

Report of the Medical Officer of Health / Municipality of Colombo.

Contributors

Colombo (Sri Lanka). Public Health Department.

Publication/Creation

[Colombo, Ceylon?] : [Municipal printer?], [1925]

Persistent URL

<https://wellcomecollection.org/works/r45tt6aw>

License and attribution

This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.



Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
<https://wellcomecollection.org>



MUNICIPALITY OF COLOMBO.

REPORT

XX

OF THE

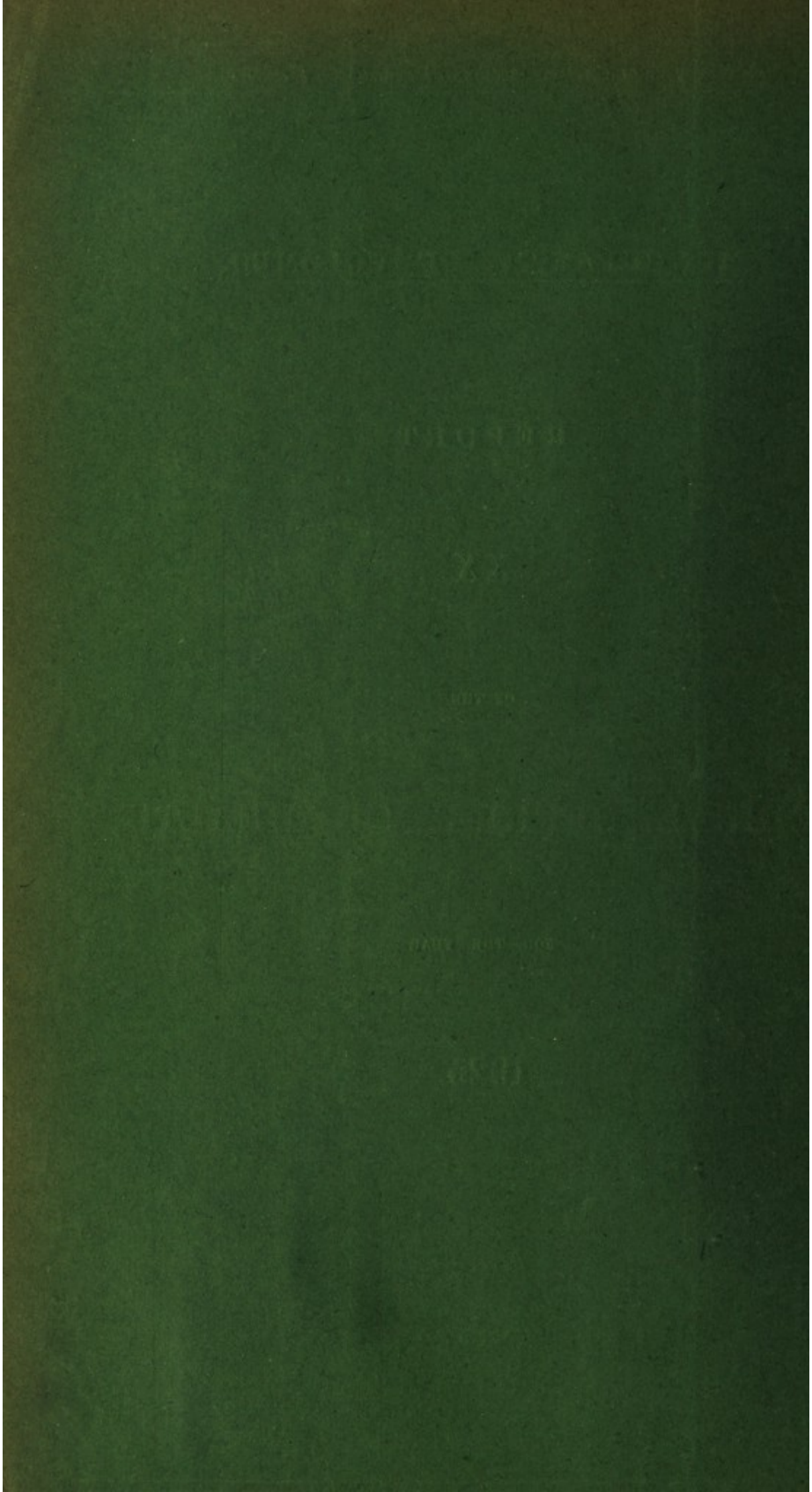
MEDICAL OFFICER OF HEALTH,

FOR THE YEAR

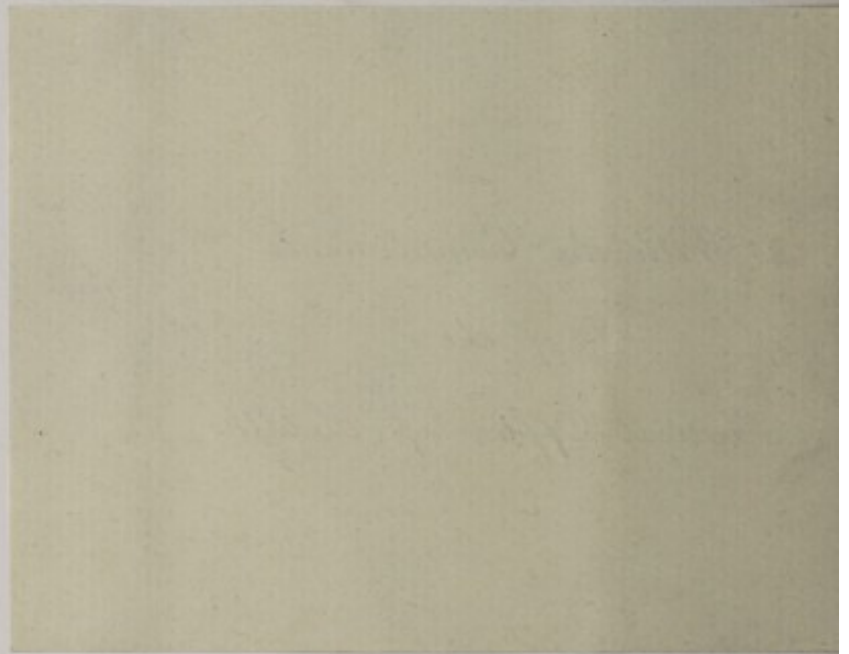
1925.

[Philip W. J.]





*With the Compliments
of the
Medical Officer of Health.*





APPENDIX C.

REPORT OF THE MEDICAL OFFICER OF HEALTH FOR 1925.

I HAVE the honour to forward the annual report of the Public Health Department for the year 1925.

CONTENTS.

Part I.

VITAL STATISTICS.

Introductory Review.	VIII.—Infant Mortality.	XVI.—Diarrhoea and Dysentery.
I.—Meteorology.	IX.—Infectious Diseases.	XVII.—Enteric Fever.
II.—Population.	X.—Plague.	XVIII.—Continued Fever.
III.—Births.	XI.—Cholera.	XIX.—Phthisis.
IV.—Deaths.	XII.—Smallpox and Vaccination.	XX.—Influenza.
V.—Ward Deaths.	XIII.—Chickenpox.	XXI.—Pneumonia.
VI.—Race Deaths.	XIV.—Measles.	XXII.—Malaria.
VII.—Principal Causes of Deaths.	XV.—Diphtheria.	

Part II.

ADMINISTRATION.

XXIII.—Expenditure.	XXX.—Laundries.	XXXVII.—Enteric Hospital and Segregation Camp.
XXIV.—New Works, &c.	XXXI.—Mosquito Prevention.	XXXVIII.—Laboratories.
XXV.—General Sanitation.	XXXII.—Cleansing and Disinfection.	XXXIX.—Cemeteries.
XXVI.—Dairies and Milk.	XXXIII.—Rat and Flea Destruction.	XL.—Pearl Fishery.
XXVII.—Bakeries.	XXXIV.—Housing.	XLI.—Legislation.
XXVIII.—Eating-houses.	XXXV.—Dispensaries.	XLII.—Staff.
XXIX.—Aerated Water Factories.	XXXVI.—Child Welfare.	

ANNEXURES.

A.—Report of City Microbiologist. | B.—Report of City Analyst.

INTRODUCTORY REVIEW.

The year 1925, like the preceding year, was abnormally wet, the total rainfall being 123.9 inches, which is 38.71 above the average. The birth-rate, which rose so remarkably in 1920-1921 after the depression caused by the War, was again well above the average in 1925, viz., 29.9 per 1,000. The continued high birth-rate would appear to indicate that Colombo, in common with the Island generally, is at present experiencing an exceptionally prosperous time, a conclusion which seems to be borne out by the returns of the Post Office Savings Bank.

But for the disturbing effect of a rather sharp wave of influenza, in May to July, the health of the population was, on the whole, good. The crude death-rate was 30.2, as against the average of 30.8, and would undoubtedly have been considerably lower but for influenza.

The infant mortality, viz., 220 per 1,000 births, was the lowest on record, notwithstanding the unfavourable effect of influenza.

The incidence of plague, with 64 cases, was the lowest recorded since the disease appeared in Ceylon in 1914. The problem of eliminating plague from Colombo has been materially advanced, as the result of Dr. Hirst's valuable research work in connection with rat fleas, which has enabled him to map out the dangerous "cheopis infested zones" in the city. Advantage of the information thus gained has been taken to more effectively direct the work of rat and flea destruction. The town is, however, still exposed to the ever recurring danger of importation of *X. cheopis* (the plague flea) from foreign countries, the problem of preventing which is apparently beset with practical difficulties.

Cholera, which broke out in the eastern part of the Island, failed to establish itself in Colombo, only two cases, the source of which was not definitely traced to India, having occurred, while four cases occurred which were definitely traced to India.

Smallpox, likewise, failed to establish itself, although, on epidemiological grounds, an outbreak was due during the year. Thus, although 23 cases were registered, 22 of these were transferred from incoming ships to the Infectious Diseases Hospital, and one, which was discovered in the town, was proved to have arrived from Rangoon during the incubation period. No locally-acquired case occurred during the year in the town.

Enteric fever, on the other hand, assumed a rather menacing aspect during the first half of the year, as the result, chiefly, of the dumping of town scavenging refuse in proximity to inhabited areas. A certain amount of infection was also caused, apparently, by the pollution of bathing places in the Kelani river at Grandpass by sewage from the treatment works. There was no direct evidence that enteric fever was spread by infected milk; but there is reason to suspect that a certain amount of infection may have been so disseminated by the milk supplied by unregistered dairymen. Thus, the City Analyst's report shows that after action was taken to suppress these illicit milk dealers, *i.e.*, chiefly in the second half of the year, the amount of milk

adulteration (in excess of 10 per cent.) dropped remarkably. This period of improvement corresponds with the reduction which occurred in the number of cases of enteric fever, and it is, therefore, not unreasonable to conclude that infected milk sold by these illicit dealers may have been, to some extent, responsible for the high incidence of enteric during the first half of the year.

As the result of the appointment, to the Public Health Department, of a special Inspector of Insanitary Dwellings, and the subsequent taking over of this branch of work by the Public Health Department, a great impetus has been given to the work of effecting major structural improvements of dwellings in the slum areas. So far, however, only the fringe of this great task has been touched, and a vast amount still remains to be done, much of which can only be effected by the carrying out of town planning and improvement schemes, for which the Council has, at present, neither the requisite organization nor the funds. With financial assistance from Government, however, a scheme for the improvement of part of the Kochchikadde Slum Area is at present under consideration.

An important stage in the history of Child Welfare work in Colombo was reached during the year, by the appointment of a special Assistant Lady Medical Officer of Health, to take charge of this branch of the work. Her work is at present handicapped by reason of there being no Child Welfare Centre in the town; but the subscribers of the War Memorial Fund recently handed over to the Municipal Council a sum of Rs. 85,752 with which to build a Child Welfare Centre. The Council has acquired a site at Gintupitiya street, and it is expected that the building will be completed in 1926. Further subsidiary centres, as well as milk depôts, will undoubtedly be required before this important branch of work can be regarded as on a satisfactory footing.

The Municipal Enteric Hospital and the Segregation Camp were both closed at the end of the year in consequence of the opening of the new Government Infectious Diseases Hospital at Angoda.

Special legislation is long overdue in regard to such important Public Health matters as Food and Drugs Regulation and Mosquito Prevention. Intimation has, however, just been received from Government, in response to repeated representations made by the Municipal Council, that regulations are now being drafted, with a view of prohibiting the importation into this Colony of skimmed milk, including separated or "machine skimmed" milk, but not including the articles commonly known as "dried milk" or "milk powder." This legislation comes none too soon, as Ceylon was apparently becoming the dumping ground for inferior tinned milks, from which other countries have already protected themselves by legislation.

Part I.—Vital Statistics.

I.—METEOROLOGY.

The year 1925 was again an exceptionally wet one, with a total of 123'96 inches recorded at Colombo Observatory, as compared with the average for 18 years of 85'25 inches and a total in 1924 of 122'39 inches. 25'21 inches fell in November.

The mean monthly temperature for the year was 80'6°F. as against the average of 80'8°F.

(1) Statistics.

(Supplied by the Superintendent of the Colombo Observatory.)

(a) Average Monthly Mean Temperature at Colombo Observatory (Cinnamon Gardens). 18 Years.		(b) Monthly Mean Temperature at Colombo Observatory during 1925.		(c) Average Monthly Mean Pressure at Colombo Observatory (Cinnamon Gardens) reduced to Standard Gravity and Mean Sea Level. 14 Years.	
	° F.		° F.		Inches.
January	79'0	January	77'5	January	29'861
February	79'8	February	79'2	February	29'852
March	81'4	March	80'4	March	29'834
April	82'6	April	82'0	April	29'798
May	82'6	May	82'6	May	29'781
June	81'6	June	81'6	June	29'782
July	81'0	July	81'2	July	29'798
August	81'1	August	81'0	August	29'811
September	81'0	September	81'2	September	29'820
October	80'3	October	80'8	October	29'830
November	79'6	November	79'8	November	29'823
December	79'0	December	80'2	December	29'844
Year	80'8	Year	80'6	Year	29'820

(d) Monthly Mean Pressure at Colombo Observatory during 1925 (reduced to Standard Gravity and Mean Sea Level).			(e) Average Monthly Rainfall at Colombo Observatory (Cinnamon Gardens). 18 Years.			(f) Monthly Rainfall at Colombo Observatory (Cinnamon Gardens) and Colombo Fort during 1925. (Observatory Gauge 25 Feet and Fort 70 Feet above Mean Sea Level.)		
		Inches.			Inches.		Colombo Observatory. Inches.	Colombo Fort. Inches.
January	...	29'807	January	...	3'50	January	3'53	2'08
February	...	29'836	February	...	2'07	February	7'02	3'36
March	...	29'798	March	...	4'67	March	7'33	7'11
April	...	29'804	April	...	8'30	April	15'95	10'77
May	...	29'776	May	...	12'68	May	8'02	6'62
June	...	29'772	June	...	7'97	June	12'09	7'78
July	...	29'822	July	...	6'43	July	5'75	4'75
August	...	29'797	August	...	3'13	August	4'80	2'70
September	...	29'828	September	...	6'22	September	12'21	10'13
October	...	29'839	October	...	13'12	October	13'73	13'73
November	...	29'818	November	...	11'79	November	25'21	24'18
December	...	29'852	December	...	5'37	December	8'32	8'09
Year	...	29'812	Year	...	85'25	Year	123'96	101'30

(g) Average Monthly Mean Humidity at Colombo Observatory (Cinnamon Gardens).

17 Years.			Per Cent.
January	...	...	77
February	...	...	76
March	...	...	78
April	...	...	80
May	...	...	81
June	...	...	81
July	...	...	81
August	...	...	80
September	...	...	80
October	...	...	82
November	...	...	82
December	...	...	79
Year	...	...	80

(h) Monthly Mean Humidity at Colombo Observatory during 1925.

			Per Cent.
January	...	...	80
February	...	...	78
March	...	...	81
April	...	...	82
May	...	...	82
June	...	...	81
July	...	...	81
August	...	...	80
September	...	...	78
October	...	...	82
November	...	...	84
December	...	...	80
Year	...	...	81

"With reference to the rainfall at Fort, it should be noted that this gauge is not only higher above sea level but higher above adjacent ground level, and for this its readings might be expected to be less than those of a gauge at or near ground level. The difference between it and the readings at the Observatory is thus not purely a climatic one, but largely a matter of the exposure of the two gauges. The Observatory gauge should be taken as the standard. The humidity in Tables (g) and (h) is the mean of the humidities derived from the maximum both dry and wet and minimum dry and wet."

II.—POPULATION.

The estimate of the population at the middle of the year, based on the Census population in 1921, was 256,051; but for the reasons stated in Section II. of the 1921 Report, this figure is believed to be a considerable underestimate. It is believed that the actual population is not far short of 300,000.

(2) Population by Race.

Race.	Population enumerated at the Census of March, 1921.	Population estimated to middle of 1925.
All Races	244,163	256,051
Europeans	2,836	2,974
Burghers	14,863	15,587
Sinhalese	114,600	120,180
Tamils	54,153	56,790
Moors	39,692	41,624
Malays	5,852	6,137
Others	12,167	12,759

(3) *Area and Estimated Population, 1925.*

(Estimate based on Census of 1921.)

Ward.	Total Area in Acres.	Estimated Population.	Density per Acre.
Fort ...	237	2,821	11'9
Pettah ...	129	7,971	61'8
San Sebastian ...	121	12,052	99'6
St. Paul's ...	157	24,534	156'3
Kotahena and Mutwal ...	1,716	48,419	28'2
New Bazaar ...	289	24,447	84'6
Maradana North, South, and Dematagoda ...	1,773	60,329	34'0
Slave Island ...	322	22,614	70'2
Kollupitiya and Cinnamon Gardens ...	1,465	24,908	17'0
Bambalapitiya, Timbirigas- yaya, and Wellawatta ...	2,061	27,926	13'5
The Lake ...	317	—	—
Total ...	8,587	256,051	29'9

III.—BIRTHS.

7,663 births were registered during the year, representing a birth-rate of 29'9 per 1,000, as against the rate of 27'2 in 1924 and the decennial average of 26'8 per 1,000. With the exception of the abnormally high rate of 35'7 per 1,000 in 1921, the rate of 29'9 in 1925 is the highest on record. The highest birth-rate occurred amongst the Malays, viz., 43'8 (*vide* Section III. of the 1924 Report). The Sinhalese come next with a rate of 38'3.

(4) *Ward Birth-rates.*

Ward.	Average Rate per 1,000 Population, 1915 to 1924.	Births, 1925.	Birth-rate per 1,000 Popu- lation, 1925.
Colombo ...	26'8	7,663	29'9
Fort ...	2'2	3	1'1
Pettah ...	3'9	19	2'4
San Sebastian ...	19'3	246	20'4
St. Paul's ...	18'1	496	20'2
Kotahena ...	23'8 {	511	17'7
Mutwal ...		584	29'8
New Bazaar ...	22'5	608	24'8
Maradana North ...	20'1 {	452	20'0
Maradana South ...		325	16'7
Dematagoda ...		464	25'4
Slave Island ...	24'7	529	23'4
Kollupitiya ...	18'3 {	225	15'0
Cinnamon Gardens ...		71	7'2
Bambalapitiya ...	18'0 {	165	16'5
Timbirigasyaya ...		239	36'2
Wellawatta ...		273	24'1
Hospitals ...	—	2,453	—

(5) *Births Registered, 1907 to 1925.*

Year.	Births.	Year.	Births.	Year.	Births.
1907 ...	4,280	1914 ...	5,359	1920 ...	7,197
1908 ...	4,602	1915 ...	5,641	1921 ...	8,724
1909 ...	4,589	1916 ...	5,552	1922 ...	6,881
1910 ...	4,819	1917 ...	5,860	1923 ...	7,107
1911 ...	5,280	1918 ...	5,920	1924 ...	6,887
1912 ...	5,193	1919 ...	5,907	1925 ...	7,663

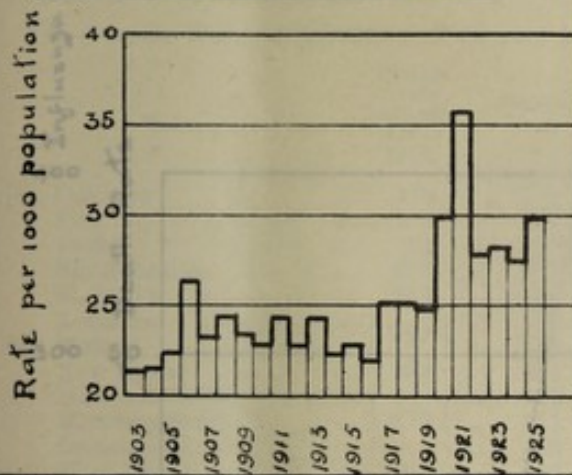
(6) *Births.—Racial Birth-rates.*

Race.	Average Rate per 1,000 Population, 1915 to 1924.	Births, 1925.	Birth-rate per 1,000 Popu- lation, 1925.
All Races ...	26'8	7,663	29'9
Europeans ...	26'5	66	22'2
Burghers ...	34'2	529	33'9
Sinhalese ...	33'6	4,597	38'3
Tamils ...	15'7	1,002	17'6
Moors ...	22'4	1,055	25'3
Malays ...	42'1	269	43'8
Others ...	11'2	145	11'4

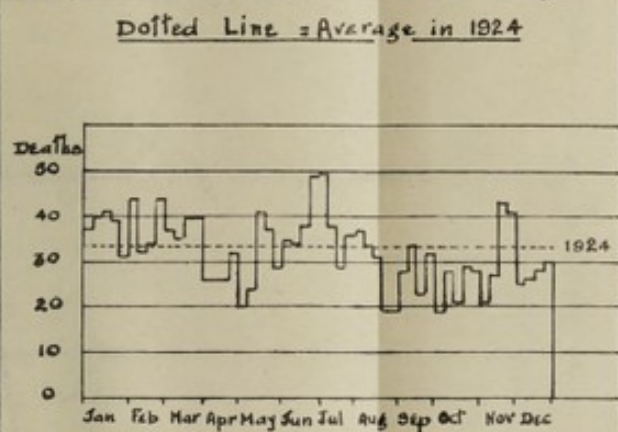
DIAGRAM N° II

DIAGRAM N° I

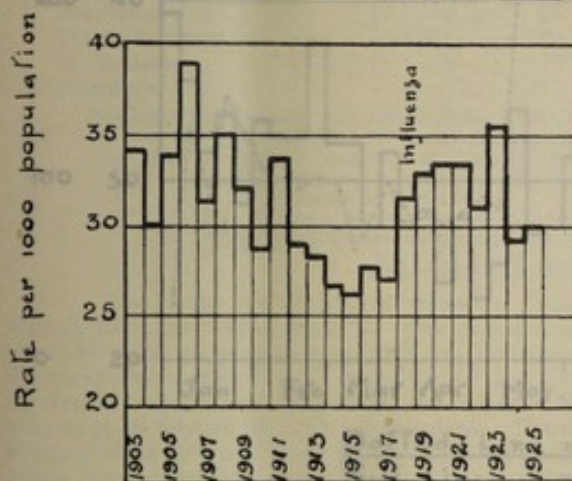
(a) BIRTH RATE, 1903-1925



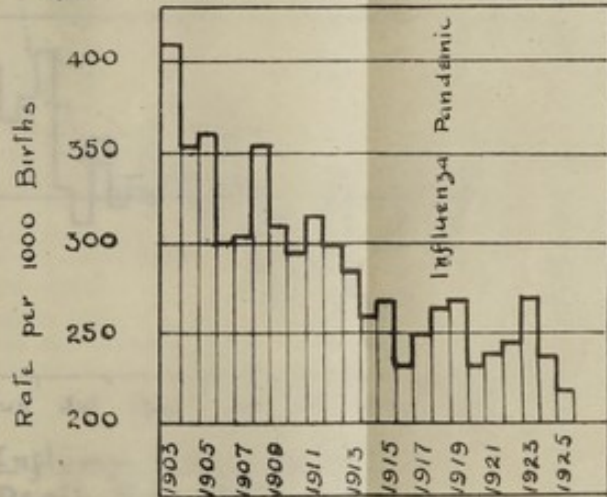
(b) INFANT DEATHS in 1925 - Weekly



(c) CRUDE DEATH-RATE, ALL AGES, 1903-25



(d) INFANT MORTALITY, 1903-25



IV.—DEATHS.

General Death-rate.

7,740 deaths (including 1,163 deaths of non-residents who were sick in the town and died in the hospitals) were registered during the year. The crude death-rate was thus 302 per 1,000, while the rate, exclusive of non-residents, was 257 per 1,000. The further correction for age and sex constitution increases the rate to the final corrected death-rate of 254 per 1,000, as against the corrected rate of 254 in the previous year. The death-rate during 1925 would have shown a considerable improvement but for the occurrence, during the months of May and June, of a wave of influenza, which raised the mortality from pneumonia, and to a less extent from diarrhoea, to rise above the normal level. The general death-rate was thereby at a level of the year when it was last so high (1912).

