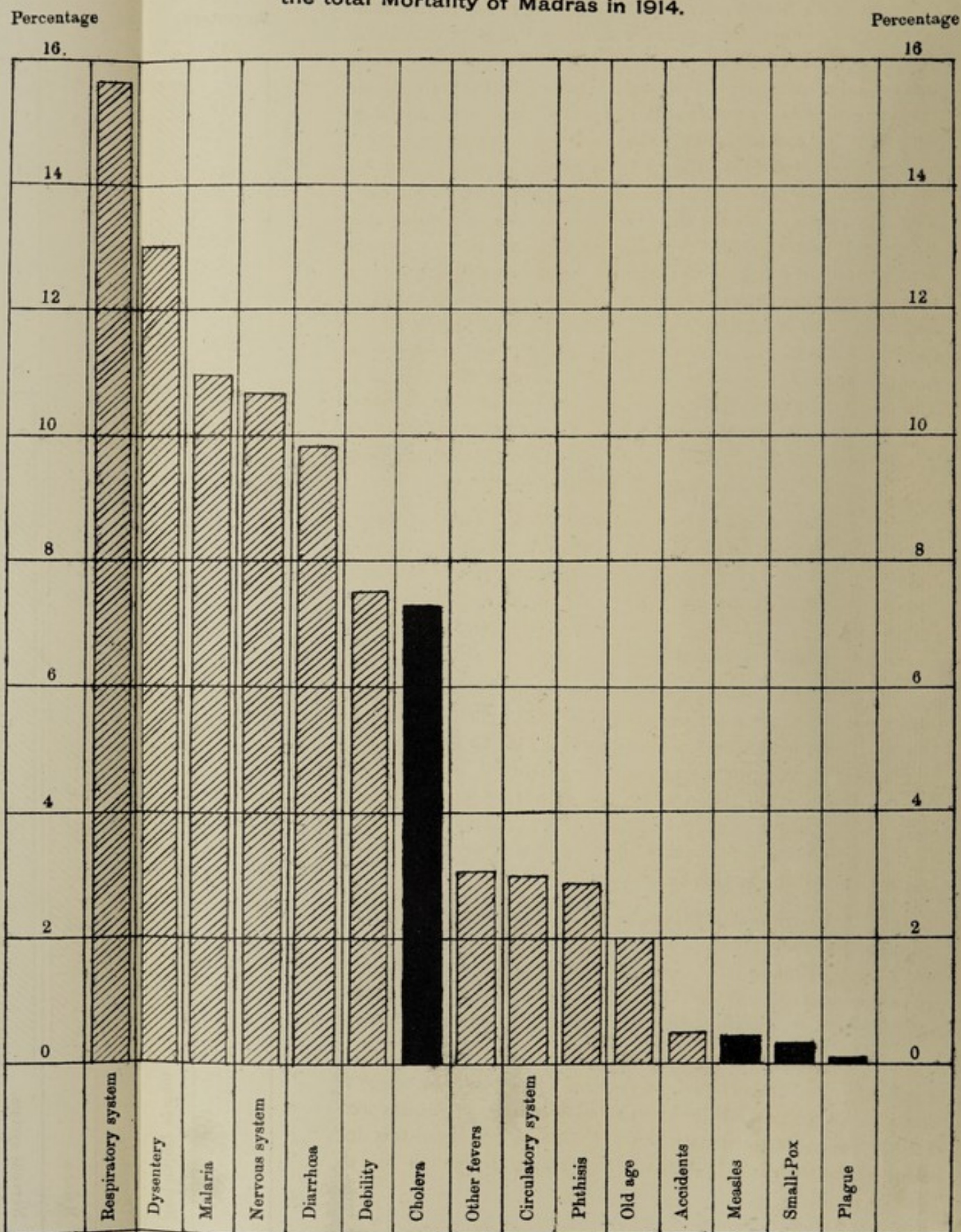


Diagram showing
Percentages of deaths from Principal Causes to
the total Mortality of Madras in 1914.



It will be observed from the above figures that the infantile mortality ratios generally bear a more or less close proportion to the total mortality ratios, whether we examine the returns of different towns, or of Madras City for various years. Although these two ratios are obtained in different ways, a comparison of this nature is instructive. In England, the infantile ratio for the year 1913 was 7.9 times the total mortality ratio. For the same year, in Rangoon and Calcutta they were 7.6 and 9.4 times respectively. In Madras we had, no doubt, a very high infantile death-rate during the year under review, but it can be seen that the comparative ratio referred to above approximates to that of former years. Thus, *the causes that raise the infantile mortality are chiefly those which increase the general mortality.* As already pointed out, there are special causes which usually account for excessive wastage of infant life, but, these in common with pronounced general causes must be regarded as having an origin in common—a low standard of general sanitation. Granted even, that conditions inimical and peculiar to infant life were entirely removed, the existence of the causes of general mortality would still exact a heavy toll in the early months of life, as infants are delicate indicators of the social and sanitary conditions of any given locality. Further, it seems but a fair inference that a marked decrease in infant deaths need not be expected until the causes which are responsible for the general mortality are also dealt with and removed.

Causes of General Mortality. Malaria.—Diagram No. III shows graphically the chief causes of death. Malaria is responsible for 11.0 per cent. of the total. Annual Form No. X (see Graph IX) shows that 2,658 persons died of this cause. In 1913, there were 2,788 deaths from Malaria. A full report of the Special Malaria Officer on the work of that department will be found in the President's Administration Report.

Diarrhæa and Dysentery.—The number of deaths registered from these causes was 5508, a marked increase from 1913. This represents a death rate of 10.6 per 1,000 from bowel diseases alone. (See Graphs I and VII). The mean ratio for the previous five years was 8.6. Annual Form No. XII gives figures showing the local variations in the mortality from these intestinal diseases, while Graph VII shows a comparison with 1913 in this respect. Of the 5,508 deaths, 1,241 occurred amongst infants under one year of age. September, October and January showed the largest number of deaths.

The divisional distribution (Graph VI) was about the same as in 1913; the divisions chiefly attacked were 3rd, 10th, 11th (and 17th). The divisions 3, 10, and 11 have the least satisfactory sewerage arrangements; the soil is more or less soaked in sewage. Water contamination is possible in these areas. It is advisable to carry out a special enquiry into this important cause of death.

Diseases of the Nervous System.—Of the 2,586 deaths registered under this heading, 2,174 were those of children under one year of age who presumably died in convulsions. Of the remaining 872 cases, 47 deaths were registered as due to "puerperal eclampsia," giving a death rate from this disease of 0.2 per mille of the female population. Hemiplegia accounted for 280 deaths and Tetanus for 78.

General Respiratory Diseases excluding Tubercle of the Lung.—(Table No. XV). 3,024 deaths were due to respiratory diseases, being 805 deaths more than in the previous year. The ratio is 5·8 per mille.

The months most favourable to respiratory diseases were, in 1914, September and October. The latter half of the year steadily marked a high mortality in diseases of respiration. June returns the smallest number of deaths. In 1913, the months of January, June and December were the unfavourable months. No generalization can be drawn from these returns as to the seasonal incidence of these diseases. The chill months of December and January, and the months of transition from marked differences of temperature would no doubt predispose people to respiratory diseases, unless proper precautions are taken to maintain the body temperature as steady as possible by means of clothing suited to the requirements of the weather. The dampness of the soil, which is defectively drained may also contribute to this mortality. Very few of the poorer houses have floors impervious to damp.

The divisions from which the largest figures of mortality were obtained were the 7th, 9th, 12th, 17th and 18th. (In 1913, the divisions that suffered heavily were 7th, 8th, 17th and 18th). These areas are either congested, or damp, and any future scheme of relieving the congestion of population should commence in one, or more of these divisions. The 17th Division is now being dealt with to relieve congestion.

The following respiratory diseases were responsible for the number of deaths marked against each:—

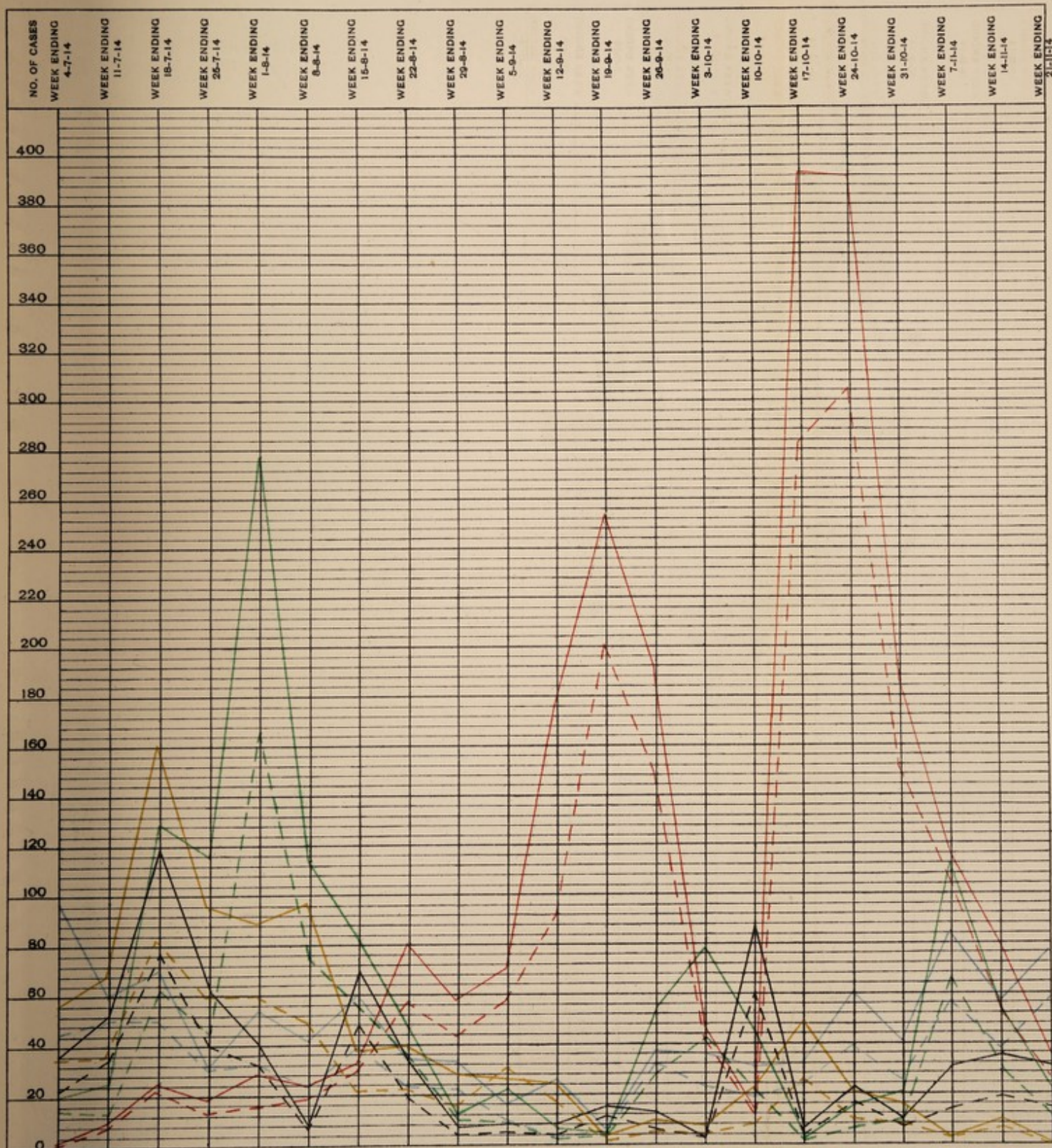
			1913.	1914.
Broncho-pneumonia ...	...	...	886	1614
Bronchitis ...	...	...	593	492
Phthisis ...	...	...	445	703
Pneumonia ...	...	...	577	810

Pneumonia was unusually prevalent and phthisis was on the increase. It may be useful here to quote Parker's observations on over-crowding.

"The high death rates which go with dense population are not simply the result of aggregation. Aggregation means, no doubt, generally polluted air and possibly polluted water and soil, and the easy spread of infectious disease. But, as Dr. Ogle has pointed out, the more crowded a community, the greater the amount of abject want, filth, crime, drunkenness, and other excesses, the more keen is the competition, and the more feverish and exhausting, the conditions of life. It is, too, in these crowded communities that the most dangerous and unhealthy industries are carried on. These indirect consequences of aggregation influence the mortality greatly more than the direct." These words are as true in Madras as elsewhere. The very intimate association of human habitations with stables, cattle-yards, oil-mills, flour mills and sugar refineries, and a host of other disturbing elements of life, does not make for an orderly, or healthful state of affairs.

MADRAS { Attacks
 Deaths
 SAIDAPET { Attacks
 Deaths
 MADURANTAKAM { Attacks
 Deaths
 CONJEEVARAM { Attacks
 Deaths
 CHINGLEPUT { Attacks
 Deaths

Chart showing the number of Attacks &
 Deaths from Cholera week by week from 1st week of July to the
 3rd week of November 1914 in the City of MADRAS & in
 the Taluks of SAIDAPET, CHINGLEPUT, MADURANTAKAM & CONJEEVARAM
 of the Chingleput District



1800	1810	1820	1830	1840	1850
100,000	150,000	250,000	400,000	600,000	1,000,000

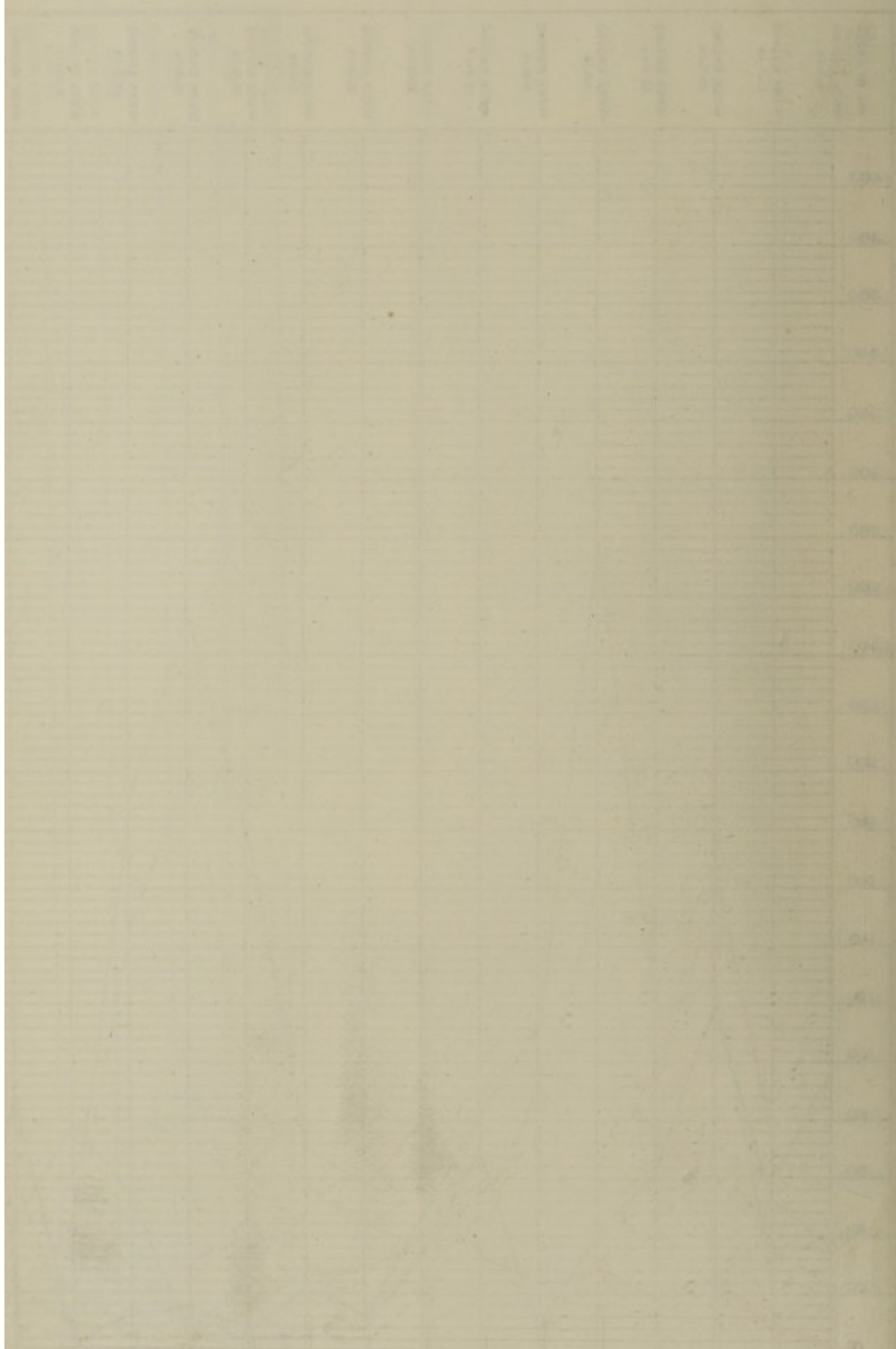
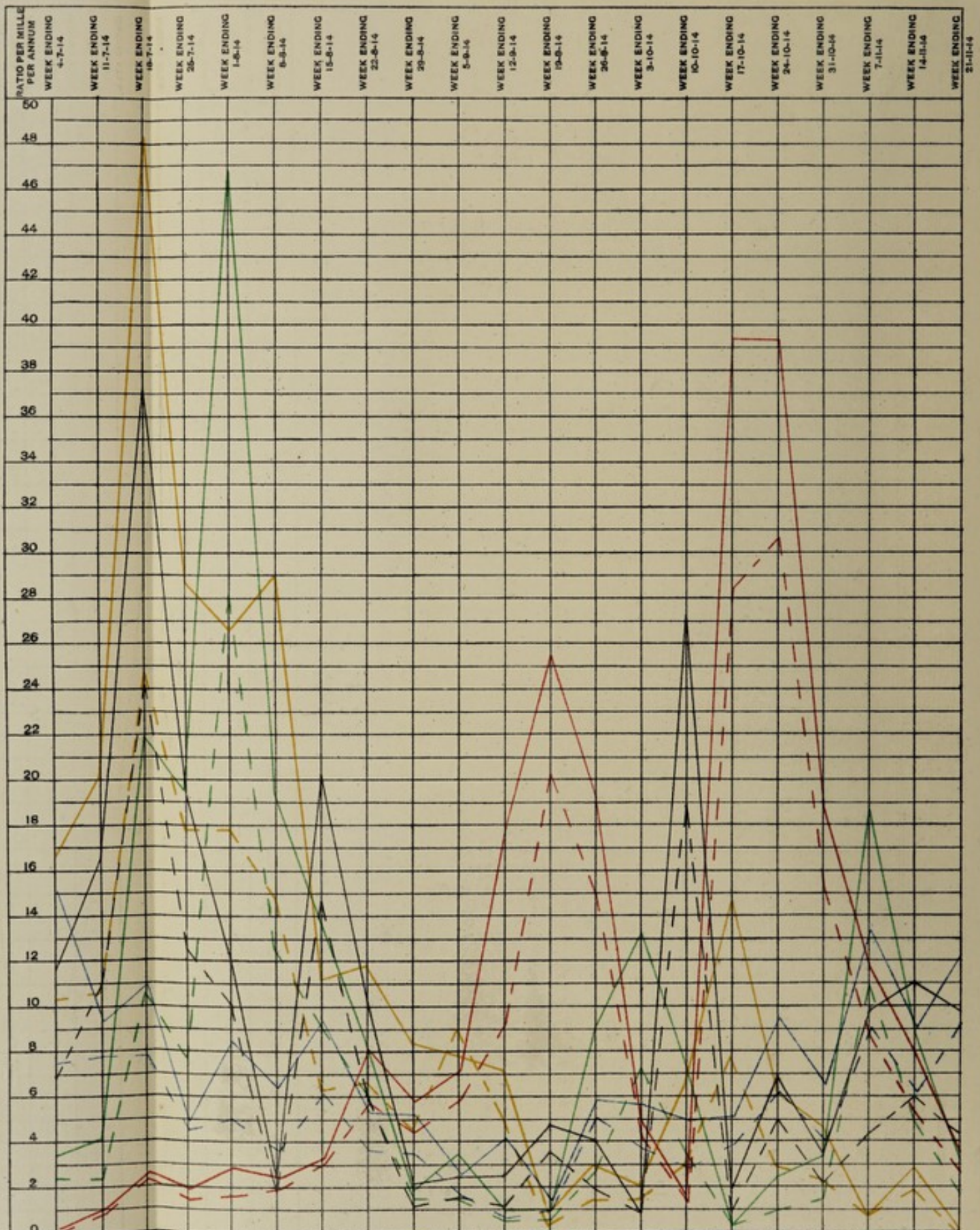


Chart showing the Ratios per Mille
per annum of the Attacks & Deaths from Cholera
week by week from the 1st week of July to the 3rd week
of November 1914 in the City of MADRAS & in the Taluks of
SAIDAPET, CHINGLEPUT, MADURANTAKAM & CONJEEVARAM
of the Chingleput District.



In 1914, the deaths were more numerous (see Annual Form III) during September, October, November and December than in 1913. The war and the resulting hardships—scarcity, unemployment through slackness of trade—have, no doubt, had much to do with this increase generally.

Tubercle including Tubercle of lung.—738 deaths were returned under this head which is more (by 257 deaths) than in the previous year. The rate is 1.4 per mille. What has been said last year in this connection applies with greater force now that the statistics support those observations. (Appendix B. of Health Officer's Report for 1913).

Infectious Diseases—Cholera.—Out of 2,332 cases reported during the year, 1,757 proved fatal, (against 29 fatal cases in the previous year), the ratio being 3.4 per mille. The mean ratio for the quinquennium was 0.5.

Madras, in common with Burma and Ceylon, was notorious for its cholera epidemics over 132 years ago. After that long lapse of time it can be said at the present day, that, so far as cholera is concerned, Rangoon and Colombo do not lie under the reproach of the past, but the same compliment cannot be extended to this city. Reviewing the Annual Reports for the past 15 years it is evident that cholera is never absent. In the Report of 1905 an account of the epidemic of that year, which was a particularly severe one, refers to the fact that it was the worst, since 1877. This was the famous famine year. The number of seizures from cholera in the epidemic of 1905 was 5,067, of which, 3,684 proved fatal. 1901 was also an epidemic year with 1,730 seizures, of whom 1,242 died. From 1905 onwards each year contributed its quota, of cholera, with more, or less severity. 1914, the year under review, although an epidemic one of unusual severity, falls short of that of 1905, with 2,332 seizures, of which 1,757 were fatal, but there is also another remarkable difference between the two epidemics, in that the 1905 was one epidemic, whereas that of 1914 was two well marked epidemics, with a pronounced break between (*Vide cholera graph*).

Further reference to past Reports reveals clearly that the infection of the City was usually from the mofussil. The epidemic of 1914 with its double rise and fall proved no exception in this respect. Enquiries go to show that in both epidemics infection was imported.

A reference to the chart depicting the course of the epidemics from beginning to end will reveal points well worthy of study. It may be noted that prior to the 15th of August Cholera was non-epidemic in Madras City, whereas in the adjacent taluqs, the disease was in a severe epidemic form. The slight rise in the Madras City curve from 9th-15th August indicated that the City had become epidemically infected and it will be further noticed that the upward tendency was maintained until the week ending the 19th of September, when the disease began to decline rapidly reaching the non-epidemic point in the week ending the 10th October. In the week following, 11th-17th October, a sudden recrudescence of cholera occurred, the sudden upward curve reaching the maximum point in the course of the whole epidemic. This severity was continued throughout the week, 17th-24th October, when a rapid decline in attacks was

again noted which continued and gravitated to the non-epidemic level, within the next ten days.

A cursory glance at the curves on the chart will clearly reveal, that towards the end of the first epidemic in (15th-22nd August) the adjacent taluqs, Madras City became epidemically affected and the curve began to rise rapidly. Again, when the Madras City curve reached the non-epidemic level on the 10th October, all the adjacent taluqs had cholera in an epidemic form especially Chingleput, and Madurantakam. But, another interesting occurrence has to be associated with this period. It will be remembered that the "Emden" visited Madras on the evening of the 23rd September. From the following morning, and for more than a week, a general exodus of inhabitants from the City, but mostly from George Town, and Rayapuram continued. Thousands of people sought refuge in the surrounding taluqs which were at this time highly infected with cholera. The sudden invasion of these taluqs by thousands of people from the City, resulted in a rapid rise in the price of food stuffs, which compelled the poorer people to return first. After about a week, or 10 days, the refugees began to return practically *en masse* carrying with them the infection which gave rise to the second epidemic.