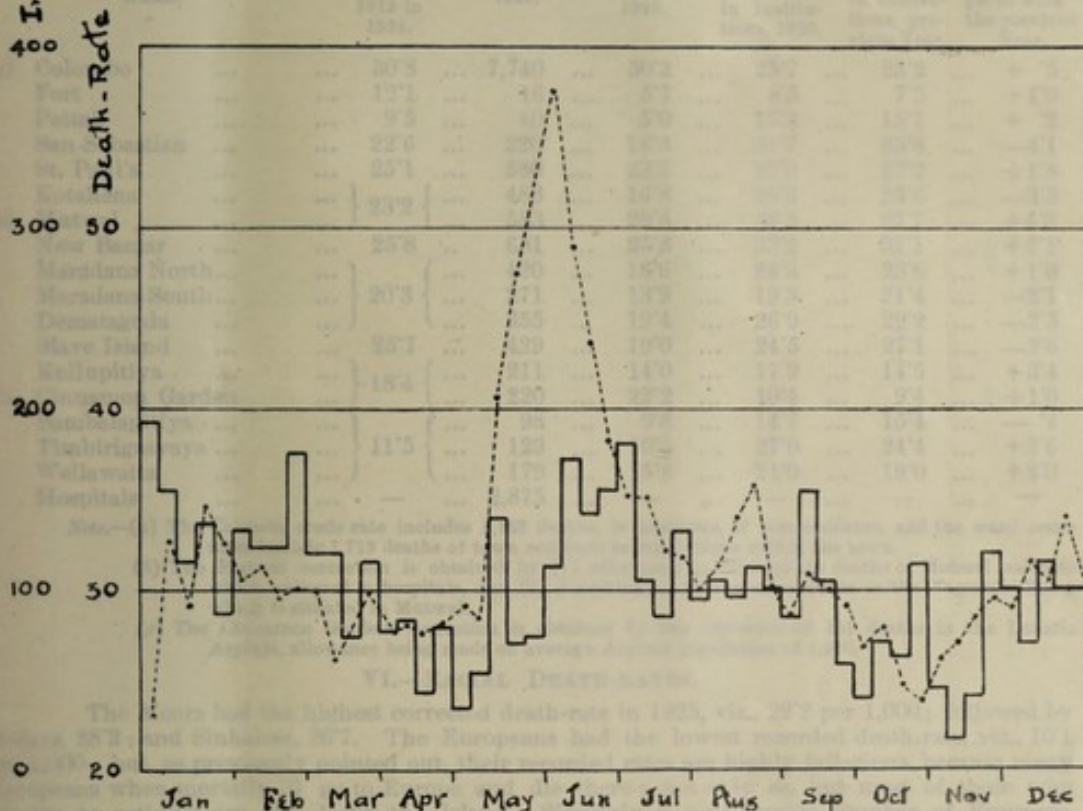
DIAGRAM N° II

V.—WARD DEATH-RATES.

When the deaths of 1,712 town residents which occurred in and were registered against various institutions are allowed to their respective wards of residence, it is found that the wards with the highest death-rates of all ages were New Town (377), St. Peter's (270), and St. Paul's (270), and the lowest were St. Anthony's (179), and Maridam South (175).

WEEKLY DEATH-RATE ALL CAUSES.
1925

Influenza Cases
Death-Rate



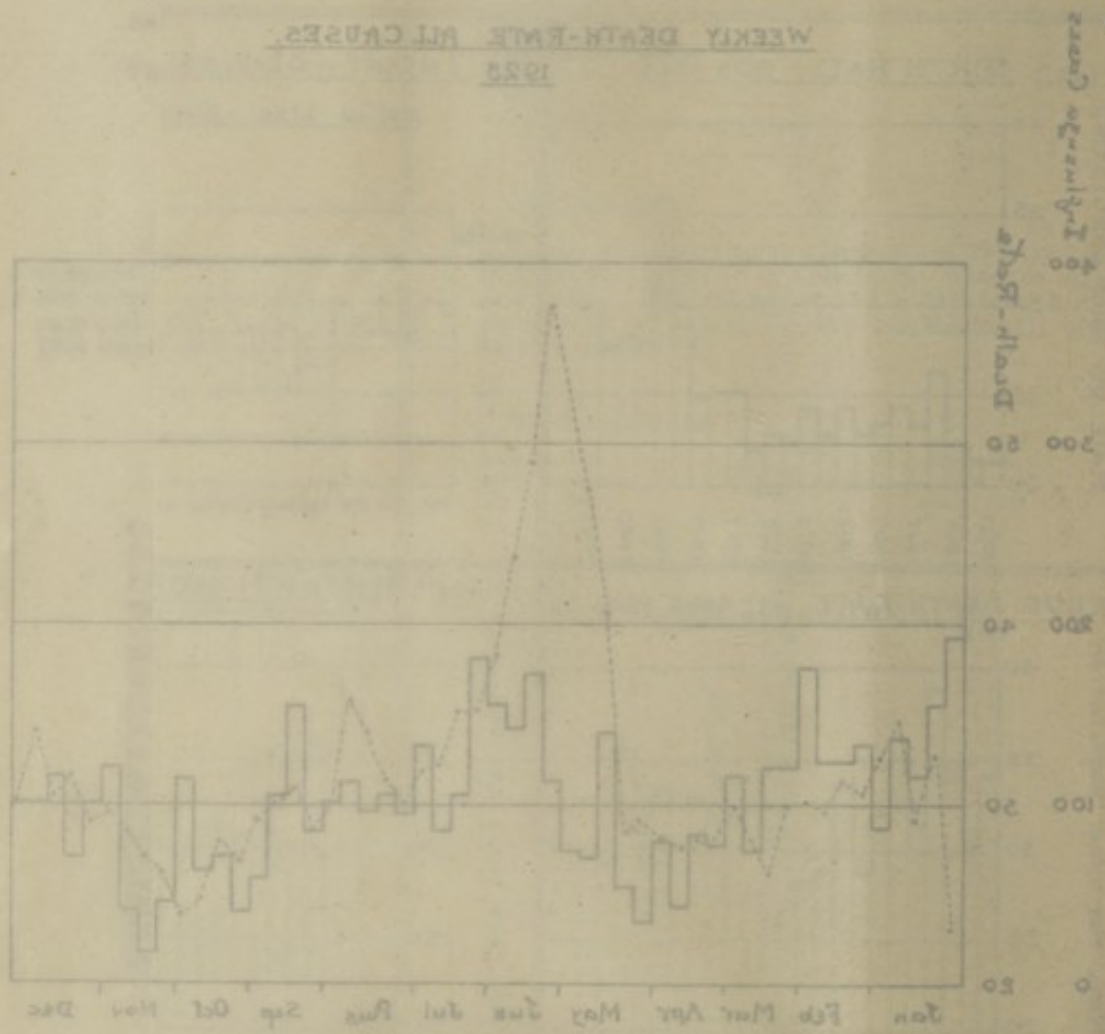
Dotted Line = Influenza Cases Notified.
Full Line = Death Rate All Causes

Colonia Ward Death-rates (all Causes), 1925. Death-rate per 1,000 Population.

Ward	Average Crude Death-rate, 1912 to 1924	Deaths, 1925	Crude Death-rate, 1925	Deaths registered for Deaths in Institutions, 1925, 100 Ex-cludes of Non-residents	Percentage Increase or Decrease on Average (Crude)	Deaths due to non-residents, 1925	Percentage increase or decrease
New Town	378	7,740	302	257	-9	45	280
St. Peter's	173	60	202	191	+27	11	173
St. Paul's	220	320	265	194	-51	71	220
St. Anthony's	145	4,307	301	267	+4	34	145
St. James	171	1,201	205	172	+19	33	171
St. John's	172	173	262	263	-9	0	172
St. George's	152	230	167	164	-6	3	152

DIAGRAM No II

WEEKLY DEATH-RATE ALL CAUSES
1923



Dotted line = Influenza Cases Notified
Full line = Death Rate All Causes

Source: Health Statistics, 1923
U.S. Department of Health

IV.—DEATHS.

General Death-rate.

7,740 deaths (including 1,163 deaths of non-residents who came sick to the town and died in the hospitals) were registered during the year. The crude death-rate was thus 30·2 per 1,000, while the rate, exclusive of non-residents, was 25·7 per 1,000. The further correction for age and sex constitution increases the rate to the final *corrected death-rate of 29·0* per 1,000, as against the corrected rate of 28·4 in the previous year. The death-rate during 1925 would have shown a considerable improvement but for the occurrence, during the months of May and June, of a wave of influenza, which caused the mortality from pneumonia, and to a less extent from diarrhoea, to rise abnormally high, with the result that the general death-rate rose sharply at a period of the year when it usually stands at its lowest. (See diagram No. 2.)

V.—WARD DEATH-RATES.

When the deaths of 1,712 town residents which occurred in and were registered against various institutions are allotted to their respective wards of residence, it is found that the wards with the highest death-rates at all ages were New Bazaar (33·2), Mutwal (32·5), St. Paul's (29·0), Timbirigasyaya (27·0), and Dematagoda (26·9), per 1,000. Exclusive of the non-residential Fort and Pettah wards, the lowest rates occurred in Cinnamon Gardens, viz., 10·4, Bambalapitiya 14·7, Kollupitiya 17·9, and Maradana South 19·3.

(7) *Colombo Ward Death-rates (all Causes) in 1925. Death-rate per 1,000 Population.*

WARD.	Average Crude Death-rate, 1915 to 1924.	Deaths, 1925.	Death-rate (Crude), 1925.	Death-rate corrected for Deaths in Institutions, 1925.	Death-rate corrected for Deaths in Institutions, previous Year.	Increase or Decrease in 1925, as compared with the previous Year.
(a) Colombo ...	30·8	7,740	30·2	25·7	25·2	+·5
Fort ...	12·1	16	5·7	8·5	7·5	+1·0
Pettah ...	9·5	40	5·0	15·3	15·1	+·2
San Sebastian ...	22·6	220	18·3	21·7	25·8	-4·1
St. Paul's ...	25·1	580	23·6	29·0	27·2	+1·8
Kotahena ...	23·2	483	16·8	20·3	23·6	-3·3
(b) Mutwal ...		583	29·8	32·5	27·7	+4·8
New Bazaar ...	25·8	631	25·8	33·2	31·1	+2·1
Maradana North... ..	20·3	420	18·6	24·6	23·6	+1·0
Maradana South... ..		271	13·9	19·3	21·4	-2·1
Dematagoda		355	19·4	26·9	29·2	-2·3
Slave Island	25·7	429	19·0	24·5	27·1	-2·6
Kollupitiya	18·4	211	14·0	17·9	14·5	+3·4
(c) Cinnamon Garden		220	22·2	10·4	9·4	+1·0
Bambalapitiya	11·5	98	9·8	14·7	15·4	-·7
Timbirigasyaya		129	19·5	27·0	24·4	+2·6
Wellawatta		179	15·8	21·0	19·0	+2·0
Hospitals	—	2,875	—	—	—	—

Note.—(a) The Colombo crude rate includes 1,163 deaths, in hospitals, of non-residents, and the ward crude rates include 1,712 deaths of town residents in institutions within the town.

(b) The Mutwal correction is obtained by (1) allocating to Mutwal the deaths of Mutwal residents which occurred in hospitals, and (2) deduction of deaths of vagrants in the Vagrants' Home which is situated in Mutwal.

(c) The Cinnamon Gardens correction is obtained by the exclusion of 151 deaths in the Lunatic Asylum, allowance being made on average Asylum population of 1,300.

VI.—RACIAL DEATH-RATES.

The Moors had the highest corrected death-rate in 1925, viz., 29·2 per 1,000; followed by Malays, 28·2; and Sinhalese, 26·7. The Europeans had the lowest recorded death-rate, viz., 10·1 per 1,000; but, as previously pointed out, their recorded rates are highly fallacious, because many Europeans when mortally ill go to Europe and die there; not only so, but most of those who survive to retiring age also leave the Island. Similarly a considerable number of European women go to Europe for their confinement. Thus the European population is not only relieved of many of its sick members, but is depleted at the higher and lower age periods which everywhere have normally a higher death-rate than other age periods. The result is that the European death-rate, as recorded in Colombo, considerably understates their true mortality. The same doubtless applies, in varying degrees, to other tropical colonies; the greater the facilities are for returning to the homeland, the greater, in all probability, will be the understatement of their colonial mortality rate. The correction for this source of error appears to be a matter of great, not to say insurmountable, difficulty.

(8) *Colombo Racial Death-rates (all Causes), 1925. Death-rate per 1,000 Population.*

Race.	Average Crude Death-rate, 1915 to 1924.	Deaths, 1925.	Crude Death-rate, 1925.	Rate corrected for Deaths in Institutions, 1925, i.e., Exclusive of Non-residents.	Increase or Decrease on Average (Crude).	Decrease due to correction for Institutions.	Rate further corrected for Age and Sex.
All Races ...	30·8	7,740	30·2	25·7	-·6	4·5	29·0
Europeans ...	17·5	60	20·2	10·1	+2·7	10·1	...
Burghers ...	23·6	320	20·5	19·4	-3·1	1·1	...
Sinhalese ...	34·6	4,207	35·0	26·7	+·4	8·3	...
Tamils ...	27·1	1,504	26·5	25·2	-·6	1·3	...
Moors ...	29·1	1,237	29·7	29·2	+·6	·5	...
Malays ...	37·2	173	28·2	28·2	-9·0	—	...
Others ...	25·5	239	18·7	16·4	-6·8	2·3	...

(9) Births and Deaths, and the Infant Mortality, for each Ward of the Town of Colombo during the Year 1925.

WARD.	BIRTHS.						DEATHS.														
	Total Births.			Nationality.			Total Deaths.			Nationality.				Infant Deaths.							
	Persons.	Males.	Females.	Europeans.	Burghers.	Sinhalese.	Tamils.	Moors.	Malays.	Others.	Persons.	Males.	Females.		Europeans.	Burghers.	Sinhalese.	Tamils.	Moors.	Malays.	Others.
Colombo Town	7,663	3,974	3,689	66	529	4,597	1,002	1,055	269	145	7,740	4,239	3,501	60	320	4,207	1,504	1,237	173	239	1,689
Fort	3	2	1	1	1	—	—	2	—	—	16	15	1	4	—	3	1	2	—	6	—
Pettah	19	13	6	—	1	10	4	—	—	4	40	33	7	—	—	13	8	12	—	7	6
San Sebastian	246	140	106	1	5	79	25	122	5	9	220	122	98	—	3	74	27	111	—	5	67
St. Paul's	496	266	230	1	7	94	239	130	6	19	580	306	274	—	9	86	294	177	3	11	175
Kotahena	511	251	260	—	56	288	111	48	4	4	483	232	251	—	31	244	140	59	3	6	156
Mutwal	584	289	295	1	32	424	61	44	11	11	583	305	278	—	15	416	89	48	9	6	147
New Bazaar	608	320	288	1	44	230	60	227	13	33	631	326	305	—	35	229	61	268	17	21	190
Maradana North	452	235	217	—	36	228	36	120	24	8	420	209	211	1	26	176	55	130	13	19	124
Maradana South	325	167	158	—	20	178	41	59	25	2	271	149	122	2	18	148	37	49	15	2	73
Dematagoda	464	236	228	1	49	283	29	79	21	2	355	187	168	3	19	221	36	58	14	4	107
Slave Island	529	272	257	3	49	187	55	105	107	23	429	239	190	—	14	148	77	90	73	27	115
Kollupitiya	225	110	115	5	17	128	29	23	10	13	211	112	99	2	16	110	53	22	4	4	55
Cinnamon Gardens	71	38	33	5	12	31	11	4	8	—	220	108	112	—	5	146	57	7	2	3	14
Bambalapatiya	165	91	74	5	35	81	32	9	1	2	98	43	55	3	12	57	16	7	2	1	29
Timbirigasyaya	239	112	127	25	12	172	20	7	1	2	129	64	65	4	9	95	17	3	—	1	50
Wollawatta	273	153	120	2	32	149	39	36	9	6	179	99	80	2	18	94	33	25	3	4	57
Hospitals (Town residents)	2,453	1,279	1,174	15	122	2,035	210	40	24	7	1,403	841	562	9	66	745	361	135	12	75	324
Hospitals (Untraced)											309	202	107	—	7	206	72	14	3	7	
Hospitals (Non-residents)											1,163	647	516	30	17	996	70	20	—	30	

VII.—PRINCIPAL CAUSES OF DEATH.

Pneumonia, as usual, heads the list of causes of deaths with a total of 942 deaths, a not inconsiderable proportion of which were, without doubt, primarily attributable to influenza. Next comes tuberculosis, with 754 deaths, as against 722 in 1924; debility, with 504 deaths, as against 459 in 1924; infantile convulsions, 426 deaths; enteritis, 329. 269 deaths were recorded from enteric, as against 263 in the previous year. Only 62 deaths were due to plague, as against 138 in the previous year.

(10) Principal Causes of Deaths at All Ages in 1925.

Cause of Death.	No. of Deaths.	
*Pulmonary Tuberculosis ...	719	} 754
Abdominal Tuberculosis ...	12	
Tuberculosis of the Spine ...	1	
Tuberculosis Meningitis ...	1	
Tuberculosis of other Organs	20	
Disseminated Tuberculosis...	1	
Pneumonia (and Broncho-Pneumonia)	942	
Bronchitis ...	244	
Diarrhoea ...	229	} 811 Total Diarrhoeal.
Enteritis ...	329	
Dysentery ...	243	
*Enteric Fever ...	269	} 333 Total Enteric and Continued Fever.
*Simple and ill-defined Fever	64	
Malaria ...	58	} 74 Total Malaria.
Malarial Cachexia ...	16	
*Plague ...	62	
Debility ...	504	
Influenza ...	269	
Infantile Convulsions ...	426	

(11) Certain Minor Causes of Deaths.

Causes of Death.	No. of Deaths.	Causes of Death.	No. of Deaths.
Anchyllostomiasis ...	136	*Measles ...	7
Intestinal Parasites ...	149	*Diphtheria ...	3
Paralysis ...	114	Whooping Cough ...	3
Ricketts ...	59	Rabies ...	3
Cancer ...	101	*Smallpox ...	1
Tetanus ...	68	*Cholera ...	6†

(12) Causes of Deaths registered in Colombo during the Year 1925.

Causes of Deaths.	Nationality.							Others.
	Colombo Town.	Europeans.	Burghers.	Sinhalese.	Tamils.	Moors.	Malays.	
All Causes.	7,740	60	320	4,207	1,504	1,237	173	239
I.—General Diseases :—								
1.—Epidemic Diseases ...	942	6	32	483	205	148	14	54
2.—Septic Diseases ...	38	4	2	22	6	4	—	—
3.—Tuberculous Diseases ...	754	2	39	397	142	132	16	26
4.—Venereal Diseases ...	57	—	—	41	9	6	—	1
5.—Cancer or Malignant Diseases ...	101	6	8	64	9	10	1	3
6.—Other General Diseases ...	217	2	10	111	27	45	12	10
II.—Diseases of the Nervous System and Organs of Special Sense ...								
... of Special Sense ...	827	2	40	384	161	200	22	18
III.—Diseases of the Circulatory System ...								
... of the Circulatory System ...	211	6	15	115	44	20	4	7
IV.—Diseases of the Respiratory System ...								
... of the Respiratory System ...	1,267	8	53	675	270	190	27	44
V.—Diseases of the Digestive System ...								
... of the Digestive System ...	1,137	7	40	701	236	114	16	23
VI.—Non-venereal Diseases of the Genito-Urinary system and Annexa ...								
... system and Annexa ...	289	3	9	166	55	44	7	5
VII.—The Puerperal State ...								
... The Puerperal State ...	155	1	9	91	20	27	4	3
VIII.—Diseases of the Skin and of the Cellular Tissue ...								
... Diseases of the Skin and of the Cellular Tissue ...	108	2	5	72	15	11	2	1
IX.—Diseases of the Bones and of the Organs of Locomotion ...								
... Diseases of the Bones and of the Organs of Locomotion ...	3	—	—	1	1	—	—	—
X.—Malformations ...								
... Malformations ...	10	—	1	8	—	1	—	—
XI.—Diseases of Early Infancy ...								
... Diseases of Early Infancy ...	553	2	18	318	114	88	6	7
XII.—Old Age ...								
... Old Age ...	545	3	22	267	94	122	26	11
XIII.—Affections produced by External Causes :—								
1.—Suicide ...	10	2	1	2	2	—	—	3
2.—Homicide ...	9	—	—	7	—	1	—	1
3.—Judicial Hanging or Execution ...	13	—	—	10	2	—	—	1
4.—Accident and other External Violence.	129	2	1	75	26	12	1	12
XIV.—Ill-defined Diseases ...								
... Ill-defined Diseases ...	366	2	15	197	66	62	15	9

* Those marked with an asterisk are notifiable infectious diseases.

† Three of the cholera deaths were of cases reported from the port and outside.

(12) Causes of Deaths, &c.—contd.

Causes of Deaths.	Nationality.							
	Colombo Town.	Europeans.	Burghers.	Sinhalese.	Tamils.	Moors.	Malays.	Others.
56.—Alcoholism (acute or chronic) ...	2	—	1	1	—	—	—	—
57.—Chronic Lead Poisoning ...	—	—	—	—	—	—	—	—
58.—Other Chronic Poisonings (occupational) ...	—	—	—	—	—	—	—	—
59.—Other Chronic Poisonings (non-occupational) ...	—	—	—	—	—	—	—	—
II.—DISEASES OF THE NERVOUS SYSTEM AND OF ORGANS OF SPECIAL SENSE.								
60.—Encephalitis ...	3	—	—	—	2	—	1	—
61.—(a) Simple Meningitis ...	46	—	1	24	11	8	1	1
61.—(b) Cerebro-Spinal Fever ...	—	—	—	—	—	—	—	—
61.—(c) Septic Meningitis from various causes ...	1	—	—	—	—	—	—	1
62.—Locomotor Ataxia ...	—	—	—	—	—	—	—	—
63.—Other Diseases of the Spinal Cord ...	6	—	1	3	2	—	—	—
64.—Cerebral Hæmorrhage, Apoplexy ...	73	2	8	42	9	9	1	2
65.—Softening of the Brain ...	2	—	—	1	1	—	—	—
66.—Paralysis without specified cause ...	114	—	11	52	19	28	3	1
67.—General Paralysis of the Insane ...	—	—	—	—	—	—	—	—
68.—Other forms of mental alienation ...	5	—	—	1	4	—	—	—
69.—Epilepsy ...	13	—	2	7	2	2	—	—
70.—Convulsions (non-puerperal) ...	129	—	4	57	29	29	7	3
71.—Convulsions of Infants ...	426	—	12	192	80	123	9	10
72.—Chorea ...	—	—	—	—	—	—	—	—
73.—Neuralgia and Neuritis ...	—	—	—	—	—	—	—	—
74.—Other Diseases of the Nervous System ...	5	—	1	2	1	1	—	—
75.—Diseases of the Eyes and their Annexa ...	1	—	—	1	—	—	—	—
76.—(a) Mastoid Disease ...	1	—	—	1	—	—	—	—
76.—(b) Other Diseases of the Ears ...	2	—	—	1	1	—	—	—
III.—DISEASES OF THE CIRCULATORY SYSTEM.								
77.—Pericarditis ...	6	—	—	4	2	—	—	—
78.—(a) Simple Acute Endocarditis ...	6	—	—	5	1	—	—	—
78.—(b) Infective Endocarditis ...	—	—	—	—	—	—	—	—
79.—(a) Myocarditis ...	13	1	2	6	2	1	—	1
79.—(b) Valvular Disease ...	32	—	1	19	8	3	—	1
79.—(c) Other Organic Diseases of the Heart ...	101	1	10	50	23	11	3	3
80.—Angina Pectoris ...	8	—	—	5	—	2	—	1
81.—(a) Aneurism ...	1	—	—	—	—	1	—	—
81.—(b) Atheroma, Arteriosclerosis ...	6	—	1	2	2	—	—	1
81.—(c) Other Diseases of the Arteries ...	1	1	—	—	—	—	—	—
82.—(a) Cerebral Embolism and Thrombosis ...	6	—	1	1	3	1	—	—
82.—(b) Embolism and Thrombosis other than Cerebral ...	5	1	—	3	1	—	—	—
83.—(a) Phlebitis ...	3	—	—	3	—	—	—	—
83.—(b) Varicose Veins ...	—	—	—	—	—	—	—	—
83.—(c) Hæmorrhoids ...	8	—	—	5	1	1	1	—
83.—(d) Other Diseases of the Veins ...	—	—	—	—	—	—	—	—
84.—(a) Lymphatism, Status Lymphaticus ...	—	—	—	—	—	—	—	—
84.—(b) Elephantiasis Arabum (Filariasis) ...	—	—	—	—	—	—	—	—
84.—(c) Other Diseases of the Lymphatic System ...	1	—	—	1	—	—	—	—
85.—(a) Hæmorrhage from any part ...	10	2	—	7	1	—	—	—
85.—(b) Other Diseases of the Circulatory System ...	4	—	—	4	—	—	—	—
IV.—DISEASES OF THE RESPIRATORY SYSTEM.								
86.—Diseases of the Nose ...	—	—	—	—	—	—	—	—
87.—(a) Laryngismus Stridulus ...	—	—	—	—	—	—	—	—
87.—(b) All forms of Laryngitis (Diphtheritic excepted) ...	2	—	—	1	—	1	—	—
87.—(c) Other Diseases of the Larynx ...	4	1	1	2	—	—	—	—
88.—Diseases of the Thyroid Body ...	1	—	—	1	—	—	—	—
89.—Acute Bronchitis ...	155	—	9	79	30	26	6	5
90.—(a) Chronic Bronchitis ...	89	1	4	43	21	17	1	2
90.—(b) Bronchiectasis ...	1	—	—	—	1	—	—	—
91.—Broncho-Pneumonia ...	412	—	20	229	84	57	13	9
92.—Pneumonia ...	530	5	16	284	117	76	6	26
93.—(a) Empyema ...	10	—	—	8	1	—	—	1
93.—(b) Other Pleurisy ...	8	—	1	4	2	1	—	—
94.—Pulmonary Congestion, Pulmonary Apoplexy ...	11	—	—	2	6	3	—	—
95.—Gangrene of the Lungs ...	6	—	—	2	2	1	—	1
96.—Asthma ...	27	1	1	12	4	8	1	—
97.—Pulmonary Emphysema ...	—	—	—	—	—	—	—	—
98.—Other Diseases of the Respiratory System (Tuberculosis excepted) ...	11	—	1	8	2	—	—	—
V.—DISEASES OF THE DIGESTIVE SYSTEM.								
99.—(a) Diseases of the Teeth and Gums (Oral Sepsis) ...	1	—	—	1	—	—	—	—
99.—(b) Thrush, Stomatitis ...	10	—	—	6	1	1	1	1
99.—(c) Parotitis (Septic) ...	—	—	—	—	—	—	—	—
99.—(d) Other Diseases of the Mouth and Annexa ...	2	—	—	2	—	—	—	—
100.—(a) Tonsillitis (other than Diphtheritic) ...	1	—	—	1	—	—	—	—
100.—(b) Quinsy ...	—	—	—	—	—	—	—	—
100.—(c) Other Diseases of the Pharynx ...	1	—	1	—	—	—	—	—

(12) Causes of Deaths, &c.—contd.