Cholera was officially declared epidemic in the City in the week ending 15th August. For some time previous to this date, however, there were scattered cases returned from some divisions. When the City was practically free, cholera was raging in epidemic form in many parts of Chingleput District, the seizures at Conjeevaram being particularly heavy. But at an even earlier stage than then, cholera was in epidemic form in the villages near the Red Hill lakes. That was about the middle of July. In August the usual Periapalayam Festival took place. Advertisements were inserted in the local press, warning intending pilgrims of the danger from cholera, and advising them not to attend. The usual annual precautions of patrolling the tollgates to check apparent cholera cases from entering the City, was in force during the whole Festival.

Cholera is recognised as endemic in parts of the Madras Presidency. The City and adjacent district may be regarded together with regard to the endemicity of cholera, and climatically they are practically alike. Yet with the City's dense population one would have expected the city to be a constant menace to the district, instead of the usual experience, the district being a danger to the city. The secret would seem to be in the fact that, imperfect as the city may be in many sanitary matters, it is, yet, much in advance of most mofussil villages. That may be regarded as an explanation of the City's danger from without.

The periods of the epidemicity of cholera vary throughout India, temperature being the regulating factor. In Calcutta, an endemic area—the period is from December to February. In Behar and the Punjab, the periods again differ. In Madras, the period is July to September. The explanation of this variation of epidemic periods is, that the temperature of any given locality has reached the point most suitable for the rapid multiplication of the cholera.

vibrio, when in a suitable nutrient media. Grieg, from actual experiments with rice-water stools from cholera patients, found, in Calcutta, from December to February, that the cholera vibrio showed the highest vitality during that period, as compared with other months of the year. That is, the number of bacilli, and their virulence, is greatest at that time ; which goes to explain epidemic seasons bacteriologically.

Man is the important factor in the dissemination of cholera. The problem of the prevention of Cholera is, therefore, primarily the protection of man from man, which practically, is impossible at present. Man may swallow and excrete cholera vibrios without manifesting any symptoms of the disease, and yet he is a danger to the community, for others can be virulently infected from him. He may be regarded as a "Concentrator," or, "Factory" for the production of cholera vibrios from which, when the doses of poison are issued to all distributory channels, water, milk, cold food, salads, the initiation, or continuance of an epidemic is assured. This may be accepted as the role of the "human carrier." If he is an acute "carrier," that is when bacilli are discharged from the bowels only, infectivity may last for only 2-3 weeks. The reason for this being that the cholera bacilli are annihilated by the other organisms present in the intestine. On the other hand, a "chronic carrier" may secrete vibrios for 12 months, as these are stored in the sterile fluid of the bile duct, and bladder. Bile is a particularly good media for the preservation of cholera vibrios. These "chronic carriers" may probably be responsible for the disease being carried over from one season to another. This alone should be a satisfactory reply to the every-day query, where does cholera come from ?

The popular idea that cholera is due to filthy drains, and bad conservancy is worthy of consideration. The question of drains may be dismissed, providing they do not pollute water supplies. It has already been mentioned that cholera vibrios are overpowered in the human intestine by other organisms. In an ordinary open street drain, the life of a cholera vibrio would be short, cut off from food, and surrounded by enemies !

When, however, we come to consider the matter of bad conservancy, then the subject cannot be swept aside without carefully considering the manner in which it may affect the spread of cholera. It has an indirect bearing on the incidence of cholera, yet none the less important. The habits of the people need not be referred to, as they are well known. Conservancy has to deal with the removal and disposal of their excreta, which is variously delivered for removal, and also with the removal of all kinds of other rubbish and refuse. The test of good conservancy is the promptness with which all ordure can be removed, and how completely cleansing is done. Bad conservancy leaves this work undone—and this is where the fly has his sphere of usefulness in the spread of disease.

The reason why flies haunt the abodes of man is, because the food supply, and suitable ground for the perpetuation of their species is assured, in filth, and rubbish accumulation to be found in, and around human habitations.

What is food for man is food for flies, and the fly usually gets his share. Further they feed on substances of a filthy, and putrid nature, and they readily utilize garbage, and excreta as breeding grounds in which to lay eggs.

Bad conservancy, therefore, gives rise to conditions which lead to an enormous multiplication in the number of flies, and all facilities are given for the contamination of the feet and intestinal contents of these flies. This contamination is in proportion to the inefficiency of conservancy.

As there seems to be a prevalent idea among some people that cholera may pass from one to the other in the neighbourhood, a few words may be given regarding this fallacy. *Contact* or *contamination*, will explain the above primitive idea.

Contact is probably not so important, as the contamination of water and food by other means. It is only when crowding is excessive, contact may play an important part, *i.e.*, in the dwellings or at large religious festivals. The usual means of transmission are through food and drink. How do these become contaminated? Water supplies in this country may be contaminated with ease, owing to the absence of filtered and piped supplies, the use of surface and river waters. The extraordinary habits of the people who will wash, bathe and drink indiscriminately in the same water is an every-day illustration of a great danger in this direction.

Contamination of food, which is a common cause of infection, is most suitable in most of its forms for this purpose, because the organism implanted on it cannot only live but multiply, until the stage is reached when poisonous doses are given off. In the market, street, hotel, eating house and dwelling house, food is usually left lying about uncovered, because the ordinary individual knows no better, and in its prepared forms offers an immediate trap to the unwary. It is, therefore, subject to more frequent handling than water and is in every way a most suitable means of transmission, provided the infecting agent is present. Flies, which are usually seen in myriads in these places, are infecting agents, *whose presence is due to bad conservancy*.

The chief measures taken to combat the disease were :—

- (1) A Special Cholera Staff was appointed consisting of nine Cholera Inspectors, with a menial staff of 47 peons and coolies for disinfection work.
- (2) Disinfection of houses, house drains, and bedding and the destruction of household rubbish.
- (3) Disinfection of wells and latrines in houses and outside.
- (4) Disinfection of street drains, when cholera attacks occurred, and also disinfection of dust-bin sites in the streets.
- (5) Isolation of infected persons where possible, but where not possible, removal to the Isolation Hospitals at Corporation expense.
- (6) Pails of disinfectants were left for use in infected houses.

(7) Distribution of dilute acids to contacts, and simple medicines for colic and diarrhoea were supplied to some schools.

(8) Drinking water supplied by barrel carts in Kassimode and Ponmanai, where water was scarce.

(9) Advertisements were inserted in the local press, warning intending pilgrims of the danger from cholera, and advising them not to attend the Periapalayam Festival. The usual annual precautions of patrolling the toll-gates to check apparent cholera cases from entering the city, was in force during the whole festival.

Distribution of leaflets with simple directions and instructions to prevent the spread of cholera.

(10) The closure of schools in special localities.

(11) *To combat flies* :—

Lime was freely sprinkled in and around infected houses, latrines, sides of drains, on dust-bin sites, wherever flies were likely to harbour or breed; markets, and latrines attached thereto, had special attention.

(12) Destruction of fish or suspicious food stuffs found either in markets or by the sides of drains.

The Superintendent of the Army Clothing Factory also requested the assistance of the Health Department in this epidemic as large consignments of clothing had to be manufactured and despatched for the use of the Armies leaving India for the War. All houses and employees were immediately brought under the surveillance of the department with the satisfactory result that infection was avoided throughout the epidemic.

The case mortality of cholera is extremely high. Rogers gives 81·6 per cent. as the death rate among Europeans, from hospital figures collected for 13 years. Among Indians he quotes age mortalities of 51·3 per cent. between 11-20 years of age, and 73·7 per cent. at 50 years of age. In the Madras epidemic of 1901, the percentage of deaths to seizures was 71·8 per cent., in 1905, 72·7 per cent., and in 1914, it was 75·3 per cent. But for the special treatment, this figure would have been slightly higher.

These fearful mortalities now bid fair to be converted into recoveries, by the introduction of Roger's treatment into the Monegar Choultry Native Infirmary, and Kistnampet Isolation Hospital through Lt.-Col. Donovan, and Major Bryson. The results of this treatment in both the hospitals considered together show that the percentage of cures, to the total number treated was so high as 76·5 per cent. : that is, equivalent to a case mortality of 23·5 per cent. When compared with the standard case mortality of Rogers, the value of the new treatment cannot be over-exaggerated.

It is to be sincerely hoped that those in positions of influence will widely publish these excellent results, obtained in Madras City, in the treatment of this, one of the most deadly scourges known to mankind.

Small-pox.—The number of attacks during the year was 146, of which 66 proved fatal, yielding a ratio of 0·1 per mille of the population. The largest number of deaths in any one month was 11, which occurred in March and April. The number of deaths in the previous year was 34 and the mean ratio for the previous five years was 0·3.

Measles.—The deaths registered from this cause numbered 87 or 70 less than in 1913. The ratio for the year was 0·2, while the average ratio for the quinquennium was 0·3.

Plague.—There were three cases during the year of which two proved fatal, against three fatal cases in the previous year.

Enteric (typhoid) Fever.—Deaths due to this cause were 66, being 15 deaths more than in the previous year, and giving a ratio of 0·1 per mille. The mean ratio for the previous five years was 0·09.

The return of deaths for the last ten years is shown as follows :—

<i>Years.</i>	<u>1905</u>	<u>1906</u>	<u>1907</u>	<u>1908</u>	<u>1909</u>
<i>Deaths.</i>	52	49	42	36	41
<i>Years.</i>	<u>1910</u>	<u>1911</u>	<u>1912</u>	<u>1913</u>	<u>1914</u>
<i>Deaths.</i>	42	52	42	51	66

These figures represent the cases diagnosed by high class medical men and to the ordinary observer present nothing of a startling nature. The disease is much more prevalent than these figures would suggest, many cases of which are probably returned under "other fevers" or malaria. (*Vide* Administration Report 1910-11—Page 53.)

Typhoid is a dangerous disease of the bowels, and the factors contributing to its growth and dissemination are practically identical with cholera. Still, cases of typhoid are never reported except by medical men, whilst cholera, which is well recognised, can be reported by the ordinary man in the street. There is no likelihood of typhoid ever being discovered by the ordinary lay man so that the diagnosis of medical men must entirely be relied on. I am convinced that this is one of the most under-reported diseases in the City, and it is only by the co-operation of all medical men we can hope to improve the returns. It is a difficult disease to diagnose, even sometimes with the most advanced scientific apparatus at hand, and is consequently missed in the majority of cases. The absence of a Corporation laboratory is also another hindrance, as practitioners working among poor communities cannot pay the ordinary fee for the examination of specimens submitted for purposes of scientific diagnosis. Until these bacteriological aids are placed within reach of this class of practitioners, typhoid will remain under-reported.

The cause of typhoid fever is merely drinking the excreta of some one else, or as the Americans have it "eating dirt" in which is contained a well recognised organism—the bacillus typhosus of Eberth.

The disease may be exorcised, by *keeping excreta out of drinking water, and keeping flies from liquid and solid food*. This would appear to be easy enough but it is not, as it takes years of preaching in the wilderness to get even those two facts into the consciousness of the ordinary crowd.

To further elucidate the above points, it is not merely the ordure of human origin which is dangerous, but that discharged from a previous case of this disease. The analogy with Malaria may be regarded as practically similar—the human agent as “distributor” and the vehicle of conveyance, the mosquito which is equivalent to water, or food in the case of typhoid. A difference in this connection, however, exists that the distributor, better known as the “carrier” in typhoid may be of many years standing, and may be the focus of many epidemics in localities far apart.

I dare say it will be conceded that it is neither healthy, nor exhilarating to drink a clear solution of sewage, even if in minute dilution as is temptingly presented in many of the wells and tanks of Madras City. As a matter of fact it is astonishing how long communities may assuage their thirst, and replenish their domestic vessels, with sewage-laden water, provided the specific pathogenic organisms, designated as water-borne, are not present. Once these organisms are present, an epidemic is almost inevitable.

Typhoid, as a disease, was recognised as far back as the age of Caesar. It haunted filthy cities and followed in the trail of famines. Through all military campaigns it dogged the steps of armies until it became known as “Military Fever”. In the Franco-Prussian War, it exacted a toll of 60 per cent. of deaths from all causes, while in the Boer War it caused nearly 6,000 deaths, as compared with 7,500 from wounds in battle. Strange it may seem, but the bacillary group of diseases is more deadly to the soldier than bullets. Sewage has been mightier than the sword in past campaigns.

It has been already indicated how the bacillus of typhoid can be introduced into the human system. Instances need not be quoted, the evidence in medical literature is overwhelming. But the three great routes of infection are by water, milk, and flies. A rough statement is only possible, but it may be taken as probably 85 per cent. through water, 5 per cent. from milk, 5 per cent. through flies, and 5 per cent. through other channels. This fairly represents the relative percentage.

Some of the greatest epidemics of typhoid, which have occurred in the cities of Britain and America in the past, were due to the pollution of water supplies. Epidemics have also been recorded in connection with milk supplies, but in every case they were traced to filthy handling of the milk by “carriers” or by washing utensils in, or diluting milk with, polluted water, or a person may have been nursing a friend, and conveyed contamination in the process of milking, or washing vessels. Fortunately for the human race no domestic animal with the possible exception of one, has ever been known to harbour or transmit this disease. The old superstition that a cow drinking foul, or, infected water and then transmitting typhoid through its milk, has been exploded long ago.

Sanitarians in the west keep the strictest watch over the milkman, and the health of his family, so of recent years epidemics from this source are rare.

Flies are prolific disseminators of disease, and along with them dust may be considered. The fly lives and moves, and has its being in filth. It breeds on filth, and feeds on human food where possible. As he never wipes his feet, the results when in contact with food require no vivid imagination to perceive. Bacteriological experiments can show the foot prints of a fly clumped with bacilli on a gelatine plate incubated for 48 hours. Flies caught in the houses of typhoid patients and examined under the microscope have shown their feet, stomachs, and specks of excreta, to be swarming with bacilli. A single speck may contain 3000 bacilli !

To disinfect flies is useless, extermination is the only remedy. Where manure, garbage or rubbish is left lying about for a week, flies begin to hatch forth from these sources and swarms quickly infect the household. Therefore it follows that filth, or stable manure should be promptly removed, in fact accumulations of filth of any kind should be speedily dealt with. Stable bins should be covered with tight fitting fly proof gauze lids.

Another source of infection, which is far from uncommon, is eating raw shell fish collected in harbours, rivers, or indeed on any part of the sea coast, liable to be contaminated by sewage. Vegetables also, if grown on land manured by sewage, especially if fresh, are particularly liable to be infected. Salads, which are eaten raw, are extremely dangerous, and are better avoided in epidemic times.

From the various channels of infection described, it will be understood that personal protection rests in, *boiling* all water, milk, and food used in the household, and then preventing reinfection from dust ; and guarding against flies, by covering vessels, in which foods are contained, by cloths, wire gauze, or lids. This is simple, and quite efficacious, if put into daily practice, *but don't trust your servant in this, all-important matter; do it yourself.* These methods of protection equally apply to cholera, and dysentery.

The outstanding symptoms in a typical case of typhoid fever are, abdominal pain or discomfort, with either diarrhoea, or constipation, and frequently with severe bleeding at the nose. These are accompanied by fever which becomes higher each day until the turning point, when the fever beginning to drop day by day until the normal temperature is reached. These symptoms, however, may be entirely absent when blood tests and the microscope are resorted to by the physician. When fever continues daily for four or five days without intermission, it is always well to seek medical advice.

Typhoid Vaccination. This protective inoculation was introduced by Sir A. Wright of St. Mary's Hospital, London, so long ago as 1897. The results of this inoculation during all those years, have been fully tested both in the army, and among civilians and have given the best results. The Director of the King Institute of Preventive Medicine, Guindy, has always a large stock of

vaccine on hand, which is supplied to medical practitioners. A great many people in Madras resort to this safe method of protection, with no inconvenience. I am constrained to say that the knowledge of this means of protection should be made more widely known among the masses.

Prosecutions.—During the year the number of prosecutions instituted for failing to register births within the time allowed by the Act was 4, and for deaths, 3. Convictions were obtained in six cases and in the remaining one case, the party was acquitted. The fines imposed amounted to Rs. 7.

Extracts.—193 applications were received during the year for extracts of entries from the birth registers, and 358 from death registers. Out of these, the number of birth extracts granted was 143, and of death extracts 312. In 85 cases extracts were not granted, as the parties failed to pay the prescribed fees. In 11 cases, entries were not found and the parties were accordingly informed. The fees collected during the year for such extracts amounted to Rs. 638-8-0. The following table shows the number of extracts issued during the year 1914 as compared with those of previous three years :—

1911.		1912.		1913.		1914.	
Births.	Deaths.	Births.	Deaths.	Births.	Deaths.	Births.	Deaths.
65	174	102	221	109	275	143	312
239		323		384		455	

Burial and Burning Grounds.—The number of Corporation Burial and Burning Grounds remained the same as in the previous year. All the Hindu Burial Grounds are not provided with enclosing compound walls or fencing.

Of the 24,174 deaths in the year, 18,812 bodies were buried and 5,362 burnt. Proposals were made during the year for the extension of the Casimode Cemetery and Suriyanarayana Chetty Street Hindu Burial Ground, and steps have been taken to acquire the land. Burying appears to be the more popular mode of disposal of the dead. Considering the clayey nature of the soil in most of the larger burial grounds and the sluggishness of the sub-soil drainage, it will be seen that the location of some of the burial grounds, such as the Choolai and the Washermanpet Grounds, is not satisfactory. Our aim should be to open new burial grounds at a distance from the inhabited localities. Cremations may not be so objectionable to a neighbourhood as the continued burials without coffins in impervious soil.

Eleven new burning platforms were erected in the Mylapore Hindu Burial Ground on the canal side, replacing those that were facing the Marina.

Burial Ground land was sold to 90 applicants during 1914 ; the amount realised was Rs. 631-4-0. The plotting out of tomb areas on vacant land in the

burial grounds, as is done in the Christian Cemeteries, requires to be done in all burial grounds of the Corporation.

For a variety of reasons, the burial of corpses within the city is undesirable. In some of the burial grounds, the soil is not suitable, and even remain flooded during the heavy monsoon rains. Wells may get contaminated when they are situated near the larger burial grounds. The burial of bodies of infectious diseases in a ground like the Washermanpet Hindu Burial ground is a source of danger to the surrounding area. Our policy should be to discourage burials within the city, by opening new burial grounds outside the city limits and by providing facilities for the most rapid and sanitary mode of disposal of the dead by the total destruction process in a crematorium. From the larger number of burials, it is estimated that about 15 acres of land is required for burials every year in Madras. This is a large area of land which can be utilized in any of the ways that will go to improve the health of the city.

The following table shows that only about 38 per cent. of the bodies of the Hindus were cremated in 1914 :—

—			Buried.	Cremated.
Europeans	...	...	78	<i>Nil.</i>
Anglo Indians	...	...	349	<i>Nil.</i>
Indian Christians	*...	...	1,015	<i>Nil.</i>
Hindus	...	...	13,919	5,362
Mahomedans	...	...	3,450	<i>Nil.</i>
Others	...	...	1	<i>Nil.</i>
			18,812	5,362

Of the Hindu burials, a large proportion was of infants, of whom 4449 died during the year.

Statement showing the places inspected and the number of inspections made by the Food Inspector, North Range, during the year 1914.

Serial No.	Description of the places inspected.	No. of inspections made during the year.	REMARKS.
1	Markets	519	
2	Bake Houses	267	
3	Ærated water factories	134	
4	Coffee Hotels	883	
5	Lodging Houses		
6	Eating Houses		
7	Sweet meat bazaars	157	
8	Spring Haven shed	192	
9	Rayapuram Goods shed	145	
10	S.I.R. Beach do.	125	
11	Grain bazaars in wall Tax Road	68	
12	Salt-fish godowns, Wall Tax Road	57	
13	Grain Godowns, North Beach Road	100	
14	Grain Bazaars, Krishnan Coil Street		
15	Potatoes Godowns	102	
16	Onions Godowns	81	
17	Fruit Godowns	182	
18	Customs House	7	
19	Shops where tinned foods are sold	65	
20	Sugar factories	10	
21	Wheat flour Godowns	135	

Statement showing the amount of unsound food stuffs seized and destroyed by the Food Inspector, North Range, during the year 1914 :—

No.	Name of food stuffs.	Quantity destroyed.	Remarks.
1	Condensed milk	343 tins.	
2	Potatoes	56 baskets, 6 bags & 27 visses.	
3	Cheese	46 tins.	
4	Salt fish	37 baskets and 34 bags.	
5	Fish (Large)	91	
6	Preserved meat	10,556 tins.	
7	Fruits (mangoes, plantains, apples, govass, melons, orange, etc.) ...	81 baskets and 8,891 fruits.	
8	Aerated waters	1,016 bottles.	
9	Cashewnuts	7 visses.	
10	Cocoanuts	183	
11	Eggs	785	
12	Mutton	119 $\frac{3}{4}$ seers.	
13	Prawns	35 baskets.	
14	Garlic	1 basket.	
15	Bread	50 loaves.	
16	Flour	112 bags and 24 measures.	
17	Chockolate	9 cases.	
18	Rice	1,117 $\frac{1}{2}$ bags.	
19	Confectionery	178 tins and 1 $\frac{1}{2}$ visses.	
20	Biscuits	193 tins and 39 lbs.	
21	Onions	22 baskets and 4 cart loads.	
22	Butter	9 tins.	
23	Bengal gram	5 bags.	
24	Toor dhall	1 bag.	
25	Ground nut seeds	277 bags.	

Statement showing the places inspected and the number of inspections made by (F. I. South Range), during the year 1914 :—

No.	Descriptions of places inspected.	No. of inspections made.	REMARKS.
1	Railway Import sheds	187	
2	Markets	824	
3	Bake Houses	340	
4	Dairies	39	
5	Coffee Hotels and Restaurants ...	401	
6	Aerated water factories	70	
7	Eating Houses	93	
8	Fruit godowns	15	
9	Fishermen Hutting grounds (cuppams)	26	
10	Provision Stores... ..	42	
11	Sweetmeat Bazaars	173	
12	Grain Bazaars	372	
13	Mutton Stalls (separate from markets).	48	
14	Beefs stalls (do.)	49	

List of food stuffs destroyed in S. Range during 1914 :—

No.	Name of food stuffs.	Quantity destroyed.	REMARKS.
1	Condensed milk	15 tins.	
2	Salmon	3 tins.	
3	Cherries (Swallow and anil) ...	1 tin.	
4	Pine apple	1 tin.	
5	Mustard condiment	7 tins.	
6	Corn flour	1 tin.	
7	Butter	19 tins.	
8	Biscuits	54 packets and 3½ lbs.	
9	Bread	106 loaves.	
10	Eggs, fowl	820.	
11	Wheat flour	½ bag and 20 measures.	
12	Boiled rice	2½ bags.	
13	Broken rice	1 bag.	
14	Apples	1½ baskets and 82.	
15	Oranges	6½ big baskets and 218.	
16	Lime fruits	257.	
17	Melons	52.	
18	Goa fruits	½ basket.	
19	Jack fruits	1 basket (loose fruits) and 7 fruits.	
20	Mango fruits	16 bags, 26½ big baskets and 821.	
21	Plantain fruits	3 bunches, 5½ baskets (loose-fruits) and 862.	
22	Potatoes	2 bags, 25½ visses.	
23	Onions	7 cart loads, 3 bags, 1 basket and 2 visses.	
24	Vegetables (mixed)	3 big baskets and 51½ visses.	
25	Vadagam (prepared curry stuff).	77 visses.	

List of food stuffs destroyed in S. Range during 1914 :—(Continued).

No.	Name of food stuffs.	Quantity destroyed.	Remarks.
26	Curd	3 measures.	
27	Ghee	2 tins and 1 viss.	
28	Potatoe pudding	4 plates.	
29	Rice cakes	170 and 1 plate.	
30	Sweets	75 visses and 13 Plates.	
31	Cocoanuts	$\frac{1}{2}$ big basket (loose) and 250 cocoanuts.	
32	Mutton (raw)	171 $\frac{1}{2}$ lbs.	
33	Mutton (prepared)	57 lbs. and 31 plates.	
34	Fowl curry	4 plates.	
35	Beef	134 $\frac{1}{2}$ lbs.	
36	Beef lungs	14.	
37	Fish (raw)	17 $\frac{1}{2}$ big baskets, 5 lbs. and 114 Large fish.	
38	Fish (dried)	5 $\frac{1}{2}$ big baskets, 11 lbs. 55 $\frac{1}{4}$ visses and 149 large fish.	
39	Fish curry	1 plate.	
40	Quails (fried)	20.	
41	Quails (raw)	1.	
42	Crabs	8.	
43	Aerated waters	895 bottles.	

HEALTH DEPARTMENT—SANITARY SECTION.