Causes of Deaths.	Nationality.							
	Colombo Town	Europeans.	Burghers.	Sinhalese.	Tamils.	Moors.	Malays.	Others.
101.—Diseases of the Esophagus	1	—	—	—	—	—	—	1
102.—Gastric Ulcer	2	1	—	—	1	—	—	—
103. { (a) Gastritis, Gastric Catarrh	30	—	2	17	5	4	2	—
(b) Other Diseases of the Stomach (Cancer excepted)	1	—	—	—	1	—	—	—
(a) Epidemic Diarrhoea	2	—	—	—	—	2	—	—
(b) Diarrhoea Infantile, Diarrhoea due to food	21	—	3	13	1	4	—	—
104. { (c) Diarrhoea undefined	206	—	4	108	63	25	2	4
& (d) Enteritis	264	—	14	156	55	27	6	6
105. { (e) Gastro-enteritis	65	—	4	43	6	8	1	3
(f) Colic	1	—	—	—	1	—	—	—
(g) Intestinal Ulceration, Colitis	21	—	1	14	5	1	—	—
(h) Duodenal Ulcer	4	—	1	—	3	—	—	—
106.—Anchyllostomiasis	136	—	1	103	24	7	—	1
107.—Intestinal Parasites	149	—	3	102	26	16	1	1
108.—Appendicitis and Typhlitis	22	—	—	16	5	—	—	1
109. { (a) Hernia	21	—	—	12	6	3	—	—
(b) Intestinal Obstruction	16	2	1	7	5	1	—	—
110. { (a) Pilonis (Sprue or Ceylon Sore-mouth)	2	—	1	—	1	—	—	—
(b) Other Diseases of the Intestine	19	—	—	14	2	2	—	1
111.—Acute Yellow Atrophy of the Liver	3	—	—	2	—	—	1	—
112.—Hydatid Tumour of the Liver	1	—	—	1	—	—	—	—
113. { (a) Cirrhosis of the Liver (Alcoholic)	—	—	—	—	—	—	—	—
(b) Cirrhosis of the Liver (Toxic)	49	2	2	24	12	7	1	1
114.—Gallstones	1	1	—	—	—	—	—	—
115.—Other Diseases of the Liver	32	—	—	22	7	2	—	1
116.—Diseases of the Spleen	1	—	—	—	—	1	—	—
117.—Peritonitis (cause unknown)	34	1	1	23	4	2	1	2
118.—Other Diseases of the Digestive System (Cancer and Tuberculosis excepted)	18	—	1	14	2	1	—	—
VI.—NON-VENEREAL DISEASES OF THE GENITO-URINARY SYSTEM AND ANNEXA.								
119.—Acute Nephritis	195	1	2	104	44	34	7	3
120.—Bright's Disease	28	—	2	17	3	5	—	1
121.—Chyluria	—	—	—	—	—	—	—	—
122.—Other Diseases of the Kidneys and Annexa	21	1	—	15	3	2	—	—
123.—Urinary Calculi	—	—	—	—	—	—	—	—
124.—Diseases of the Bladder	10	—	2	4	2	1	—	1
125.—Diseases of the Urethra, Urinary Abscess, &c.	5	—	—	4	1	—	—	—
126.—Diseases of the Prostate	1	—	1	—	—	—	—	—
127.—Diseases of the Male Genital Organs (non-veneral)	9	1	—	6	—	2	—	—
128.—Uterine Hæmorrhage (non-puerperal)	1	—	—	1	—	—	—	—
129.—Uterine Tumour (non-cancerous)	—	—	—	—	—	—	—	—
130.—Other Diseases of the Uterus	8	—	—	7	1	—	—	—
131.—Cysts and other Tumours of the Ovary	6	—	1	4	1	—	—	—
132.—Salpingitis and other Diseases of the Female Genital Organs	5	—	1	4	—	—	—	—
133.—Non-puerperal Diseases of the Breast (Cancer excepted)	—	—	—	—	—	—	—	—
VII.—THE PUERPERAL STATE.								
134. { (a) Abortion, Miscarriage	2	—	—	1	—	1	—	—
(b) Ante-partum Hæmorrhage	2	—	1	1	—	—	—	—
(c) Ectopic Gestation	5	1	1	2	1	—	—	—
(d) Other Accidents of Pregnancy	9	—	3	6	—	—	—	—
135.—Puerperal Hæmorrhage	5	—	1	3	—	1	—	—
136.—Other Accidents of Childbirth	1	—	—	1	—	—	—	—
137.—Puerperal Septicæmia	73	—	2	47	10	11	2	1
138. { (a) Puerperal Albuminuria, Nephritis, &c.	—	—	—	—	—	—	—	—
(b) Puerperal Eclampsia	23	—	1	12	4	5	—	1
139. { (a) Puerperal Phlegmasia, Alba Dolens	—	—	—	—	—	—	—	—
(b) Puerperal Embolism, Sudden Death, &c.	—	—	—	—	—	—	—	—
140. { (a) Puerperal Insanity	2	—	—	—	1	1	—	—
(b) Consequences of Childbirth (not otherwise defined)	33	—	—	18	4	8	2	1
141.—Puerperal Diseases of the Breast	—	—	—	—	—	—	—	—
VIII.—DISEASES OF THE SKIN AND OF THE CELLULAR TISSUE.								
142.—Gangrene	45	1	1	30	6	5	1	1
143. { (a) Carbuncle	3	—	—	3	—	—	—	—
(b) Furuncle (Boil)	—	—	—	—	—	—	—	—
144. { (a) Phlegmon	—	—	—	—	—	—	—	—
(b) Acute Abscess, Abscess unqualified	16	—	2	9	5	—	—	—
145. { (a) Ulcer, Bedsore	14	—	1	9	2	2	—	—
(b) Eczema	1	—	—	1	—	—	—	—
(c) Pemphigus	1	—	1	—	—	—	—	—
(d) Other Diseases of the Integumentary System (Elephantiasis Arabum excepted.)	28	1	—	20	2	2	4	1

(12) Causes of Deaths, &c.—contd.

Causes of Deaths.	Nationality.							Others.
	Colombo Town	Europeans.	Burghers.	Sinhalese	Tamils.	Moors.	Malays.	
IX.—DISEASES OF THE BONES AND OF THE ORGANS OF LOCOMOTION.								
146.—Diseases of the Bones (Tuberculosis and Mastoid Disease excepted) ...	1	—	—	—	1	—	—	—
147.—Diseases of the Joints (Tuberculosis and Rheumatism excepted) ...	1	—	—	1	—	—	—	—
148.—Amputations ...	—	—	—	—	—	—	—	—
149.—Other Diseases of the Organs of Locomotion ...	—	—	—	—	—	—	—	—
X.—MALFORMATIONS.								
150. { (a) Congenital Hydrocephalus ...	—	—	—	—	—	—	—	—
(b) Congenital Diseases of the Heart ...	1	—	—	1	—	—	—	—
(c) Other Congenital Malformations (Still-births excluded) ...	9	—	1	7	—	1	—	—
XI.—DISEASES OF EARLY INFANCY.								
151. { (a) Premature Birth ...	118	2	4	80	22	9	—	1
(b) Debility ...	392	—	9	213	86	74	6	4
(c) Want of Breast Milk ...	25	—	2	14	6	2	—	1
(d) Atrophy, Icterus, Sclerema Neonatorum ...	11	—	2	6	—	3	—	—
152. { (a) Atelectasis ...	1	—	1	—	—	—	—	—
(b) Injuries at Birth ...	1	—	—	1	—	—	—	—
(c) Other Diseases peculiar to early Infancy ...	4	—	—	3	—	—	—	1
153.—Lack of care ...	1	—	—	1	—	—	—	—
XII.—OLD AGE								
154.—Senility ...	545	3	22	267	94	122	26	11
XIII.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.								
155.—Suicide by Poison ...	5	1	1	1	—	—	—	2
156.—Suicide by Asphyxia ...	—	—	—	—	—	—	—	—
157.—Suicide by Hanging and Strangulation ...	2	—	—	1	1	—	—	—
158.—Suicide by Drowning ...	1	—	—	—	—	—	—	1
159.—Suicide by Firearms ...	1	1	—	—	—	—	—	—
160.—Suicide by Cutting or Piercing Instrument ...	1	—	—	—	1	—	—	—
161.—Suicide by Jumping from high places ...	—	—	—	—	—	—	—	—
162.—Suicide by Crushing ...	—	—	—	—	—	—	—	—
163.—Suicide by other means ...	—	—	—	—	—	—	—	—
164.—Poisoning by Food ...	—	—	—	—	—	—	—	—
165. { (a) Snake-bite ...	1	—	—	1	—	—	—	—
(b) Insect Stings (Venomous) ...	—	—	—	—	—	—	—	—
(c) Other Acute Poisonings ...	2	—	—	—	1	—	—	1
166.—Conflagration ...	5	—	—	3	1	—	—	1
167.—Burns (Conflagration excepted) ...	24	—	—	19	3	1	—	1
168.—Absorption of Deleterious Gases (Conflagration excepted) ...	—	—	—	—	—	—	—	—
169.—Accidental Drowning ...	19	1	—	6	7	3	1	1
170.—Traumatism by Firearms ...	2	—	—	2	—	—	—	—
171.—Traumatism by Cutting or Piercing Instruments ...	—	—	—	—	—	—	—	—
172. { (a) Traumatism by Fall from trees ...	4	—	—	2	—	—	—	2
(b) Traumatism by Fall from heights other than trees ...	2	—	—	1	1	—	—	—
(c) Traumatism by other Accidental Fall ...	6	—	—	2	2	—	—	2
173.—Traumatism in Mines and Quarries ...	1	—	—	—	1	—	—	—
174.—Traumatism by Machines ...	—	—	—	—	—	—	—	—
175.—Traumatism by Other Crushing (Vehicles, Railroad, Landslides, &c.) ...	34	1	—	19	5	6	—	3
176.—Injuries by Animals ...	—	—	—	—	—	—	—	—
177.—Starvation ...	17	—	—	14	3	—	—	—
178.—Excessive Cold ...	—	—	—	—	—	—	—	—
179.—Effects of Heat ...	—	—	—	—	—	—	—	—
180.—Lightning ...	—	—	—	—	—	—	—	—
181.—Electricity (Lightning excepted) ...	—	—	—	—	—	—	—	—
182.—Homicide by Firearms ...	—	—	—	—	—	—	—	—
183.—Homicide by Cutting or Piercing Instruments ...	3	—	—	3	—	—	—	—
184.—Homicide by other means ...	6	—	—	4	—	1	—	1
185.—Fractures cause not specified) ...	9	—	1	4	2	1	—	1
186. { (a) Judicial Hanging or Execution ...	13	—	—	10	2	—	—	1
(b) Other External Violence ...	3	—	—	2	—	1	—	—
XIV.—ILL-DEFINED DISEASES.								
187. { (a) Dropsy ...	3	—	1	2	—	—	—	—
(b) Ascites ...	6	—	—	3	2	1	—	—
(c) Other Ill-defined ...	5	—	—	4	1	—	—	—
188. { (a) Syncope ...	1	1	—	—	—	—	—	—
(b) Sudden Death (not otherwise defined) ...	—	—	—	—	—	—	—	—
(a) Heart Failure ...	21	1	1	11	3	4	—	1
(b) Atrophy, Debility, &c., one year and over ...	113	—	2	63	27	18	—	3
(c) Teething ...	—	—	—	—	—	—	—	—
189. { (d) Pyrexia ...	64	—	3	33	5	15	4	4
(e) Marasmus and Asthenia ...	138	—	8	71	23	24	11	1
(f) Other Ill-defined Causes ...	14	—	—	9	5	—	—	—
(g) Diseases not specified ...	1	—	—	1	—	—	—	—

VIII.—INFANT MORTALITY.

Whereas, the number of births registered during the year was 7,663, the number of deaths of children under one year of age was 1,689. The infant death-rate was thus 220 per 1,000 births, which is the lowest on record, the previous lowest being 233 in 1920.

(13) *Infant Mortality, 1903 to 1925. Rate per 1,000 Births.*

Period 1903 to 1909.			Period 1910 to 1916.			Period 1917 to 1923.		
Year.	Infant Death-rate.		Year.	Infant Death-rate.		Year.	Infant Death-rate.	
1903	410	...	1910	295	...	1917	251	...
1904	353	...	1911	316	...	1918	266	...
1905	361	...	1912	299	...	1919	271	...
1906	300	...	1913	286	...	1920	233	...
1907	304	...	1914	260	...	1921	240	...
1908	310	...	1915	270	...	1922	247	...
1909	355	...	1916	234	...	1923	271	...
Mean	342	...	Mean	280	...	Mean	254	...
						1924	239	...
						1925	220	...

The infant death-rate from all causes since 1903 is shown in Diagram No. 1 (d) and Statement No. 13, from which it will be seen that, after falling from 410 per 1,000 in 1903 to 234 per 1,000 in 1916, it had an unfortunate set back during 1918-1919, as the result of the great influenza pandemic. It, however, fell again in 1920, when a rate of 233 was attained, which was the lowest then on record. During the succeeding three years it rose again, markedly so in 1923, when it reached a slightly higher level than it had stood at nine years previously. The cause of this rise was found to be due chiefly to an increased mortality from "developmental diseases," i.e., premature birth, atelectasis, atrophy, debility, and wasting diseases generally, thus indicating a lack of vitality and resistant power in the newly born infants.

It thus appeared, as was pointed out in the 1924 Report, that a stage had been reached in Colombo when the ordinary preventive measures, which aim at protecting the child after birth, were insufficient further to materially lower the infant death-rate, unless supplemented by measures to nourish and protect the child before it was born, i.e., through the mother. With this in view the Council decided to appoint a Lady Assistant to the Medical Officer of Health, to take charge of the Child Welfare branch, and, as a result, Dr. (Miss) Christoffelsz (now Mrs. Rowlands) was appointed. After a course of three months study of Child Welfare work in India, Dr. (Mrs.) Rowlands assumed duties in May, 1925. Her report on the work of this branch during 1925 is reproduced at the end of this section.

Principal Causes of Infant Mortality.

The following statement shows the principal causes of infant mortality during 1925, from which it will be seen that 576 or 34 per cent. of the total infant deaths were due to atrophy, debility, and prematurity, i.e., developmental causes:—

(14) *Principal Causes of Infant Mortality in 1925.*

Expressed as a percentage of Total Infant Deaths.

{ Atrophy and Debility caused	458 deaths or	27 per cent. of Total.
{ Premature birth caused	118 deaths or	7 per cent. of Total.
Convulsions caused	426 deaths or	25 per cent. of Total.
Pneumonia caused	182 deaths or	11 per cent. of Total.
Diarrhœa caused	174 deaths or	10 per cent. of Total.

Total 1,358 deaths or 80 per cent. of Total.

Details of the infant mortality prior to 1908 are not available, as up to that time the Public Health Department was understaffed and overburdened with administrative work, much of which did not properly fall within the scope of a Public Health Department, and the clerical branch of the Department was insufficiently staffed to allow of statistical investigations being undertaken. A statistical clerk was, however, appointed in 1907, and was given an assistant in 1909, with the result that since that time the task of classifying and investigating morbidity and mortality returns has been carried on.

The following statement shows the progress that has been made in regard to each of the principal causes of infant deaths in Colombo since 1908:—

(15) (a) *Causes of Infant Mortality, 1908 to 1925—Deaths.*

	1908.	1909.	1910.	1911.	1912.	Average, 1908-1912	1913.	1914.	1915.	1916.	1917.	Average, 1913-1917	1918.	1919.	1920.	1921.	1922.	Average, 1918-1922	1923.	1924.	1925.
Developmental	410	320	324	379	378	362	402	361	434	446	573	443	570	598	498	706	603	595	685	617	602
Pneumonia and Bronchitis ...	247	250	221	267	269	251	302	198	189	157	180	205	301	220	228	311	251	262	263	213	241
Digestive ...	254	148	230	231	196	222	264	207	227	169	215	216	190	201	220	279	225	223	262	235	220
Convulsions ...	502	382	396	483	472	447	472	451	482	388	404	439	365	418	590	602	411	477	480	409	426
Tetanus Neo- natorum ...	133	173	150	141	77	135	51	27	29	16	25	30	29	17	17	16	17	19	7	22	13
Tuberculosis ...	18	18	20	3	3	12	—	1	2	3	3	2	5	5	6	19	9	9	10	4	2
Infectious ...	8	4	1	4	5	4	—	7	12	3	4	5	2	3	6	7	2	4	6	1	3
Syphilis ...	7	14	13	22	20	15	23	28	17	19	16	21	28	37	33	33	44	35	59	36	37

(b) Rates per 1,000 Births.

	1908	1909	1910	1911	1912	Average, 1908-1912	1913	1914	1915	1916	1917	Average, 1913-1917	1918	1919	1920	1921	1922	Average, 1918-1922	1923	1924	1925
Developmental.	89	70	67	72	73	74	71	67	77	80	98	78	96	100	69	81	88	86	96	90	78
Pneumonia and Bronchitis ...	54	55	46	51	52	51	53	37	33	28	31	36	51	37	32	36	36	38	37	31	31
Digestive ...	55	43	48	44	38	45	46	39	40	30	37	38	32	34	31	32	33	32	37	34	29
Convulsions ...	109	83	82	91	91	91	83	84	85	70	69	78	62	71	82	69	60	69	68	59	56
Tetanus Neo- natorum ...	29	38	31	27	18	28	9	5	5	3	4	5	5	3	2	2	2	3	1	3	2
Tuberculosis ...	4	4	4	1	1	3	—	0.2	0.4	0.5	0.5	0.3	1	1	1	2	1	1	1	0.6	0.3
Infectious ...	2	1	0.2	1	1	1	—	1	2	0.5	0.7	1	0.3	0.5	1	1	0.6	0.6	1	0.1	0.4
Syphilis ...	2	3	3	4	4	3	4	5	3	3	3	4	5	6	5	4	6	5	8	5	5

The most noteworthy points in the foregoing statement are the reduction in mortality from tetanus neonatorum, from 29 per 1,000 in 1908 to 9 per 1,000 in 1913 and only 2 per 1,000 in 1925. This improvement is, without doubt, attributable to the work of the Municipal midwives, a branch of the Public Health Department which was initiated in 1905. A progressive improvement is also recorded in the mortality from digestive diseases and convulsions, much of which latter is also probably due to improper feeding; pneumonia also shows some improvement, as the result probably of more intelligent care of infants; all of which reflects credit upon the teaching conducted by the Health Visitors, a branch of the Public Health Department which was initiated in 1910.

The one outstanding exception to this record of improvement is in the case of "developmental diseases," an important group which includes premature birth, atelectasis, atrophy, debility, and wasting diseases generally (marasmus), all of which are by some authorities included under the term "immaturity." As Sir Geo. Newman has said "it is evident that if infants die within a few days or hours of birth, or, even if dying later, show unmistakable signs of being unequal to the calls of bare physical existence, that there must be something more than external conditions or food or management which is working to their hurt. The explanation is clearly to be found in ante-natal conditions."

To combat these amongst other conditions the now world-wide Child Welfare movement was evolved.

At this stage of the Child Welfare movement in Colombo, when the Municipal Council has just appointed a specially trained Lady Assistant Medical Officer to take charge of and reorganize the Child Welfare branch, it will be of special interest to observe the progress made in respect of infant mortality during the next few years.

It is confidently anticipated that, barring accidents, such as an outbreak of influenza or the occurrence of unusually adverse climatic conditions, the infant mortality will show a further improvement during the next few years.

Although, as previously stated, the infant death-rate from all causes in 1925 was the lowest on record, this good result was not anticipated during the first-half of the year, for the reason that the number of infant deaths recorded during that period was considerably greater than the average for the previous year. It is, therefore, interesting to ascertain when and in what respects the improvement occurred during the year.

This is disclosed by the quarterly statement given below which shows that the improvement was a progressive one, but was most marked during the second quarter, the chief reason for this improvement being the great reduction in the number of deaths from atrophy and debility. There can be no doubt that but for the unfortunate outbreak of influenza in May-July, the infant death-rate for the year as a whole would have been even more markedly below the record than it was (*vide* Diagram No. 1 (b)).

(16) Infant Deaths during each Quarter in 1925.

		I.	II.	III.	IV.
Developmental	Atrophy and Debility ...	175	101	90	92
	Premature birth ...	39	19	34	26
Respiratory	Bronchitis ...	25	17	9	8
	Pneumonia ...	42	50	46	44
	Diarrhoeal ...	50	66	66	38
	Convulsions ...	107	99	98	122
Total ...	438	352	343	330	

Local Incidence of Infant Mortality.

In view of the fact that Child Welfare work is being carried on in certain wards of the town and not in others, the local incidence of infant mortality as recorded in the statement below is of special interest.

(17) *Infant Mortality, 1925, by Wards, Rate per 1,000 Population.*

Ward.	Average 1915 to 1924.	1924.	1925.	Increase or Decrease compared with 1924.
Colombo ...	252	239	220	-19
Fort ...	220	—	—	—
Pettah ...	338	56	316	—
San Sebastian ...	346	319	272	-47
St. Paul's (C.W.) ...	404	408	353	-55
Kotahena ...	266	270	305	+35
Mutwal (C.W.) ...		244	252	+ 8
New Bazaar (C.W.) ...	360	369	313	-56
Maradana North ...	292	279	274	- 5
Maradana South (C.W.) ...		231	225	- 6
Dematagoda ...		231	231	—
Slave Island (C.W.) ...	283	262	217	-45
Kollupitiya ...	203	232	244	+12
Cinnamon Gardens ...		176	197	+21
Bambalapitiya ...	191	151	176	+25
Timbirigasyaya ...		176	209	+33
Wellawatta ...		138	209	+71
Hospitals ...	145	174	132	-42

It will be seen that, speaking generally, the wards which are served by the Child Welfare branch (marked C.W.) show, compared with the previous year, a lowered infant mortality, viz., St. Paul's, New Bazaar, Slave Island, and Maradana, whereas the wards which are not so served show an increased mortality, viz., Kotahena, Kollupitiya, Cinnamon Gardens, Bambalapitiya, Timbirigasyaya, and Wellawatta. The exceptions to this rule are Mutwal, which shows a slight increase and Dematagoda which shows no change, although both these wards are served by the Child Welfare branch. San Sebastian, on the other hand, although not served by the Welfare branch, shows a marked improvement, which is to the credit of the ward Inspector Mr. Milhuisen, who has done very good work in maintaining his ward in a sanitary condition during the year. The special attention of the Welfare branch has since been directed to Mutwal and Dematagoda Wards. The improvement recorded in St. Paul's, New Bazaar, and Slave Island is a very marked one, and reflects credit, not only upon the Welfare branch, but also upon the Sanitary Inspectors in charge of these wards, viz., Mr. Akbar, Mr. Ambrose, and Mr. LaBrooy. The same cannot unfortunately be said as regards Wellawatta Ward, which, although standing low on the list, shows the greatest increase of infant mortality in 1925 of any ward in the town. The need for Child Welfare work in this ward, the population of which is rapidly increasing, is becoming more and more apparent. The case of Kotahena Ward, which also shows a rather large increase of infant mortality, has already been represented, and the Council has sanctioned the appointment in 1926 of a Health Visitor for work in this ward.

Infant Mortality by Race, 1925.

Sixty-six European children were born in Colombo during the year, and of these only two died, the death-rate being thus only 30 per 1,000, which is far below that of any other race. Both these deaths occurred as the result of premature birth. The total European infant population is, however, too small to justify comparison. The next lowest mortality occurred, contrary to past experience, amongst the Malays, with 269 births and 35 deaths, the death-rate being 130 per 1,000. Burghers come next, with 529 births and 70 deaths, the death-rate being 132 per 1,000. Aliens classified as "Others" had 145 births and 27 deaths, the rate being 186. Sinhalese with 4,597 births, 926 deaths, had a rate of 201. Moors with 1,055 births and 319 deaths had a rate of 302. Tamils with 1,002 births and 310 deaths had the highest rate of 309 per 1,000 births.

Thus, every race, except the Tamils, who had the same death-rate as in 1924, participated in the improvement in 1925. The most marked improvement occurred in the case of Malays, "Others," Europeans, and Sinhalese. Burghers and Moors showed only a slight improvement.

It is probable that the unusually prosperous state of the Colony has been a factor in the lowering of the infant death-rate.

(18) *Infant Mortality, 1925, by Race. Rate per 1,000 Population.*

	All Races.	Europeans.	Burghers.	Sinhalese.	Tamils.	Moors.	Malays.	Others.
All Causes ...	220	30	132	201	309	302	130	186
Premature birth ...	15	30	8	17	22	9	—	7
Atrophy and Debility ...	60	—	28	53	95	85	37	21
Bronchitis ...	8	—	9	7	13	9	—	—
Pneumonia ...	24	—	19	21	36	28	19	21
Diarrhoeal ...	29	—	34	32	26	22	15	27
Convulsions ...	55	—	23	42	80	116	33	69
Tetanus ...	2	—	—	1	3	3	4	—
All Other causes ...	27	—	11	28	34	30	22	41

The following statement shows the numbers of notifiable infectious diseases reported during 1925. It will be seen that, compared with 1924, there was a marked reduction in plague and a slight improvement as regards measles and phthisis. On the other hand chickenpox showed a great increase, while enteric and simple fever showed a slight increase:—

(20) Notifiable Infectious Diseases, 1925.

Diseases.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total for Colombo exclusive of Port and Outside Cases.	Port Cases.	Outside Cases.	Grand Total of Cases, 1925.	Total for Colombo in 1924 exclusive of Port and Outside Cases.
Plague ...	5	6	8	6	1	10	8	8	5	1	5	1	64	—	—	64	148
Cholera ...	2	—	—	—	1	—	—	—	—	—	—	—	3	1	2	6	1
Smallpox ...	—	—	—	1	—	—	—	—	—	—	—	—	1	22	—	23	4
Chickenpox ...	133	189	394	297	222	114	60	47	66	48	70	63	1,703	1	136	1,840	790
Measles ...	95	55	77	43	33	52	37	34	35	55	62	49	627	4	22	653	650
Diphtheria ...	2	—	1	3	—	1	3	—	1	2	—	1	14	—	4	18	11
Acute diarrhoea ...	—	—	—	—	—	—	—	—	1	—	—	—	1	—	—	2	2
Enteric fever ...	41	51	43	48	63	64	40	31	32	24	27	9	473	16	266	755	415
Continued fever...	25	18	14	23	22	26	22	18	20	16	21	18	243	2	38	283	231
Phthisis ...	122	88	87	67	82	121	97	89	115	100	88	90	1,146	10	273	1,429	1,204
Scarlet fever ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Typhus fever ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total ...	425	407	624	488	424	388	267	227	275	246	273	231	4,275	56	741	5,072	3,456

X.—PLAGUE.

Human Plague.—64 cases, with 58 deaths, occurred during the year, the case mortality being thus 90·6 per cent. This is the lowest number of cases and deaths and the lowest case mortality recorded since plague appeared in Ceylon in 1914. The following types of cases were differentiated clinically:—bubonic, 45 cases and 40 deaths; septicæmic, 18 cases and 18 deaths; cutaneous, 1 case, no death; pneumonic, nil. The bubonic case mortality was thus 88·9 per cent., as against the average case mortality for the previous ten years of 89·2 per cent. No bacteriologically verified case of what is included in Colombo under the heading of "septicæmic plague" has ever recovered.

Cutaneous Plague.—The case of cutaneous plague recorded is of special interest, as this type appears to be comparatively rare. The history of this case is as follows:—The patient, a Tamil female cooly, aged 28 years, developed fever on July 25, and was attended by a General Practitioner who reported the case on August 7 as "continuous fever." Her husband, however, died suddenly in the same house on August 10, and a post-mortem disclosed the cause as "plague." The woman was thereupon sent to the Segregation Camp and kept under observation for plague. The report of the Medical Officer of the camp was as follows: "Her temperature on admission was 100°, her pulse 90 and small. She appeared ill, and was not quite conscious. The abdomen was distended and tympanitic. There was tenderness in the right iliac and umbilical regions. No glandular enlargement nor tenderness detected in neck, axilla, or groin. Both ankle joints were œdematous. A few pustules were observed on the trunk and limbs. The pustules were multilocular, and measured about a 10-cent piece. They were not umbilicated. Some of the pustules had already ruptured." The fever remained low for a week and then fell to normal. No buboes developed, and she gradually recovered. The Government Bacteriologist carried out the widal test, and examined scrapings of the pustules for *B. pestis*. He reported on August 12, positive widal 1 in 40, and provisionally negative for plague. A guinea pig was inoculated. The Medical Officer of the camp, on the strength of the above findings, reported the case on August 19, as enteric fever, and it was registered as such. On August 25, however, the Bacteriologist reported the result of the guinea pig test as positive (final) for plague. The enteric registration was thereupon altered to plague.

The case thus offered considerable difficulty in the matter of diagnosis. The Medical Officer reports having previously, in the same year, seen a case of plague with pustular eruptions which gave a positive for *B. pestis*. In that case, however, the patient developed typical bubonic plague.

Seasonal Incidence of Plague.—The accompanying diagram shows the weekly incidence during 1925 and the average weekly incidence during the previous ten years. It will be seen that during the greater part of the year the incidence was well below the average. The following statement shows the incidence by months during each year since plague appeared in Ceylon. The monthly mean number of cases for the year 1925 was 5·3, as compared with the average for the previous ten years of 14·4 cases per month.

SPOT MAP N^o III

PLAGUE IN COLOMBO 1925

Scale - 50 Chains to an Inch (R.F. scale)

- Human Plague Cases
- Rat Plague

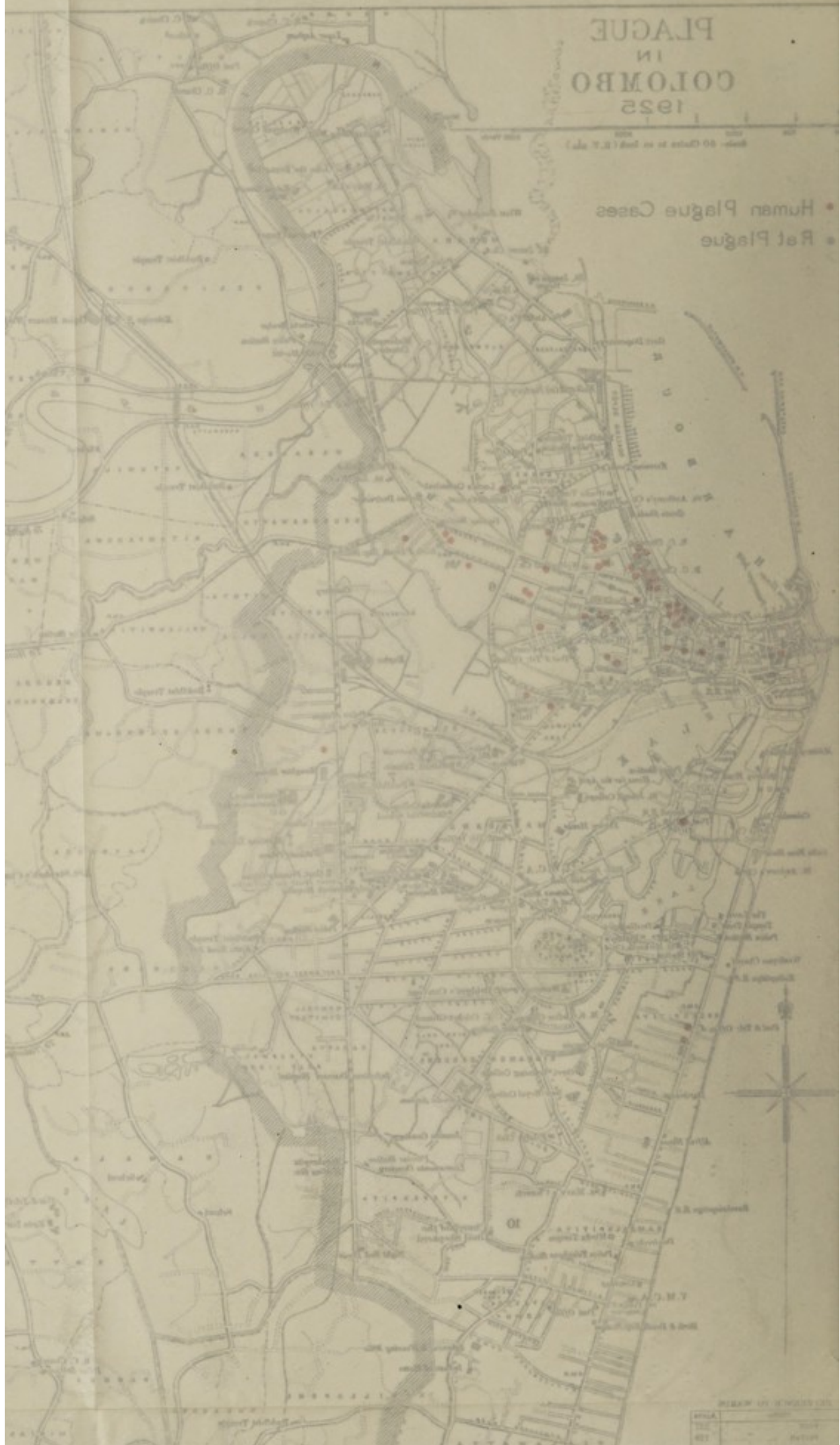


REFERENCE TO WARDS

No.	Name	Area
1	DIKE	237
2	PETTER	129
3	ST. GEORGE	121
4	ST. PAUL'S	167
5	KOTARNA	1714
6	ST. SABAAR	789
7	MARIGAMA	1778
8	SLATS ISLAND	302
9	KOLLOPITTA	1440
10	WELLAWATTA	7081
	CHANNI LAKK	817
	TOTAL	8587

PLAQUE
IN
COLOMBO
1822

• Human Plague Cases
• Rat Plague



COLOMBO IN 1822	
Area	Population
City	10,000
Suburbs	5,000
Total	15,000

(21) Annual Incidence of Plague Cases.

	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.	1922.	1923.	1924.	Average, 1915-1924.	1925.
Total cases ...	413	139	291	207	70	87	235	184	136	230	148	173	64
Total deaths ...	381	128	273	196	69	82	223	170	131	209	140	162	58
Septicæmic cases ...	247*	81*	159	124	41	50	93	70	57	66	47	79	18
Septicæmic deaths ...	246	80	159	124	41	50	93	70	57	66	47	79	18
Bubonic cases ...	166	58	132	83	29	37	142	114	79	164	94	93	45
Bubonic deaths ...	135	48	114	72	28	32	130	100	74	143	86	83	40
Pneumonic cases ...	—	—	—	—	—	—	—	—	—	—	7	?	—
Pneumonic deaths ...	—	—	—	—	—	—	—	—	—	—	7	?	—
Cutaneous cases ...	—	—	—	—	—	—	—	—	—	—	—	—	1
Cutaneous deaths ...	—	—	—	—	—	—	—	—	—	—	—	—	—
Total case mortality per cent. ...	92.2	92.8	93.8	94.7	98.6	94.3	94.9	92.4	96.3	90.9	94.5	93.6	90.6
Septicæmic case mortality per cent. ...	99.6	98.7	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Bubonic case mortality per cent. ...	81.3	82.7	86.4	86.7	96.6	86.5	91.5	87.7	93.8	87.2	91.5	89.2	88.9
Pneumonic case mortality per cent. ...	—	—	—	—	—	—	—	—	—	—	100.0	100.0	—

(22) Monthly Incidence of Plague Cases.

	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.	1922.	1923.	1924.	Average, 1915-1924.	1925.		
January	4	19	17	25	13	—	25	65	13	28	46	25	5
February	67	6	18	40	18	1	20	53	10	32	22	22	6
March	58	3	18	61	10	3	3	27	6	11	7	15	8
April	28	3	14	34	11	—	3	7	2	17	24	12	6
May	29	3	11	11	2	—	4	2	7	9	9	6	1
June	49	1	36	3	9	—	3	1	8	10	6	8	10
July	47	5	43	6	2	—	12	3	10	21	11	11	8
August	40	20	35	1	1	2	7	2	7	23	5	10	8
September	18	21	25	3	—	5	18	2	7	26	3	11	5
October	23	24	24	7	—	18	28	9	14	12	3	14	1
November	24	10	25	10	2	34	34	4	19	13	8	16	5
December	26	24	25	6	2	24	78	9	33	28	4	23	1
Total for the year	413	139	291	207	70	87	235	184	136	230	148	173	64
Monthly mean	34.4	11.6	24.2	17.2	5.8	7.2	19.6	15.3	11.3	19.2	12.3	14.4	5.3

Local Distribution of Plague.—The majority of the cases occurred in St. Paul's, Pettah, and New Bazaar Wards, which distribution coincides generally with the prevalence of *X. cheopis*, as ascertained by the flea survey carried out by Dr. Hirst, thus demonstrating once more the great scientific and epidemiological value of Dr. Hirst's investigations in regard to fleas and plague. The street with the largest number of cases was Chekku street, with six cases.

(23) Plague, 1925.—Distribution by Wards.

Ward.	Cases.	Deaths.
Fort ...	1	1
Pettah ...	11	10
San Sebastian ...	5	4
St. Paul's ...	22	22
Kotahena ...	2	2
Mutwal ...	1	1
New Bazaar ...	9	8
Maradana North ...	3	2
Maradana South ...	—	—
Dematagoda ...	—	—
Slave Island ...	1	1
Kollupitiya ...	2	1
Cinnamon Gardens ...	—	—
Bambalapitiya ...	—	—
Timbirigasyaya ...	—	—
Wellawatta ...	—	—
Untraced ...	7	6
Total ...	64	58

* The cases for 1914 and 1915 each includes one septicæmic recovery, but the diagnosis in either case was not confirmed bacteriologically and may have been erroneous.

Race, Sex, and Age Incidence of Plague.

As usual, the chief victims were young males, whereas old people and women and children were comparatively seldom attacked. (see Section XIII. of the 1920 Report.)

(24) Plague Cases, 1925.—Distribution by Race, Age, and Sex.

Race.	Sex.	0 to 5 Years.	5 to 10 Years.	10 to 15 Years.	15 to 20 Years.	20 to 25 Years.	25 to 30 Years.	30 to 35 Years.	35 to 40 Years.	40 to 50 Years.	50 to 60 Years.	60 Years and Over.	All Ages.	Total of each Race.	Case-rate per 1,000 Population.	Deaths.	Case Mortality per Cent.	Death-rate per 1,000 Population.
All Races ...	Males	—	—	16	11	10	2	5	5	5	2	—	56	64	0'25	58	90'6	0'23
	Females	—	—	1	2	—	1	—	—	3	1	—	8					
Burghers ...	Males	—	—	—	—	—	—	—	—	—	—	—	—	1	0'06	1	100'0	0'06
	Females	—	—	1	—	—	—	—	—	—	—	—	1					
Sinhalese ...	Males	—	—	3	2	2	—	—	2	—	1	—	10	11	0'09	8	88'9	0'07
	Females	—	—	—	—	—	—	—	—	1	—	—	1					
Tamils ...	Males	—	—	5	3	5	1	3	2	3	—	—	22	25	0'44	23	92'0	0'41
	Females	—	—	—	—	—	1	—	—	1	1	—	3					
Moors ...	Males	—	—	8	5	3	—	2	1	—	1	—	20	23	0'55	22	95'6	0'53
	Females	—	—	—	2	—	—	—	—	1	—	—	3					
Malays ...	Males	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Females	—	—	—	—	—	—	—	—	—	—	—	—					
Others ...	Males	—	—	—	1	—	1	—	—	2	—	—	4	4	0'31	4	100'0	0'31
	Females	—	—	—	—	—	—	—	—	—	—	—	—					

Rat Plague.—A total of 142,308 rats was accounted for during the year, as shown in the statement below. Of these, 24,453 were examined at the Bacteriological Laboratory, with the result that 15, i.e., 0'56 per cent., were found to be infected. The infection rate during the previous year was 0'29 per cent.

(25) Statement showing Rats examined at the Laboratory, Number found infected, and Percentage Infection.

Month.	No. of Rats examined.	No. infected.	Percentage Infection.
January ...	2,176	5	0'23
February ...	2,111	3	0'14
March ...	1,987	—	—
April ...	1,840	1	0'05
May ...	2,120	1	0'05
June ...	2,038	—	—
July ...	2,307	—	—
August ...	2,035	—	—
September ...	1,913	3	0'16
October ...	2,106	1	0'05
November ...	2,146	—	—
December ...	1,674	1	0'06
Total ...	24,453	15	0'06

(26) Distribution of Rodents examined for Plague in 1925.

	Species.	Number examined.	Number infected.	Percentage infected.
Trapped rats ...	R. Rattus ...	18,127	3	0'02
	R. Norvegicus ...	3,058	1	0'03
	M. Musculus ...	801	0	—
	Bandicoots ...	1	0	—
Rats found dead ...	R. Rattus ...	36	4	11'11
	R. Norvegicus ...	45	1	2'22
	M. Musculus ...	3	0	—
Rats killed by Claytons	R. Rattus ...	527	4	0'76
	R. Norvegicus ...	1,266	0	—
	M. Musculus ...	505	2	0'39
	Bandicoots ...	3	0	—
Total ...		24,372	15	0'06

Forty specimens of musk rat "*Crocydura corulea*" and one dead cat were examined. These numbers and forty mummified rats received in the Laboratory are not included in the above figures. No musk rat has ever been found infected with plague. Not only so but Dr. Hirst states that he has found them to be immune to experimental infection in any ordinary dose. They do, however, harbour *X. cheopis*, i.e., the "plague flea."

(27) *Rats trapped, killed by Claytons, and found Dead during 1925.*

Month.	Rats trapped (Veterinary Surgeon).	Rats killed by Claytons.	Mummified Rats (Plague Inspector).	Dead Rats (Veterinary Surgeon).	Dead Rats. (Plague Inspector).	Total.
January	11,551	131	—	1	5	11,688
February	10,951	115	10	2	4	11,082
March	12,064	271	4	—	6	12,345
April	11,575	135	—	2	6	11,718
May	11,941	162	—	—	—	12,103
June	11,951	120	—	—	4	12,076
July	11,408	315	13	—	9	11,745
August	11,590	220	6	1	1	11,818
September	11,749	116	1	—	3	11,869
October	12,042	178	4	7	3	12,234
November	11,859	58	1	4	1	11,923
December	11,608	98	—	—	2	11,708
Total	140,289	1,919	39	17	44	142,308

Preventive Measures.—The same preventive measures as hitherto described were adopted, (see Section XXXIII.), with, however, the important addition that at the end of April the results of Dr. Hirst's rat flea survey become available, and were utilized to direct special attention to deratization and flea destruction in *X. cheopis* infested areas. During the off-season, when no known case of plague occurs, the attention of the whole of the plague staff is concentrated upon these "cheopis areas." This procedure is, it is believed, having good results.

(28) *Work done by the Plague Staff during the Year 1925.*

Ward.	Dwellings Claytonized.	Dwellings Unroofed.	Rat Holes Claytonized.	Rats killed by Claytons.	Recently Dead Rats found.	Mummified Rats found.	Dwellings Pesterined.	Dwellings Disinfected.	Rat Nests found.	Cart Loads of Rubbish removed
Fort	34	34	72	27	4	—	3	30	1	15½
Pettah	854	854	1,709	400	7	16	279	567	39	140¾
San Sebastian	2,049	2,049	3,480	406	10	6	1,395	543	24	162½
St. Paul's	4,599	4,599	6,320	394	16	11	2,789	1,727	16	374½
Kotahena	235	235	463	46	1	—	144	77	4	17
Mutwal	626	626	997	84	—	—	321	301	9	163½
New Bazaar	1,510	1,510	2,865	116	2	6	1,012	473	12	103½
Maradana North	255	255	426	8	—	—	310	34	3	22½
Maradana South	1,547	1,547	2,539	279	2	—	920	618	16	139¼
Dematagoda	55	55	87	20	—	—	46	2	—	3
Slave Island	964	964	1,577	109	1	—	540	424	13	130
Kollupitiya	52	52	151	6	—	—	24	24	—	15
Bambalapitiya	5	5	45	9	1	—	—	—	—	—
Timbirigasyaya	43	43	129	—	—	—	14	9	—	5½
Wellawatta	105	105	294	15	—	—	62	19	11	12½
Total	12,933	12,933	21,154	1,919	44	39	7,859	4,848	148	1,305

XI.—CHOLERA.

Six cases were recorded during the year. Of these, one was landed from a ship in port. Infection in India *via* Tuticorin. Two arrived from India *via* Mandapam, and were detected at Maradana station. Infection in India. One arrived by sea *via* Tuticorin, and was detected at Chekku street. Infection in India. One was discovered in a verandah in Jampettah street, a vagrant. Movements unknown. May have been a recent arrival from India. One, an old resident at an isolated spot in Mattakkuliya, was known to be a habitual drunkard. There was no known case of cholera in the town or in the district at the time. The clinical history pointed to gastro-enteritis. The source of cholera infection was not traced. All six cases were reported by the Government Bacteriologist as positive for cholera vibrios. All proved fatal. Owing to the excellence of the Colombo town water supply there is very little likelihood of cholera gaining a footing and assuming epidemic proportions here, except in the event of one or more of the numerous so called "public" bathing wells or canals or lake bathing places becoming specifically contaminated. A small localized outbreak of this nature did occur some years ago, as the result of infection of one of the bathing places in the San Sebastian canal; but the detection of the specific infection in the canal, and the immediate prohibition of bathing there, promptly put a stop to the outbreak.

XII.—SMALLPOX AND VACCINATION.

Although, as pointed out in Section IX., an outbreak of smallpox was, on epidemiological grounds, due to occur in 1925, it did not materialize, only one case having occurred in the town, in the person of an immigrant from Rangoon who had landed during the incubation period. Twenty-two imported cases were transferred from ships in the harbour to the Infectious Diseases

Hospital, thus bringing the total number of cases registered up to 23. Only one case, a port one, proved fatal, which indicates that the prevailing type of the disease was comparatively mild, and therefore, presumably, not so highly infectious as usual. The fact that an outbreak did not occur in 1925 is probably attributable, in the first place, to the exceptionally small number of importations of the disease which occurred, which, in turn, is probably due to a lessened degree of virulence and prevalence of the disease in India and Burma during the year. The prospects for the year 1926 are far from reassuring, in view of the fact, as stated, that an outbreak is a year overdue, coupled with the fact that the number of primary vaccinations, performed during the year 1925, fell far short of the number of births recorded. Another and very important fact is, that owing to the comparatively small number of infections which have occurred in Colombo during the last ten years, the number of re-vaccinations performed has been small—especially during the last three years. This means that probably a large proportion of the population is insufficiently protected, and is, therefore, susceptible to infection. All that appears to be necessary to ensure a severe outbreak of smallpox in 1926, or subsequently, is that the disease should assume a virulent epidemic form in the neighbouring countries of India and Burma, and that infection from these countries should succeed, as has so frequently happened in the past, in gaining entrance into the town, *e.g.*, the landing of an infected person during the incubation period of the disease. In anticipation of such a misfortune occurring, and especially in view of the approaching hot dry weather, the Public Health Department staff has been specially warned to be on the outlook. The matter has also been brought to the notice of the Director of Medical and Sanitary Services and the Port Surgeon.

Vaccination.

Under Ordinance No. 20 of 1886 vaccination is compulsory in Ceylon, and is carried out by the Government Civil Medical Department. When, however, smallpox occurs in the town, a certain amount of emergency vaccination is performed in the infected locality by the officers of the Public Health Department.

The following statement shows the number of vaccinations performed during the year. It will be observed that whereas 7,663 children were born during the year only 5,704 primary vaccinations were performed, there being thus a deficit of 1,959 primary vaccinations as compared with births. This is the largest deficit since 1921 as the following shows:—

(29) Vaccination, 1920 to 1925.

Year.	Births.	Primary Vaccinations.	Deficit of Primary Vaccinations.	Excess of Primary Vaccinations.
1920	7,197	7,159	38	—
1921	8,724	6,162	2,562	—
1922	6,881	7,240	—	359
1923	7,107	6,192	915	—
1924	6,887	5,784	1,103	—
1925	7,663	5,704	1,959	—

Details of Vaccinations performed during the Year 1925.

(a) By Government Vaccinators.

Ward.	Primary Vaccination.	Re-vaccination.	Total.
Fort, Galle Face, Pettah, and San Sebastian	497	21	518
St. Paul's	633	—	633
Kotahena	830	1	831
New Bazaar	480	—	480
Maradana	638	170	808
Slave Island	498	57	555
Kollupitiya	844	197	1,041
Timbirigasyaya	647	1	648
Itinerating (Colombo)	632	—	632
Total	5,699	447	6,146

(b) By Municipal Officers.

Ward.	Primary Vaccination.	Re-vaccination.	Total.
Dematagoda Ward	5	85	90

Total Vaccinations ... 6,236

XIII.—CHICKENPOX.

Chickenpox was unusually prevalent during the year, with a total of 1,840 cases reported, including 1,703 from the town, 136 from districts outside, and 1 from the port. The months of March and April were, as usual, the months of heaviest incidence. One death was registered as due to chickenpox and debility, the deceased being an old man of 80. It is fortunate that the mortality from this disease, *per se*, is virtually nil, as it is practically uncontrollable here as elsewhere.

Age Incidence.—The vast majority of cases in Europe and America are stated to occur in the first ten years of life. Thus of 6,014 cases reported in Basel, no less than 5,771, *i.e.*, 96 per cent., were under 10 years of age, only 24 cases being over 20, and 3 over 40, including 1 over 50 years of age. Ker records that out of 458 cases sent into the City Hospital, Edinburgh, only 40 cases, *i.e.*, 8 per cent., were over 20. He states that he himself had seen only 3 patients of over 35 years of age. The experience in Colombo is very different as the statement below shows. Thus of 1,840 cases reported in 1925, instead of the vast majority being under 10 years of age, only 169 or 9 per cent., were *below* that age, no less than 70·8 per cent. being 20 years of age or older. 101, *i.e.*, 5 per cent. were 50 years of age or older. It would almost appear as if a great proportion of the children here had some degree of inherited immunity which began to disappear after 5 years of age.

(30) *Chickenpox Cases, 1925. Number at each Age Period.*

Age Period.	No. of Cases.	Age Period.	No. of Cases.
0 to 1	...	Brought forward	917
1 to 2	...	25 to 30	...
2 to 3	...	30 to 35	...
3 to 4	...	35 to 40	...
4 to 5	...	40 to 50	...
5 to 10	...	50 to 60	...
10 to 15	...	60 to 70	...
15 to 20	...	70 to 80	...
20 to 25	...	80 to 90	...
Carried forward.	917	Total	1,840

XIV.—MEASLES.

It has been said, by a distinguished authority on vital statistics, that the human race is so extremely susceptible to the ravages of measles, that, in the presence of infection, the only way to avoid this disease is to have had it. In non-tropical countries, measles ranks as one of the foremost causes of mortality amongst children between the ages of seven months and five years of age. It is fortunate that such is not the experience here. During the year 1925, with 653 cases of measles reported, only 7 deaths were ascribed to this cause. It seems probable, however that the true mortality attributable to measles in Colombo is considerably greater than the death returns indicate, and that a number of deaths which are ascribed to other causes, such as broncho-pneumonia and convulsions, are in reality primarily attributable to measles.

XV.—DIPHTHERIA.

Eighteen cases, including 14 from town and 4 from outside districts, were recorded. Three deaths were ascribed to this cause. There is a certain amount of vincent's angina here, some cases of which are at times mistaken for diphtheria. A reference to the City Microbiologist would dispose of all doubt in suspected cases.

XVI.—DIARRHŒA AND DYSENTERY.

One case of "acute diarrhœa" was reported. Two deaths were registered as due to "epidemic diarrhœa" during the year.

The following statement shows the mortality from the diarrhœal group of diseases including enteritis and dysentery :—

(31) *Diarrhœal Diseases, 1925, by Race. Rate per 1000 Population.*

	All Races.	Euro-peans.	Bur-gers.	Sin-halese	Tamils.	Moors.	Malays.	Others.
Diarrhœa and Enteritis	Deaths ... 558	...	25	320	125	66	9	13
	Death-rate ... 2'18	...	1'60	2'66	2'20	1'59	1'46	1'02
Dysentery	Deaths ... 243	1	8	132	69	23	—	10
	Death-rate ... 0'95	0'34	0'51	1'10	1'22	0'55	—	0'78
All Diarrhœal...	Deaths ... 801	1	33	452	194	89	9	23
	Death-rate ... 3'13	0'34	2'11	3'76	3'42	2'14	1'46	1'80

XVII.—ENTERIC FEVER.