Statement of Notices dealt with in the several Divisions during the year 1914 :—

Divisions.	No. of premises as per census of 1911.	No. of premises inspected	No. of notices pending disposal on 1-1-1914.	No. of notices issued during 1914.	Total	No. complied with.			No. of notices otherwise disposed of e.g. cancelled or withdrawn.	No. of notices pending disposal on 1-1-15.
						Volun- tarily.	By prose- cutions.	By transfer to W.D.		
1st Division ...	3296	353	33	206	239	201	...	1	...	37
2nd " ...	6223	392	34	392	426	331	59	36	...	...
3rd " ...	2356	325	...	430	430	178	32	154	28	38
4th " ...	1411	475	61	257	318	149	109	9	5	46
5th " ...	2001	486	91	428	519	383	65	...	...	71
6th " ...	2210	212	48	358	406	258	33	3	24	88
7th " ...	3067	218	126	363	489	330	...	16	68	75
8th " ...	2592	605	16	387	403	299	61	...	...	43
9th " ...	1757	472	75	289	364	254	86	10	3	11
10th " ...	3376	388	39	326	365	166	162	22	...	15
11th " ...	4336	222	57	222	279	135	50	23	25	46
12th " ...	2868	185	32	137	569	188	87	13	73	208
13th " ...	2863	351	117	397	514	131	135	56	77	115
14th " ...	2264	199	112	411	523	114	122	...	174	113
15th " ...	1705	145	48	224	272	133	14	6	...	119
16th " ...	2396	193	53	339	392	147	69	21	9	146
17th " ...	4221	365	82	437	519	261	149	10	32	67
18th " ...	3604	240	167	342	509	186	128	18	45	132
19th " ...	4382	123	228	632	860	281	148	34	295	102
20th " ...	2667	201	74	251	325	78	106	33	61	47
Total...	59595	6150	1493	7228	8721	4203	1615	465	919	1519

HEALTH DEPARTMENT—SANITARY SECTION.

Statement of Notices issued and disposed of during the year 1914.

(a) Total Number of premises in the Division according to the census of 1911 = 59,595.

(b) No. of premises inspected during the year 1914 = 6,150.

1 Section or By-law.	2 Substance of Section or By-law.	3 No. pend- ing on 1-1-14.	4 No. issued during the year 1914.	5 Total.	6 No. complied with.			7 No. disposed of cancelled or withdrawn.	8 No. pending on 1-1-15.
					Voluntarily.	By prosecution.	No. disposed of by transfer to W. D. for departmental execution and recovery of cost.		
218	Constructing and connecting a house drain with a public drain	32	85	117	31	...	22	11	53
221	Maintenance of troughs and pipes for catching and carrying the water from the roof and other parts of a building.	13	59	72	57	...	1	14	...
224	Provision of latrines by owner or occupier ...	143	319	462	144	87	22	82	127
227	Control of the Corporation over house drains, privies and cesspools	14	145	159	95	...	35	17	12
228	Fencing of buildings or land ...	2	...	2	...	...	...	2	...
245	Levelling, paving, metalling, flagging, etc., of any private street or part thereof	...	14	14	1	...	8	...	5
259	Repair of tanks, wells, etc., dangerous to neighbourhood	1	18	19	12	1	...	6	...
300	Prohibition against accumulation of filth and allowing of sewage to flow in streets.	103	153	256	150	46	23	5	32
301	Cleansing of insanitary private tank or well used for drinking	33	25	58	41	5	...	...	12
302	Do., fencing, repairing or filling up of insanitary tanks, wells, etc.	285	778	1,063	266	157	186	419	35
303	Do., stagnant pool, ditch, etc.	18	121	139	19	13	4	47	56
305	Do., of untenanted buildings or lands	18	72	90	21	13	8	12	36
306	Removal of filth or noxious vegetation	15	305	320	265	22	1	7	25
307	Lime-washing and cleansing of buildings	95	1,339	1,334	969	174	5	8	178
308	To set right insanitary buildings	666	3,251	3,917	1,638	1001	142	270	866
309	Rendering buildings fit for human habitation	31	108	139	78	30	...	11	20
310	Abatement of overcrowding in dwelling houses or places	...	4	4	...	3	...	...	1
315	Control over stables, cattle sheds and cow houses	4	11	15	4	1	6	...	4
316	Discontinuance of the use of a building as a stable, etc.	9	28	37	7	12	2	6	10
366	Removal of patients suffering from dangerous diseases to hospitals	...	5	5	5	...	...	...	...
367	Disinfection of buildings and articles in infected premises	3	467	470	374	49	...	1	46
Secs. 347, 348, 241, 217 & 440	By-laws for the regulation of lodging houses	8	21	29	26	1	...	1	1
Total ...		1,493	7,228	8,721	4,203	1,615	465	919	1,519

	1st Division.				3rd Division.				4th Division.				9th Division.			
	Complement.	January.	February.	March.	April.	May.	June.	Complement.	January.	February.	March.	April.	May.	June.	Complement.	
A.																
Sweepers	10	1-9	1-7	3-7	3-7	4-1	5-5	8	2-0	2-2	2-4	1-6	2-0	2-2	12	18
Box Cartmen	2	1-6	2-0	2-0	2-0	2-0	1-7	2	2-0	...	2-0	2-0	2-0	2-0	4	5
Hand Cartmen	2	1-1	2-0	1-7	1-0	2-0	1-7	2	1-0	0-5	0-3	1-0	0-5	0-5	4	2
Barrel Cartmen	...	...	...	...	...	...	...	1	1-0	1-9	0-5	...	...	...	...	...
Cesspool Boys	...	...	...	...	...	...	...	1	1-6	1-0	1-5	1-8	1-9	1-2	3	...
Latrine Men	7	2-1	2-0	2-9	3-8	4-9	3-9	6	...	...	...	...	...	...	...	...
" Women	6	1-0	0-5	1-3	0-7	0-8	1-0	6	...	...	...	...	...	...	...	3
Side Coolies	14	2-1	3-2	3-6	4-7	5-4	3-5	10	4-6	4-5	5-9	4-5	4-7	4-3	20	5+16
Reserve Cooly	1	0-5	...	0-3	0-4	...	...	1	...	...	...	...	...	...	...	1
Incinerator Coolies	...	...	...	...	...	...	...	7-3	...	...	...	...	...	...	...	...

B. Months.	2nd Division.			5th Division.			6th Division.			7th Division.			8th Division.		
	Largest No.	Smallest No.	Monthly Average.	Largest No.	Smallest No.	Monthly Average.	Largest No.	Smallest No.	Monthly Average.	Largest No.	Smallest No.	Monthly Average.	Largest No.	Smallest No.	Monthly Average.
January 1914	39	5	28-5	84	12	4-9	42	23	9	15-3	61	17	21	1	8-7
February	41	21	29-5	84	10	5-3	42	22	13	16-8	61	23	27	4	13-5
March	49	21	32-9	84	11	6-4	42	22	13	17-1	61	44	21	9	13-7
April	45	23	27-0	84	16	7-6	42	32	14	19-2	61	21	30	7	14-5
May	43	28	36-9	84	18	8-7	42	28	13	18-4	61	20	29	8	19-7
June	49	33	40-3	84	14	7-0	42	24	13	18-5	61	25	31	14	19-9
			49-9 p.c.			16-6 p.c.				30-3 p.c.					29-7 p.c.

The above is a statement showing the average number of absentees for per day each month, January to June 1914, against the Budget Complement shown against each item.

	I DIVISION.							II DIVISION.							III DIVISION.							
	January.	February.	March.	April.	May.	June.	Complement.	January.	February.	March.	April.	May.	June.	Complement.	January.	February.	March.	April.	May.	June.	Complement.	
Trolley Drivers ...	3.29	3.11	...	...	...	...	...	0.1	0.1	...	0.1	0.2	...	1	0.3	...	0.4	...	0	...	2
R. C. do. ...	...	...	...	...	1.94	1.89	10	1.6	2.5	4.9	3.8	5.5	3.4	19	1.5	0.2	1.1	1.6	2.9	1.8	6
Lorry do. ...	...	...	...	...	...	...	...	0.3	0.9	0.4	1.1	1.1	1.7	3	...	...	...	...	...	...	...
N. S. Cart Drivers	3.11	3.17	3.36	4.2	3.63	4.87	13	1.5	2.5	3.8	2.9	2.4	3.6	18	1.5	1.8	2.0	1.5	1	2.5	9	
Box Cart do.	.38	1.07	1.01	1	.31	...	2	0.9	1.3	1.5	1.6	1.5	1.3	3	0.7	1.1	1.0	0.6	0.6	...	2	
IV DIVISION.							V DIVISION.							VI DIVISION.								
Trolley Drivers ...	.12	...	.08	.14	.19	.25	1	.11	.03	.05	.89	.12	.14	1	1.01	1.0	1.01	1.0	2.0	1.41	2
R. C. do. ...	3.31	1.69	.5	2.10	1.73	2.26	11	1.59	.42	2.45	2.47	1.12	.41	9	3.3	5.76	8.21	6.9	7.7	8.03	14	
Lorry do. ...	.90	.88	.96	1.96	1.42	1.75	2	.09	.01	.05	.03	.52	.75	1	...	...	...	...	...	...	...
N. S. Cart Drivers	.53	.88	1.03	1.47	.78	.28	7	.85	.90	1.17	.72	.82	.78	6	1.5	5.84	2.31	3.4	2.5	1.50	8	
Box Cart do.	1.88	2.80	3.35	3.20	3.01	2.25	7	3.11	2.57	3.05	4.4	4.52	5.57	10	2.2	3.51	4.19	3.0	2.3	1.50	9	
VII DIVISION.							VIII DIVISION.							IX DIVISION.								
Trolley Drivers ...	.07	0.17	0.67	.5	...	...	1	...	...	...	...	...	...	...	.2	...	0.63	0.5	0.3	0.3	2
R. C. do. ...	4.2	6.09	5.75	6.8	5.4	8.03	17	3.0	1.9	1.8	2.4	2.0	2.0	1	2.2	1.6	2.7	2.2	1.9	0.9	16	
Lorry do. ...	.03	0.09	0.38	1	...	...	1	...	...	0.6	1.0	1.0	0.3	18	0.1	...	...	...	0.5	0.5	1
N. S. Cart Drivers	4.5	6.21	5.52	6.6	5.7	5.75	19	1.2	3.8	4.5	3.5	3.1	2.9	13	2	2.7	3.3	3.8	2.4	2.4	11	
Box Cart do.	1.8	1.87	2.12	3.3	2.2	1.99	6	3.4	4.3	4.4	3.5	2.5	1.6	10	5.4	5.0	4.2	3.6	2.9	2.3	10	

Vaccination Statement I.—Births registered during the calendar year 1914 and vaccination of infants under one year of age.

Division.	Total births excluding still-births.	Still- births.	Deaths under one year.	Number of infants surviving.	Number of infants vaccinated under one year.	Percentage of vaccina- tion to births registered.	Remarks.
1	2	3	4	5	6	7	8
1	584 170	8 12	115 18	469 152	249 48	42.63 28.23	
2	759 25	4 ...	175 4	584 21	262 7	34.51 28.0	
3	701 23	8 ...	166 10	535 13	325 5	46.36 21.74	
4	507 60	16 6	131 7	376 53	152 21	29.96 35.00	
5	466 40	13 5	96 ...	370 40	225 9	48.28 22.50	
6	641 123	19 7	172 8	469 115	247 23	38.53 18.69	
7	1,122 177	23 21	283 22	839 155	584 71	52.05 40.11	
8	469 38	23 3	75 9	394 29	234 7	49.89 18.42	
9	745 74	37 6	170 15	575 59	336 21	45.10 28.37	
10	973 66	30 10	221 11	752 55	633 25	63.001 37.86	
11	1,532 60	39 10	384 10	1,148 50	841 20	54.24 33.33	
12	709 107	49 5	103 6	606 101	433 38	61.06 35.51	
13	526 27	17 1	121 2	405 25	269 2	51.14 74.07	
14	354 54	27 2	51 3	303 51	216 20	61.01 37.37	
15	406 120	32 5	61 4	345 116	269 52	66.25 43.33	
16	836 49	25 2	165 8	671 41	450 14	53.82 28.57	
17	1,279 156	50 15	260 15	1,019 141	557 35	48.52 22.43	
18	1,162 127	38 15	232 12	930 115	546 24	46.98 18.89	
19	936 70	28 4	248 9	688 61	543 32	55.01 45.71	
20	733 41	16 2	152 5	581 31	358 20	48.84 48.78	
Total.	15,440 1,607	502 131	3,381 178	12,059 1,429	7,729 494	50.05 30.74	

N. B.—The antique figures denote Hospital births.

Vaccination Statement II.—Showing the number of births registered in 1914 and the number of infants vaccinated under one year of age.

Year.	Total number of Births excluding Still Birth.	Number of children in column 2, who died before attaining the age of one year, and without being vaccinated.	Number of children in column 2, who left the city before attaining the age of one year and without being vaccinated.	Number of children in column 2, who were available for vaccination (col. 2 minus 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 reason.
1	2	3	4	5	6	7	8
1911-12	15,935	4,117	3,510	8,308	7,690	92.56	618
	2,524	319	1,479	726	692	95.32	34
1912-13	16,063	4,057	2,492	9,514	7,146	75.11	360
	2,770	400	922	1,448	672	46.41	25
1914	15,440	3,381	2,775	9,284	7,739	83.35	496
	1,607	178	489	940	494	52.55	20

N. B.—Antique figures denote Hospital Births

Vaccination Statement III.—Showing the number of prosecutions instituted in the Vaccination Department during the calendar year 1914.

Number of Section of Act.	Nature of charge.	Number of casss instituted.	Number discharged.	Otherwise.	Number convicted.	Total fine inflicted.
1	2	3	4	5	6	7
Under Section 409 of Act III of 1904.	(1) For not bringing children to be vaccinated after notice ...	56	15	11	30	Rs. A. P. 33 12 0
	(2) For not bringing children for verification.	20	...	...	20	10 0 0

Vaccination Statement IV.—Showing the particulars of primary vaccination with different kinds of lymph during the calendar year 1914.

	Total number of operations.	Successful.	Unknown.	Percentage of Success.
1	2	3	4	5
1. Calf Lymph ...	...	...	...	...
2. Glycerine Lymph ...	23,773	22,893	555	98.60

Vaccination Statement V.—Showing particulars of Vaccination during the year ending 31st December 1914.

Old Divisions.	Wards.	Corresponding present Divisions.	Total Number of persons Vaccinated.		Average number of persons vaccinated by each Vaccinator.	Primary Vaccinations.						Re-vaccination cases in which the results were known.		Percentage of successful cases in which the results were known.		Persons successfully vaccinated per 1,000 of population.		Average annual number of persons successfully vaccinated during the previous five years.		Average annual number of deaths from small-pox during previous five years.		Average cost of each successful Vaccination.							
			Total.			Successful.			Re-vaccinations.		Primary.		Persons successfully vaccinated per 1,000 of population.		Average annual number of persons successfully vaccinated during the previous five years.		Average annual number of deaths from small-pox during previous five years.												
			Males.	Females.		Total.	Under one year.	One year and under six.	Six years and above.	Total.	Successful.	Unknown.	Re-vaccinations.	Primary.	Persons successfully vaccinated per 1,000 of population.	Number.	Ratio per 1,000 of population.	Number.	Ratio per 1,000 of population.										
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	
1	East Ward	...	20,318	...	...	...	528	347	875	...	313	312	620	25	220	120	100	98.41	10.00	36.42	1,839	65.90	18	0.9	Nine annas and eight pies only.		
	Centre "	...	40,335	1	...	1,041	799	1,840	...	810	800	1,610	1,184	284	5	1,473	101	230	116	72	97.61	73.41	39.10	1,822		44.83	15	0.4	
	West "	...	15,129	1	...	729	700	1,429	...	683	556	1,239	930	205	8	1,113	104	190	63	25	98.06	38.19	77.77	853		56.41	2	0.1	
2	East Ward	...	14,564	1	1	395	220	615	...	254	277	531	400	103	...	503	20	84	48	19	98.43	73.85	38.51	1,275	87.54	4	0.3	...	
	Centre "	...	19,179	1	1	650	491	1,141	...	461	464	925	660	194	31	885	35	225	98	22	99.44	48.27	51.25	587	30.67	10	0.5		
	West "	...	22,473	...	...	969	816	1,785	...	708	683	1,391	971	353	26	1,350	37	394	134	63	99.70	40.48	66.03	478	21.22	6	0.3
3	North Ward	...	37,065	1	1	1,237	973	2,210	...	931	924	1,879	1,458	332	35	1,825	24	331	110	61	98.38	51.85	53.01	1,425	38.44	13	0.4	...	
	Centre "	...	28,585	1	1	770	597	1,367	...	567	581	1,148	720	362	...	1,082	48	247	77	95	98.06	50.05	40.54	1,065	37.25	15	0.6		
	South "	...	20,937	...	...	443	346	789	...	413	325	738	558	132	1	691	25	23	7	10	96.91	53.84	33.33	680	32.47	7	0.3
4	"	...	24,979	...	1	1,438	767	2,205	...	683	733	1,421	1,114	248	9	1,371	39	784	240	324	99.20	52.17	64.49	1,496	59.89	1	0.04	...	
	5	North Ward	...	41,523	1	...	999	896	1,895	...	868	812	1,710	1,458	209	6	1,673	22	185	56	36	99.11	37.05	41.63	2,115	50.93	6		0.1
		Centre "	...	29,776	1,027	712	1,739	...	915	689	1,604	1,354	180	25	1,559	16	135	12	96	98.19	30.77	52.82	1,912	64.21	3		0.1
South "		...	23,717	...	...	658	487	1,145	...	511	466	977	898	60	...	937	...	178	114	18	98.97	71.25	45.57	1,148	48.40	6	0.3
6	North Ward	...	11,751	1	1	454	390	844	...	325	313	638	536	72	13	621	3	206	19	18	97.79	10.10	54.46	706	60.08	3	0.2	...	
	Centre "	...	15,180	1	...	541	440	981	...	495	443	943	778	118	11	907	16	88	2	34	97.84	50.00	60.13	906	59.68	6	0.3		
	South "	...	11,751	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7	North Ward	...	25,752	1	1	1,089	608	1,697	...	767	592	1,359	1,218	106	11	1,335	3	338	167	...	98.45	60.07	56.14	1,610	60.18	6	0.2	...	
	Centre "	...	38,643	1	1	952	643	1,595	...	685	616	1,331	1,238	69	5	1,312	7	264	124	41	91.54	55.60	37.16	1,535	39.72	12	0.3		
	South "	...	32,851	...	...	1,020	809	1,829	...	770	761	1,531	1,421	100	4	1,525	3	298	140	20	99.80	50.36	50.68	1,330	40.48	11	0.3
8	East Ward	...	34,358	1	1	716	625	1,341	...	607	592	1,199	912	260	1	1,173	6	142	111	8	98.32	79.85	37.37	1,125	32.74	10	0.3	...	
	Centre "	...	20,254	...	...	515	421	936	...	427	399	826	713	92	...	805	11	110	91	2	98.77	84.26	44.23	832	41.07	3	0.1
	West "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total	Total	...	518,660	13	10	16,191	12,086	28,277	28,228	12,215	11,440	23,655	18,994	3,602	194	22,790	545	4,622	1,879	1,119	98.61	53.63	47.56	24,239	46.73	157	0.3	...	

APPENDIX V.
ANNUAL FORM No. A.—METEOROLOGICAL DATA—MADRAS.
LATITUDE 13° 4' N.
LONGITUDE 80° 15' E.

MONTHS.	Barometer.		Reading of Thermometer.						Difference between dew point tempera- ture and mean air temperature.	Degree of humidity complete saturation being 100.	Prevailing direction of wind.	Rainfall.				
	Mean daily reading.	...	Maximum.	Minimum.	Dry.		Mean daily value.	Dew point. Mean daily value.				Mean maximum solar radiation.	...	Number of days on which rain fell.	Total fall of rain during the month.	Maximum fall of rain during 24 hours.
					Mean daily range.	Mean daily value.										
January	30.069	...	83.6	67.9	15.7	75.7	65.4	148.3	...	...	2	1.06	0.57	
February	29.987	...	86.5	68.6	17.9	77.4	67.4	149.9	...	...	...	...	...
March	913	...	90.4	73.9	16.9	81.8	71.6	153.2	...	...	...	...	...
April	871	...	90.8	76.8	14.0	83.3	75.1	152.3	...	...	4	2.05	0.95	
May	743	...	100.5	82.0	18.5	88.4	74.5	152.1	...	...	1	0.01	0.01	
June	692	...	101.7	82.3	19.4	88.4	71.0	150.2	...	...	8	0.64	0.21	
July	679	...	96.6	79.6	17.0	85.7	71.3	139.7	...	...	19	2.60	0.51	
August	746	...	93.2	77.2	16.0	83.4	73.0	145.3	...	...	16	9.41	2.89	
September	792	...	91.8	76.6	15.2	82.9	75.2	149.4	...	...	11	6.84	2.08	
October	922	...	87.5	75.1	12.4	80.4	74.2	146.6	...	...	18	19.22	3.49	
November	909	...	85.2	73.0	12.2	78.4	71.8	142.7	...	...	12	14.03	7.46	
December	962	...	85.2	70.8	14.4	77.1	68.1	147.3	...	...	4	0.77	0.36	

Annual Form No. 1.—Births registered by Wards during the year 1914.

1	2	3			4			5			6	7	8	9			10	11
Present Divisions.	Wards.	Population according to Census of 1911.			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.			Still Births.	Illegitimate Births.
		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.				Males.	Females.	Total.		
1	East Ward	9,768	10,550	20,318	387	377	764	39.6	35.7	37.6	102.7	...	7.1	42.7	36.5	29.4	11	15
2	Centre "	50,396	20,239	70,635	785	754	1,539	38.7	37.3	37.9	104.1	...	16.6	41.2	37.6	39.4	67	47
3	West "	7,820	7,300	15,120	258	230	488	33.0	31.5	32.3	112.2	...	29.2	36.6	37.1	36.8	12	37
4	East Ward	8,557	6,007	14,564	225	193	418	26.3	32.1	28.7	116.6	...	8.8	34.2	44.6	38.5	21	1
5	Centre "	10,132	9,047	19,179	281	287	568	27.7	31.7	29.6	97.9	...	7.4	29.0	30.7	29.8	22	12
6	West "	12,027	10,416	22,443	386	339	725	32.1	32.7	32.3	113.9	...	12.7	30.3	33.7	31.9	37	42
7	North Ward	18,410	18,655	37,065	621	534	1,155	33.7	34.0	33.9	97.9	...	13.7	36.9	33.4	35.1	13	52
8	Centre "	14,887	13,698	28,585	371	393	764	24.9	28.7	26.7	94.4	...	15.0	30.2	30.5	30.3	11	51
9	South "	11,210	9,727	20,937	293	305	598	26.1	31.4	28.6	96.1	...	17.0	29.1	32.8	30.8	14	38
10	4th Division	13,137	11,842	24,979	480	466	946	36.5	39.4	37.9	103.0	...	15.5	41.8	42.0	41.9	38	59
11	North Ward	21,157	20,366	41,523	774	768	1,542	36.6	37.7	37.1	100.8	...	14.5	39.7	39.6	39.6	33	60
12	Centre "	15,172	14,604	29,776	563	483	1,046	37.1	33.1	35.1	116.6	...	6.7	38.7	38.6	38.7	30	10
13	South "	12,430	11,287	23,717	519	519	1,038	40.9	46.0	43.3	98.1	2.1	...	43.2	43.7	43.0	53	26
14	North Ward	6,216	5,535	11,751	195	188	383	31.4	34.0	32.6	103.8	...	9.5	32.0	31.9	35.0	11	21
15	South "	7,522	7,568	15,090	289	284	573	37.9	37.6	37.7	101.8	...	4.7	39.6	38.2	38.9	26	26
16	North Ward	13,801	13,151	26,952	515	464	979	37.9	35.3	37.0	111.0	...	8.4	41.8	41.1	41.5	24	33
17	Centre "	10,636	10,067	20,703	764	775	1,539	38.9	40.8	39.8	98.6	...	10.6	42.3	41.1	41.7	24	86
18	South "	16,724	16,127	32,851	587	579	1,166	35.1	35.9	35.5	101.4	...	10.7	39.0	38.4	38.7	46	64
19	East Ward	16,998	17,360	34,358	606	577	1,183	35.7	33.2	34.4	105.0	...	14.4	34.5	32.7	33.6	35	67
20	West "	10,565	9,689	20,254	373	364	737	35.3	37.6	36.4	102.5	...	1.2	44.1	45.9	45.0	18	31
Total		256,465	252,195	508,660	9,292	8,979	18,271	34.8	35.6	35.2	103.2	...	11.4	37.7	37.6	37.6	606	818

* Included in the total Number of Births shown in column No. 4.

Annual Form No. II.—Statement of Deaths by Wards during the year 1914.