755 cases of enteric fever were reported during the year, 473 of which were from the town, 266 were hospital cases admitted from districts outside the town, while 16 cases were landed from ships in the port. This compares unfavourably with the previous year, when 702 cases were reported, of which 415 were from the town, 279 from outside districts, and 8 from ships in the harbour. The unusual prevalence of this disease occurred almost entirely during the first seven months of the year, and, as shown later, appears to have been to a large extent due to the dumping of scavenging rubbish in various parts of the town. When these dumps were abandoned, or suitably covered, the incidence of enteric showed a very striking decrease, thus once more emphasizing the extreme danger associated with defective disposal of town refuse.

Although these fly breeding dumps were undoubtedly, to a large extent, responsible for the dissemination of enteric fever within certain localized areas of the town, another factor, as explained in Section XXVI., viz., milk sold by illicit milk dealers, was in all probability to some extent responsible for maintaining the high rate of incidence of this disease during the first-half of the year.

(32) *Enteric and Continued Fever, 1925, by Race. Cases, Deaths, and Rates per 1,000 Population.*

		All Races.	Euro-peans.	Bur-ghers.	Sin-halese.	Tamils.	Moors.	Malays.	Others.
Enteric fever ...	Cases	755	21	51	541	42	51	5	44
	Case-rate	2'95	7'06	3'27	4'50	0'74	1'23	0'81	3'45
	Deaths	269	5	14	193	10	22	5	20
	Death-rate	1'05	1'68	0'90	1'61	0'18	0'53	0'81	1'57
Continued fever.	Cases	283	5	26	178	24	35	6	9
	Case-rate	1'10	1'68	1'67	1'48	0'42	0'84	0'97	0'70
	Deaths	64	—	3	33	5	15	4	4
	Death-rate	0'25	—	0'19	0'27	0'09	0'36	0'65	0'31
Total	Cases	1,038	26	77	719	66	86	11	53
	Case-rate	4'05	8'74	4'94	5'98	1'16	2'07	1'78	4'15
	Deaths	333	5	17	226	15	37	9	24
	Death-rate	1'30	1'68	1'09	1'88	0'27	0'89	1'46	1'88

(33) *Enteric Cases reported during the Year 1925 (inclusive of Port and Outside Cases). Distribution by Race, Age, and Sex.*

Race.	Sex.	Age Groups											Total of each Race.	Case Rate per 1,000 Population.	Deaths.	Case Mortality Per Cent.	Death-rate per 1,000 Population.	
		0 to 5 Years.	5 Years to 10 Years.	10 Years to 15 Years.	15 Years to 20 Years.	20 Years to 25 Years.	25 Years to 30 Years.	30 Years to 35 Years.	35 Years to 40 Years.	40 Years to 50 Years.	50 Years to 60 Years.	60 Years and Over.						
All Races...	Males	11	27	48	71	102	68	40	32	27	11	3	440	755	2'95	269	35'6	1'05
	Females	13	34	67	45	44	39	35	18	15	3	2	315					
Europeans.	Males	1	—	—	4	5	3	2	—	2	1	—	18	21	7'06	5	23'8	1'68
	Females	—	—	—	—	1	—	1	1	—	—	—	3					
Burghers...	Males	—	3	5	4	7	5	2	1	3	—	—	30	51	3'27	14	27'5	0'90
	Females	1	5	2	6	1	1	—	2	2	—	1	21					
Sinhalese...	Males	8	20	36	45	55	42	23	26	15	9	2	281	541	4'50	193	35'7	1'61
	Females	8	28	57	35	35	36	31	13	13	3	1	260					
Tamils ...	Males	1	2	2	9	8	5	—	1	2	—	—	30	42	0'74	10	23'8	0'18
	Females	2	—	2	—	3	2	1	2	—	—	—	12					
Moors ...	Males	1	2	3	5	8	8	3	2	1	—	1	34	51	1'23	22	43'1	0'53
	Females	2	1	4	4	4	—	2	—	—	—	—	17					
Malays ...	Males	—	—	1	1	1	—	—	—	—	—	—	3	5	0'81	5	100'0	0'81
	Females	—	—	2	—	—	—	—	—	—	—	—	2					
Others ...	Males	—	—	1	3	18	5	10	2	4	1	—	44	44	3'45	20	45'4	1'57
	Females	—	—	—	—	—	—	—	—	—	—	—	—					

Racial Incidence of Enteric in 1925.

541 cases, or 71 per cent. of the total number of enteric cases reported, occurred amongst the Sinhalese. Next come the Burghers and the Moors, each with 51 cases, representing 6'7 per cent. of the total, "Others" with 44 cases, representing 5'8 per cent., and Tamils with 42 cases, representing 5'6 per cent. Stated as a ratio of the population of each race, however, the Europeans head the list with 21 cases, representing a case-rate of 7 per 1,000 of their population. This figure is, however, like most European vital statistics, very misleading, as only 10 out of the total of 21 cases were town residents, 8 being admissions from ships in the harbour and 3 from districts outside the town. The Sinhalese total of 541 cases represents a case-rate of 4'50 per 1,000 of their population, which undoubtedly understates their true incidence, as is indicated by their very high recorded case mortality of 35'7 per cent. There can be no doubt that a large number of mild cases of enteric amongst the Sinhalese either escape notification altogether or are masked under other and incorrect headings. Probably a large proportion of the mild unrecognized cases occur amongst children who, being especially prone to commit abuse near the dwellings, are a very serious source of danger as regards enteric fever. Every effort is made by the Sanitary Staff to check this abuse, but it is obviously an extremely difficult task, and will continue until such time as a new generation of mothers, with a properly developed sanitary sense, has sprung up.

Local Incidence of Enteric Fever in 1925.

It has repeatedly been demonstrated here that quite a large proportion of the cases notified as "simple continued fever" are in reality cases of enteric fever. The proportion of cases thus erroneously diagnosed is liable to considerable variation in the different wards, and it is

SPOT MAP No II

ENTERIC CASES 1925 COLOMBO

Red Spots = Enteric
Blue Spots = Simple Fever

21 Cases in Barracks

8 Cases in one house

REFERENCE TO WARDS

No.	Name	Area
1	FORT	537
2	PETTAY	129
3	ST. BRADYAN	121
4	ST. PAUL'S	157
5	BOLAGODA	1716
6	SIN. SATHAN	289
7	WARABARA	1778
8	SLATE ISLAND	322
9	SULLOPITTA	1440
10	WELLAWATTA	2061
11	CHANDRO LAKK	857
	TOTAL	8287

ENTERIC CASES 1925
COLOMBO

Spots - Enteric
Spots - Simple Fever



Case No.	Date	Address
1	1/1/25	10, Market Street
2	2/1/25	15, Cross Street
3	3/1/25	20, High Street
4	4/1/25	25, Water Street
5	5/1/25	30, Bridge Street
6	6/1/25	35, Temple Street
7	7/1/25	40, Church Street
8	8/1/25	45, School Street
9	9/1/25	50, Hospital Street
10	10/1/25	55, Prison Street
11	11/1/25	60, Jail Street
12	12/1/25	65, Court Street
13	13/1/25	70, Office Street
14	14/1/25	75, Shop Street
15	15/1/25	80, Warehouse Street
16	16/1/25	85, Factory Street
17	17/1/25	90, Dock Street
18	18/1/25	95, Quay Street
19	19/1/25	100, Pier Street
20	20/1/25	105, Wharf Street
21	21/1/25	110, Jetty Street
22	22/1/25	115, Landing Street
23	23/1/25	120, Embankment Street
24	24/1/25	125, Esplanade Street
25	25/1/25	130, Parade Street
26	26/1/25	135, Promenade Street
27	27/1/25	140, Beach Street
28	28/1/25	145, Park Street
29	29/1/25	150, Garden Street
30	30/1/25	155, Square Street
31	31/1/25	160, Plaza Street
32	32/1/25	165, Forum Street
33	33/1/25	170, Bazaar Street
34	34/1/25	175, Market Street
35	35/1/25	180, Fair Street
36	36/1/25	185, Circus Street
37	37/1/25	190, Theatre Street
38	38/1/25	195, Opera Street
39	39/1/25	200, Concert Street
40	40/1/25	205, Music Street
41	41/1/25	210, Dance Street
42	42/1/25	215, Sport Street
43	43/1/25	220, Game Street
44	44/1/25	225, Pastime Street
45	45/1/25	230, Recreation Street
46	46/1/25	235, Amusement Street
47	47/1/25	240, Entertainment Street
48	48/1/25	245, Pleasure Street
49	49/1/25	250, Fun Street
50	50/1/25	255, Joy Street

DIAGRAM N° III

ENTERIC FEVER CASES.

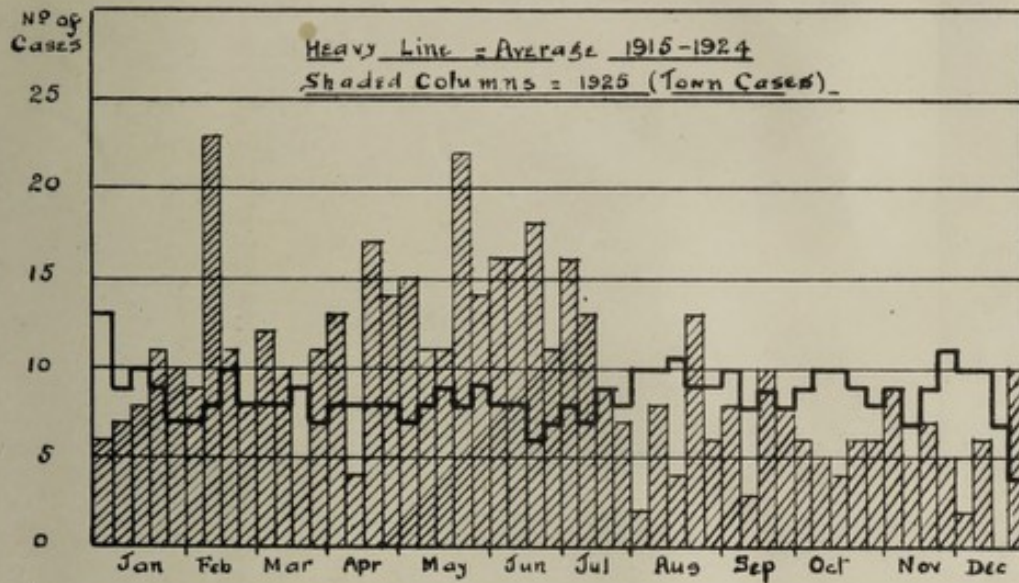


DIAGRAM N° IV

PLAGUE CASES

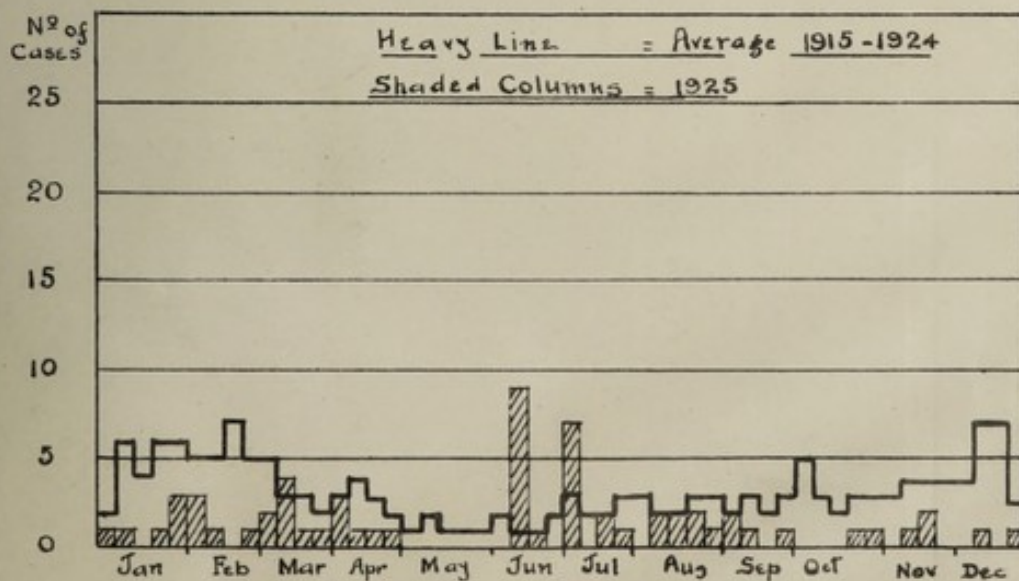


DIAGRAM No III

ENTERIC FEVER CASES

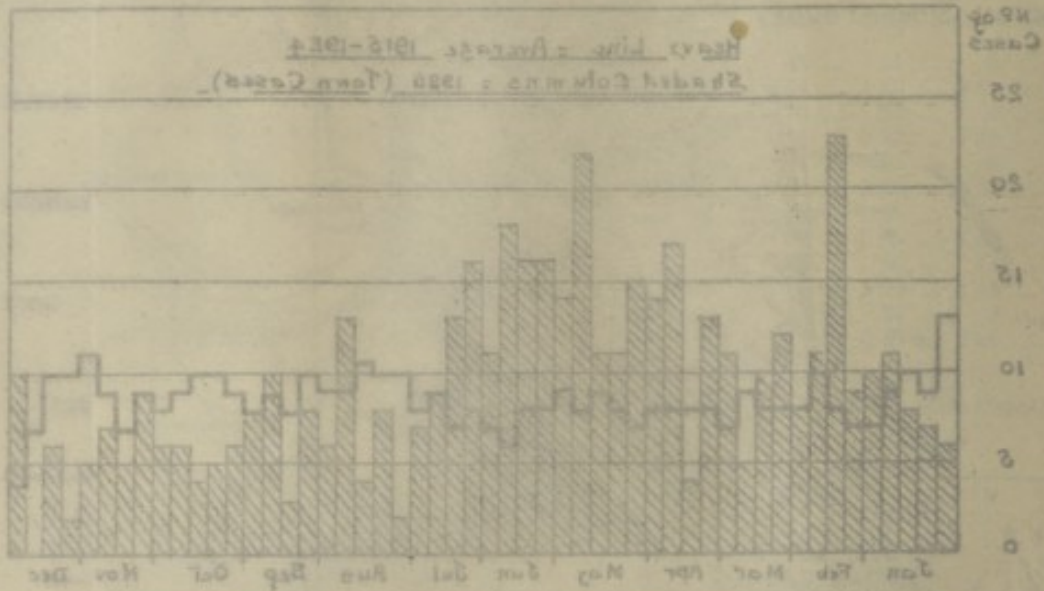
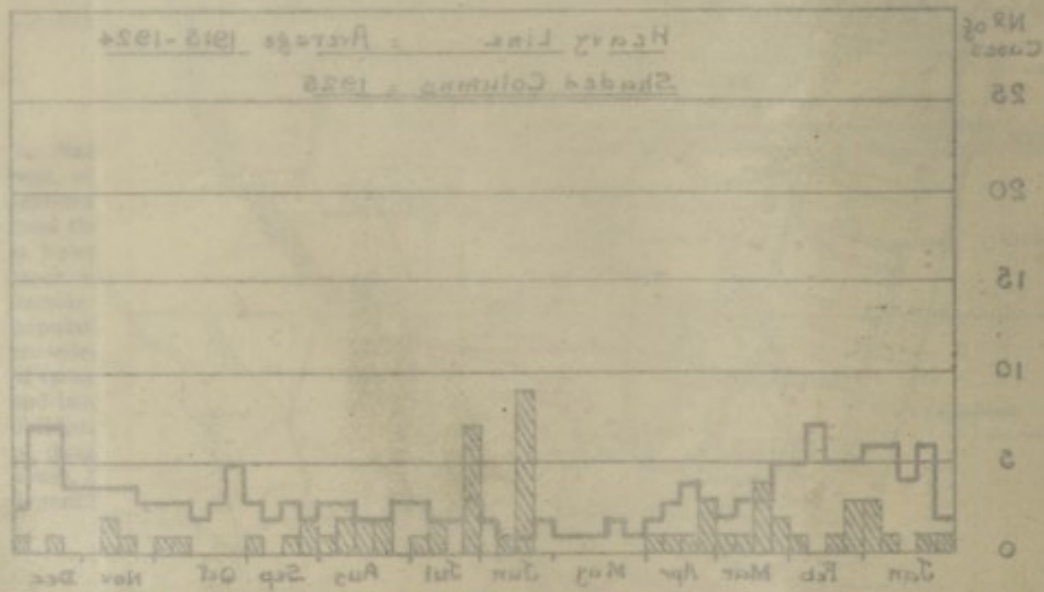


DIAGRAM No IV
PLAQUE CASES



therefore considered that the relative incidence of enteric fever in the various wards is probably best indicated by the totals of enteric fever and simple continued fever cases combined, as shown in the last column of the following statement:—

(34) *Enteric and Continued Fevers, by Wards, 1925. Cases and Case-rate per 1,000 Population.*

	Enteric Fever		Continued Fever		Total	
	Cases.	Case-rate.	Cases.	Case-rate.	Cases.	Case-rate.
Colombo Town ...	755	2'95	283	1'10	1,038	4'05
*Fort ...	20	7'10	1	'35	21	7'45
*Pettah ...	8	1'00	—	—	8	1'00
San Sebastian ...	22	1'83	9	'75	31	2'58
St. Paul's ...	15	0'61	18	'74	33	1'35
Kotahena ...	45	1'56	45	1'56	90	3'12
Mutwal ...	44	2'25	19	'97	63	3'22
New Bazaar ...	52	2'13	32	1'31	84	3'44
Maradana North ...	43	1'90	21	'93	64	2'83
Maradana South ...	24	1'23	23	1'18	47	2'41
Dematagoda ...	56	3'06	16	'87	72	3'93
Slave Island ...	15	0'66	6	'27	21	'93
Kollupitiya ...	24	1'60	3	'20	27	1'80
Cinnamon Gardens ...	7	0'71	1	'10	8	'81
Bambalapitiya ...	15	1'50	6	'60	21	2'10
Timbirigasyaya ...	14	2'12	6	'91	20	3'03
Wellawatta ...	15	1'32	10	'88	25	2'20
Port ...	16	—	2	—	18	—
Outside Municipal limits ...	266	—	38	—	304	—
Untraced ...	54	—	27	—	81	—

If the strictly localized outbreak at the Barracks, within the Fort Ward, to which reference is made later, is excluded, it will be seen that the wards which were most heavily infected, in proportion to their populations, were Dematagoda, New Bazaar, Mutwal, Kotahena, Timbirigasyaya, and Maradana North, all of which except Timbirigasyaya are situated in the northern and eastern parts of the town. This distribution is significant in view of what is recorded hereafter in regard to the existence in those parts of the town of fly-breeding scavenging dumps, polluted vegetable gardens, and contamination of the river water.

Sources of Infection.

The great majority of enteric infections in Colombo appear to be acquired either by *direct contact* with enteric cases or with enteric "carriers," or by the conveyance of infection from more distant sources through the agency of flies. It also seems probable that a certain amount of infection is acquired at *polluted bathing places*, such as the Kelani river, the San Sebastian canal, and the numerous so-called public bathing wells in the town. *Milk* sold by unregistered dairymen also seems to be a possible source. The *town water* supply, on the other hand, can confidently be excluded as a source of infection. It is derived from the Labugama reservoir, thirty miles from Colombo, the whole gathering ground of which is strictly protected. The water is systematically examined, both chemically and bacteriologically, at frequent intervals during every month of the year, and has been proved to be of excellent quality.

Infection by Direct Contact.

(a) *Infection from Enteric Cases.*

The poorer classes in Colombo are much given to visiting their sick relatives and friends in their homes, and very commonly partake of food or refreshment in the infected houses, in spite of repeated warnings to the contrary by the staff of the Public Health Department. It is not, therefore, surprising that direct contact is a very common mode of infection here. To combat this, instruction of children in schools, in matters of domestic and personal hygiene and disease prevention, is necessary. This cannot, however, be properly given effect to until the teachers themselves have all been instructed in and fully appreciate the importance of such matters.

(b) *Infection from Enteric Carriers.*

The great danger to the community from enteric carriers has recently been emphasized by Professor Ledingham of the University of London, who has recorded that, as the result of the German Typhoid Campaign in Alsace-Lorraine, it was found that during the period 1912-1917 direct or indirect infection from carriers (known or later declared) accounted in each year for 20 per cent. to 25 per cent. of all notified cases, and for a considerably higher percentage of cases which were traced to a source. The percentage of convalescents in each year who became carriers varied from 0'3 per cent. to 1'6 per cent. A special inquiry in 1916 elicited the fact that 328 carriers had, in all, given rise to 1,225 infections. If similar conditions obtain in Colombo, and there is no reason to assume that they do not, then, with an average during the last 10 years of 452 known cases per annum, the number of infections derived from carriers must be very considerable.

Infection by Flies.

The correlation between the prevalence of flies and the incidence of enteric fever has so frequently been observed in Colombo as elsewhere that there can be no doubt that conveyance by flies is a very common mode of acquiring enteric infection here. Flies derive the infection from exposed excreta, *e.g.*, in pail closets, scavenging dumps, dust bins, open drains, &c., and the inveterate habit which so many of the poorer people, especially the women and children, display, of abusing the surroundings of their homes, provides ideal conditions for the dissemination of infection not only of enteric but also of the dysenteries and diarrhoeas.

* Non-residential Wards.

Infection from Pail Closets.

Notwithstanding the huge expenditure already incurred on sewers and the persistent, and in some areas successful, efforts which have been made to enforce connection, a large part of the town is still unprovided with water closets. The grossly insanitary so-called "dry-earth" latrine still prevails over a large area of the town. The use of earth or other dry covering in the pails is, however, now debarred, as the contents of the pails have to be tipped into the sewers which would soon become blocked if earth or other solid covering were used in the pails. As an alternative to dry-earth an attempt is made to reduce the danger from flies, associated with this type of closet, by the addition of a small quantity of liquid disinfectant (Jeyes' fluid) to each pail after cleansing. In closets, however, where each pail serves anything from ten to forty or more persons the disinfectant is so swamped by excreta that little, if any, protection can be afforded. These pail closets are, therefore, a very great source of danger.

Infection from Scavenging Dumps.

The danger, as regards enteric and other excreta borne diseases, associated with scavenging dumps within the town has repeatedly been emphasized by the Public Health Department. During the first seven months of the year under review this danger assumed an unusually menacing aspect, the monthly average number of cases of enteric reported being no less than fifty cases per month. A review of the information acquired in the course of investigating these cases, indicated that one of the most probable sources of infection was a number of scavenging dumps established in proximity to thickly populated areas.

It was found that, in addition to the authorized, although undoubtedly objectionable, but at present indispensable large Municipal scavenging dump near the Destructor at Prince of Wales avenue, a number of smaller and, so far as the Public Health Department was concerned, unauthorized dumps had been established in various parts of the town. Thus dumps were found at the following sites, viz.: Parsons road, Kew road, and new Station passage, in Slave Island Ward; Serendib road, in Kollupitiya Ward; Ward place, in Cinnamon Gardens; Skinner's road south and Drieberg's lane, in Maradana North; Blomendahl road, in Kotahena; and Ferguson's road, in Mutwal. All these dumps, including the large Municipal one at Prince of Wales avenue, were found to be acting as prolific fly breeding centres. It appears that not infrequently the Municipal scavenging carters are responsible for the establishment of these small dumps, the object apparently being to save themselves the trouble of going to the more distant authorized depôt. In some cases, where the material is used as filling of low-lying private lands, it is probable that the carters are paid a small amount as an inducement by the owner, who thus secures filling for a mere nominal payment. The establishment of these unauthorized dumps, although most objectionable, is a practice which it is obviously extremely difficult to prevent recurring from time to time.

Upon the question of these dumps and their associated danger being referred to the Municipal Engineer he promptly came to our assistance. He issued instructions that the rubbish at the Municipal dump at Prince of Wales avenue should be covered daily with a layer of ashes from the Destructor. This effected a marked improvement. As regards the smaller dumps it was found that the closure of some of them would involve additional expenditure on haulage, but when this expenditure was sanctioned by the Council the Municipal Engineer issued an order to his staff that in future no scavenging rubbish was to be deposited anywhere within the town, except at the Destructor and at the authorized Municipal dump at Prince of Wales avenue. He has also recently stated that additional lorries are to be purchased, which will, in his opinion, put a stop to this objectionable dumping more effectively than any other means. In this connection it may be remarked that a single destructor for a town of the size of Colombo is obviously inadequate, and it is urged that, in the interests of public health, if for no other reason, the proposal to erect another destructor in the south of the town should be given effect to with the least possible delay.

The following facts are recorded in illustration of the apparent association between scavenging dumps and the prevalence of enteric fever in Colombo during the year under review:—

Outbreak of Enteric Fever at Echelon Barracks.

On May 12, 1925, the Sanitary Inspector of Slave Island Ward reported the existence of what, so far as the Public Health Department was concerned, was an unauthorized scavenging dump on the Military land at Parsons road adjoining the Railway and within about 300 yards of the Barrack kitchens. This dump was found to be breeding enormous numbers of flies, and a request was accordingly at once made by this Department that it should be closed. In the meantime lime was applied to the surface. The dumping ceased on May 26. On May 19, *i.e.*, a week after the discovery of the dump, a case of enteric was notified from the Barracks in a private in the Ceylon Light Infantry, the date of onset being given as May 5. Thereafter a series of 20 further cases was reported from amongst the Ceylon Light Infantry, the last being on July 3, with a date of onset June 23. All but one of the cases developed the disease between May 5, and June 3. Assuming an incubation period of 12 days, therefore all but the last case were infected during the time when the scavenging dump was in action, while a slightly delayed incubation period would also include the last case.

The Military quarters in Colombo are not within the jurisdiction of the Municipal Health Authorities, but are under the sanitary control of the Military Medical Staff, who adopted prompt and vigorous measures of prevention, including anti-typoid inoculation. The Public Health Department, however, willingly co-operated with them. At their request Dr. Hirst, the Municipal Microbiologist, conducted the bacteriological investigation, and his findings are recorded in his report, a copy of which is annexed.

In the course of the investigation the kitchens and latrines of the Barracks, although kept scrupulously clean, were found to be heavily infested with flies which, upon closure of the dump disappeared.

The origin of this outbreak was not definitely traced; but, in the light of the facts disclosed, there seems to be strong grounds for concluding that the infection was derived from the dump and was carried by flies into the Military kitchens. Doubtless, but for the prompt isolation of cases and the wholesale inoculation carried out by the Military Medical Staff, the outbreak would have been much more serious.

Enteric at Piachaud's Lane.

This small but densely populated area accounted for no less than 16 of the total of 43 cases of enteric, and 6 of the total of 21 cases of continued fever, which occurred during the year in Maradana North Ward. Flies were observed to be more prevalent in this area than elsewhere in the ward. The source of these flies was traced to a fairly large scavenging dump at Skinner's road south, which street forms the northern boundary of the infected area. At the instance of the Public Health Department dumping ceased on September 26. No case of either enteric fever or continued fever occurred thereafter in this area during the remainder of the year.

In addition to the dump, it should be mentioned that four market gardens were also found in this area, the vegetables in which were being watered with sewage from a polluted surface drain. All of these gardens were closed by the end of September, which may, therefore, also have been a factor in the cessation of enteric.

Enteric in Kotahena.

The distribution of enteric fever in this ward was so scattered that it was difficult to connect it with any one cause; but the prevalence was decidedly more marked in the Wasala road-Wall street area than elsewhere. This is the part of the ward which adjoins most closely the Blomendahl swamp, on the other side of which is situated the Prince of Wales avenue Municipal dump, while a little further north a small unauthorized dump was discovered. There was a marked reduction both in the prevalence of flies and in the number of cases of enteric during the latter part of the year after the treatment of the Municipal dump with ashes and the closure of the unauthorized dump.

Enteric in Mutwal.

An unusual number of cases of enteric was reported from this semi-rural area of the town during the months of June to September. In the course of the investigation of these cases the suspicions of Sanitary Inspector Anthonisz were aroused in regard to the state of the water in the bathing places in the Kelani river near the sewage outfall from the treatment works. The matter was accordingly referred to Dr. Hirst, the Municipal Microbiologist, who examined the water, with the result that he reported on August 14 that it was grossly polluted with faecal bacteria. The bathers were thereupon at once warned to cease using these places, and steps were taken to obtain a legal prohibitory order which, when granted, was posted up, the Police being entrusted with the task of enforcing compliance. How many cases of enteric were infected at these bathing places it is impossible to say as these bathing places were resorted to by people from considerable distances away, but only one case occurred in the affected Mattakkuliya area during October and none during November and December.

Infection through Milk.

Although the town milk supply, in so far as it is derived from registered dairies, is, speaking generally, liable to adulteration, chiefly at the hands of the servant milk vendors, the degree of adulteration is, for the most part, comparatively slight, and appears generally to be done with the pure town water. As regards the purity of the milk from registered dairies, Dr. Hirst, the City Microbiologist, states that it compares not unfavourably, as regards both dirt and microbial content, with the supply from the average dairy in England. If kept for any length of time, however, the tropical conditions here favour a more rapid multiplication of bacteria than would occur in a temperate climate. There is no evidence that the milk supplied by the registered dairies in Colombo has been responsible for the conveyance of enteric infection.

The milk supplied by unregistered dairymen has, on the other hand, been proved, beyond all question, to be liable to very gross adulteration, and must be regarded as very unsafe. In this connection the fact that such wards as Timbirigasyaya, Bambalapitiya, and Wellawatta, where these unregistered dairymen carry on their trade for the most part, have such a high rate of incidence of enteric cannot be ignored (*vide* Section XXVI.).

In so far, therefore, as milk, as a possible source of enteric infection in Colombo, is concerned the position is that it is extremely difficult to obtain reliable information when endeavouring to trace the source of infection here, and, therefore, although no specific case of infection from this source has been established during recent years, milk, but especially milk supplied by unregistered dairymen, must be regarded with suspicion, and should invariably be boiled before use. If used for infant feeding, the vitamin content should be secured by the addition of a little orange juice. Household holders are strongly advised to deal only with registered dairies, a list of which can at any time be obtained on application to the Medical Officer of Health.

XVIII.—CONTINUED FEVER. (PYREXIA.)

283 cases of "simple continued fever" were notified, including 243 from the town, 38 from outside, and 2 from the port. Many of these cases were undoubtedly cases of enteric fever. Sixty-four deaths were ascribed to "pyrexia." As has repeatedly been pointed out, it is unfortunate that many of the Medical Practitioners do not take greater advantage of the facilities offered at the Municipal Laboratory for the free examination of suspected infective material from their cases.

XIX.—TUBERCULOSIS.

Next to pneumonia, pulmonary tuberculosis is the greatest cause of deaths in Colombo, notwithstanding the fact that, for many years, the causative germ, the predisposing causes, and the measures which are necessary to prevent the disease have been known. As Statement No. 12 shows, out of a total of 7,740 deaths from all causes in 1925, no less than 754 or nearly 10 per cent., were caused by tuberculous diseases, of which, 719 or 95·4 per cent. were caused by pulmonary tuberculosis (phthisis or consumption), only 35 deaths or 4·6 per cent. being caused by other forms of this disease. Pneumonia and phthisis, the two great affections of the lungs, were, between them, responsible for no less than 1,656 deaths, or 21 per cent. of the total mortality in the town.

The non-pulmonary forms of tuberculosis thus occupy a very insignificant place here, which is attributed to the fact that tuberculosis amongst the cattle in Ceylon is practically unknown. The writer, during 23 years when the Slaughter-house was under the administrative control of the Public Health Department, has never seen a case of tuberculosis in cattle, nor is a single authenticated case to be found in the records. Attention may therefore be confined to pulmonary tuberculosis.

Pulmonary Tuberculosis. (Phthisis, Consumption.)

During the year 1925, 1,429 cases of phthisis were recorded in Colombo, of which 1,146 were from the town, 273 were hospital cases admitted from places outside the town, and 10 were landed from ships arriving at the port. 719 deaths, representing a death-rate of 2·81 per thousand of the population in 1925, were attributed to this cause. If the same proportion of cases to deaths holds good here as was found, by a recent investigation, to prevail at Framington in Mass. U.S.A., *i.e.*, 15 cases for every death, there must have been well over 10,000 cases of tuberculosis in Colombo in 1925, of which about 9,000 escaped detection and notification.

When it is considered that the vast majority of these cases, many of which are in the most infectious stages, remain at large in the town, and that the climatic, housing, and other conditions here are peculiarly favourable to the spread of this disease, it is no wonder that prevention has made such little progress here up to date. Thus the death-rate from phthisis, of 2·81 per 1,000 of the population in 1925, is little better than it was 14 years ago, *viz.*, in 1911, when the rate stood at 2·96 per 1,000. There has nevertheless been, as Statement No. 35 shows, a more or less progressive improvement since 1909, when the rate stood at 4·13 per 1,000. This improvement is attributed chiefly to the efforts which have been made to improve the lighting, ventilation, drainage, and scavenging in the "insanitary areas," coupled with the systematic disinfection, by the Public Health Department, of phthisis-infected houses. During the last few years the work of the Anti-Tuberculosis Institute in Colombo, the Hospital for advanced cases at Ragama, and the Sanatorium at Kandana, have also had a beneficial effect, in that cases in the early stages of the disease are now more frequently detected and treated, a small proportion of such cases being given sanatorium treatment, while a certain proportion of the advanced cases are now isolated in hospital; but, as the statistics show, progress is far from satisfactory. One would have wished to give here the records of cases treated at the Institute, the Sanatorium, and the Hospital, but, time has not permitted of these being obtained.

The following statement shows the mortality for all races from phthisis since 1903:—

(35) Phthisis Mortality per 1,000 Living, 1903 to 1925.

Year.	Death-rate.	Year.	Death-rate.	Year.	Death-rate.	Year.	Death-rate.	Year.	Death-rate.
1903 ...	3·18	1908 ...	3·70	1913 ...	2·88	1918 ...	2·86	1923 ...	2·90
1904 ...	3·51	1909 ...	4·13	1914 ...	3·12	1919 ...	2·95	1924 ...	2·69
1905 ...	3·56	1910 ...	3·13	1915 ...	3·16	1920 ...	3·02	Average	3·21
1906 ...	4·06	1911 ...	2·96	1916 ...	3·42	1921 ...	3·02	1903-1924 ...	3·21
1907 ...	3·79	1912 ...	3·14	1917 ...	2·84	1922 ...	2·58	1925 ...	2·81

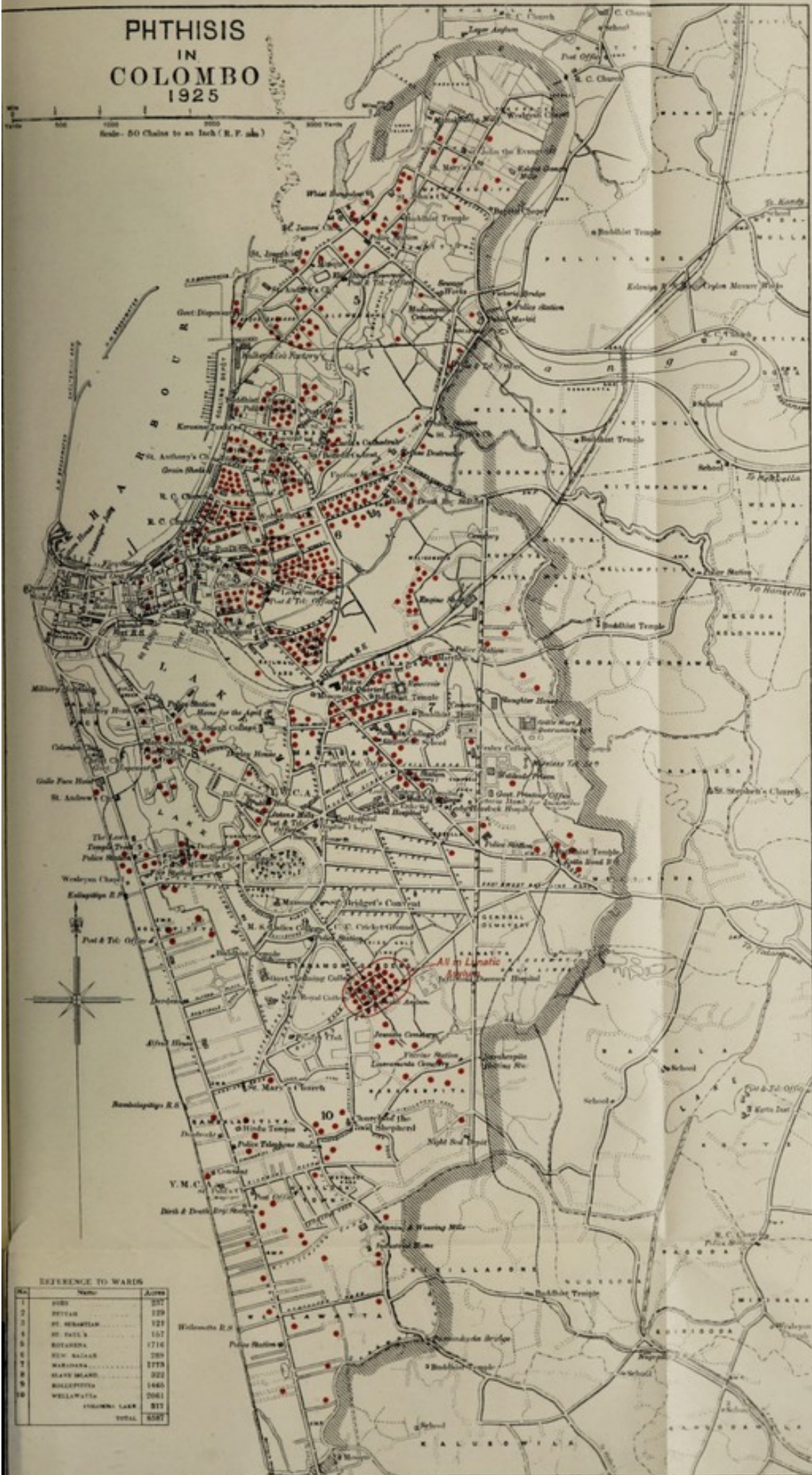
Racial and Sex Incidence of Phthisis.

The following statement shows the incidence of phthisis in each race, according to sex, since 1920. The most arresting feature of this statement is as usual the disproportionately high mortality amongst Moorish females, as compared with males. The Malays, another Muhammedan race, also show a disproportionately high rate amongst their females, except in 1925. As regards the Moors, the cause of the high rate amongst their women is not far to seek. It is undoubtedly attributable, in great measure, to the retired lives which their women lead, pent up in often ill-lighted, ill-ventilated, and overcrowded homes. The women, moreover, as in all races, do all the nursing when any member of the family is ill, so that in the event of phthisis occurring in such a household, their risk of becoming infected is very great. Not only so, but the Moorish women being very backward as regards education are less likely to know or adopt reasonable precautions than are their more emancipated and more enlightened sisters in other races. The same, to a less extent, applies also to the Malays; but, as explained in Section III. of the 1924 Report, the stock of this much interbred race is rapidly becoming intermixed by marriage with the Sinhalese, which, in time, will probably have a far reaching and beneficial effect.

SPOT MAP N^o I

PHTHISIS IN COLOMBO 1925

Scale - 50 Chains to an Inch (R.F. scale)



REFERENCE TO WARDS

No.	Name	Area
1	BORE	257
2	DEVIAN	179
3	ST. MARGARET	525
4	ST. PAUL	157
5	RODARNA	1716
6	NEW BAJAR	289
7	MARADANA	1775
8	SLAVE ISLAND	322
9	KOLLEPUTTA	1446
10	WELLAPATTA	2061
	COLOMBO LAKE	813
	TOTAL	5587

PHTHISIS
IN
COLOMBO
1925



(36) *Death-rates from Phthisis amongst the Indigenous Races, 1920 to 1925, per 1,000 Population.*

Race.	Males.						Females.						Deaths both Sexes.	Death-rate both Sexes.
	1920.	1921.	1922.	1923.	1924.	1925.	1920.	1921.	1922.	1923.	1924.	1925.		
Europeans ...	—	—	—	—	—	—	—	—	—	—	—	—	2	0'67
Burghers ...	0'90	2'35	2'49	2'01	1'66	2'36	2'34	1'31	2'09	1'83	1'83	2'75	38	2'44
Sinhalese ...	4'43	3'35	2'61	2'93	2'88	3'06	4'58	4'08	3'53	3'74	3'55	3'55	376	3'13
Moors ...	1'82	1'80	1'64	1'68	2'00	2'28	3'00	4'02	3'41	5'45	4'50	4'91	129	3'10
Malays ...	1'77	2'54	2'90	4'20	3'23	2'26	5'93	6'55	5'44	5'09	5'45	2'91	15	2'44
Tamils ...	—	—	—	—	—	—	—	—	—	—	—	—	135	2'38
Others ...	3'03	2'53	2'00	2'37	2'28	2'52	4'09	3'79	3'60	3'94	3'60	3'62	24	1'88
All Races ...	—	—	—	—	—	—	—	—	—	—	—	—	719	2'81

As regards the *prevention of phthisis*, there is nothing to add to what has repeatedly been stated in these reports. The housing conditions, especially in the "slum areas" must be improved (*vide* Section XXXIV.); more provision must be made for the isolation in special hospitals for advanced and acutely infectious cases; when such accommodation is available, more rigorous measures must be enforced for the isolation of advanced cases which have not got the necessary facilities for isolation in their own homes. Personal hygiene and disease prevention must be taught in all the schools, so that the coming generations may develop a proper sanitary sense and a sense of communal responsibility. At present there is practically no enlightened public opinion amongst the masses in regard to such matters; but a very hopeful sign has appeared during the last few years, in the formation amongst the educated classes of various voluntary associations whose object is to improve the social and health conditions of the poorer classes. This is a movement which is bound to grow, and is full of hope for the future, provided it continues to be guided in the right direction, which it doubtless will be.

XX.—INFLUENZA.

Professor William S. Sadler of Chicago, who is quoted below, differentiates three distinct forms of influenza, viz:—

1. *Epidemic Influenza*.—Which comes regularly about every thirty years, *i.e.*, once in a generation. This form, which last appeared as the devastating pandemic of 1918–1919, seems to confer lifelong immunity upon most of those who are attacked and who survive, while those who are highly susceptible are in most cases killed by it. It thus requires the growth of a new generation of non-immunes to "set the stage" for another world wide invasion. The next pandemic is thus not likely to occur until about twenty years hence, or later. The last pandemic was unusual in that it everywhere was complicated by "a peculiar and tremendously fatal form of pneumonia."

2. *Endemic-Epidemic Influenza*.—This is the form which appears for several years following the pandemic. It is a genuine influenza, although, as a rule, it is not quite so severe as the pandemic form, and does not cause such a large percentage of fatalities. This is the form which has been recurring in Colombo in waves, as recorded in each annual report. During 1925, as the Dispensary returns show (see Diagram No. 2) a rather severe wave appeared in May and lasted until July. It reached a climax in June, during which no fewer than 1,148 cases were treated at the Municipal Dispensaries alone. The effect is reflected in the sharp rise in mortality from pneumonia, in the Infant Mortality (Diagram No. 1 (b)), and in the general death-rate (Diagram No. 2). The Dispensary returns indicate that this wave began in the central parts of the town adjacent to the harbour and quickly spread to Maradana, but did not reach the outlying Mutwal ward until about a month later. If Diagram No. 2 in this report is compared with the corresponding diagrams in the reports for 1924 and previous years, it will be seen that the midsummer rise in the general death-rate in 1925 occurred at a period of the year when this rate is normally at its lowest. What would otherwise have been an exceptionally low death-rate for Colombo was thus marred by influenza, which is very disappointing from the Public Health Department point of view.

3. *Endemic Influenza, or so-called Catarrhal Fever*.—This is the milder form of the disease, which when too severe to pass for a common cold is usually described as "the Grippe," "Flu," &c.

(37) *Influenza Cases reported from Municipal Dispensaries during each Month of the Year 1925.*

Month.	Slave Island.	St. Paul's.	Maradana.	Mutwal.	Total.
January ...	208	192	49	70	519
February ...	151	156	39	66	412
March ...	140	137	31	64	372
April ...	100	99	83	57	339
May ...	452	175	224	81	932
June ...	561	202	250	135	1,148
July ...	246	130	112	73	561
August ...	157	201	127	61	546
September ...	125	125	119	41	410
October ...	66	100	73	30	269
November ...	143	93	87	42	365
December ...	142	186	127	56	511
Total ...	2,491	1,796	1,321	776	6,384

XXI.—PNEUMONIA.

Pneumonia, as usual, heads the list of causes of deaths in 1925, with 924 deaths, of which 530 were ascribed to lobar-pneumonia and 412 to broncho-pneumonia. The corresponding figures for 1924 were 546 lobar-pneumonia and 363 broncho-pneumonia, total 909. The increase in 1925 was thus caused by an increase of broncho-pneumonia. The wave of influenza which attacked the town in May-July was undoubtedly responsible for this increase.

(38) *Deaths and Death-rates from Pneumonia during 1925, by Race.*

Race.	Deaths.	Rate per 1,000 Population.
All Races ...	942	3.68
Europeans ...	5	1.68
Burghers ...	36	2.31
Sinhalese ...	513	4.27
Tamils ...	201	3.54
Moors ...	133	3.20
Malays ...	19	3.10
Others ...	35	2.74

XXII.—MALARIA.

Autochthonous malaria very seldom occurs in Colombo, but experience has shown that it may at times occur, and even assume a localized epidemic form, as in 1903-1904, and again in 1921. A lookout is accordingly kept, and all cases reported as having apparently acquired the infection in the town are carefully investigated.

During the year 1925 ten cases, confirmed microscopically, were reported from the Municipal Dispensaries as giving a history of having been acquired in Colombo. The home address, however, of only one of these was traced, and a careful search disclosed no known malaria-carrying species of mosquito in the locality. It is, therefore, very doubtful whether any case was infected in Colombo.

Part II.—Administration.

XXIII.—EXPENDITURE.

The following is a summary of the expenditure in 1925:—

(39) *Expenditure in 1925.*

Head of Expenditure.	Estimated Expenditure.		Actual Expenditure.		Saving.	
	Rs.	c.	Rs.	c.	Rs.	c.
Higher Staff ...	52,920	0	52,420	0	500	0
Clerical Staff ...	18,600	0	17,741	33	858	67
Sanitary Branch ...	239,056	0	187,956	0	51,100	0*
Dispensaries ...	68,452	0	63,886	19	4,565	81*
Enteric Hospital ...	16,202	0	14,640	47	1,561	53
Markets ...	30,690	0	29,320	71	1,369	29
Cemeteries ...	18,834	0	17,095	40	1,738	60
Laboratory ...	31,006	0	29,792	11	1,213	89
Laundries ...	2,000	0	1,772	9	227	91
Total ...	477,760	0	414,624	30	63,135	70

* The saving on the Sanitary Branch estimate was due chiefly to reduced expenditure on (a) Plague, reduction Rs. 25,045.86; (b) Prevention of Infectious Diseases, reduction Rs. 4,327.08; (c) Uniforms, reduction Rs. 1,843.83. The saving on Dispensaries estimate was due chiefly to reduced cost of drugs, as the result of importing drugs from England instead of purchasing locally, which effected a saving of Rs. 4,492.51.

XXIV.—NEW WORKS, IMPROVEMENTS, EQUIPMENT.

(a) *Cemeteries.*

Kanatta.—In order to provide accommodation for the additional staff of 8 coolies, sanctioned for 1926 by the Council, a new range of 4 rooms was erected. Each room has a small verandah, in one end of which a kitchen is provided, with a raised and ventilated fireplace. These ventilated

fireplaces appear to be much appreciated by the occupants, and their general adoption in Municipal worker's quarters has been recommended. Their design is simple, and appears to be inexpensive. A new lavatory, for the convenience of those attending funerals, was erected adjoining the cemetery office. It is equipped with mirrors, brush, comb, soap, and towel, and coat and hat rack. Two additional water taps and three cisterns were provided in the Christian section of the General cemetery, and a tap was fixed in the Hindu cremation ground at the request of representatives of that denomination. Electric lighting was installed in the bungalows of the keeper and assistant keeper, cost of current to be defrayed by them. The ventilation of the mortuary was improved. The general appearance of the cemetery and the keepers' quarters was improved, by the removal of a number of large unornamental trees and the planting of a number of additional flower beds and flowering shrubs.

The main approach to the cemetery is unsatisfactory owing to the narrowness of the approach road from Kanatta. Suggestions for improvement in this respect have been submitted.

In order to obviate the necessity for keeping bodies overnight which arrive too late in the evening to permit of graves being dug, the practise of preparing several graves each morning, both in the general portion and in the portion allotted to Buddhists, was introduced.

Liveramentu.—An office, hitherto non-existent, was made by enclosing one end of the verandah of the keeper's bungalow. The bungalow was repaired, painted, and limewashed. The keeper, Mr. Michaels, who is a trained gardener, has much improved the appearance of the cemetery, thus once more demonstrating the advisability of employing men to do work for which they have been trained.

Madampitiya.—This cemetery was improved by the substitution of a boundary wall, 340 feet long, on the east side, in place of the old rail fence. This has put a stop to the trespassing which had become a source of nuisance.

(b) Markets.

Edinburgh.—No improvements were effected to this very unsatisfactory market, which will disappear when a new central market is erected, a project which it is hoped will materialize before very long.

Kachcheri Road.—A new temporary shed with 22 ground stalls, and hanging bars, was erected for the accommodation of plantain sellers who were transferred from the old Kachcheri road market. A new market office was erected. Eight new lamps were placed in the old market.

St. John's.—Only minor repairs and limewashing were done to this old and out-of-date fish market, the supersession of which by a new central market is much to be desired.

Dean's Road.—A sunshade was fixed to the central vegetable market.

Kotahena.—The end walls of the gala cattle shed were raised to roof level.

Borella.—There being no demand for the two grain boutiques in this market they were converted into three meat stalls. A water tap was provided in the cold storage room. A wall was erected by fish stall No. 10 to prevent splashing.

Kollupitiya.—Two new iron gates were fixed at the back entrance in this, which is the most up-to-date market at present in Colombo.

Bambalapitiya.—A gas light was fixed over the offal stalls.

(c) Laundries.

Wekanda.—Minor repairs were effected. Dhobies' name plates were fixed on the doors of the rooms.

Blomendahl.—Minor repairs were effected.

(d) Equipment.

One Remington typewriter was purchased for the clerical branch at a cost of Rs. 415, including value allowed of Rs. 50 for an old machine returned to makers. Six hand-driven type M Clayton fumigators were imported at a total cost of Rs. 8,478'83.

XXV.—GENERAL SANITATION.

(a) Outdoor Work.

The following statement is a summary, compiled from the office records, of the work done by the outdoor staff. The number of inspections made show an increase of 9,428 compared with the previous year. The number of notices served was less by 189, due chiefly to fewer notices being required as regards filthy premises. 6,607 premises were scavenged by the cleansing gang of the Public Health Department, an increase of 1,074 compared with the previous year. Although the number of cases of plague was the lowest on record, 12,928 premises were claytonized, an increase of 552 compared with 1924. In the absence of known cases of human or rat plague a great deal of preventive work was carried out in cheopis infested areas, the object being to exterminate, as far as possible, the *X. cheopis* flea in Colombo. The valuable data acquired by Dr. Hirst's rat flea survey were utilized in the direction of this work.

(40) Work done by Sanitary Staff during the Year 1925.