1	2	3	4	5	6	7	8	9																					
Present Divisions.	Wards.	Corresponding old Divisions.	Area in Square Miles.	Population (Census 1911).			Number of Deaths Registered.			Number of Deaths of Males to every 100 Deaths of Females.	Deaths for 1,000 of Population from														Mean ratio of Deaths per 1000 during previous five years.				
				Average Population per Square Mile.		Total.	Males.	Females.	Total.		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.										
1	East Ward	1	22,085	9,709	10,550	20,318	440	468	908	94.0	5.1	0.05	0.3	...	4.6	0.04	1.8	9.8	1.8	9.8	0.1	17.4	45.0	44.4	44.7	50.5	46.8	48.6	
2	Centre "		20,396	40,635	1,171	1,041	2,212	112.5	3.1	0.1	0.3	...	9.5	0.02	2.9	13.0	1.4	13.0	0.3	13.0	...	21.9	67.4	51.4	54.4	55.5	51.8	53.4	
3	West "		7,820	15,120	476	453	929	105.1	4.4	0.07	0.3	...	14.7	...	5.1	12.2	0.9	12.2	...	12.2	...	21.5	60.9	62.1	61.4	44.5	47.0	45.6	
4	East Ward	3	26,180	8,557	6,007	14,564	263	283	546	92.9	1.1	0.07	...	...	3.0	0.07	2.4	6.7	1.4	6.7	0.1	18.5	30.7	47.1	37.5	36.1	50.1	42.0
5	Centre "		91,329	10,132	9,047	19,179	356	354	710	100.6	2.3	0.05	0.1	...	5.3	0.2	1.0	7.1	0.5	7.1	0.1	13.7	35.1	39.1	37.0	30.9	34.5	32.7	
6	West "		93,639	12,027	10,446	22,473	504	507	1,011	99.4	3.2	0.4	0.3	...	8.9	0.04	0.7	8.5	0.6	8.5	0.04	14.6	41.9	48.5	45.0	38.7	43.6	41.0	
7	North Ward	2	88,250	18,410	18,655	37,065	792	971	1,763	81.6	2.7	0.4	0.2	...	7.9	0.2	1.5	7.5	1.8	7.5	0.3	19.6	43.0	52.1	47.6	43.4	43.6	43.5	
8	Centre "		119,101	14,887	13,698	28,585	559	633	1,192	88.3	2.0	0.2	0.03	...	7.6	0.03	0.9	5.8	1.8	5.8	0.4	19.1	37.5	46.2	41.7	36.0	42.3	39.0	
9	South "		58,158	11,210	9,727	20,937	531	423	954	125.5	1.7	0.1	0.1	...	5.3	0.1	1.4	5.3	1.3	5.3	0.8	18.8	47.4	43.4	45.6	45.4	40.6	43.2	
10	4th Division	4	6,438	13,137	11,812	24,979	671	663	1,334	101.2	3.4	0.04	0.2	...	4.7	0.08	1.0	20.2	1.4	20.2	0.4	17.5	51.1	55.0	53.4	35.7	36.4	35.8	
11	North Ward	5	59,319	21,157	20,856	41,523	1,036	1,107	2,143	93.6	2.6	0.1	0.07	...	6.5	0.05	1.0	17.1	2.0	17.1	0.2	18.1	49.0	54.4	51.6	36.6	38.4	37.5	
12	Centre "		31,343	15,172	14,504	29,776	616	629	1,245	97.9	3.3	0.03	0.07	...	2.9	0.3	0.8	6.8	1.4	6.8	0.3	15.7	40.6	43.1	41.8	31.8	33.5	32.6	
13	South "		20,446	12,430	11,287	23,717	474	503	977	94.2	4.2	...	...	...	1.8	0.1	0.3	8.5	1.8	8.5	0.1	17.9	38.1	44.6	41.2	31.8	38.2	34.8
14	North Ward	6	4,896	6,216	5,535	11,751	238	257	495	92.6	3.1	...	...	...	2.7	...	1.2	13.9	1.7	13.9	0.3	11.7	38.3	46.4	42.1	32.0	34.0	32.9
15	South "		8,625	7,622	7,558	15,180	309	335	644	92.2	2.6	...	0.1	...	1.6	0.3	1.6	12.8	0.8	12.8	0.4	14.6	40.5	44.3	42.4	32.9	33.3	33.1	
16	North Ward		74,311	13,601	13,151	26,752	609	594	1,203	102.5	3.2	0.1	0.1	...	2.6	0.1	0.2	10.1	1.9	10.1	0.1	16.7	44.8	45.2	45.0	36.8	36.0	36.4	
17	Centre "	7	21,116	19,636	19,007	38,643	913	1,037	1,950	88.1	5.7	0.08	0.2	...	1.9	0.3	1.7	8.9	2.1	8.9	0.3	21.1	46.5	51.6	50.5	89.7	40.7	39.7	
18	South "		45,626	16,724	16,127	32,851	741	777	1,518	95.4	3.4	0.2	0.4	...	0.03	1.9	0.3	1.8	8.6	1.7	8.6	0.3	19.8	44.3	48.2	46.2	35.8	37.7	36.7
19	East Ward		13,014	16,908	17,360	34,358	816	862	1,678	94.7	5.5	0.2	0.2	...	0.03	4.0	3.05	13.1	0.3	13.0	0.3	17.3	40.1	49.7	48.8	32.1	33.9	33.2	
20	West "	8	5,193	10,565	9,689	20,254	369	393	762	93.9	2.3	...	0.1	...	3.8	0.05	0.5	10.9	1.0	11.5	0.7	14.9	34.9	40.6	37.6	38.6	41.8	40.1	
Total ...			18,792	266,465	252,195	518,660	11,884	12,290	24,174	96.7	3.4	0.1	0.2	0.004	5.1	0.1	1.4	10.6	1.4	11.0	0.3	18.1	44.6	48.7	46.6	38.6	40.3	39.4	

Annual Form No. IV.—Deaths registered according to Age by Wards during the year 1914.

1	2	3	4		5		6		7		8		9		10		11		12	
Present divisions.	Wards.	Corresponding old divisions.	1 Year and under 5 Years.		5 Years and under 10 Years.		10 Years and under 15 Years.		15 Years and under 20 Years.		20 Years and under 30 Years.		30 Years and under 40 Years.		40 Years and under 50 Years.		50 Years and under 60 Years.		60 Years and upwards.	
			Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1	East Ward	{ ... }	121	121	14	31	14	17	12	12	27	41	22	29	40	23	33	29	72	85
2	Centre "		286	225	67	51	31	29	37	35	108	116	101	85	106	68	103	80	197	207
3	West "		112	103	39	25	17	12	20	16	29	36	43	28	43	31	33	26	73	93
4	East Ward	{ ... }	72	64	9	12	10	6	4	15	26	29	13	21	25	19	20	11	54	67
5	Centre "		86	76	15	24	13	10	11	18	29	28	36	27	33	26	29	21	51	70
6	West "		121	96	35	30	11	19	15	18	45	55	44	44	57	44	31	31	80	84
7	North Ward	{ ... }	188	200	33	44	26	42	22	45	90	115	63	78	72	70	51	75	142	167
8	Centre "		138	137	18	30	14	23	16	34	45	66	51	51	57	47	45	46	90	121
9	South "		101	94	27	19	16	13	14	18	63	53	60	34	61	36	60	36	69	69
10	4th Division	...	147	163	49	37	26	18	20	20	57	63	35	46	42	33	32	41	100	102
11	North Ward	{ ... }	293	259	59	69	19	27	32	41	71	86	78	62	60	70	80	85	178	227
12	Centre "		180	136	38	22	15	20	19	26	47	62	43	51	44	42	36	43	102	122
13	South "		126	107	19	23	6	18	17	25	40	47	46	43	42	37	29	21	77	102
14	North Ward	{ ... }	48	47	8	10	9	4	5	4	12	24	26	25	23	12	18	25	50	64
15	South "		60	69	10	13	10	7	9	13	20	29	24	29	19	22	22	21	77	74
16	North Ward		149	127	42	23	14	15	16	28	40	59	42	54	53	29	44	34	103	110
17	Centre "	{ ... }	243	224	40	46	26	39	20	46	74	118	64	84	77	56	67	58	169	218
18	South "		190	162	33	30	27	16	16	29	53	71	48	51	52	47	50	52	134	181
19	East Ward		180	169	44	44	23	24	19	34	59	84	70	81	50	62	71	61	162	180
20	West "	{ ... }	107	108	24	18	13	12	9	7	21	34	19	33	28	27	32	15	65	79
...	Total...		2,948	2,687	628	601	340	372	333	483	956	1,216	928	956	984	801	914	820	2,045	2,422
...	* Ratio per 1,000...		318.3	299.3	21.9	20.7	12.3	14.8	13.4	18.6	17.7	23.8	22.5	26.5	31.9	29.8	51.5	49.9	155.2	189.3

* In the case of children under one year of age the rates was calculated on the number of births during the year ; in all other cases on the numbers living at the time of the Census.

Annual Form No. VI.—Deaths registered from *Cholera* by Wards during each month of the year 1914.

1	2	3												4	5			6				
Present divisions.	Wards.	Corresponding old divisions.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.			Ratio of deaths per 1,000 of Population.	Mean ratio per 1,000 during previous five years.			
														Males.	Females.	Total.						
1	East Ward	{ ... }	...	...	...	...	...	1	19	17	44	9	11	2	38	65	103	39	62	61	1.3
2	Centre "		...	...	...	...	...	4	5	34	57	23	1	...	58	67	125	28	33	31	0.8
3	West "		...	...	...	...	...	1	1	21	29	13	2	...	42	25	67	54	34	44	0.6
4	East Ward	{ ... }	...	...	...	...	...	1	...	...	9	5	1	...	11	5	16	13	0.8	1.1	0.3
5	Centre "		...	...	...	...	...	...	...	...	39	11	2	...	22	23	45	22	25	23	0.4
6	West "		...	...	...	...	...	...	8	1	41	18	2	...	33	38	71	27	36	32	0.6
7	North Ward	{ ... }	...	...	...	...	...	...	...	6	64	30	...	...	31	69	100	17	37	27	0.7
8	Centre "		...	...	...	...	...	2	...	1	18	28	...	...	27	29	56	18	21	20	0.6
9	South "		1	14	18	2	...	20	16	36	18	16	17	0.4
10	4th Division	{ ... }	...	...	...	...	...	...	1	6	40	30	9	...	45	41	86	34	35	34	0.2
11	North Ward		1	19	61	23	2	42	64	106	20	31	26	0.4
12	Centre "		1	...	3	11	74	5	...	40	57	97	26	39	33	0.6
13	South "	{ ... }	...	...	...	...	...	...	1	4	11	71	12	...	56	44	100	45	39	42	0.6
14	North Ward		2	...	6	29	21	16	37	34	29	31	0.6
15	South "		1	2	5	5	23	3	...	19	20	39	25	26	26	0.2
16	North Ward	{ ... }	...	...	...	...	...	1	3	14	28	41	9	2	47	56	103	36	43	39	0.3
17	Centre "		1	...	7	39	188	34	2	93	129	222	47	68	57	0.4
18	South "		1	...	13	26	55	13	2	63	60	113	32	37	34	0.3
19	East Ward	{ ... }	...	...	...	...	...	1	10	24	47	83	23	1	81	108	189	48	62	55	0.3
20	West "		2	...	13	20	11	...	19	27	46	18	28	23	0.4
...	Total ...		5	1	1	...	4	20	60	157	551	780	166	12	798	959	1,757	30	38	34	0.5	

Annual Form No. VII.—Deaths registered from *Small-pox* by Wards during each month of the year 1914.

1	Present Divisions.	3	2	Corresponding Old Divisions.	9												4	5			6																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
					Wards.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.		December.	Total.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
																			Males.	Females.		Total.	Ratio of deaths per 1,000 of Population.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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1	East Ward	...	1

Annual Form No. VIII.—Deaths registered from *Measles* by Wards during each month of the year 1914.

Present Divisions.	2		3												4			5			6		
	Wards.	Corresponding Old Divisions.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.			Ratio of deaths per 1,000 of Population.					
															Males.	Females.	Total.	Males.	Females.	Total.			
1	East Ward ...	{ ... }	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	Centre " ...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	West " ...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4	East Ward ...	{ ... }	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	Centre " ...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
6	West " ...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7	North Ward ...	{ ... }	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
8	Centre " ...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
9	South " ...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10	4th Division ...	{ ... }	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
11	North Ward ...	{ ... }	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	Centre " ...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13	South " ...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14	North Ward...	{ ... }	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	South " ...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
16	North Ward ...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
17	Centre " ...	{ ... }	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18	South " ...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
19	East Ward...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
20	West " ...	{ ... }	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total...			8	13	14	14	11	2	3	6	6	2	2	6	47	40	87	0.2	0.2	0.2	0.3		

Annual Form No. IX.—Deaths registered from *Plague* by Wards during each month of the year 1914.

1	2	3										4		5		6		
Present Divisions.	Wards.	Corresponding Old Divisions.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	Ratio of deaths per 1,000 of Population.		Mean ratio per 1,000 during previous five years.
			Males.	Females.	Total.	Males.	Females.	Total.										
1	East Ward ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.01
2	Centre " ...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.05
3	West " ...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.01
4	East Ward ...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	Centre " ...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.01
6	West " ...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.009
7	North Ward ...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.01
8	Centre " ...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.01
9	South " ...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.02
10	4th Division ...	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
11	North Ward...	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	Centre " ...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.007
13	South " ...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.008
14	North Ward...	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	South " ...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
16	North Ward...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
17	Centre " ...	7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18	South " ...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.03
19	East Ward ...		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.03
20	West " ...	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total...			...	1	...	1	...	...	...	...	...	...	...	...	2	0.08	...	0.06

Annual Form No. X.—Deaths registered from *Malaria* by Wards during each month of the year 1914.

1	2	3												4			5	6			
Present Divisor s.	Wards.	Corresponding Old Divisions.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.			Ratio of deaths per 1,000 of Population.	Mean ratio per 1,000 during previous five years.		
															Males.	Females.	Total.				
1	East Ward	...	12	11	8	6	5	6	5	12	8	9	8	3	53	40	93	5.4	3.8	4.6	8.9
2	Centre "	...	25	26	21	17	31	21	25	40	77	44	33	27	180	207	387	8.8	10.2	9.5	8.7
3	West "	...	18	10	14	14	20	11	12	21	24	31	21	26	115	107	222	14.7	14.7	14.7	8.7
4	East Ward	...	7	4	1	4	2	1	4	8	2	2	2	4	19	25	44	2.2	4.2	3.0	8.5
5	Centre "	...	11	9	3	5	8	7	4	13	12	14	9	9	46	55	101	4.5	6.1	5.3	5.7
6	West "	...	15	16	19	18	12	12	13	12	33	22	16	13	94	107	201	7.8	10.2	8.9	8.9
7	North Ward	...	43	25	17	16	23	14	10	22	45	34	19	26	136	158	294	7.4	8.5	7.9	7.7
8	Centre "	...	18	12	21	6	21	19	7	18	35	25	21	13	100	116	216	6.7	8.5	7.6	7.1
9	South "	...	15	13	12	13	9	7	5	3	6	5	14	8	53	57	110	4.7	8.9	5.3	6.1
10	4th Division	...	7	5	3	3	8	14	6	10	16	23	13	11	73	46	119	5.6	3.9	4.7	3.6
11	North Ward	...	9	11	7	13	35	39	26	17	27	36	23	24	114	154	268	5.4	7.6	6.5	4.1
12	Centre "	...	9	4	4	7	10	9	3	2	9	9	9	10	41	44	85	2.6	3.0	2.9	3.3
13	South "	...	7	5	8	7	3	1	1	2	...	...	3	5	19	23	42	1.5	2.0	1.8	2.9
14	North Ward	...	...	1	3	1	2	3	3	3	4	4	7	1	13	19	32	2.1	3.4	2.7	1.9
15	South "	...	...	...	3	1	2	1	...	...	5	7	2	3	8	16	24	1.0	2.1	1.6	1.9
16	North Ward	...	13	4	5	5	3	5	4	9	8	5	6	2	35	33	69	2.6	2.5	2.6	2.2
17	Centre "	...	8	3	4	6	4	5	2	6	8	12	8	7	32	41	73	1.6	2.2	1.9	1.9
18	South "	...	9	4	4	3	7	3	2	5	6	7	9	5	35	29	64	2.1	1.8	1.9	2.4
19	East Ward	...	7	10	8	11	13	15	12	16	16	13	11	5	69	68	137	4.1	3.9	4.0	5.0
20	West "	...	15	10	12	1	5	5	5	8	5	4	5	2	38	39	77	3.6	4.0	3.8	5.9
Total...			248	183	177	157	224	195	149	227	346	306	241	205	1,274	1,384	2,658	4.8	5.5	5.1	5.2

Annual Form No. XI.—Deaths registered from *Enteric Fever* by Wards during each month of the year 1914.

1	2	3												4			5			6	
Present Divisions.	Wards.	Corresponding Old Divisions.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.			Ratio of deaths per 1,000 of Population.			Mean ratio per 1,000 during previous five years.
															Males.	Females.	Total.	Males.	Females.	Total.	
1	East Ward	{	...	...	...	...	...	...	...	...	...	...	1	...	1	...	0.1	...	0.04	0.1
2	Centre "		...	...	...	...	...	...	...	...	...	...	1	...	1	...	0.05	...	0.02	0.05
3	West "		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.07
4	East Ward	{	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	Centre "		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
6	West "		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7	North Ward	{	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
8	Centre "		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
9	South "		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10	4th Division	4	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
11	North Ward	{	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	Centre "		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13	South "		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14	North Ward	{	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	South "		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
16	North Ward		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
17	Centre "	{	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18	South "		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
19	East Ward		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
20	West "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ..			6	4	1	2	4	5	7	3	11	8	6	9	44	22	66	0.2	0.09	0.1	0.09

Annual Form No. XIII.—Deaths registered from *Dysentery and Diarrhoea* by Wards during each month of the year 1914.

1	2	3	4												5		6				
			Total.												Ratio of deaths per 1,000 of Population.						
			January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Males.	Females.		Total.			
Present Divisions.	Wards.	Corresponding Old Divisions.															Mean ratio per 1,000 during previous five years.				
1	East Ward	1	23	17	23	25	12	16	16	8	21	9	14	16	99	101	200	10.1	9.6	11.3	
2	Centre "		54	52	44	28	27	30	31	50	52	74	40	48	323	297	530	15.8	10.2	13.3	
3	West "		27	21	15	20	18	9	9	12	13	19	12	10	13	97	88	185	12.4	12.1	12.3
4	East Ward	3	14	11	7	7	8	7	8	11	9	7	4	4	47	50	97	5.5	8.3	7.1	
5	Centre "		26	9	12	6	8	2	8	16	14	14	13	10	12	65	71	136	6.4	7.8	5.5
6	West "		21	20	12	5	15	13	11	16	25	20	22	22	12	93	99	192	7.7	9.5	6.8
7	North Ward	2	32	34	27	24	14	20	15	19	38	20	18	18	121	158	279	6.6	8.5	6.8	
8	Centre "		24	19	17	13	8	12	13	14	17	16	4	9	4	73	93	163	4.9	6.8	5.8
9	South "		16	10	4	12	8	3	7	9	9	14	7	9	11	67	43	110	6.0	4.4	5.3
10	4th Division	4	43	37	37	40	44	26	31	37	69	69	37	34	253	251	504	19.3	21.2	10.4	
11	North Ward	5	70	64	65	61	74	47	50	51	63	79	37	50	347	364	711	16.4	17.9	11.2	
12	Centre "		22	18	22	16	16	11	13	28	18	24	8	13	13	80	115	204	5.9	7.9	6.8
13	South "		20	8	10	18	10	13	19	17	20	20	32	17	17	86	115	201	6.9	10.2	8.5
14	North Ward	6	21	8	10	11	15	9	15	8	20	22	11	13	83	80	163	13.4	14.5	9.8	
15	South "		96	21	13	13	13	17	7	11	28	22	16	16	13	89	106	195	11.7	14.0	9.6
16	North Ward		28	13	13	18	13	17	24	36	36	36	24	24	24	145	125	270	10.7	9.5	6.4
17	Centre "	7	42	37	27	26	29	26	18	15	44	30	18	31	149	194	343	7.6	10.3	8.9	
18	South "		41	17	24	14	30	13	12	22	34	27	24	25	24	139	144	293	8.3	8.9	6.0
19	East Ward		81	65	39	36	45	35	18	36	45	54	54	28	36	258	260	518	15.2	15.0	9.1
20	West "	8	24	17	26	17	28	23	15	12	15	13	13	18	110	111	221	10.4	11.5	12.1	
Total ...			655	498	447	410	435	349	340	423	596	574	384	417	2,733	2,775	5,508	10.2	11.0	8.6	

Annual Form No. XIV — Deaths registered from *Tubercle including Tubercle of the Lung* by Wards during each month of the year 1914.

Present Divisions.	Wards.	Corresponding Old Divisions.	2												4		5			Mean ratio per 1,000 during previous five years.	
			January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.			Ratio of deaths per 1,000 of Population.			
															Males.	Females.	Total.	Males.	Females.		Total.
1	East Ward	{ ... }	1	3	3	6	6	3	6	5	...	4	1	25	11	36	26	10	18	0.6	
2	Centre "		4	3	7	2	5	5	0	8	7	...	3	1	32	23	55	16	11	14	0.95
3	West "		...	1	...	2	4	1	2	1	1	1	...	8	6	14	10	0.8	0.9	0.6	
4	East Ward	{ ... }	4	1	2	3	...	4	1	1	2	2	1	6	15	21	0.7	2.5	1.4	1.3	
5	Centre "		3	2	1	1	1	1	1	...	1	...	...	1	5	7	12	0.5	0.8	1.1	1.1
6	West "		2	3	3	1	2	1	1	...	...	...	...	...	4	9	13	0.3	0.9	0.6	1.2
7	North Ward	{ ... }	5	3	6	1	3	5	7	8	3	7	10	28	40	68	1.5	2.1	1.8	1.3	
8	Centre "		6	2	1	5	7	3	5	3	4	5	6	4	27	24	51	1.8	1.8	1.8	1.4
9	South "		4	4	3	...	3	1	1	3	...	3	1	5	15	13	28	1.3	1.3	1.3	2.0
10	4th Division	{ ... }	3	7	1	1	4	...	...	1	5	3	7	3	14	21	35	1.1	1.8	1.4	0.4
11	North Ward	{ ... }	9	11	5	9	9	11	1	1	7	9	6	5	44	39	83	2.1	1.9	2.0	1.0
12	Centre "		7	7	4	3	7	5	...	1	6	2	1	...	19	23	42	1.3	1.6	1.4	1.1
13	South "		4	6	4	4	2	4	2	2	5	3	4	2	27	15	42	2.2	1.3	1.8	1.2
14	North Ward	{ ... }	...	...	...	1	...	...	1	...	2	2	1	4	4	8	0.6	0.7	1.7	1.6	
15	South "		2	1	1	2	...	...	3	...	1	2	...	...	6	6	12	0.8	0.8	0.8	1.4
16	North Ward		6	5	4	6	4	6	1	2	2	6	3	5	30	20	50	2.2	1.5	1.9	1.4
17	Centre "	{ ... }	9	8	10	4	7	1	12	7	6	10	8	1	44	38	82	2.2	2.0	2.1	1.4
18	South "		9	5	3	8	3	4	3	5	5	6	7	4	24	33	57	1.4	2.0	1.7	1.5
19	East Ward		...	...	...	...	...	...	...	1	...	4	4	...	7	2	9	0.4	0.1	0.3	0.8
20	West "	{ ... }	1	3	...	3	2	1	1	...	1	3	4	1	9	11	20	0.9	1.1	1.0	1.4
Total...			79	75	58	57	65	51	54	50	60	73	71	45	378	360	738	1.4	1.4	1.4	1.2

Annual Form No. XV.—Deaths registered from *Respiratory Diseases excluding Tubercle of the Lung* by Wards during each month of the year 1914.

1	2	3	4												5		6				
			Total.												Ratio of deaths per 1,000 of Population.						
			Total.												Males.	Females.					
Present Divisions.	Wards.	Corresponding Old Divisions.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Males.	Females.	Total.	Mean ratio per 1,000 during previous five years.			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		16	17	18
1	East Ward
2	Centre "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	West "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4	East Ward	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	Centre "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
6	West "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7	North Ward	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
8	Centre "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
9	South "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10	4th Division	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
11	North Ward	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	Centre "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13	South "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14	North Ward	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	South "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
16	North Ward	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
17	Centre "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18	South "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
19	East Ward	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
20	West "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total...			213	193	203	253	245	179	252	257	338	349	273	269	1,556	1,468	3,024	58	58	58	36

Annual Form No. XVI.—Deaths registered from *Injuries* by Wards during each month of the year 1914.