Nature of Work.	Fort.	Pettah.	San Sebastian.	St. Paul's.	Kotahena.	Mutwal.	New Bazaar.	Mara-dana North.	Mara-dana South.	Demasagoda.	Slave Island.	Kollupitiya.	Cinnamon Gardens.	Bambalapitiya.	Timbirigayaya.	Wellawatta.	Total.
1. Number of inspections	3,611	5,184	5,787	4,866	6,131	7,564	4,861	4,222	5,135	8,584	5,821	5,426	2,709	3,166	3,627	7,076	83,764
2. Number of premises in which sanitary defects were rectified:																	
(a) non-structural	68	247	519	221	266	308	239	544	355	358	470	194	108	96	95	111	4,199
(b) structural	22	108	98	66	115	54	65	213	92	62	51	61	12	215	35	15	1,284
3. Number of premises in which sanitary defects were rectified:																	
(a) non-structural	58	66	550	229	167	252	128	523	308	348	314	100	98	156	60	93	3,250
(b) structural	23	26	37	13	30	38	16	82	25	58	24	29	6	108	19	10	544
4. Number of premises where non-structural defects were rectified																	
5. Number of premises where structural defects were rectified																	
6. Number of insanitary dwellings structurally improved		17	103	250	11	27	31	93	5		30	15				7	589
7. Number of buildings, other than dwellings, structurally improved		77	42	47		2	24	98	5	13	4	20				10	371
8. Number of insanitary dwellings closed under Plague Regulations.																	
9. Number of insanitary dwellings remaining closed at end of year (total)																	
10. Number of insanitary dwellings demolished				36													36
11. Number of insanitary premises in which plans have been called for.																	42
12. Number of insanitary premises for which plans have been received.				36	1	36	5	3	3	1	26	5	3	3	4		90
13. Number of insanitary premises condemned				40	4		2	2			13	26		1	1		12
14. Number of insanitary dwellings included in 13				560	5		7	9			207	249		11	3		1,052
15. Number of insanitary premises scavenged by the Public Health Department Cleansing Gang	1	21	162	70	272	2,024	283	831	306	2,238	43	63	11	43	103	116	6,607
16. Number of dwellings plastered	3	279	1,395	2,789	144	321	1,012	199	923	47	540	41	14	62	7,769	14	7,769
17. Number of dwellings chytinized	34	834	2,049	4,599	235	626	1,510	255	1,047	55	964	52		5	43	100	12,928
18. Number of dwellings unroofed	22	776	2,049	4,599	235	626	1,510	255	1,047	55	964	52		5	43	100	12,883
19. Number of rat-holes found, claytonized, and filled up	72	1,709	3,480	6,390	463	997	2,865	426	3,105	87	1,577	151	43	129	229	229	21,653
20. Number of dwellings disinfected	42	592	644	1,274	314	498	649	275	422	230	675	109	49	93	117	122	6,405
21. Number of dwellings linewashed	38	276	868	3,654	1,253	407	1,514	1,035	629	311	1,915	221	26	311	330	298	13,089
22. Number of wells filled up				2				4						2	3		12
23. Number of cesspits filled up				6				1									7
24. Number of notices served under section 1, sub-section (1), of Ordinance No. 15 of 1862. (Filthy premises)	4	73	117	37	104	92	72	150	88	87	108	107	11	40	38	17	1,145
25. Number of notices served under section 186 of Ordinance No. 6 of 1910. (Privy accommodation)						18		2							1		21
26. Number of notices served under section 189 of Ordinance No. 6 of 1910. (Filling up stagnant pools, &c.)						1		1		5			2	9			18
27. Number of notices served under section 178 of Ordinance No. 6 of 1910. (Cleansing and linewashing)	12	65	155	158	61	87	36	120	53	80	124	26	1	36	80	11	1,105
28. Number of notices served under section 49, Part I., of Plague Regulations. (Closure of buildings unfit for human habitation.)																	
29. Number of notices served under by-law 8 (1), chapter 22 (improvement to buildings unfit for human habitation)		9	5	2	5			4			12						33
30. Number of notices served under section 38, Part I., of Plague Regulations. (Filling up wells)																	5
31. Number of notices served under section 39, Part I., of Plague Regulations. (Overcrowding)																	
32. Number of milk samples taken under by-law 5, chapter 14, Municipal by-laws	74	74	72	74	72	74	72	74	68	78	72	68	44	74	43	68	1,101
33. Number of prosecutions	33	132	269	157	153	176	180	432	303	232	276	131	69	89	66	86	2,784
34. Number of convictions	33	122	251	151	149	173	166	409	285	225	269	118	63	84	54	81	2,633
35. Number of cases acquitted, withdrawn, or otherwise dealt with		11	16	9	6	8	18	17	14	6	4	13	4	4	11	6	146
36. Number of cases pending at end of year			2	2	3	1	1	11	6	1	3		2	1	1		31
37. Amount of fines	Rs. c.	Rs. c.	Rs. c.	Rs. c.	Rs. c.	Rs. c.	Rs. c.	Rs. c.	Rs. c.	Rs. c.	Rs. c.	Rs. c.	Rs. c.	Rs. c.	Rs. c.	Rs. c.	Rs. c.
	1,971.50	2,688.50	1,820.50	1,455.50	1,035.50	1,085.50	1,643.50	5,658.50	2,502.50	2,875.00	3,168.50	1,246.00	728.00	1,029.00	738.25	733.00	30,003.55

(41) *Cesspits in Colombo.*

	At end of Previous Year.	Number filled up during 1925.	Number remaining at end of 1925.
San Sebastian ...	111	6	105
St. Paul's ...	32	—	32
Kotahena ...	1	—	1
Maradana North ...	1	1	—
Total ...	145	7	138

(b) *Prosecutions.*

The following statement shows the details in regard to prosecutions. 2,784 prosecutions in all were entered, 2,633, *i.e.*, 94 per cent. convictions being obtained. Such a high proportion of convictions is a very satisfactory result, and reflects credit upon the Sanitary Inspectors who conduct their own cases without legal assistance. 940 prosecutions for "filthy premises" were entered, with 899 or 95.5 per cent. convictions. There were 454 prosecutions, with 410 or 90 per cent. convictions, in connection with dairies and milk supply, including adulteration, filthy dairy premises, unlicensed dealers, &c.

The total amount of fines imposed by the Magistrate was Rs. 30,003.55, as compared with Rs. 28,879.50 in the previous year.

(42) *Statement of Prosecutions and Convictions during year 1925.*

Ordinance or By-law.	Offence.	No. of Prosecu- tions.	No. of Convic- tions.
Section 1, sub-section (1), of Ordinance No. 15 of 1862: Filthy premises	...	940	899
Section 1, sub-section (2), of Ordinance No. 15 of 1862: Foul and offensive cesspit	...	1	1
Section 1, sub-section (1), of Ordinance No. 15 of 1862: Filthy dairy	...	32	29
Section 1, sub-section (1), of Ordinance No. 15 of 1862: Filthy laundry	...	2	—
Section 1, sub-section (4), of Ordinance No. 15 of 1862: Nuisance by cattle, swine, &c.	...	154	140
Section 1, sub-section (9), of Ordinance No. 15 of 1862: Selling unwholesome food	...	7	7
Section 39 of Ordinance No. 1 of 1896: Unlicensed dairy	...	9	5
Section 43 of Ordinance No. 1 of 1896: Storing milk in unapproved place	...	14	10
Section 53 of Ordinance No. 1 of 1896: Unlicensed laundry	...	56	52
Section 53 (3) of Ordinance No. 1 of 1896: Using water for laundry from un-authorized place	...	2	2
Section 37 (3) of Ordinance No. 2 of 1896: Using water for dairy from un-authorized place	...	1	1
Section 4 of Ordinance No. 3 of 1897: Storing rice in unauthorized place	...	22	26
Section 38 of Ordinance No. 3 of 1897: Failure to close well after notice	...	3	3
Sections 109 (1) and 110 (5) of Ordinance No. 6 of 1910: Using polluted water in vegetable garden	...	3	3
Section 110 of Ordinance No. 6 of 1910: Spitting in public building	...	7	8
Section 178 of Ordinance No. 6 of 1910: Failure to limewash	...	107	99
Section 180 of Ordinance No. 6 of 1910: Failure to fill up swamp	...	3	3
Section 186 of Ordinance No. 6 of 1910: Failure to provide privy accommodation.	...	1	1
Section 194 of Ordinance No. 6 of 1910: Abuse of roadside	...	10	11
Section 205 of Ordinance No. 6 of 1910: Failure to report infectious disease	...	35	32
Section 212 of Ordinance No. 6 of 1910: Unlicensed offensive trades	...	10	8
Section 15 of Ordinance No. 2 of 1925: Removal of pearl oysters to town	...	3	3
Rule 29, chapter VIII., by-laws: Digging pits and wells without permission	...	8	8
Rule 4, chapter IX., by-laws: Filthy bathing place	...	15	9
Rule 1, chapter XI., by-laws: Unlicensed eating-house	...	70	66
Rule 1, chapter XI., by-laws: Unlicensed bakery	...	1	1
Rule 3, chapter XI., by-laws: Failure to effect improvement to eating-house	...	3	1
Rule 7, chapter XI., by-laws: Filthy eating-house	...	69	77
Rule 7, chapter XI., by-laws: Filthy bakery	...	16	16
Rule 8, chapter XI., by-laws: Unclean workmen in bakery	...	24	24
Rule 3, chapter XIII., by-laws: Disorderly conduct in market...	...	50	43
Rule 9, chapter XIII., by-laws: Selling fish or meat without license	...	6	8
Rule 10, chapter XIII., by-laws: Filthy private stall	...	80	72
Rule 14, chapter XIII., by-laws: Selling unauthorized articles in stall	...	1	1
Rule 29, chapter XIII., by-laws: Filthy market stall	...	56	56
Rule 31, chapter XIII., by-laws: Failure to serve public in stall...	...	37	32
Rule 34, chapter XIII., by-laws: Obstruction of passages in market	...	43	42
Rule 39, chapter XIII., by-laws: Keeping cattle in excess of number allowed	...	21	20
Rule 43, chapter XIII., by-laws: Depositing manure in unauthorized place	...	1	1
Rule 2A, chapter XIV., by-laws: Exposing food to dust and flies	...	484	468
Rule 3, chapter XIV., by-laws: Sale of adulterated milk	...	174	156
Rule 5, chapter XIV., by-laws: Refusing to give inspector a sample of milk	...	3	2
Rule 7, chapter XIV., by-laws: Unlicensed milk vendor	...	200	187
Total	...	2,784	2,633

As convictions were obtained during 1925 on cases pending from the previous year, the above statement shows more convictions than prosecutions for certain offences.

(c) Food Trades Inspections.

The following is a summary of the inspections made in connection with food trades:—

(43) Food Trades Inspections in 1925. Number of Inspections made.

Ward.	Bakeries.	Dairies.	Eating-houses.	Public Markets.
Fort	14	—	313	—
Pettah	163	—	510	101
San Sebastian	74	—	337	294
St. Paul's	210	422	504	59
Kotahena	237	146	201	74
Mutwal	64	38	103	41
New Bazaar	119	184	138	—
Maradana North	84	136	226	—
Maradana South	62	45	195	92
Dematagoda	116	30	387	—
Slave Island	133	82	339	—
Kollupitiya	129	141	52	95
Cinnamon Gardens	36	193	75	106
Bambalapitiya	91	222	62	123
Timbirigasyaya	—	269	82	—
Wellawatta	65	63	113	—
Total Inspections	1,597	1,971	3,637	985

(d) Damaged Foodstuffs.

Food inspection, apart from inspection of dairies and bakeries, still remains on the same unsatisfactory footing as hitherto, there being no special Food Inspector for the town. The Sanitary Inspectors do what they can, but they are so burdened with other duties that it would be quite impossible for them, even if they had the special training, properly to inspect the food supplies in Colombo.

The following is a list of foodstuffs condemned during the year:—

(44) (a) Foodstuffs condemned during 1925.

Beef	...	31½ lb.
Flour	...	1 cwt. 2 qr. 15 lb. and 4½ bags.
Potatoes	...	46 tons 4 cwt. 3 qr.
Onions	...	6 tons.
Grain	...	8½ bushels.
Sardines	...	75 tins.

(b) Condemned at Kochchikade Warehouse.

Dates	...	5 bundles.
Potatoes	...	72 bags.
Rice	...	¼ bag.

(c) Condemned at Customs.

Apples	...	100 barrels.
Garlic	...	900 lb.
Rice	...	5½ bags.

(d) Condemned at Chalmers Granaries and Manning Market.

Rice	...	2,634 bushels.
------	-----	----------------

XXVI.—DAIRIES AND MILK SUPPLY.

During the year 1925, 2 registered dairies were discontinued and 11 new registrations were granted, leaving a total of 55 on the register at the end of the year, as against 46 at the end of 1924, there being thus an increase of 9 registered dairies as compared with the previous year. The cattle shed licenses at the end of the year provided for the keeping of a total of 1,593 milch cattle, including buffaloes, an increase of 287 cattle compared with the previous year. This substantial increase in the number of registered dairies and cattle was, in a large measure, the result, no doubt, of the action taken to suppress the illicit dairy trade, to which reference is made later.

A special effort was made during the year to improve the sanitary state of the dairy premises and the purity of the milk supply. Thus, no fewer than 1,971 inspections of dairies were made and 1,101 samples of milk were taken by the Sanitary Inspectors during the year, this being an increase of 920 inspections and 163 samples compared with the previous year. This is regarded as a very good record of work, especially when it is considered that there is no special Food or Dairies Inspector, all such work having to be done by the Sanitary Inspectors themselves, in addition to the multiplicity of other duties which they have to perform.

It has been conclusively established, as the result of a very large number of analyses (see accompanying circular on dairies), that unregistered milk dealers are far more prone to resort to adulteration than are the registered men; not only so, but the *degree* of adulteration is, as a rule, very much greater in the case of the unregistered men. This is as might be expected, in view of the fact that the registered men are under supervision by the Sanitary staff, whereas, the very fact that the trade of the unregistered men is illegal, makes them resort to every device to elude detection and supervision. It is obviously unfair to the registered men, who are compelled to incur considerable expenditure in order to comply with the Municipal regulations, that these rival illicit dealers, who evade such expenditure, should be countenanced and supported by the public. With a view of enlightening the public on this matter it was decided to issue a circular to householders, a copy of which is reproduced, and which is, at the time of writing, being distributed.

It was decided, early in the year, to make a special effort to compel these illicit milk dealers either to establish themselves in approved dairy premises and get themselves registered so that they could be kept under supervision or abandon their dangerous trade. This task was by no means an easy one, as these illicit dealers have no cattle sheds or dairy premises, but move their cattle about from place to place, grazing them on lands such as public parks, golf courses, and private compounds, the milking being done in the open, generally in the early hours of the morning and late in the evening. The milk thus drawn is then very frequently adulterated, and distributed amongst householders, many of whom appear to prefer to deal with these illicit traders for the reason that they thus get their supply a few cents cheaper. As the Municipal records show, however, they are in reality frequently paying for a mixture of milk and water—not always clean water. From the householders point of view therefore this is not economical business, and is moreover fraught with danger, not only to themselves and their children, but also to their unfortunate guests.

As some misunderstanding arose on the point, it may be well to mention here that no interference by the Public Health Department is practised or contemplated in cases where householders elect either to keep a cow in their own premises, or to have one brought there for milking, even if such cow is the property of an unregistered man, provided that the milk is for consumption only on the premises and is not sent out to other householders. The moment milk is so sent out control is lost, and it becomes liable to adulteration by the vendor, with the result that the whole system of registration is threatened. There can be no half measures in dealing with such an important source of food supply as milk.

The first step towards dealing with these illicit milk dealers was obviously to drive them off the grazing grounds. This proposal, however, was made the occasion for raising a question as to whether more harm than good might thereby be done. It was even contended that to stop grazing and drive these cattle into the registered dairies would deprive the milk of some of its essential elements—notably the anti-rachitic vitamin, now known as vitamin D. To anyone acquainted with the recent scientific literature relating into vitamins, and with the conditions which obtain in European and Colombo dairies respectively, this argument was clearly based upon a misunderstanding, and was untenable. In the first place if, as was contended, the milk of cattle in the registered dairies is deficient in anti-rachitic vitamin, then rickets should be a very prevalent disease in Colombo, because a great proportion of the town milk supply has for many years been derived from the registered dairies. The contrary is, however, the case, for rickets is a comparatively rare complaint in Colombo, as in most other tropical places, a statement which is borne out both by the Vital Statistics, and by the recorded opinion of those who are best qualified to judge, viz., the Medical Officers in charge of the Lady Havelock and Children's Hospitals and of the Female Outdoor Dispensary. This is also the opinion of the writer, after 24 years' experience as Medical Officer of Health of the town. A typical case of rickets, such as is so frequently seen in Europe, is very rarely met with here. In the second place, the suggestion that the milk of the cattle in the registered dairies is deficient in anti-rachitic vitamin is obviously based upon the assumption that such cattle are deprived of both sunlight and anti-rachitic vitamin-containing food. Neither of these assumptions is, however, correct. The cattle in the registered dairies are, it is true, stalled in roofed over sheds, but these sheds are invariably open on at least one side, and generally on three or even four sides, with the result that the cattle are exposed to direct sunlight during a considerable portion of the day. Not only so, but, in the majority of dairies, the cattle are turned out into the open for a time every day, and thus enjoy an ample exposure to the brilliant tropical sunlight, as, incidentally, do also the children themselves. There is, therefore, no risk whatever of rickets in Colombo on this account.

As regards the undoubtedly important question of the food of the cattle, it appears to have been assumed by the opponents of the prohibition of grazing on public lands that the cattle in the registered dairies are deprived of vitamin-containing green food. This again is quite incorrect. Every animal in every registered dairy is supplied every day with a supply of freshly cut grass which is amply sufficient to ensure an adequate supply of anti-rachitic vitamin. The dairymen in Colombo know their business too well to commit such a blunder as to withhold green food from their cattle.

Having disposed of these objections which were raised against the proposed action to suppress the illicit milk dealers, steps were taken to secure the co-operation of the owners and tenants of the various grazing grounds frequented by these milk dealers. This was fortunately secured, and as a result the number of cattle belonging to these illicit dealers was, within a short time, reduced to a very great extent. Thus, although it is very difficult, indeed practically impossible to obtain a complete record of all such cattle, a careful investigation disclosed the fact that, whereas, prior to action being taken in regard to grazing, about 430 milch cattle belonging to unregistered milk dealers were enumerated, only 241 could be located subsequently. This action in regard to illicit milk dealers took effect chiefly during the second half of the year, and it is a significant fact, as disclosed by the City Analyst's report, that the adulteration of milk, especially the higher degrees of adulteration, for which the illicit dealers are chiefly responsible (see circular on dairies), showed an enormous decrease during the last two quarters of the year. Not only so, but this great reduction of adulteration coincided, in point of time, with the very marked reduction in the incidence of enteric fever (*vide* Section XVII). Although, therefore, it is probable that the dumping of scavenging rubbish was the chief cause of the high incidence of enteric during the first half of the year, the facts stated above raise a strong suspicion that the sale of contaminated milk by illicit milk dealers was also a factor in the spread of enteric fever in Colombo, especially during the first half of the year. This then is a very strong argument against allowing these unregistered milk dealers to continue their trade.

Another and, at first sight, important argument which has been put forward in favour of the illicit milk dealer is that he meets a real need, inasmuch as he sells cheaper milk than the registered men, and thus meets the need of the poorest classes who cannot afford to pay the price demanded by the registered men. It has been proposed to solve this problem by the erection, at the public expense, of a number of dairy premises throughout the town for the accommodation, at a small fee, of the cattle of these itinerant milk dealers. This proposal, which is beset with difficulties, is in effect a method of subsidizing these poor class milk dealers, the assumption being that they will continue to sell milk at a cheaper rate than the registered men do now to the poorest classes. As a matter of fact, however, these illicit dealers do not to any material extent supply the poorest classes; on the contrary their customers are for the most part to be found amongst quite well-to-do, indeed often wealthy people, who reside in the Cinnamon Gardens, Kollupitiya, and Bambalapitiya. Innumerable inquiries made in connection with cases of enteric fever have disclosed the fact that the poorest classes either do not buy milk at all, or they buy cheap condensed milk which they water down themselves, or fresh milk from the second class registered dairies, such as the Wolfendahl buffalo dairies. To subsidize the poor class itinerant cattle owners will not, therefore, help the poor householders at all. It will merely tend to shift the milk trade from the hands of the well-to-do and educated classes, who now conduct many of the best registered dairies in Colombo, into the hands of the poor, ignorant, and far from naturally cleanly class of milk dealer. This would be a retrograde step and is most undesirable. To meet the need of the poorest class of householders, *i.e.*, the labouring classes, and it is a real need, what is required is not a poor class dairy, but an extension of the Milk Depot System, which, greatly to their credit, was initiated in Colombo by the Social Service League. In the writer's opinion, rather than spend large sums of public money in an endeavour to perpetuate the ill-educated poor class cow owner, it would be far better to spend the money in establishing a series of Municipal Milk Depôts, where milk could be issued either free, or at a small charge, to the mothers and children of the poorest classes. These milk depôts might form a part of the Municipal Child Welfare Organization, and their supplies of milk could be purchased, at contract rates, from the registered dairies, who deserve every encouragement at the hands of the Municipal Council, whose by-laws and regulations many of them do their best to comply with.

It has more than once been suggested, with a view of improving the Colombo milk supply, that the Municipal Council itself should establish a dairy farm and supply milk to the town. Such forms of Municipal enterprise are, however, open to considerable objection, and have comparatively seldom proved successful. The proposal is contrary to the generally accepted principle that Municipalities should not attempt, at the public expense, to compete with private enterprise.

In this connection it may be mentioned that the Council has, as a matter of fact, and of necessity, embarked upon a scheme which, in a modified sense, is a form of Municipal trading, in that it has resolved to equip and control a dairy at the Municipal Cattle Mart, which, under present conditions is by far the largest unregistered dairy in the town.

The Public Health Department were, as hitherto, much indebted to the Colombo Ladies' League for their assistance in regard to dairies. The League have expressed their regret, in their report for 1925, that so many of the dairymen were disqualified at the competition for prizes and certificates on account of their having been convicted in court for adulterating milk. This regret is shared by the Public Health Department, who are responsible for the sampling and subsequent prosecutions. Although the object of the Public Health Department and the Ladies' League is identical, *viz.*, improvement of the Colombo milk supply, the methods adopted are necessarily different. The Public Health Department represents the iron hand of compulsion, backed up by the law, whereas the Ladies' League represents the velvet glove of persuasion. Both methods have their uses. The following were the prize winners at the Ladies' League competition during 1925:—

		A. DIVISION (under 15 cows).
Gold Medal	...	Won by Mrs. R. Koch, Glenrose, Bambalapitiya road.
		B. DIVISION (over 15 cows).
Gold Medal	...	Won by Clarence de Vos, 115, Wellawatta road.

Circular referred to.

PUBLIC HEALTH DEPARTMENT.

(For the Information of Householdors).

DAIRIES.

DEAR SIR or MADAM,

THE list overleaf shows all the dairies in Colombo which have been registered up to date this year by the Municipality. You are strongly advised, on sanitary grounds, to deal only with such as appear on this list, or who may subsequently be registered.

Every registered dairyman is supplied, each year, with a card signed by the Secretary, Municipal Council, upon which is recorded the address of the dairy, its registration number, and the names of the dairyman and his milk vendor. You should, therefore, insist upon your dairyman and his vendor producing their registration cards and see that they bear the date of the current year.

It has been found, as the result of thousands of analyses of milk samples, that the milk supplied by unregistered men is far more liable to be adulterated than in the case of registered men; not only so, but the degree of adulteration is far higher in the case of the unregistered men.

Thus during the two years 1923 and 1924 the proportion of samples found to be adulterated with more than 10 per cent. of added water was as follows :—

<i>Proportion of Samples found to be Adulterated.</i>				
Year.		Registered Dairymen.		Unregistered Dairymen.
1923	...	5.1	...	59.1 per cent. of total samples.
1924	...	8.7	...	48.6 per cent. of total samples.

Should householders suspect that their milk supply is adulterated they should communicate with the Medical Officer of Health, who will make arrangements for the taking and examination of samples. It is not advisable for householders to take the samples themselves as the procedure for sampling is laid down by law and must be strictly adhered to.

Registered dairies are under constant supervision by the Public Health Department, and are required to comply with the rules quoted hereafter, whereas unregistered dairymen are under no supervision and do not comply with these rules.

Rules.—Before registration is granted every dairy must have its site, buildings, drainage, water supply, &c., approved by the Medical Officer of Health. No one is registered as a milk vendor unless his blood has been examined by the City Microbiologist and he has been proved not to be a carrier of enteric fever. Every registered dairy must have a town water supply for washing milk vessels, milk room, sheds, and drains. It must be provided with a well ventilated fly-proof milk room for storing milk and clean milk vessels.

Unregistered milk dealers on the other hand graze their cattle here and there; they have no cattle shed and no milk room, and they have been found storing their milk vessels, sometimes containing milk intended for sale, under their beds in their, by no means clean, houses. None of their milk vendors are examined so as to exclude enteric carriers.

You are advised before concluding arrangements for your milk supply, and from time to time thereafter, to see the dairy and assure yourself that the conditions are satisfactory. If you observe any fault you are requested to communicate with the Medical Officer of Health, who will have it put right, if possible.

If householders will co-operate, as suggested above, with the Public Health Department there can be no doubt that the standard of cleanliness, &c., of the dairies in Colombo will be raised.

WM. MARSHALL PHILIP,
Medical Officer of Health.

Colombo, January 22, 1926.

REGISTERED DAIRIES IN COLOMBO, 1926.

Mutwal Ward.

Premises.	Dairymen.	No. of Cows.
1/2 Mattakkuliya Farm road ...	H. D. Edwin ...	20
23a Alutmawata road ...	Muttusamy Konar ...	10
18 Blomendahl road ...	Ramasamy Konar ...	12

Kotahena Ward.

353 Alutmawata road ...	V. C. Fernando ...	15
9a Alvis place ...	H. S. Perera ...	8
22 Jampettah street ...	Velaithan Nadar ...	100
20 Jampettah street ...	S. Palaiyah Nadar ...	55

St. Paul's Ward.

24 Wolfendahl street ...	S. T. F. Poopalarayan ...	22
23 Wolfendahl street ...	S. Suppa Rettiar ...	36
76 Wolfendahl street ...	A. S. Abdul Cader ...	65
84 Wolfendahl street ...	T. O. S. Rodrigo ...	54
86 Wolfendahl street ...	P. M. Vellavarayan ...	32
90 Wolfendahl street ...	V. M. Pitche Kannu Marikar ...	41
90a Wolfendahl street ...	K. M. Koya Marikar ...	44
93 Wolfendahl street ...	S. A. Vellavarayan ...	56
22 Wolfendahl street ...	T. O. S. Rodrigo ...	60

New Bazaar Ward.

46/48 Messenger street ...	G. Joseph Nadar ...	75
59/60 Silversmith street ...	E. K. Junkeer ...	9
6 Silversmith street ...	Perumal, son of Vellakannu ...	4
47a San Sebastian hill ...	Mrs. Marimuttu Amma ...	24
38 New Urugodawatta road ...	R. M. S. M. Meyappa Chetty ...	95
102 De Waas lane ...	C. Sangaralingam ...	30

Maradana North Ward.