1	2	3												4			5			6	
		Corresponding Old Divisions.												Total.			Ratio of deaths per 1,000 of Population.				
		Wards.												Males.	Females.	Total.	Males.	Females.	Total.		
Present Divisions.		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 East Ward ...	{ ... }	1	...	...	...	1	...	...	...	1	...	2	1	3	0.2	0.09	0.1	0.4	
2 Centre " ...		...	...	3	...	...	...	...	...	...	...	3	...	10	1	11	0.5	0.05	0.3	0.4
3 West "	0.5
4 East Ward ...	{ ... }	1	...	...	1	2	...	2	0.2	...	0.1	0.5	
5 Centre " ...		...	...	...	1	...	...	...	...	1	...	...	...	2	...	2	0.2	...	0.1	0.3
6 West " ...		...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	0.04	0.3
7 North Ward ...	{ ... }	1	1	...	...	2	2	...	2	2	...	...	2	6	6	12	0.3	0.3	0.3	0.3
8 Centre " ...		2	...	...	1	1	...	...	1	...	4	...	...	7	4	11	0.5	0.3	0.4	0.3
9 South "	1	2	3	2	1	...	4	...	2	...	1	12	4	16	1.1	0.4	0.8	0.7
10 4th Division ...	{ ... }	3	1	2	...	1	1	1	...	1	...	...	1	8	3	11	0.6	0.3	0.4	0.3
11 North Ward ...	{ ... }	...	5	...	...	...	1	1	...	...	...	...	...	6	1	7	0.3	0.05	0.2	0.3
12 Centre " ...		1	...	1	1	...	...	...	1	...	3	1	...	7	1	8	0.5	0.07	0.3	0.4
13 South "	1	1	1	3	...	3	0.2	...	0.1	0.4
14 North Ward ...	{ ... }	...	2	1	...	...	...	...	...	...	...	1	...	3	1	4	0.5	0.2	0.3	0.3
15 South "	2	4	...	3	3	6	0.4	0.4	0.4	0.2
16 North Ward ...		1	1	1	1	2	3	0.07	0.2	0.1	0.5
17 Centre " ...	{ ... }	1	2	1	1	...	3	4	...	...	1	...	...	10	3	13	0.5	0.2	0.3	0.3
18 South " ...		1	2	1	1	1	1	1	2	1	8	2	10	0.5	0.1	0.3	0.2
19 East Ward ...		1	3	1	...	1	1	5	6	6	12	0.4	0.3	0.3	0.3
20 West " ...	{ ... }	...	1	1	...	1	2	...	...	4	2	3	...	9	5	14	0.9	0.5	0.7	0.4
Total...		11	19	13	10	10	16	9	9	12	14	15	11	105	44	149	0.4	0.2	0.3	0.4	

Annual Form No. XVII.—Deaths registered from *Other Causes* by Wards during each month of the year 1914.

1	2	3												4	5			6				
Present Divisions.	Wards.	Corresponding Old Divisions.	3												4			5			Mean ratio per 1,000 during previous five years.	
			January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.			Ratio of deaths per 1,000 of Population.				
															Males.	Females.	Total.	Males.	Females.	Total.		
1	East Ward	...	25	36	27	16	33	23	26	43	19	29	17	60	162	192	354	166	182	348	17.4	17.1
2	Centre "	...	102	57	55	71	43	62	63	58	71	126	91	92	463	428	891	227	212	439	21.9	21.3
3	West "	...	21	23	16	22	18	17	25	21	38	35	36	53	160	165	325	205	226	431	21.5	15.7
4	East Ward	...	30	20	21	13	15	20	23	22	22	29	20	34	131	138	269	153	230	383	16.5	16.1
5	Centre "	...	25	21	11	18	20	17	18	25	31	32	25	19	127	135	262	125	149	274	13.7	12.1
6	West "	...	34	34	23	20	22	24	24	27	47	17	27	29	170	158	328	141	151	291	14.6	14.2
7	North Ward	...	72	53	46	36	42	41	57	44	99	76	73	87	332	394	726	180	211	391	19.6	17.9
8	Centre "	...	60	39	45	49	37	32	44	33	55	49	45	58	250	296	546	168	216	384	19.1	15.6
9	South "	...	49	35	32	44	23	35	23	29	29	39	17	39	211	183	394	188	188	376	18.8	20.4
10	4th Division	...	58	30	44	16	30	21	37	36	41	61	32	32	204	234	438	155	198	353	17.5	14.2
11	North Ward	...	87	57	70	58	52	44	52	43	69	102	58	58	370	380	750	175	187	362	18.1	14.1
12	Centre "	...	46	32	36	30	41	27	32	30	48	56	49	40	244	223	467	168	153	321	15.7	13.0
13	South "	...	48	39	26	23	22	20	28	22	22	74	57	44	203	222	425	163	197	360	17.0	16.2
14	North Ward	...	17	8	13	7	12	7	8	11	10	21	11	13	58	80	138	93	145	238	11.7	14.3
15	South "	...	20	14	29	13	11	12	13	18	14	35	18	25	109	113	222	143	150	293	14.6	14.8
16	North Ward	...	42	31	39	24	22	28	40	35	61	64	59	55	259	241	500	190	183	373	18.7	11.2
17	Centre "	...	97	77	69	42	47	47	57	67	90	83	62	77	384	431	815	196	227	423	21.1	20.8
18	South "	...	79	70	56	37	37	30	37	49	61	73	62	61	322	330	652	193	205	398	19.8	16.7
19	East Ward	...	89	63	49	37	43	30	31	40	51	66	50	46	295	300	595	174	174	348	17.3	13.6
20	West "	...	35	25	15	32	16	13	18	21	27	35	35	30	146	156	302	138	161	300	14.9	15.4
Total...			1,036	764	722	608	585	550	656	674	905	1,102	844	952	4,600	4,799	9,399	17.3	19.0	18.1	16.5	

Annual Form No. XVIII.—Comparing the Deaths from some of the *Principal Diseases* during the year with the Deaths during the preceding four years.

Years.	Cholera.		Small-pox.		Measles.		Plague.		Malaria.		Enteric Fever.		Other Fevers.		Dysentery and Diarrhœa.		Tubercle ex-cluding Tu-bercle of lung.		Respiratory System.				Injury.		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.
																			Phthisis.	Deaths.	Ratio per 1,000.	Other dis-eases of the respiratory system.	Deaths.	Ratio per 1,000.	Deaths.	Ratio per 1,000.	Deaths.	Ratio per 1,000.
1910	153	0.3	116	0.2	131	0.2	5	0.0002	2,376	4.6	42	0.08	2,701	5.3	3,635	7.1	251	0.5	208	0.4	1,714	3.3	143	0.3	8,831	17.3	20,312	39.8
1911	747	1.4	480	0.9	170	0.3	3	0.0006	2,884	5.6	32	0.1	1,111	2.1	4,854	9.4	557	1.1	203	0.4	2,251	4.3	138	0.3	8,321	16.0	21,771	42.0
1912	374	0.7	106	0.2	95	0.2	1	0.0002	2,934	5.7	42	0.08	987	1.8	4,897	9.4	453	0.9	219	0.4	1,999	3.9	164	0.3	7,891	15.2	21,132	38.8
1913	29	0.05	34	0.06	157	0.3	3	0.0005	2,788	5.4	51	0.1	992	1.9	5,193	10.0	36	0.07	445	0.9	2,219	4.2	170	0.3	8,585	16.5	20,675	39.9
Mean of the last four years.	326	0.6	184	0.4	139	0.3	3	0.0006	2,745	5.3	47	0.09	1,440	2.8	4,645	9.0	324	0.6	269	0.5	2,046	3.9	154	0.3	4,408	8.5	20,722	40.0
1914	1,757	3.4	66	0.1	87	0.2	2	0.0001	2,658	5.1	66	0.1	729	1.4	5,508	10.6	35	0.07	703	1.4	3,024	5.8	149	0.3	9,399	18.1	24,174	46.6

Annual Form No. XIX 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.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	TOTAL.
6	Chicken pox	...	4	...	4	2	1	...	...	...	...	...	...	12
7	Cholera	...	1	1	...	4	26	60	157	551	780	166	12	1,757
10	Diphtheria	...	1	...	...	...	...	1	...	...	...	...	...	2
11	Dysentery	...	286	280	230	223	196	175	228	370	347	241	261	3,162
13	Enteric Fever	...	4	1	2	4	5	7	3	11	8	6	9	66
14	Enteritis	...	192	200	149	210	141	152	185	224	224	122	156	2,217
15	Erysipelas	...	9	7	10	8	7	10	9	6	7	4	6	91
22	Kala-Azar	...	...	1	...	3	1	3	1	1	...	2	1	13
23	Leprosy	...	3	3	4	3	5	3	...	1	8	4	4	43
25	Malarial Fever	...	173	170	163	224	191	146	223	341	304	237	204	2,605
"	" with Enlargement of Spleen	...	10	7	4	...	4	3	3	5	2	3	1	51
"	" Congestion of brain	...	...	...	...	...	...	...	1	...	...	1	...	2
26	Measles	...	13	14	14	11	2	3	6	6	2	2	6	87
28	Mumps	...	...	...	1	...	...	...	1	1	...	2	...	5
31	Plague	...	1	...	1	...	...	...	...	...	...	...	...	2
32	Pneumonia	...	74	78	64	71	35	46	77	73	96	64	52	810
34	Pyrexia of uncertain origin	...	65	67	40	46	29	60	36	111	33	34	75	703
35	Hydrophobia	...	...	...	1	...	...	...	...	...	...	...	...	1
37	Rheumatism	...	4	5	5	2	2	4	5	8	5	8	7	62

	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 Circulatory System	293	DISEASE OF THE HEART.														
		<i>Diseases of the Endocardium.</i>														
		Valvular Disease ...	...	...	...	...	...	...	...	...	...	...	...	...	...	57
		Cardiac Failure ...	...	...	...	...	...	...	...	...	...	...	...	...	...	202
	301	" Dropsy ..	...	...	...	...	...	...	...	...	...	...	...	...	...	49
		Diseases of the Heart (not specified)	...	...	...	...	...	...	...	...	...	...	...	...	...	383
	298	<i>Diseases of the Myocardium.</i>														
		Dilatation of the Heart	...	...	...	...	...	...	...	...	...	...	...	...	...	1
		Cyanosis of the Heart	...	...	...	...	...	...	...	...	...	...	...	...	...	33
		Syncope ...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
Diseases of the Respiratory System	325	<i>Diseases of the Veins.</i>														
		Phlegmasia Dolens	...	...	...	...	...	...	...	...	...	...	...	...	...	3
	338	<i>Diseases of the Respiratory System and Strictly Local.</i>														
		Asthma ...	...	...	...	...	...	...	...	...	...	...	...	...	...	103
	404	<i>Diseases of the Trachea and Bronchi.</i>														
		Bronchitis (Acute)	...	...	...	...	...	...	...	...	...	...	...	...	...	252
		" Chronic	...	...	...	...	...	...	...	...	...	...	...	...	...	223
		" (a) Catarrhal	...	...	...	...	...	...	...	...	...	...	...	...	...	17
	411	<i>Diseases of the Lung.</i>														
		Hæmoptysis	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Broncho-Pneumonia		...	...	...	...	...	...	...	...	...	...	...	...	...	1,614	
419	Phthisis ...	...	...	...	...	...	...	...	...	...	...	...	...	...	703	

Diseases of the Respiratory System.—(contd.)	<i>Diseases of the Pleura.</i>																	
	425	Pleurisy	...	...	...	...	...	...	...	1	1	2	...	...	...	...	4
	<i>Diseases of the Mouth.</i>																	
	436	Stomatitis	...	...	...	1	...	1	...	...	2	...	...	...	1	2	7
	<i>Diseases of the Teeth, Alveoli and Gums.</i>																	
	440	Disorders of Dentition	Diarrhoea	18	18	14	8	11	3	3	8	6	4	1	5	99
	<i>Diseases of the Stomach.</i>																	
	489	Gastritis Acute	6	4	5	7	2	5	6	8	9	4	5	8	69
		" Chronic	1	1	...	1	2	3	1	2	1	...	2	4	18
	499	Dyspepsia	17	19	11	10	8	5	6	14	14	19	17	18	158
	<i>Diseases of the Intestines.</i>																	
	515	Gastro Enteritis	28	23	25	25	22	26	33	32	30	24	27	31	326
	528	Hernia	4	1	1	1	1	3	...	2	3	5	3	4	28
		" (Strangulated)	2	1	2	4	3	5	10	2	4	33
	530	Intussusception	1	1	...	1	1	...	4
536	Obstruction of Bowels	...	...	...	2	1	...	...	1	...	2	...	...	1	...	...	7
539	Intestinal Catarrh	...	...	...	18	20	17	21	12	12	13	10	2	3	1	...	129
544	Colic	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	2
<i>Diseases of the Rectum and Anus.</i>																		
550	Fistula of Anus	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
556	Piles	...	...	...	2	3	1	5	4	1	3	4	3	2	...	4	32
558	Stricture of the Rectum	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	2

	No. in the No- menclature of Diseases.	CAUSES OF DEATH.	January.												TOTAL.	
			January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.		
Diseases of Digestive System—(contd.)	568	<i>Diseases of the Liver.</i>														
		Hepatitis ...	2	1	1	2	...	1	...	2	1	2	1	3	16	
		" (b) Cirrhosis of Liver ...	16	13	7	10	18	13	18	21	13	10	17	16	172	
	570	Enlargement of Liver ...	1	2	1	1	1	2	2	3	1	...	2	2	18	
		Acute Yellow Atrophy ...	...	...	...	...	...	...	...	...	...	1	...	...	1	
		Jaundice ...	1	...	1	1	...	2	1	...	2	...	1	3	12	
Diseases of Lymphatic System.	588	<i>Diseases of the Peritoneum.</i>														
		Peritonitis ...	10	8	7	5	2	5	5	3	5	5	2	5	62	
		Ascites ...	1	...	2	3	1	2	2	1	...	2	...	4	18	
	592	<i>Diseases of the Spleen.</i>														
		Enlargement of the Spleen ...	...	...	...	...	1	1	2	1	3	1	...	...	9	
Diseases of the Adrenals (Supra-Renals.)	615	<i>Diseases of the Lymphatic Glands.</i>														
		Filaria ...	...	...	...	...	...	2	1	3	2	4	...	3	15	
		Hæmorrhage ...	2	...	...	1	1	3	1	1	...	5	...	...	14	
	651	<i>Diseases of the Kidney.</i>														
		Nephritis Acute ...	1	...	...	...	...	...	1	3	1	1	1	2	10	
		Renal Dropsy ...	1	2	...	...	...	1	...	2	...	...	...	2	8	
Diseases of the Urinary System.	652	Bright's Disease ...	9	14	10	7	15	8	15	7	17	12	14	18	146	
		Disease of Kidney ...	...	...	...	1	2	...	1	...	1	...	1	...	6	

	No. in the No- menclature of Diseases.	CAUSES OF DEATH.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	TOTAL.
Affections Conse- quent on Parturition	853	<i>Affections Consequent on Parturition.</i> Post-partum Hemorrhage ...	2	...	1	...	2	...	1	1	1	2	2	2	14
	855	Puerperal Causes :— " Sepsaemia ...	2	1	2	4	2	6	2	3	1	4	2	3	32
		" Tetanus ...	...	...	...	...	...	...	...	1	...	...	...	1	2
	870	Sudden death after Delivery ...	...	1	...	...	1	...	...	1	...	...	...	...	3
Diseases of the Connective Tissue.	953	<i>Diseases of the Connective Tissue.</i> Abscess ...	8	2	7	5	8	12	5	14	8	12	5	13	99
	956	Oedema ...	12	13	23	10	16	5	8	12	4	3	2	7	115
Diseases of the Skin.	966	<i>Diseases of the Skin.</i> Carbuncle ...	4	3	2	2	1	3	2	2	1	3	1	2	26
General Injuries.	1025	<i>General Injuries.</i> Effects of Heat (a) Burns and Scalds ...	2	2	4	6	3	2	3	3	3	2	4	2	26
	1030	Suffocation ...	2	6	1	4	2	1	5	2	3	8	7	6	47
		" by Drowning, Accidental ...	6	2	4	2	6	9	2	4	7	8	7	4	61
		" " Suicidal ...	1	...	...	2	...	...	...	...	...	...	...	...	3
		" by Hanging ...	...	...	...	1	1	1	2	...	1	1	1	...	8
	1031	Starvation ...	...	...	...	...	...	...	...	1	...	...	...	...	1
	1033	Shock ...	1	...	1	...	2	1	3	...	...	1	...	3	12
		" due to carriage accident ...	...	1	...	2	...	1	...	1	...	...	2	...	7

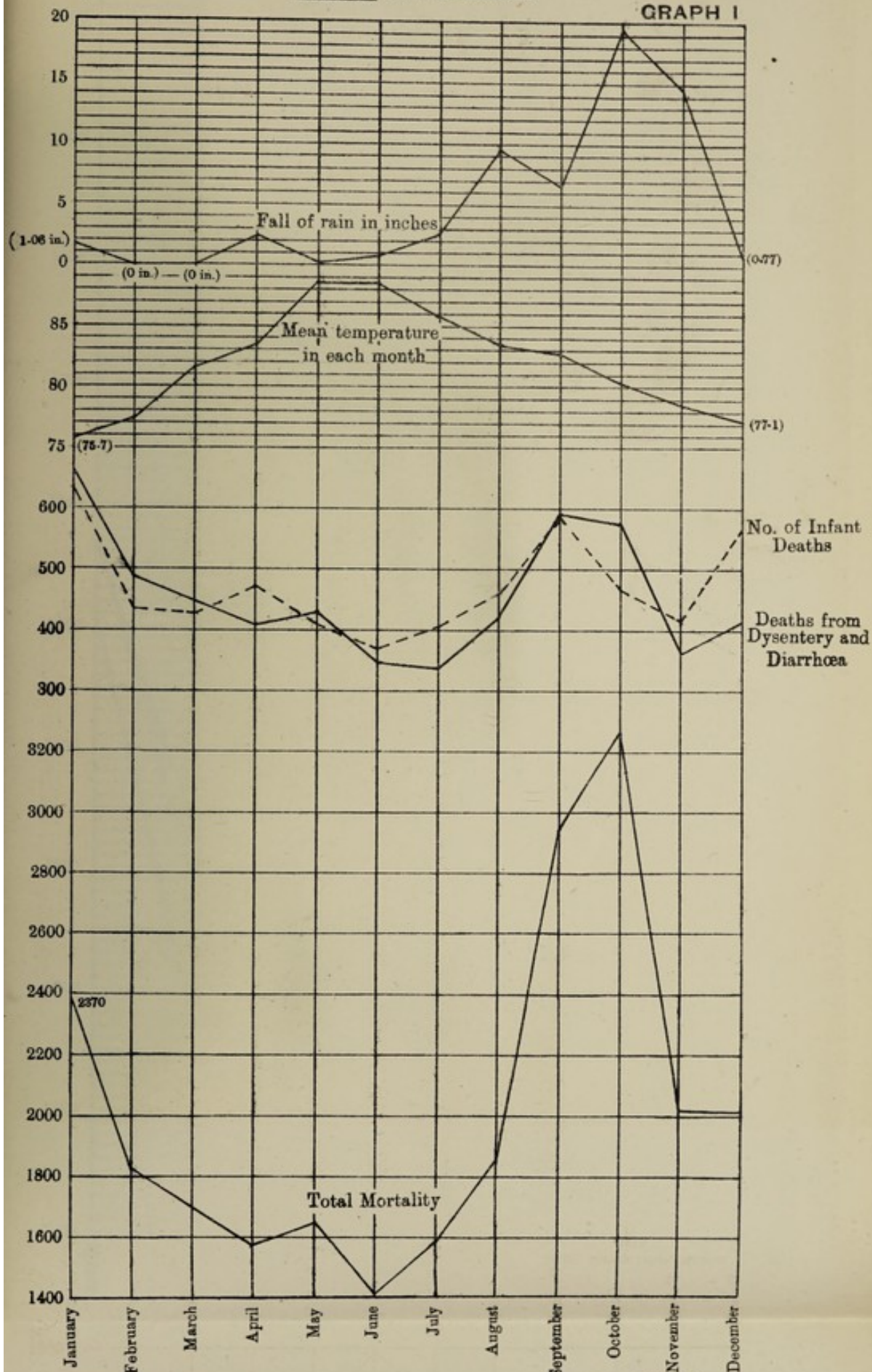
Graph showing

total Mortality, deaths from Dysentery

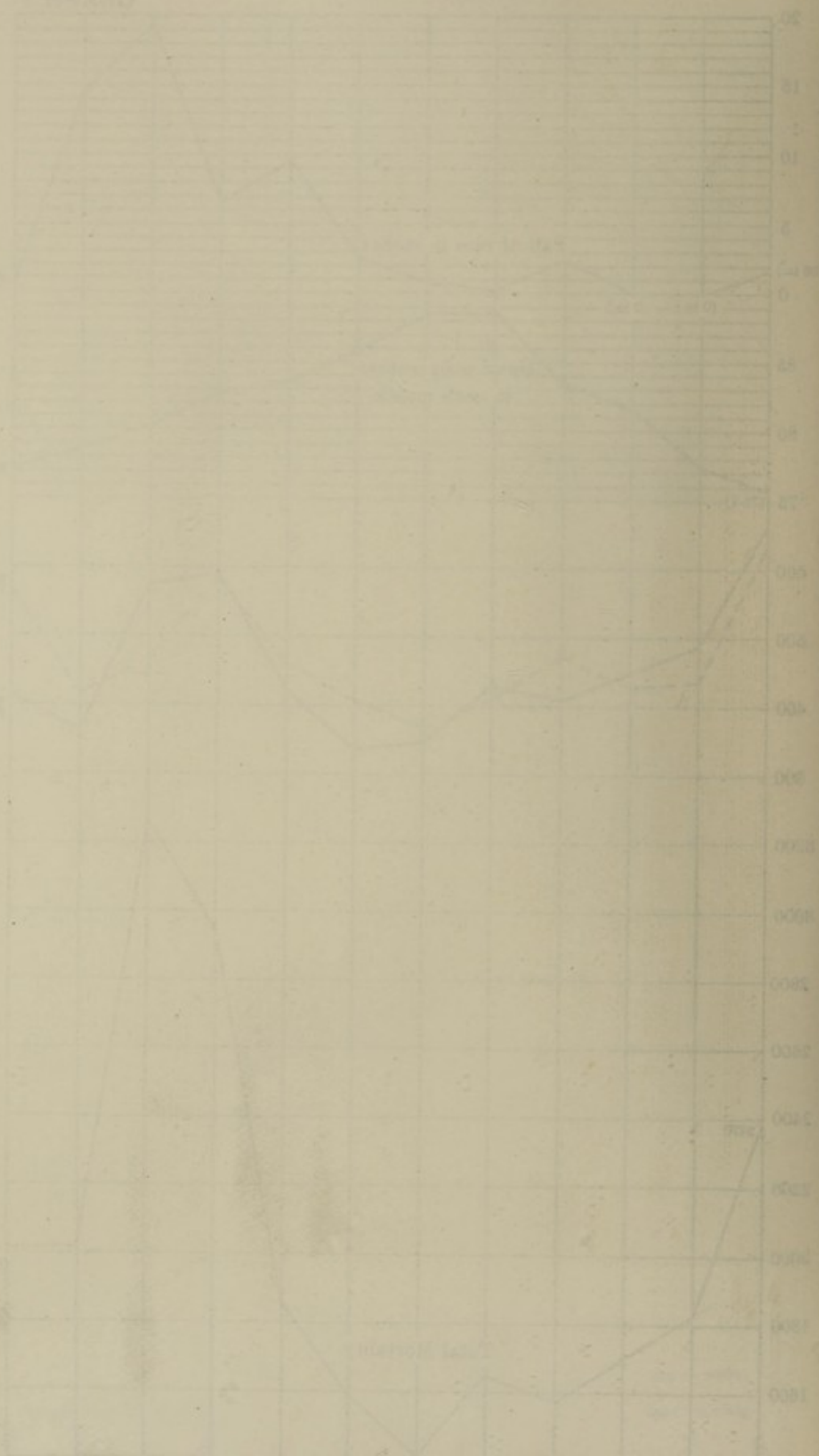
and Diarrhoea mean Temperature and

Rainfall by the month.

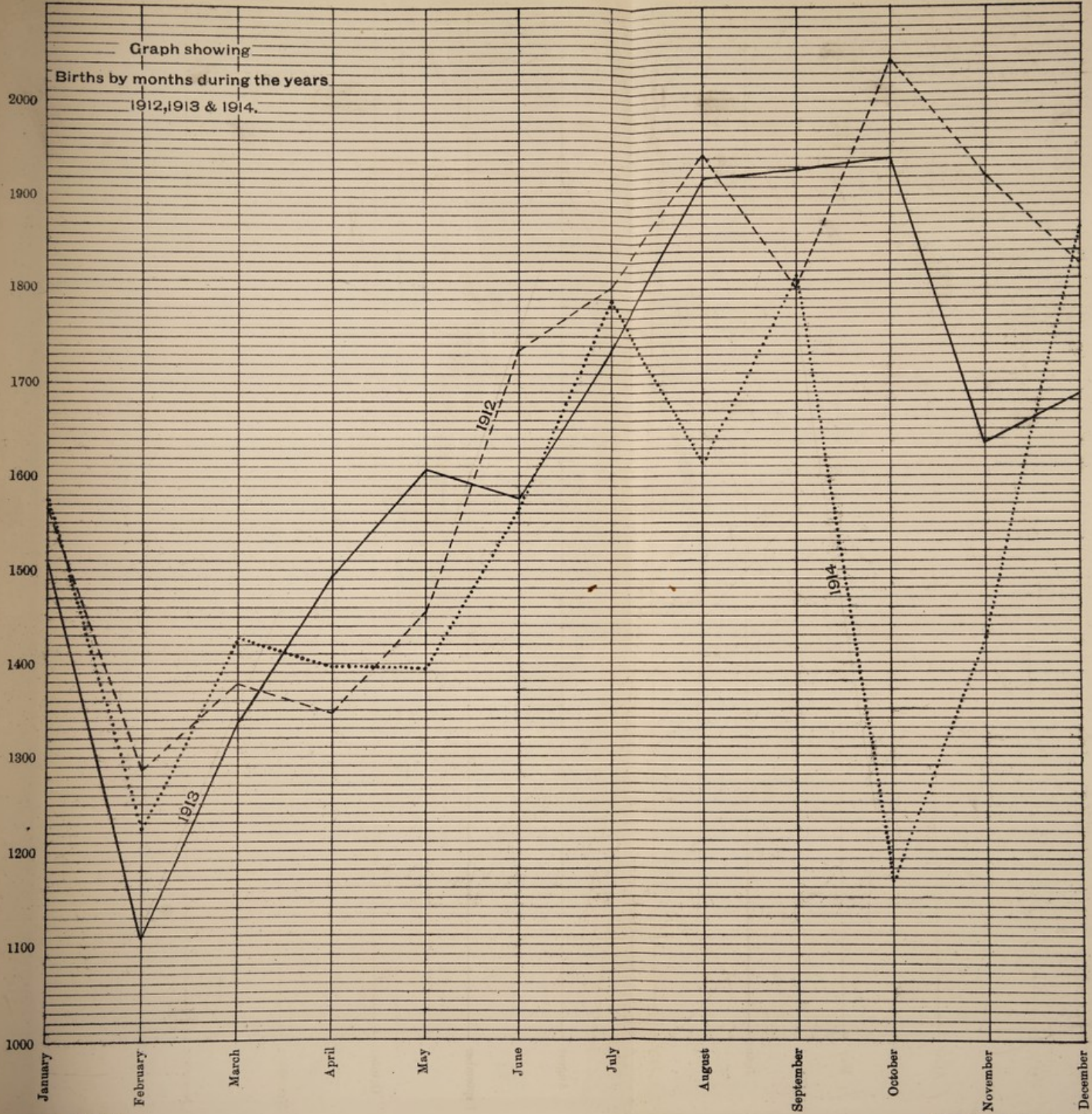
GRAPH I



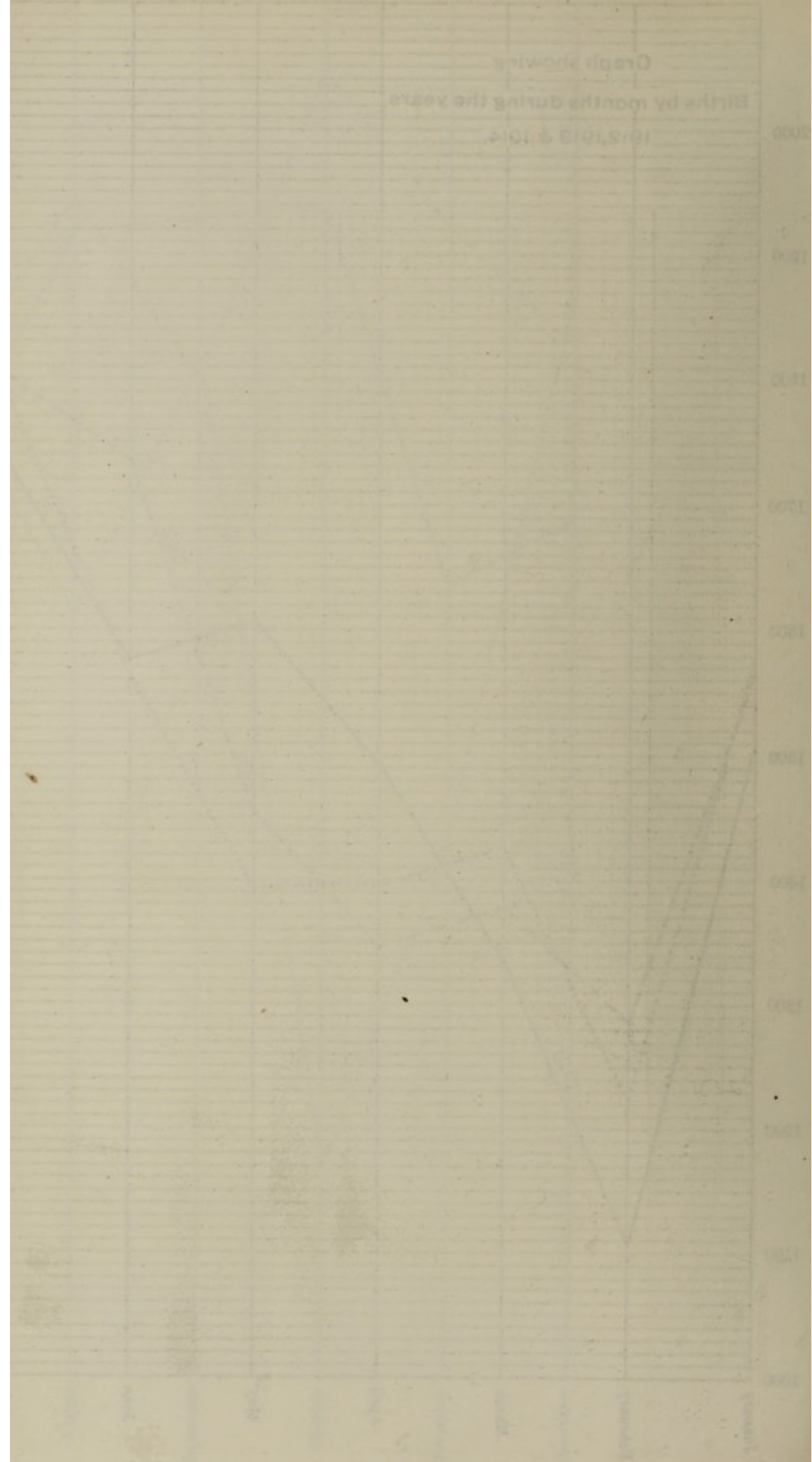
1900-1901 1902-1903 1904-1905



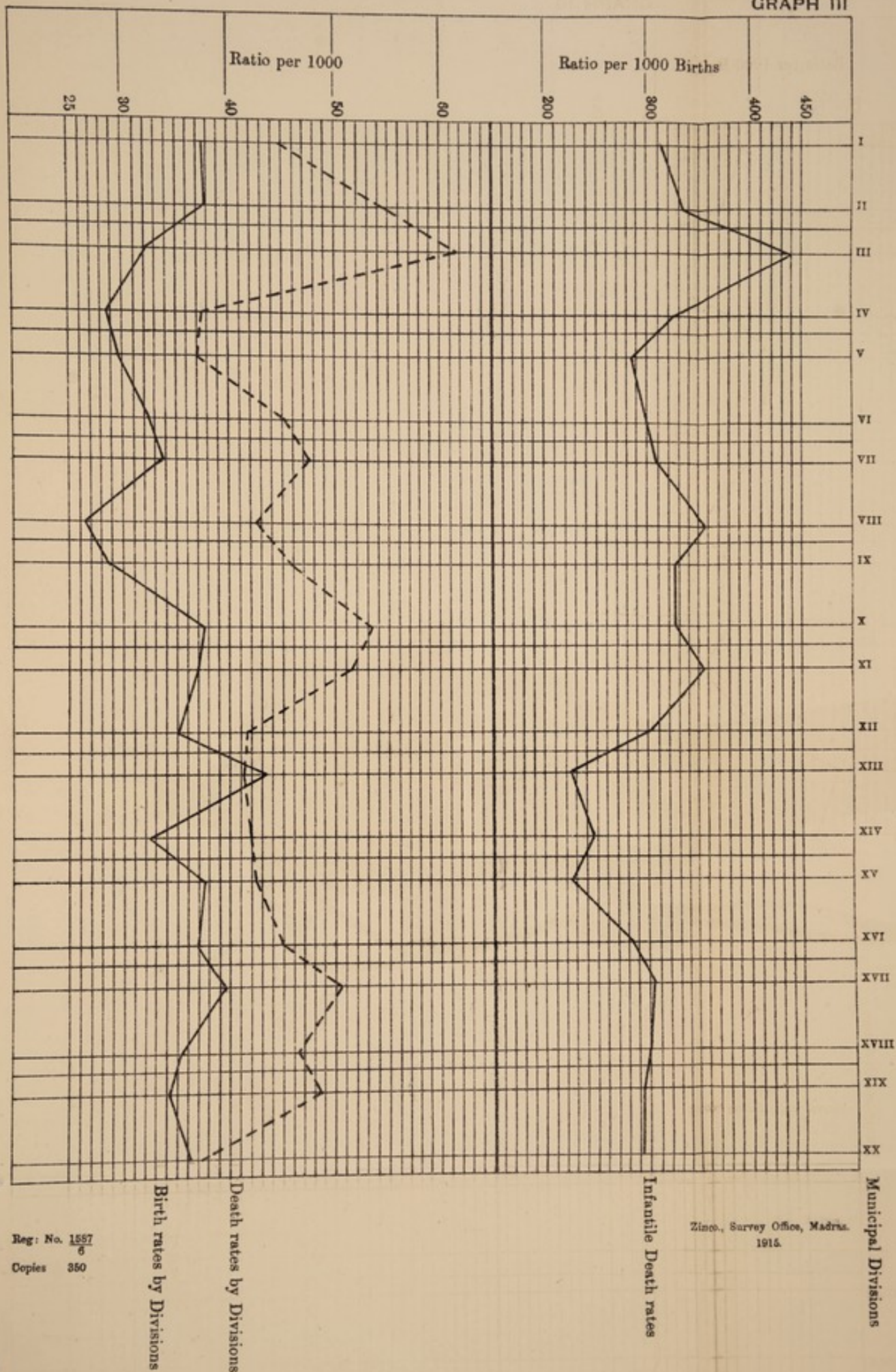
GRAPH II



Graph showing
Births by month during the years
1912, 1913 & 1914

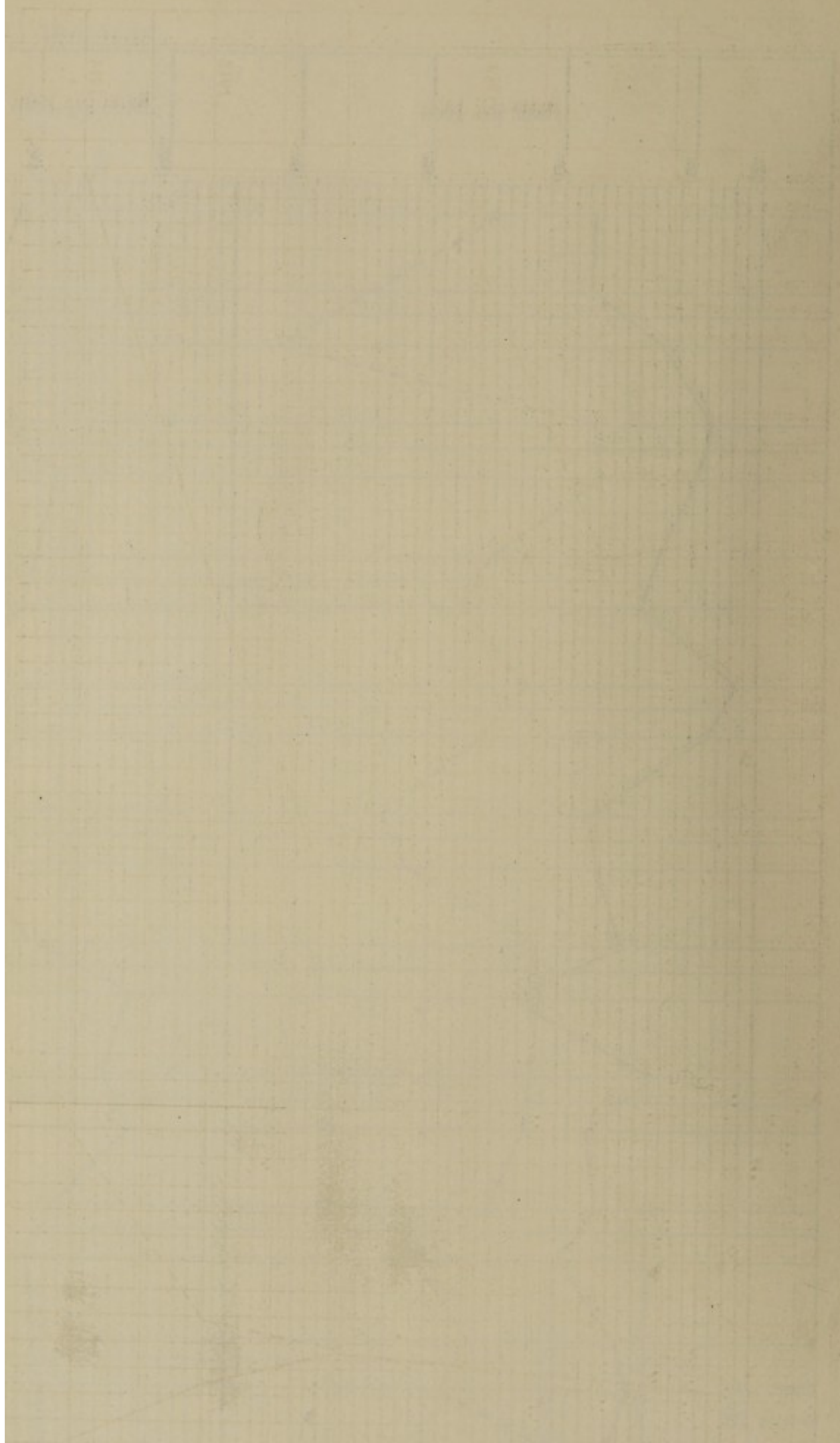


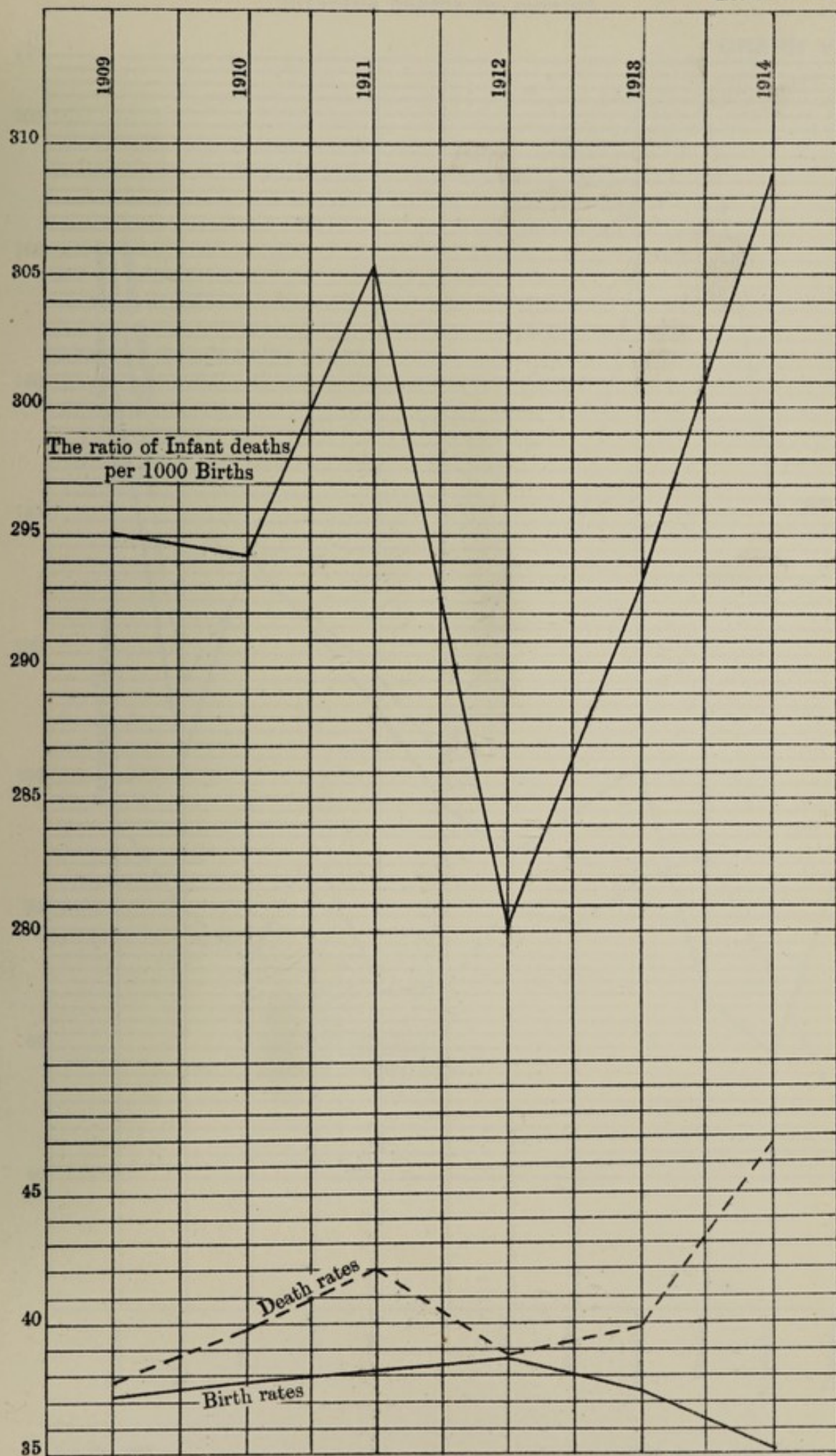
GRAPH III



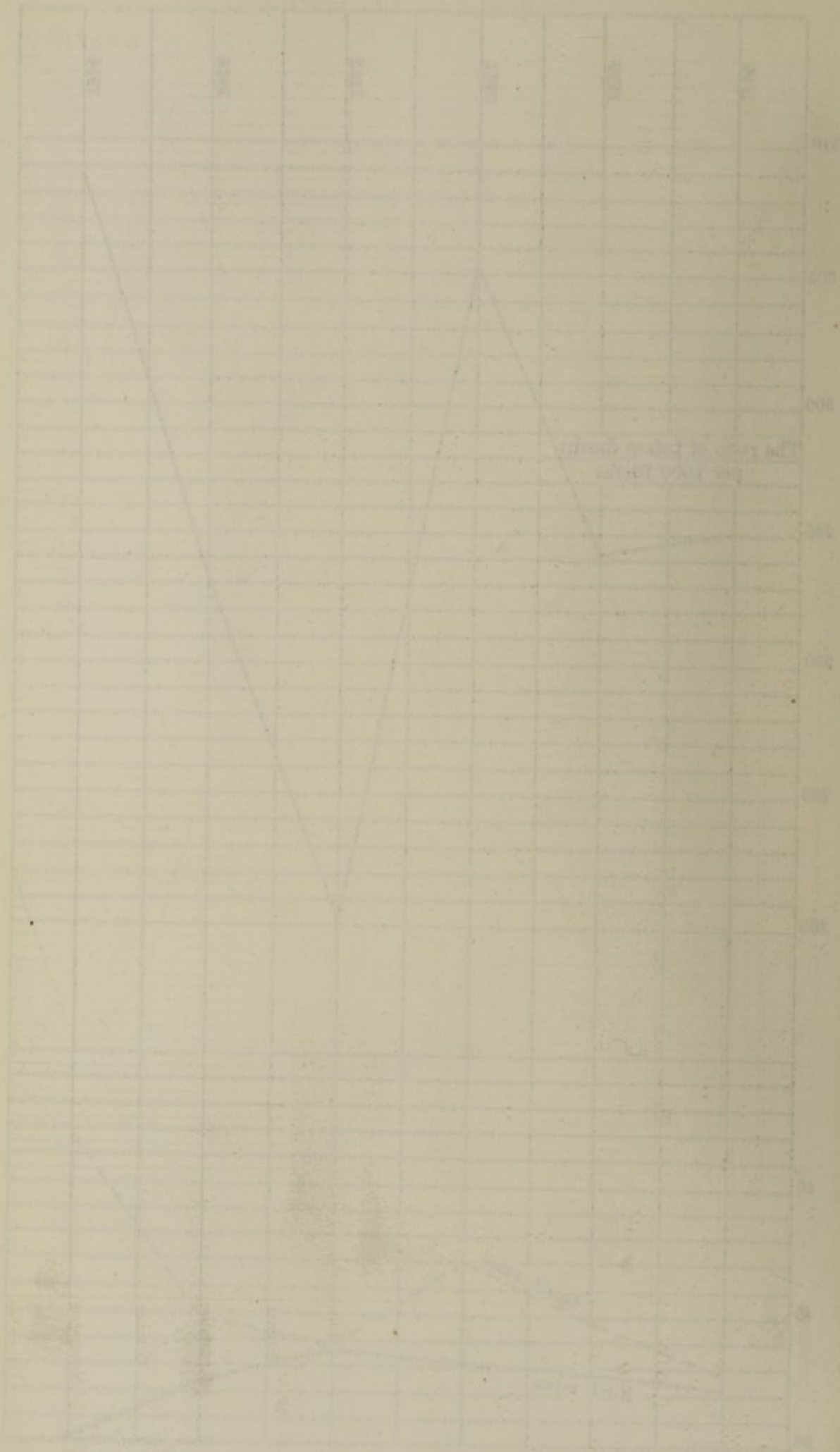
Zinc., Survey Office, Madras.
1915.

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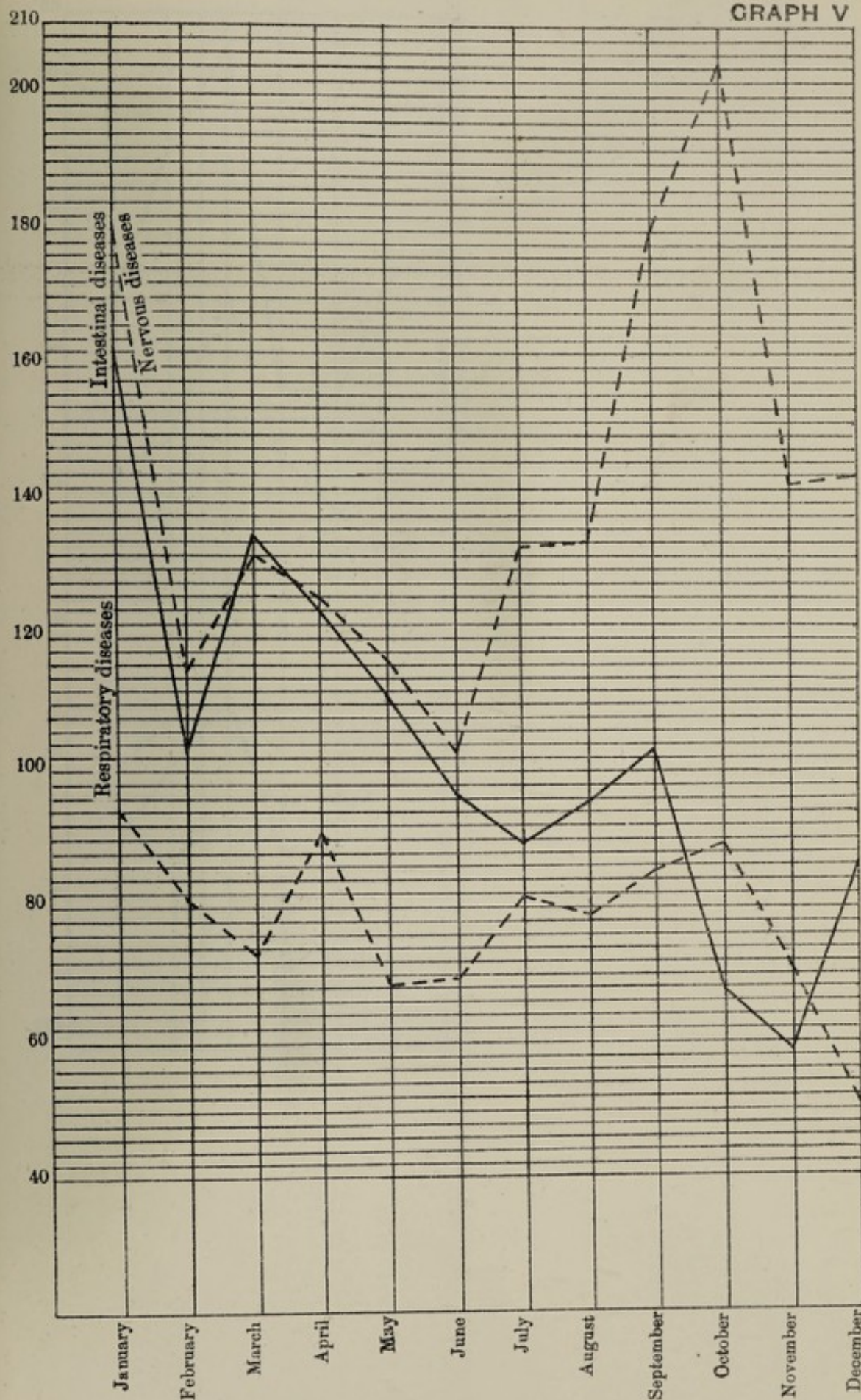


GRAPH IV

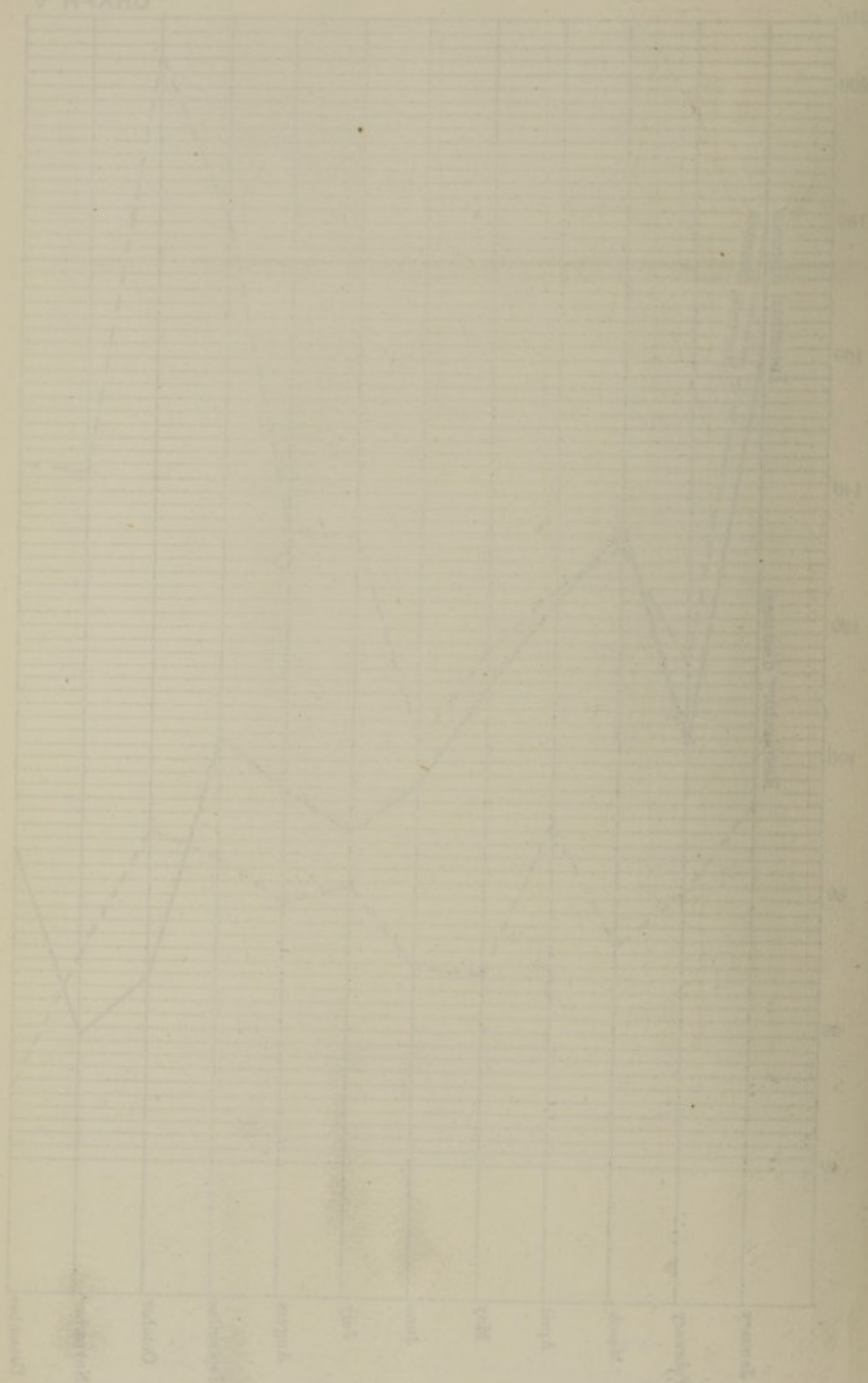


Infantile deaths by months

GRAPH V

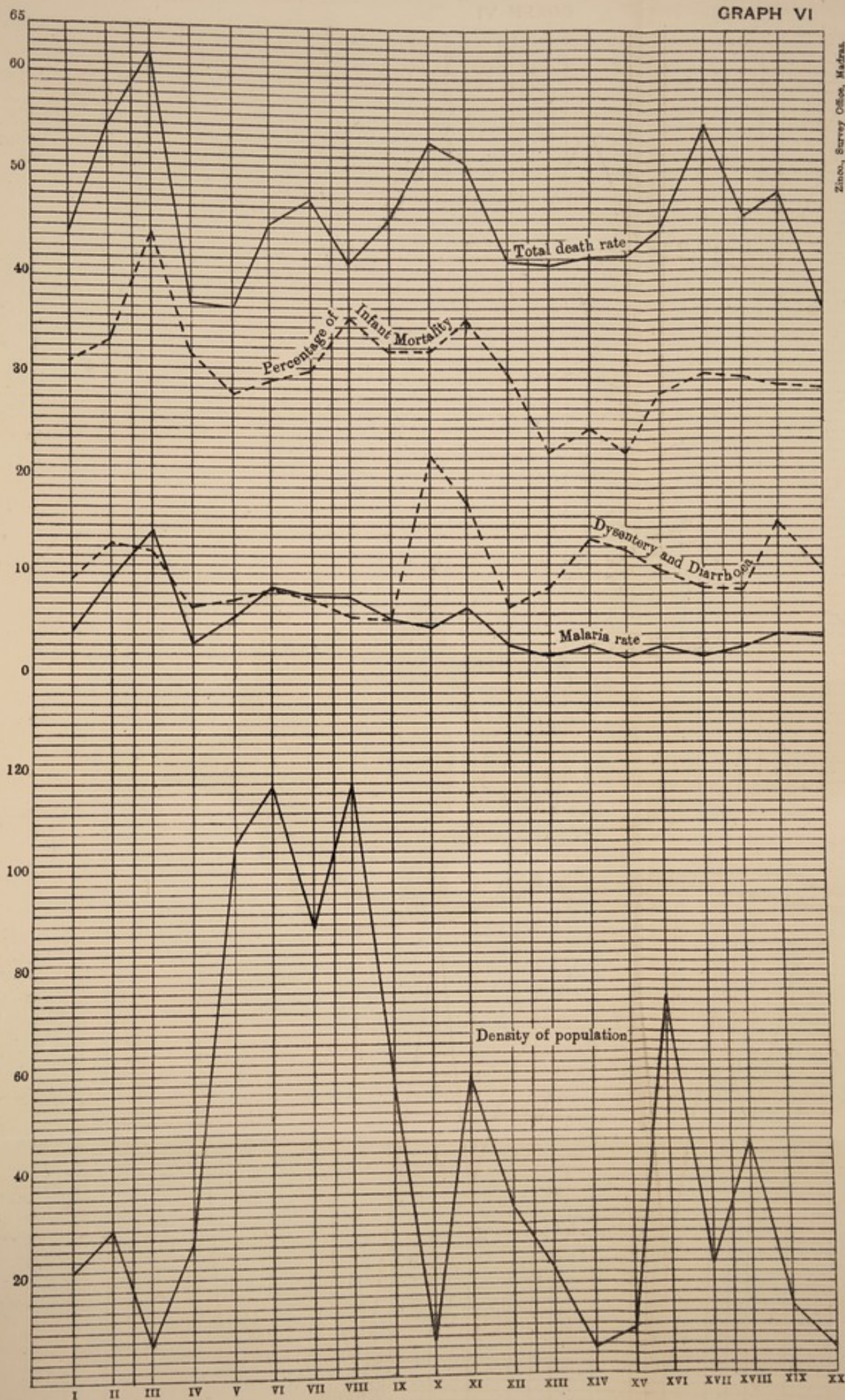


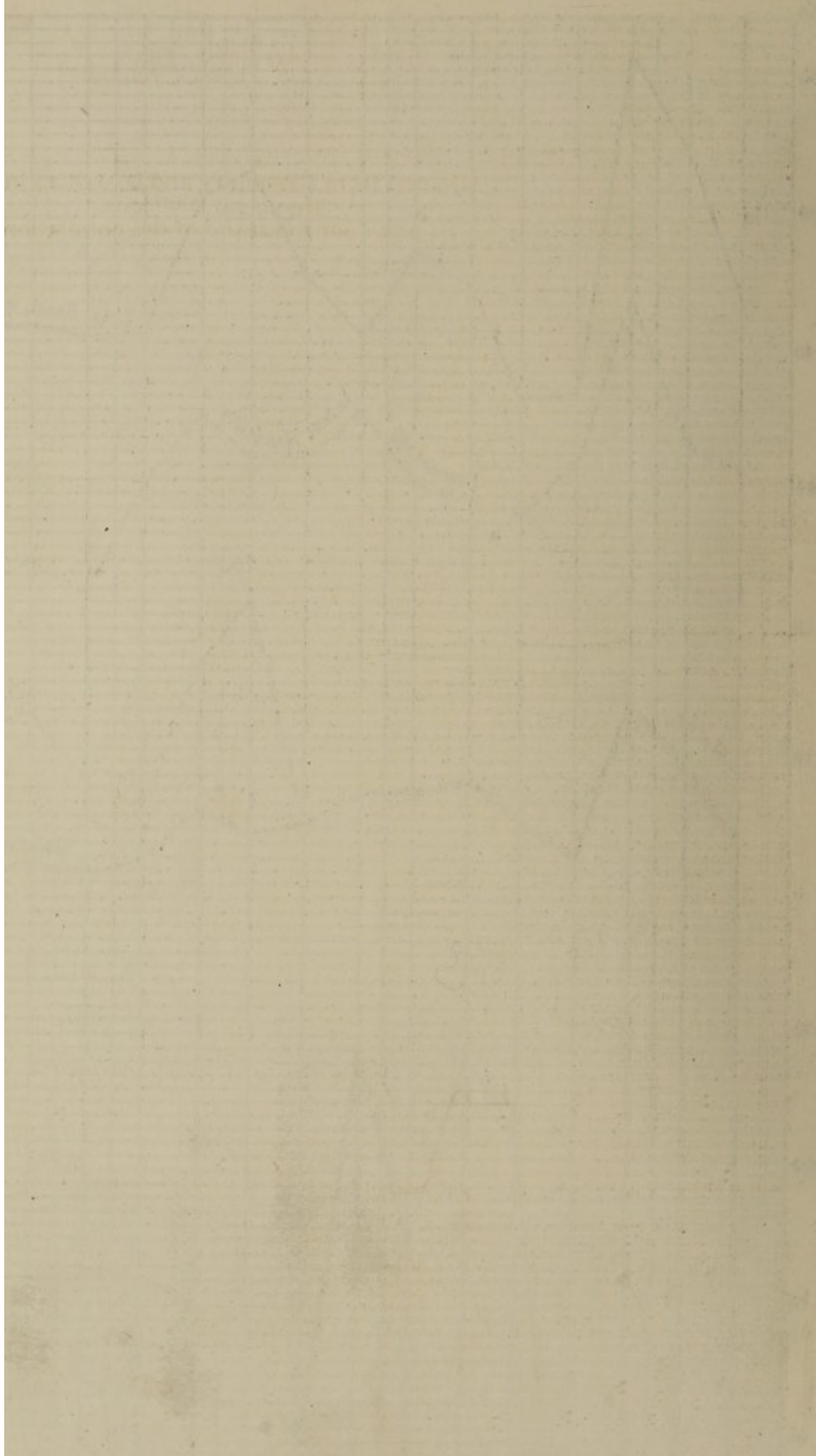
GRAPH V



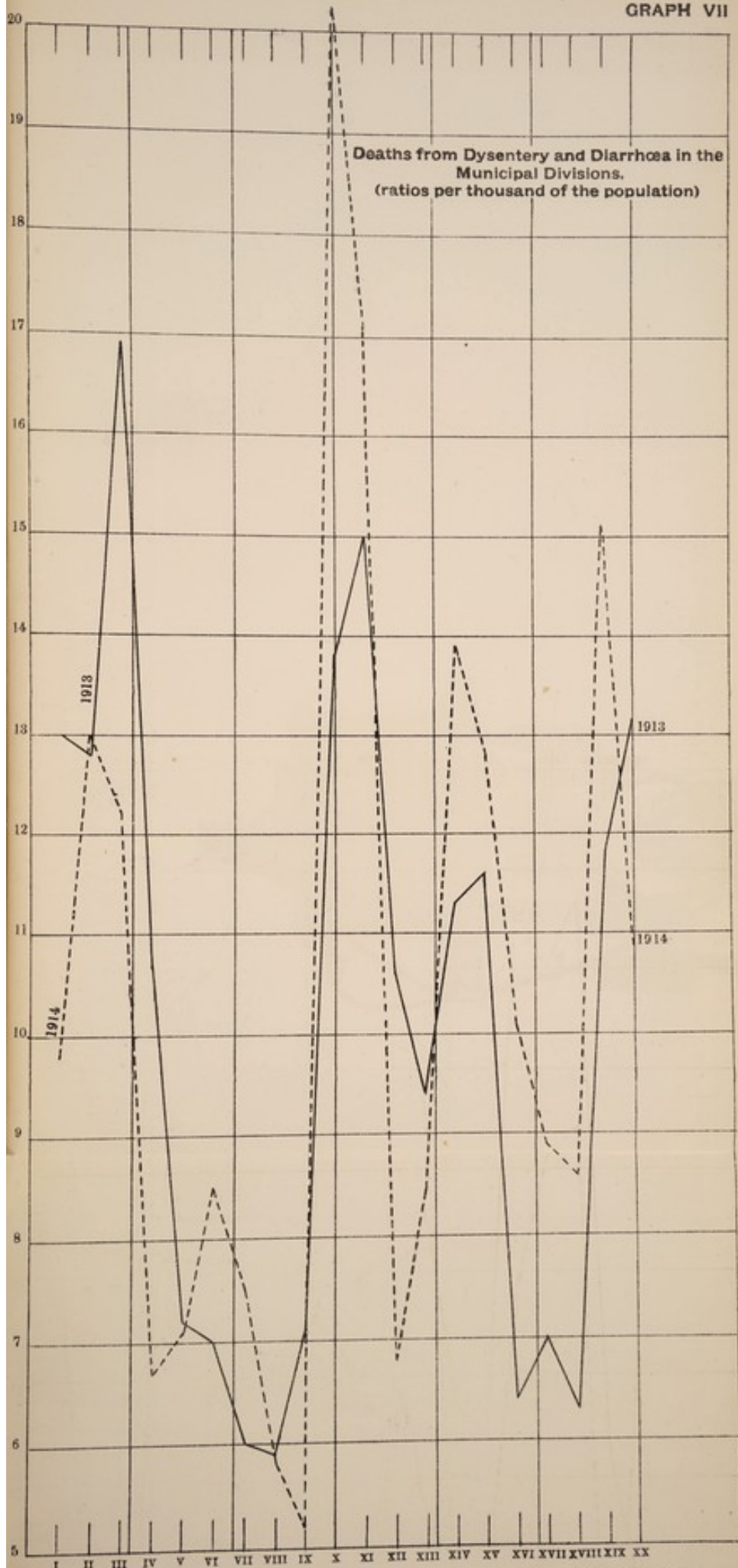
GRAPH VI

Zind, Survey Office, Madras.
1915.

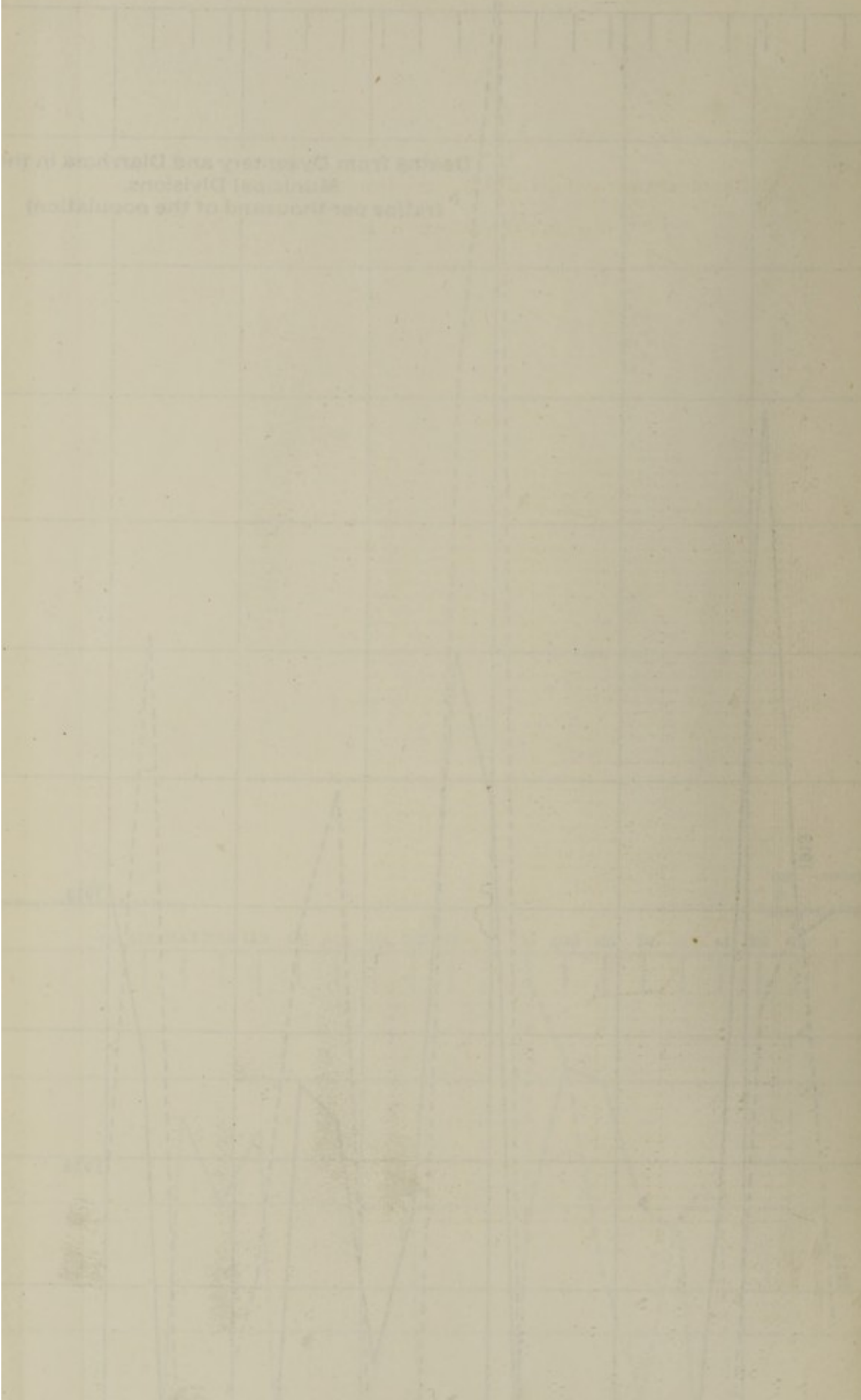




GRAPH VII

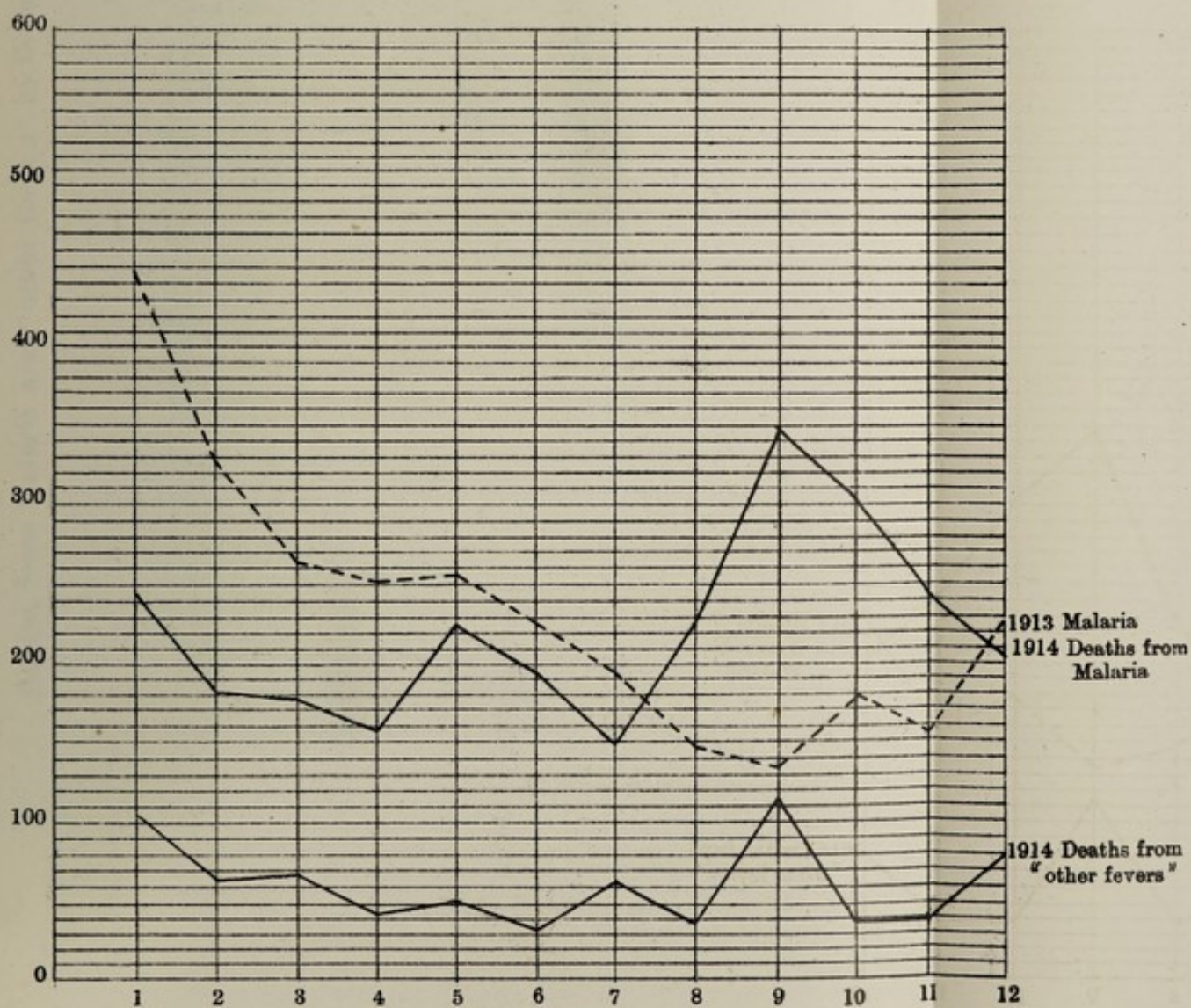


Deaths from Dysentery and Diarrhoea in the
 Municipal Division
 (Ratio per thousand of the population)

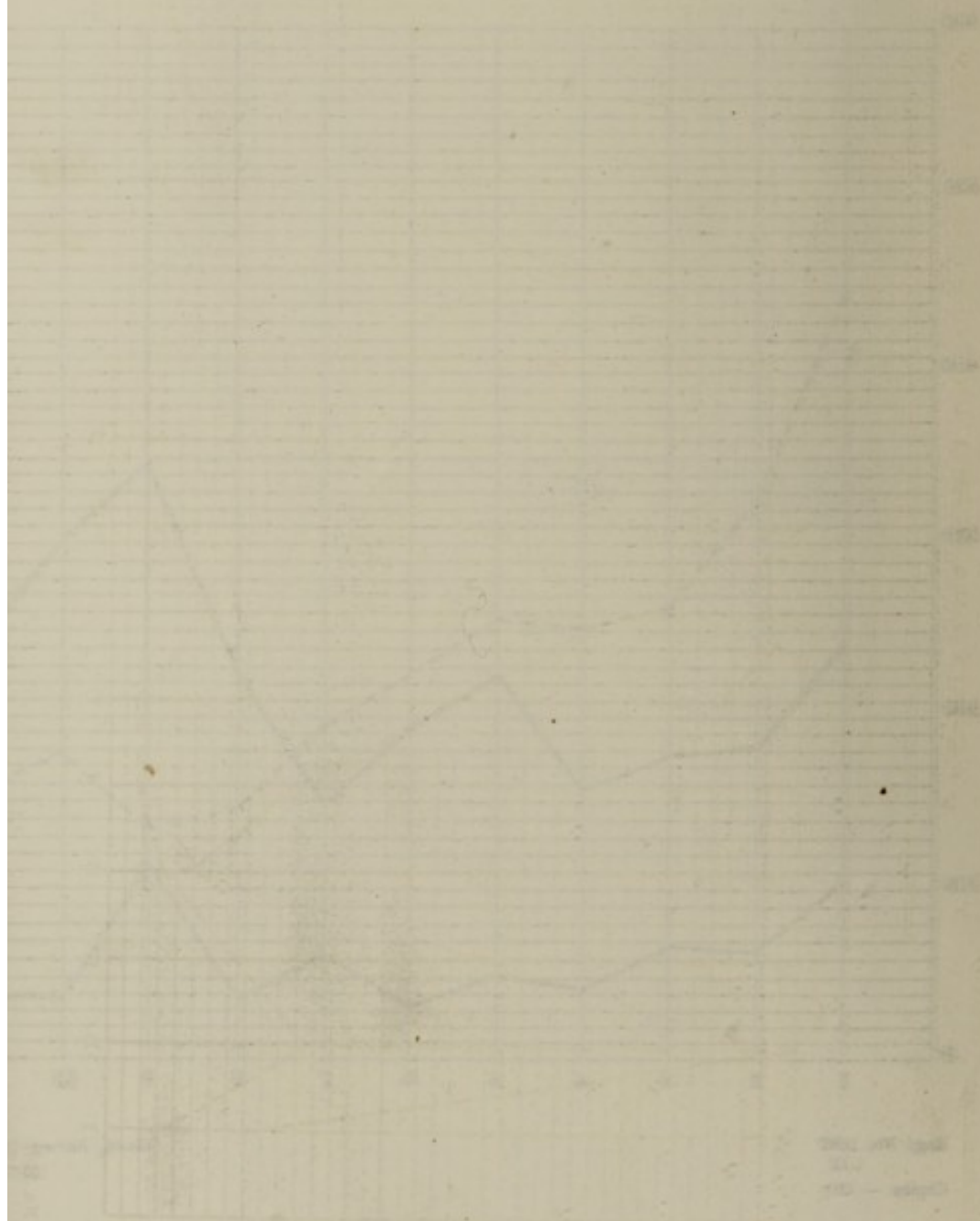


GRAPH VIII

Graph showing the Total Deaths from Malaria and other fevers during each month of the year 1914

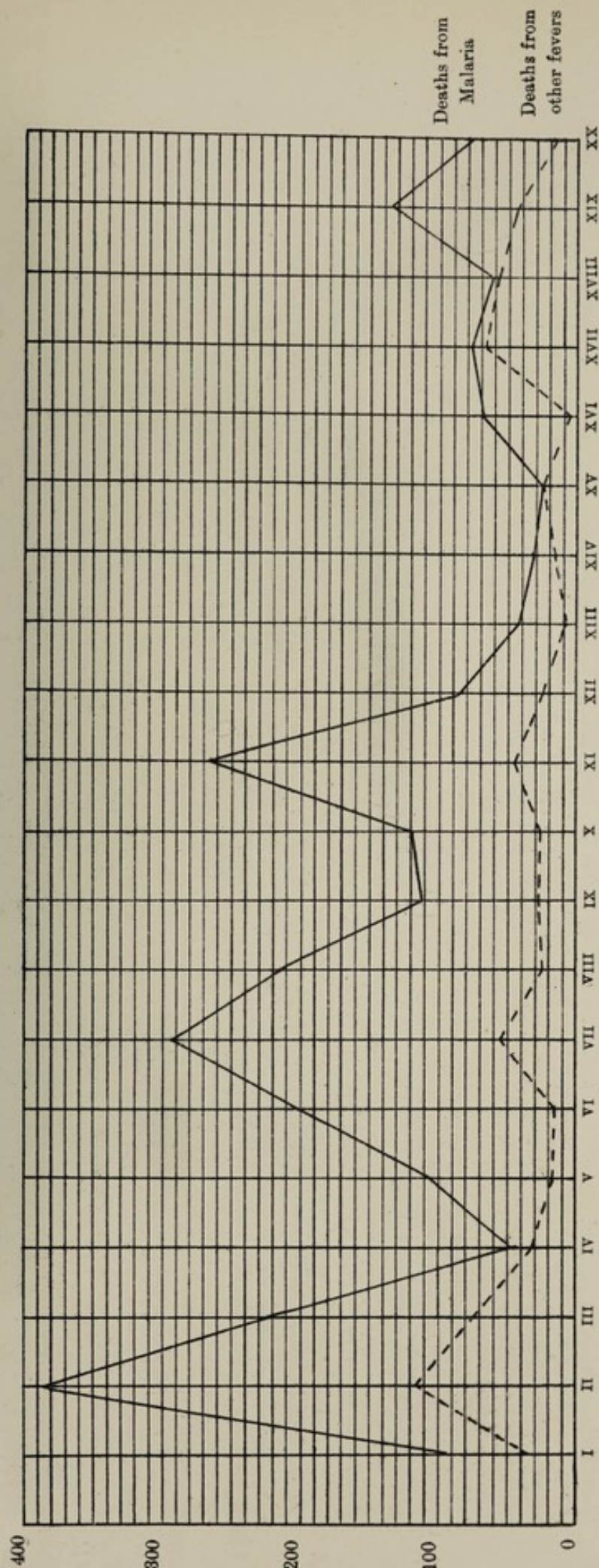


Graph showing the Total Output from Station and the
 during each month of the year 1944



Deaths from Malaria and "other fever's" by Divisions.

GRAPH IX

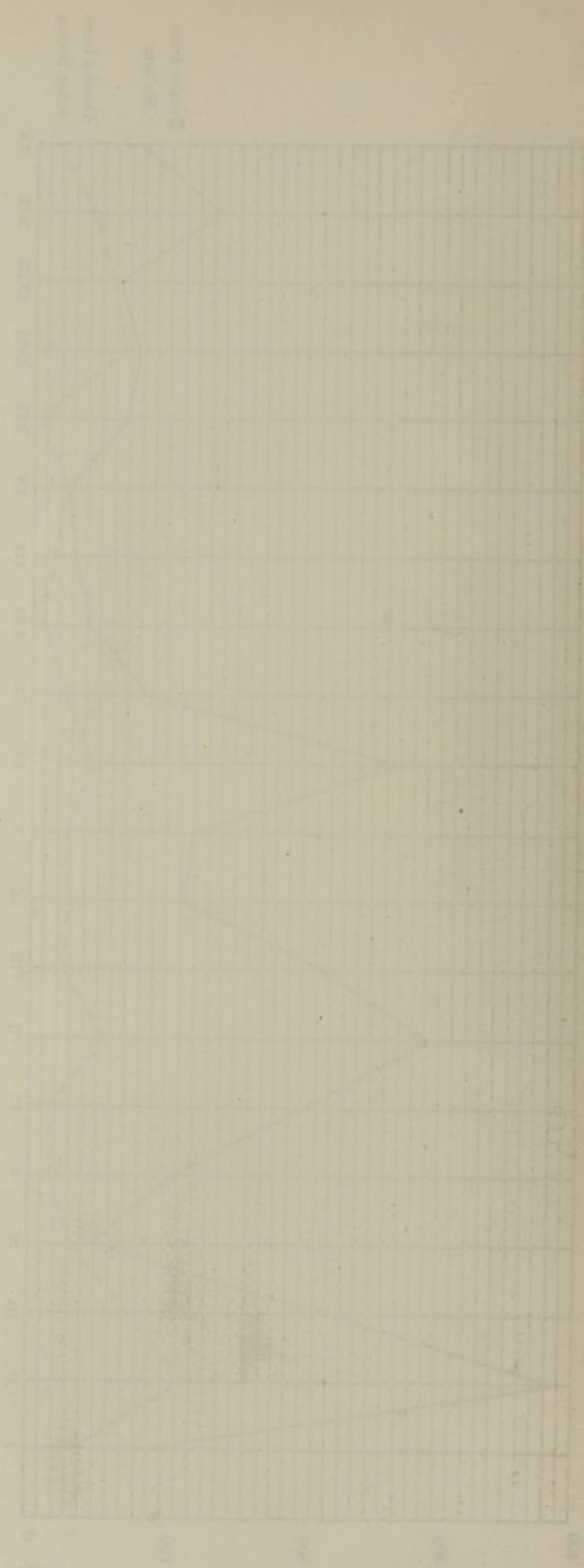


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1000
 500
 0

100
 50
 0



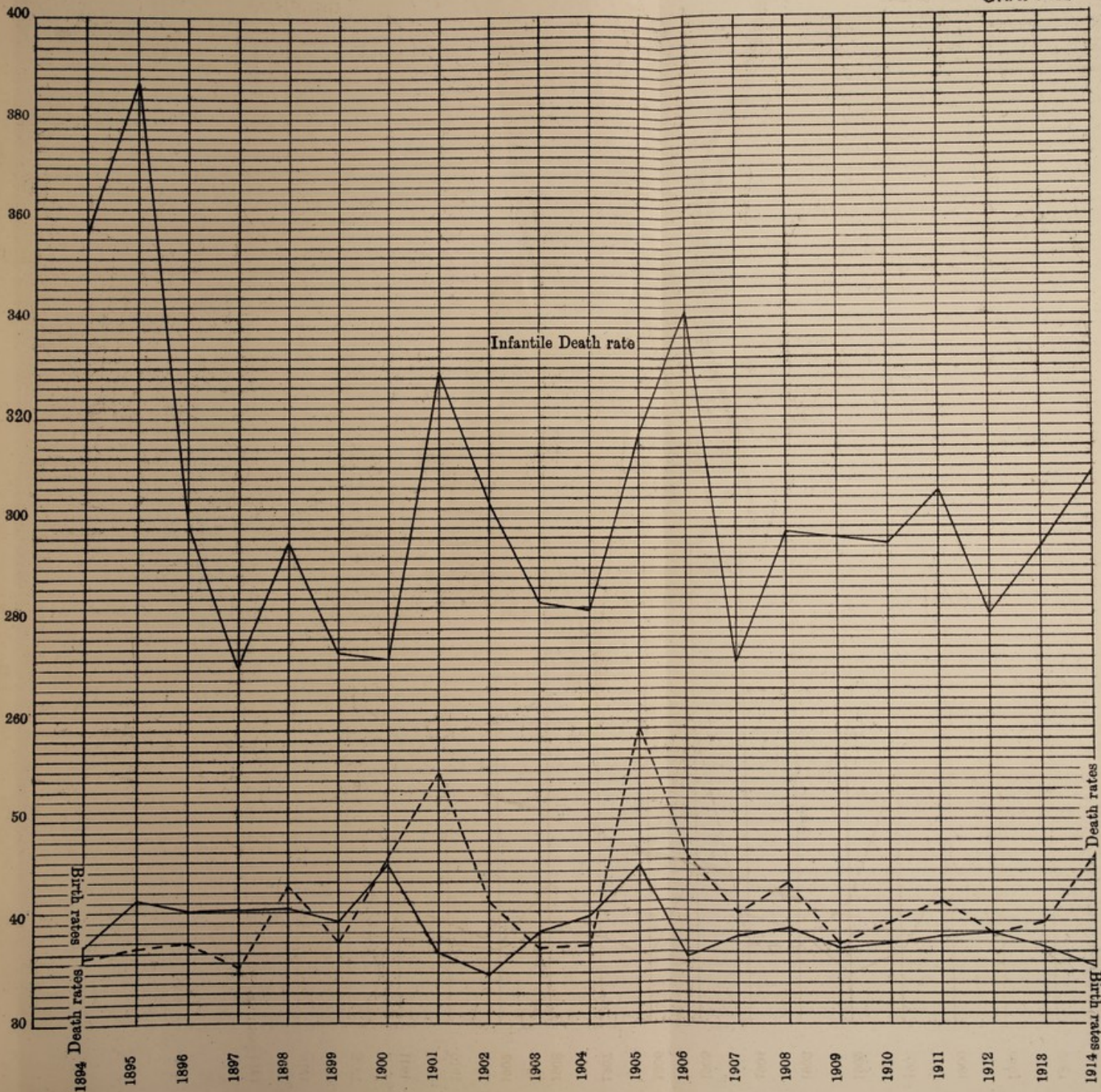
100
 50
 0

100
 50
 0

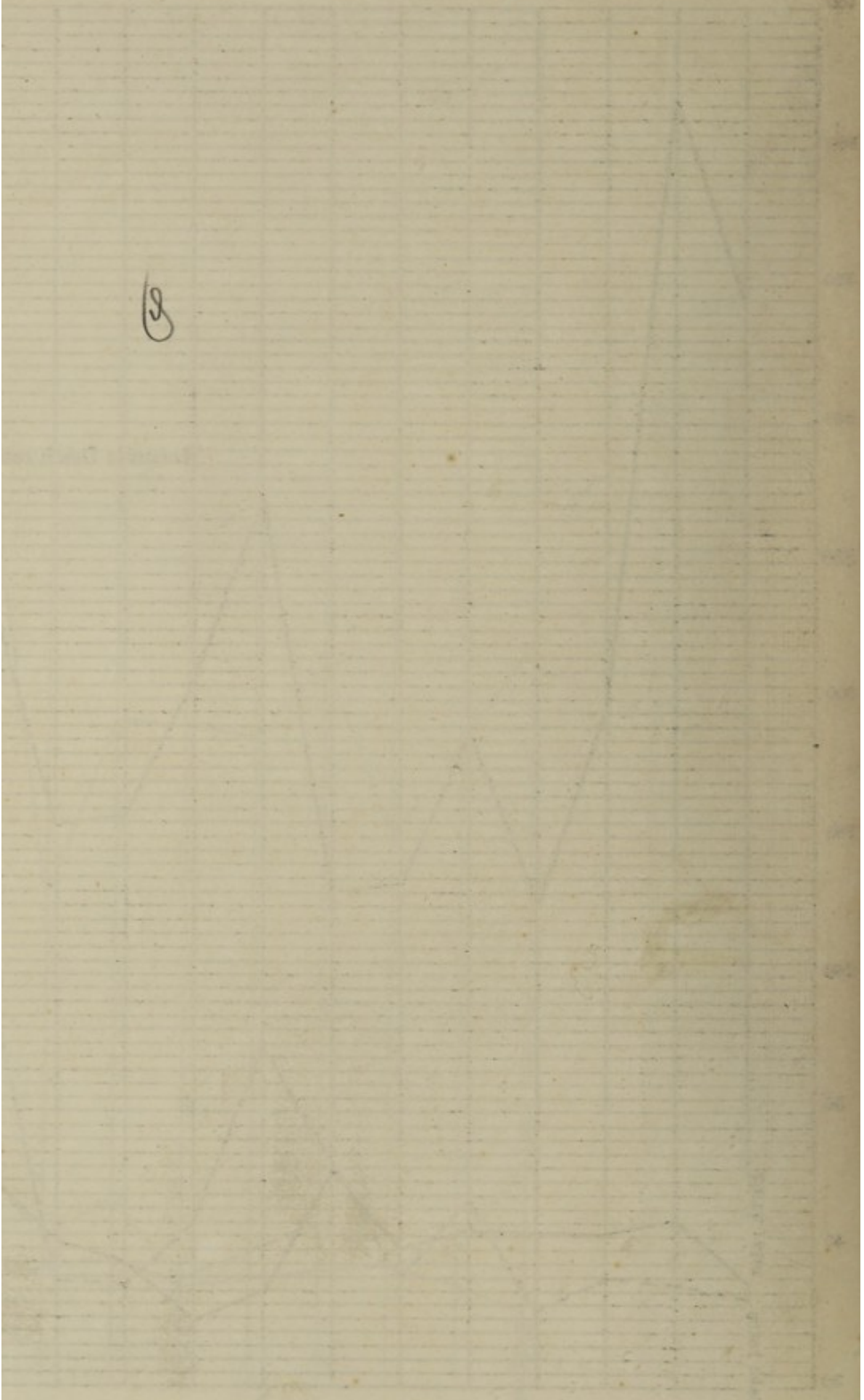
Graph showing the Birth, Death & Infantile death rates for the past 20 years from 1894 to 1913

as compared with those of 1914

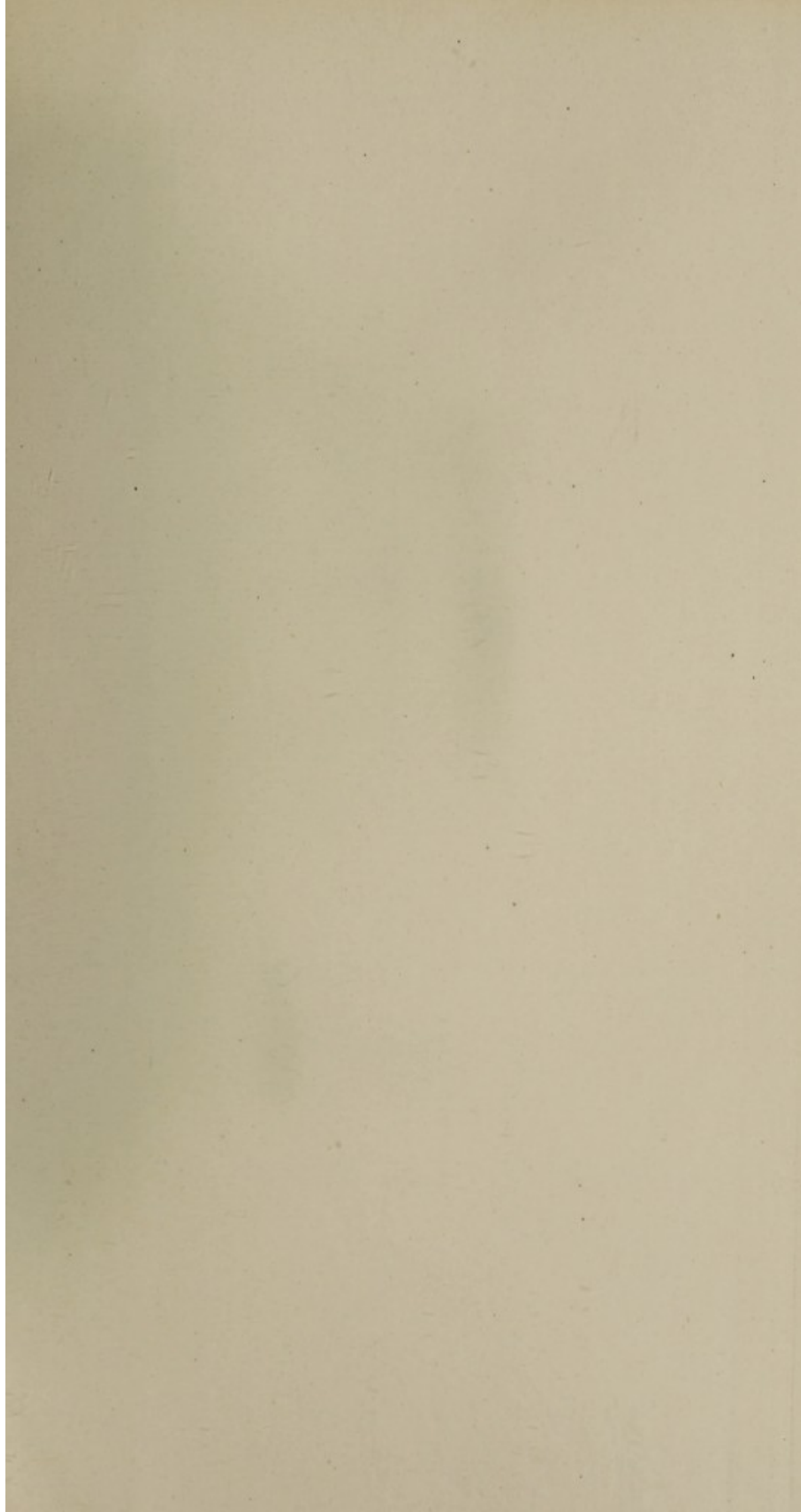
GRAPH X

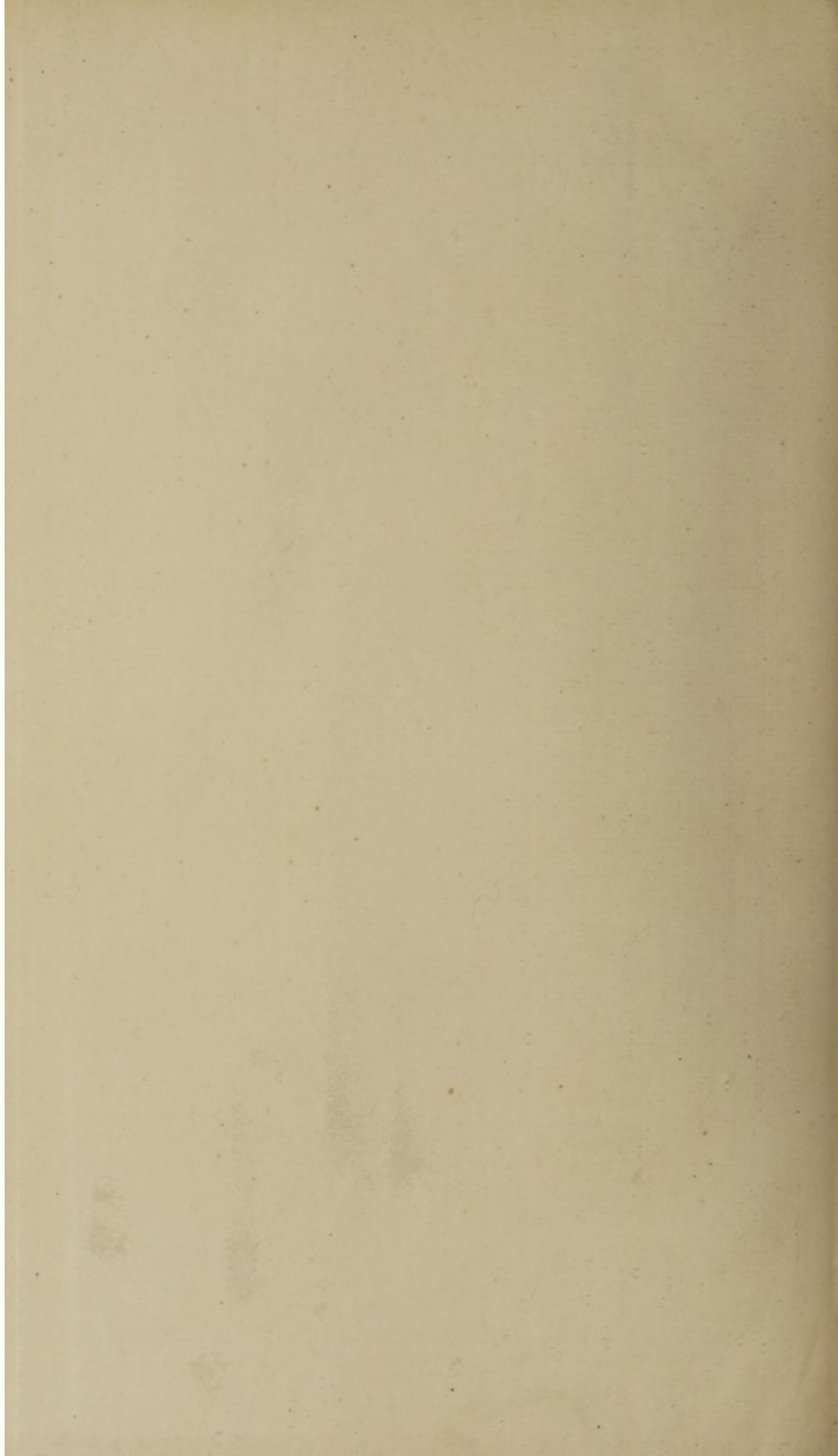


1910



8







[REPORT]

Annual Report

OF THE HEALTH OFFICER

CORPORATION OF MADRAS

HEALTH DEPARTMENT

FOR

1914

Madras :

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1915