17 ³ Maligawatta (old No. 55) ...	T. M. Amala Marikar ...	10
17 Lockgate lane (old No. 11) ...	P. Nadarajah Nadar ...	35
125 Baseline road (old No. 140, Dematagoda) ...	S. V. A. Hendrick Appu ...	60
17 ⁶⁴ Maligawatta (old No. 75B, Maligawatta) ...	A. H. Aron Dias ...	12

		<i>Maradana South Ward.</i>		
Premises.		Dairymen.		No. of Cows.
21	Kynsey road ...	Mendris Appu ...	...	10
<i>Dematagoda Ward.</i>				
55	Cotta road (old No. 10) ...	Magris Appu ...	...	20
<i>Cinnamon Gardens Ward.</i>				
3f	Castle street ...	Madasamy Konar ...	...	30
19	Rosmead place ...	Sollamuttu ...	...	10
14	Barnes place ...	Samy Konar ...	...	4
16	Horton place ...	P. Sella Konar ...	...	20
3f	Castle street ...	Mr. A. Lane (Ceylon Creamery) ...	...	—
<i>Kollupitiya Ward.</i>				
11	Green path ...	Maria Michael Fernando ...	...	30
18	Kollupitiya lane ...	M. Anthony Miguel Fernando ...	...	30
17	Kollupitiya lane ...	W. Pederick Silva ...	...	15
60	Kollupitiya road ...	S. Tamba Pillai ...	...	40
<i>Slave Island Ward.</i>				
3	Kew lane ...	S. Muttiah ...	...	90
45	Vauxhall street ...	V. Vengadasalam Rettiar ...	...	125
<i>Bambalapitiya Ward.</i>				
10	Dickman's road ...	Suppiah ...	...	10
60	Wellawatta road ...	R. Shanmuga Thever ...	...	40
23	Bambalapitiya road ...	Mrs. R. Koch ...	...	10
64	Wellawatta road ...	Velaiden ...	...	10
115	Wellawatta road ...	Clarence de Vos ...	...	20
3	Elibank road ...	B. de S. Wijeyratne ...	...	10
<i>Timbirigasyaya Road.</i>				
6	East and West Baseline road ...	H. Don James Appu ...	...	4
119/121	Timbirigasyaya road ...	S. D. E. Fonseka ...	...	10
8a	Kirillapone road ...	T. D. Aron Appuhamy ...	...	4
54	Bambalapitiya road ...	A. Mohamed Khan ...	...	14
54a	Bambalapitiya road ...	Mrs. J. Weerasinghe ...	...	5
99	Timbirigasyaya road ...	Sanmugan, son of Karupen ...	...	25
26	Model Farm road ...	K. Helena Perera ...	...	4
<i>Wellawatta Ward.</i>				
504	Colombo-Galle road ...	O. V. Krishnan ...	...	4
1126	Colombo-Galle road ...	R. Muttiah Reddiar ...	...	30
799	Pamankade road ...	D. E. Muthucumarana ...	...	10
22a	Colombo-Galle road ...	G. Nicholas Appu ...	...	5

XXVII.—BAKERIES.

During the year three registered bakeries were discontinued and three new registrations were granted, the total on the register at the end of the year being fifty-four, which is the same as in the previous year.

Here again the Colombo Ladies' League gave us valued assistance, by visiting such bakeries as were entered for the competition and presenting medals and certificates. In their report for 1925 the Ladies' League record their opinion that the bakeries showed great improvement, and that those in the A Division were excellently kept.

The following were the prize winner :—

Best Kept Bakery.

The Challenge Cup ... Won by W. A. Don Alexander of No. 44, Alston place (old No. 3).

A DIVISION.

Silver Medal ... Won by J. A. D. Victoria of No. 3, Norris road.

B DIVISION.

Silver Medal ... Won by W. D. John Singho of No. 53, Blomendahl road.

Best Bread Competition.

A DIVISION.

Silver Medal ... Won by Rustomjee & Co. of No. 36, Rifle street (old No. 12).

B DIVISION.

Silver Medal ... Won by P. E. Perera of No. 13, Sea street.

A circular on bakeries was prepared by the Public Health Department for the information of householders, a copy of which is reproduced, and which is, at the time of writing, being distributed.

Circular referred to.

PUBLIC HEALTH DEPARTMENT.

(For the Information of Householders).

BAKERIES.

THE list hereunder shows all the bakeries in Colombo registered up to date this year. So far as is known there are no illicit bakeries, but some are better conducted than others. You are, therefore, advised to inspect the bakery before concluding arrangements for supply of bread, and deal only with the best.

The site, buildings, tables, ventilation, lighting, water supply, drainage, &c., of every bakery must be approved by the Medical Officer of Health before registration is granted.

The kneading tables must be smooth, free from ruts or cracks in which dirt can lodge, and must be kept scrupulously clean. The floor and walls of the kneading room, to a height of five feet, must be cemented, and all corners must be rounded off. Lighting and ventilation must be sufficient, and all openings into the kneading room must be fly-proofed with wire gauze. The bakers are required to wash their hands and brush their nails, which must be kept cut short, before commencing work. Every bakery must be provided with town water, a basin, soap, nail brush, and towel for the use of workmen. The bakers must wear clean white aprons covering the whole of the front of their bodies and clean white caps or cloths covering their hair.

Spitting within a bakery is prohibited. You are advised when visiting your baker's premises to note whether these rules are complied with, and to inform the Medical Officer of Health of any breach which you may observe.

WM. MARSHALL PHILIP,

Medical Officer of Health.

Colombo, January 22, 1926.

REGISTERED BAKERIES IN COLOMBO, 1926.

Fort Ward.

Premises No.			Name of Licensee.
32	Hospital street	...	F. Billimoria.

Pettah Ward.

8	Fourth Cross street	...	Abdul Sather.
24/25	First Cross street	...	P. N. Kapadia.
63	Fourth Cross street	...	E. Ahamed Saibo.
3	Norris road	...	J. A. D. Victoria.
3	Prince street	...	M. O. Mohamadu Canni.

St. Paul's Ward.

36	Wolfendahl street (Kopiawatta)	...	E. C. James Perera.
13	Sea street	...	P. E. Perera.
66	New Chetty street	...	H. Harmanis Appuhamy.
101	Wolfendahl street	...	M. S. A. Koya Marikar.
42	Wolfendahl street	...	P. M. Mohideen Meera Pillai.
60	Hill street	...	K. G. Sangadasa.

San Sebastian Ward.

103	Dam street	...	Mrs. C. O. Perera.
30	Dias place	...	K. M. Silva.

Mutwal Ward.

182	Mutwal street (near St. James' street)	...	M. D. Silva.
53	Blomendahl road	...	W. D. John Singho.
1	Modera street	...	A. P. Paulis Perera.
8	Madampitiya road	...	E. P. Weerasinghe.

Kotahena Ward.

45	Jampettah street	...	Jane de Silva.
12	Bonjean road	...	G. D. Podi Singho.
56	Jampettah street (Shoemaker's lane)	...	P. S. Wilfred Perera.
19	Pickerings road (Santiago street)	...	P. D. Swaris Appu.
54	Pickerings road	...	M. K. Amaris Appuhamy.
47	Barber street	...	M. W. D. Frederick Appu.
6	College street	...	M. W. D. Frederick Appu.
92	Mayfield road	...	P. D. Noris Appuhamy.

New Bazaar Ward.

135	Layard's Broadway	...	C. Don Girigoris Appuhamy.
64	Barber street (opposite Green street)	...	D. D. Hendrick Appu.
89	Barber street (opposite Dispensary)	...	Don Dias Appuhamy.
163	St. Joseph's street	...	N. C. Don Carolis Appuhamy.

Maradana North Ward.

169 ¹	Baseline road	...	...	...	J. D. Brampy Singho.
35	Panchikawatta road	...	...	...	T. D. John.
97	Dematagoda road	...	...	...	J. E. Ahamed Saibo & Co.
182/184	Baseline road	...	...	...	W. S. Perera.

Maradana South Ward.

282	Second Division, Maradana	...	...	...	A. J. de Mel.
28	Dean's road	...	...	...	A. E. Godalawatte.
229	Dean's road	...	...	...	H. G. Andreas Appuhamy.

Dematagoda Ward.

3	Turner road (Cotta road)	...	...	...	W. R. Fonseka.
719	Third Division, Maradana	...	...	...	H. R. Caldera.
245	Second Division, Maradana	...	...	...	P. E. Perera.

Slave Island Ward.

29	Hunupitiya road (old No. 3)	...	...	...	W. A. de Sousa.
44	Alston place (old No. 3)	...	...	...	W. D. Alexander.
36	Rifle street (old No. 12)	...	...	...	P. N. Kapadia.
103	Church street (old No. 64)	...	...	...	M. Mudaly Hamy.
15	Braybrooke place (old No. 3)	...	...	...	A. Singho Appu.

Kollupitiya Ward.

1/2	Green path	...	...	...	H. Andris Silva.
2g	Bagatelle road	...	...	...	M. G. Fernando.
237	Kollupitiya road	...	...	...	Perera & Son.
11	Kollupitiya road	...	...	...	D. L. Babun.

Cinnamon Gardens Ward.

3	East and West Baseline road	S. A. Manis Appuhamy.
---	-----------------------------	-----	-----	-----	-----------------------

Bambalapitiya Ward.

115	Wellawatta road	...	...	...	C. de Vos.
16a	Wellawatta road	...	...	...	P. R. Wickremasinghe.

Wellawatta Ward.

1	Colombo-Galle road	...	...	...	S. A. Podi Appuhamy.
141	Colombo-Galle road	...	...	...	P. P. Perera.

XXVIII.—EATING-HOUSES.

The term "eating house" is defined in by-law 12, chapter XI., as including "any house or place where cooked rice is kept for sale, other than a house for which a license has been obtained under 'The License Ordinance, 1891.'" During the year 125 registered eating-houses were discontinued and 120 new registrations were granted, the total number on the register at the end of the year being 512.

The supervision of these numerous eating establishments is one of the many duties of the Sanitary Inspectors, and entails a great deal of inspection as eating-houses have an irrepresible tendency to degenerate when left to themselves, for the reason that the customers who frequent them appear, for the most part, to pay no heed to the sanitary conditions under which their meals are served, and consequently a dirty and untidily kept eating-house has almost as much chance of success as one which is kept scrupulously clean and tidy. The state of the eating-houses thus depends chiefly upon the amount of time that the Sanitary Inspector is able to devote to their inspection.

XXIX.—AERATED WATER FACTORIES.

There were twelve of these establishments on the register, no change having occurred during the year. Three of the companies also manufacture ice, while one has a cold store for imported foodstuffs. As some of the factories had allowed their premises to fall into a certain degree of disrepair, a special inspection was made and all those found defective were called upon to effect the necessary improvements. This was done. The syrup room of every factory is fly-proofed.

XXX.—LAUNDRIES.

During the year 38 laundry registrations were cancelled and 48 new registrations were granted, thus leaving a total of 267 on the register at the end of 1925, as against 257 at the end of the previous year.

The vast amount of clothes washing that is necessary in this tropical climate seems to make it practically impossible to adopt the more expensive up-to-date Western steam laundry methods, except as regards the clothes of a very small section of the community, *e.g.*, hotel residents. The dhoby system, very crude although it certainly is, seems to be fairly well suited to the needs of the community.

In bygone days when a practically unlimited supply of fairly clean water was available in the lake most of the washing was done there; but as the population, and consequently the output of sewage increased, and drains were built which carried the sewage into the lake, the waters of the lake became more and more polluted and unsuitable for laundry purposes.

It is on record that some fifty years or so ago the lake, which is the natural catchment basin for a considerable area of the town, was a beautiful sheet of comparatively pure rain water in which the sacred lotus and other freshwater-loving plants thrived. As the water became more and more polluted the lotus died out, and its place was taken by the hydrilla, a weed which occurs naturally in clean water, where it attains a moderate size, but which in the organically richly polluted waters of the lake assumed such enormous proportions that it became a serious impediment to traffic in the lake. At a still later stage, about ten or fifteen years ago, even the hydrilla found the lake too polluted for its existence and it also disappeared, leaving only the sewage-feeding green algae which now form such an unpleasant feature of the lake, the waters of which are thereby coloured an opalescent green.

Under certain climatic conditions, *e.g.*, a spell of drought followed by a fall of rain which scours out all the drains and washes the stale sewage into the lake, the putrefaction in the lake becomes so active that even the sewage-feeding algae are killed in vast quantities, thus giving rise to an exceedingly foul-smelling septic scum, which is a periodically recurring cause of complaint. It will thus be seen that the lake has long since ceased to be a suitable place for the washing of domestic linen.

The chief of the clothes-washing places in the lake were the following:—(a) At Beira, where now stands the Fort Railway station, (b) Dhoby Island, and (c) Captain's Garden, all of which have now been obliterated by the lake reclamation, (d) Vauxhall street, (e) Wekanda point, (f) Polwatta, (g) Ingham street, and (h) Stewart street. All of these have now been abandoned except the sites at Vauxhall street and Polwatta.

The first of the dhobies to quit washing in the lake were the men at Beira, which site was prohibited by a notice dated April 30, 1892. These dhobies, originally known as "Galle dhobies" and later as "Racquet court dhobies" and now as "Pettah dhobies," built, at their own expense, a range of washing tanks near the lake at Beira. When, however, this ground was required for the new Fort Railway Station they were turned out by Government who, recognizing their claim to consideration, built them a range of tanks at the Racquet court. When in turn the Chalmers' Granaries were built on this site, the dhobies were again turned out by Government, and for a time were without proper washing accommodation. They accordingly carried on their work under most insanitary conditions in their homes in the heart of the Pettah (Micho's lane, Maliban street, &c.).

In the meantime the dhobies at Captain's Garden and Dhoby Island had also been turned out by Government, in order to make way for the Railway extensions, and the question of providing accommodation for them had arisen. It was originally proposed to accommodate them all on one site, but this idea had to be abandoned as the Captain's Garden men are all Tamils and the Dhoby Island men are all Sinhalese and they refused to work together. It was therefore decided to build a laundry for the Dhoby Island Sinhalese men at Blomendahl, and to provide for the Captain's Garden Tamil men on a separate site. The present Municipal Laundry at Blomendahl was accordingly built at a cost, exclusive of land, of Rs. 47,520'49, with accommodation for 32 dhobies. This laundry was opened on October 7, 1922. At this stage, however, the prior claim of the Pettah dhobies was urged, and it was decided to offer them accommodation at the new Blomendahl laundry. This they accepted, under protest, as it was too far from the Harbour, whence their customers were derived. At the present time 29 of them are in occupation at Blomendahl. It was then decided to build for these Pettah men a special laundry at a more convenient site, at the proposed extension of Old Moor street. This road extension has, however, not been carried out as yet, and consequently the proposed laundry there has not been erected.

The position at present, therefore, is that the Pettah dhobies are temporarily accommodated, under protest, at the Blomendahl laundry, whereas the Captain's Garden and Dhoby Island dhobies have not yet been provided for, but are carrying on their trade under very insanitary and inconvenient conditions in the Blomendahl swamp, in the San Sebastian canal, and, in the case of the Tamils, at Modera.

The next of the lake dhobies to be displaced were those who used to wash at Wekanda, Stewart street, and Ingham street, at all of which places the lake water was exceedingly foul. To accommodate these men the Municipal Laundry at Wekanda was built, at a cost, exclusive of land, of Rs. 45,532'37 with accommodation for 24 dhobies. This laundry was opened on October 1, 1921. The land at both the Blomendahl and Wekanda laundry sites was donated by Government, as their share of the expenditure.

The only authorized clothes-washing places in the lake now are thus at Polwatta and Vauxhall street, at both of which sites the water of the lake is exceedingly polluted. It has accordingly been decided to erect a Municipal Laundry at Polwatta, with accommodation for 30 dhobies, and at the time of writing the necessary land has been obtained, plans prepared, and funds voted.

Even when the Polwatta laundry has been built the total accommodation provided in the three Municipal Laundries will only serve 86 dhobies out of the total of 267 on the register. As it is highly desirable that the whole of the town should be served by laundries built on proper lines, and situated at convenient sites, a Report, No. 161, was submitted by the writer on April 20, 1922, in which the future policy in regard to Municipal Laundries was dealt with, and proposals were made for the establishment of laundries to serve the whole town. What appeared to be the most suitable localities for the proposed laundries were indicated, due regard being had to the sources from which the dhobies' customers would be derived. This scheme, it is thought, might prove useful as a guide when funds permit of a further extension of the Municipal Laundry System.

XXXI.—MOSQUITO PREVENTION.

The breeding of mosquitoes is dependant upon a suitable temperature and the existence of suitable collections of water in which the egg and larval stages of development are spent. The average monthly mean temperature in Colombo over a period of 18 years has been 80°8'. The average annual rainfall in Colombo over the same period has been 85·25 inches, and has ranged from a minimum of 2'07 inches in February to a maximum of 13'12 inches in October. Rain has fallen, on an average during 17 years, upon 184 days during the year. The climatic conditions in Colombo are thus practically ideal for the breeding of mosquitoes, which lose no opportunity of taking advantage of those conditions.

Major (now Colonel) James, I.M.S., after spending a whole year, with a special staff, investigating the mosquito problem in Colombo, reported (see Sessional Paper XI. 1914) that, in order to deal effectively with the mosquito pest in Colombo, it would be necessary to introduce special legislation, placing the duty of getting rid of the breeding places of domestic mosquitoes upon the householder and the owner of the land, and that, in addition, a special staff should be employed, including a legal adviser, 32 overseers, 2 Sub-Inspectors, 1 Inspector, and about 40 coolies. The estimated cost of this was Rs. 150,000 per annum. As an alternative, if legal powers were not granted, a subordinate staff of 130 trained overseers, 9 Sub-Inspectors, 2 Senior Inspectors, 280 coolies, and several skilled artisans would be required. The estimated cost of this was Rs. 200,000 per annum.

The position in Colombo to-day is that special legislation has been refused, in spite of repeated requests therefor, and that the total staff employed upon anti-mosquito work for the whole town is 1 Sub-Inspector, 6 overseers, and 12 coolies. The total expenditure incurred on anti-mosquito work during the year 1925, including wages of staff, materials, &c., was Rs. 12,278'82, as compared with Major James's estimate of Rs. 200,000. Comment is needless. I would only add that the public appear greatly to appreciate the work of our small staff in their efforts to rid them of the mosquito pest.

The following statement is a summary of the work done during 1925 by the anti-mosquito staff :—

(45) *Anti-Mosquito Work, 1925.*(1) *Complaints from Householders.*

Number of complaints received	...	...	...	258
Number of premises visited	...	...	...	1,057
Number of potential breeding places found	...	...	...	52,618
Number of actual breeding places found	...	...	...	3,818

(2) *General Inspection Work.*

Number of premises visited	...	...	...	2,374
Number of tenements visited	...	...	...	578
Number of potential breeding places found	...	...	...	87,464
Number of actual breeding places found	...	...	...	3,074

(3) *Summary.*

Number of complaints received	...	...	...	258
Number of premises inspected	...	...	...	3,431
Number of tenements inspected	...	...	...	578
Number of potential breeding places found	...	...	...	140,082
Number of actual breeding places found	...	...	...	6,892

XXXII.—DISINFECTION AND CLEANSING.

The staff employed on this work is as follows :—

Disinfection.—Nineteen coolies.

Cleansing.—One overseer, six coolies, one cart (hired).

The following is a summary of the work performed during the year :—

(a) *General.*

1,145 "filthy" premises notices and 1,105 "cleansing and limewashing" notices were served by the Sanitary Inspectors during the year. 13,089 tenements were limewashed by the owners as the result of notice. 6,607 dangerously filthy premises were cleaned up by the Public Health Department Cleansing Gang. 6,105 premises were disinfected with cyllin.

(b) *Steam Disinfection.*

An equifex disinfector, and two motor vans are employed in this connection. 172 van loads were disinfected, including 5,455 articles.

XXXIII.—RAT AND FLEA DESTRUCTION.

One Sub-Inspector, six overseers, twelve masons, fifty-five coolies, and two hired carts are employed on this work.

When a case of human or rat plague occurs, an area, having the infected house as the centre, is mapped out, and divided into an inner and outer zone. The infected house is at once evacuated, and the floors are pesterined in order to destroy any infected fleas that may be at large.

Simultaneously the plague gang, armed with Clayton fumigators, pesterine, brushes, &c., is distributed around the peripheries of both the inner and the outer zones. They then proceed, working towards the infected house, to remove all furniture, &c., from the houses, and to partially remove the tiles in order to search for rat nests, and to let the sunlight into the rooms. Rat nests, rat holes, and dead rats are carefully searched for, and live rats are killed by means of sticks or bars of iron. All the rat holes, except one, are then blocked, while sulphur fumes are forced by

means of the Clayton machine into the hole left open, a careful watch in and around the house being kept for bolting rats. Every rat hole is in turn uncovered and fumigated in order to make sure that the fumes reach every part of the rat tunnels. The floors of the rooms are painted with pesterine (liquid fuel), or in the better class houses having paved or wooden floors, kerosine and cyllin mixture is used. All the furniture removed from the house is washed and exposed to the sun for two hours. When the outer zone gang reach the inner zone (which the inner zone gang has by this time dealt with), they make a careful search for rats which may have been driven in from the outer zone. The inner zone is thus twice searched for rats before the work is completed.

After fumigation, all rat holes are blocked up with stones and cement. The tiles are then replaced and the tenants are allowed to resume occupation.

During the non-plague season, the whole of the plague staff is concentrated upon rat and flea destruction within the "cheopis areas" which have been demarcated by Dr. Hirst's rat flea survey.

The following is a summary of the plague work carried out during the year:—12,928 dwellings, including 21,653 rat holes, were fumigated; 12,883 dwellings were partially unroofed; 7,769 dwellings were pesterined.

XXXIV.—HOUSING.

The principal defects in connection with housing in Colombo are overbuilding of the land, irregular disposition, and defective planning and construction of houses. The consequence of these defects is that the provisions for lighting, ventilation, and drainage, the prevention of damp, and the access for scavenging purposes are below the recognized minimum required for healthful living. These defects arose as the result of the lack of legal control by the authorities over the erection of buildings before the introduction of Ordinance No. 19 of 1915 (Housing Ordinance). They occur chiefly in the "slum areas," *vide* 1924 Report. To make matters worse the shortage of house accommodation has resulted in gross overcrowding of these insanitary dwellings.

The improvements which are required in the matter of housing are divisible into three classes, viz. :—

(a) *Minor Structural Improvements*, such as provision of ventilators and windows, or enlargement of windows, enlargement of doors, removal of obstructive screens, partitions, &c., raising of roofs, paving of floors and yards, provision of surface drains, &c.

(b) *Major Structural Improvements* which involve somewhat extensive reconstruction or demolition, and which require the carrying out of surveys and the preparation of plans.

(c) Improvements which involve *replanning of areas*, and necessitate the preparation of improvement schemes, as provided for under Ordinance No. 19 of 1915.

For many years past the Public Health Department has endeavoured to get minor structural improvements effected, and a great deal has been done in this respect. On the other hand the enforcement of major structural improvements, or the carrying out of improvement schemes, was impossible prior to the granting of legal powers by Ordinance No. 19 of 1915; but subsequent to that date action has been taken to effect major structural improvements. The procedure adopted was as follows:—A building having been inspected and condemned by the Medical Officer of Health as unfit for human habitation, the Municipal Engineer was asked to make a survey and furnish a plan of the building. The improvements required were then marked by the Medical Officer of Health, or Assistant Medical Officer of Health, in red, on this plan, and were also specified in writing in a marginal note. The plan was then returned to the Municipal Engineer with a request to take action under Ordinance No. 19 of 1915 with a view of enforcing the improvements. The Municipal Engineer thereupon applied to the Chairman for authority to obtain a mandatory order, *i.e.*, a "closing order," in terms of section 74 (1) of Ordinance No. 19 of 1915. The Chairman's authority therefor having been obtained, application was made by the Municipal Engineer to the Municipal Magistrate who, if he thought fit, issued a "closing order," the owner of the property being given a copy of the plan showing the improvements required. Thereafter, the practice has always been to allow the owner reasonable time in which to effect the improvements and to hold the closing order in abeyance during such time. If, however, the owner showed no disposition to carry out the improvements, then, after due warning, the closing order was enforced by a prosecution. In the great majority of cases the owner complied with the requirements, and, except in the comparatively few cases where extensive or total demolition was involved, there was very little disturbance or unhousing of the tenants.

For some years the number of dwellings reported by the Medical Officer of Health as unfit for habitation was so large, and the Works Department was so understaffed, that they were quite unable to keep pace with the demands for action sent in by the Public Health Department, with the result that ultimately scores of plans were returned by the Municipal Engineer to the Public Health Department with the remark that his department was unable to deal with them. This, in time, led to great confusion, as the work by the Public Health Department of inspecting and condemning buildings went on steadily, and, consequently, undealt with plans continued to accumulate. Action by the Public Health Department had accordingly to be suspended, and all plans already received were relegated to a suspense file. As this matter of improving insanitary dwellings is a very important one, especially in view of the high infant death-rates which investigation showed prevailed in the slum areas, a representation was made by the Medical Officer of Health to the Chairman recommending that a special Inspector should be appointed to the Public Health Department, whose duty it should be to undertake all work in connection with the improvement of insanitary dwellings, except in the matter of making surveys and preparing plans, a task which the Municipal Engineer undertook to continue.

This proposal was, in due course, approved by the Council, and, as a result, Sanitary Inspector R. A. Horan was appointed and assumed duties on May 15, 1925, as Inspector of Insanitary Dwellings.

His first task was to prepare a classified list of the numerous plans reposing in the suspense file of the Public Health Department.

In anticipation of the Council's sanction of this appointment, it was decided to lay down for the guidance of the Inspector a definite policy of procedure in regard to improvement of insanitary dwellings. With this in view, the whole of the Sanitary Inspectors were detailed to make a list of the tenement properties in Colombo, together with the names and addresses of the owners. This task having been completed, the results were submitted in Report No. 110 of April 2, 1925. The next step was to grade these properties in their order of relative demerit from a sanitary point of view. This, by no means easy task, was personally supervised by the three Assistant Medical Officers of Health, and the results were submitted in Report No. 309 of August 26, 1925. In this list all properties in Colombo containing ten or more tenements were classified by wards, according to their sanitary state, with the result summarized below.

(46)	Classification.	No. of Properties.	No. of Tenements.
	I. Very bad ...	116 ...	2,424
	II. Bad ...	311 ...	6,205
	III. Fair ...	211 ...	5,054
	IV. Mixed ...	80 ...	2,501
	V. Good ...	30 ...	536
	Total ...	748	16,720

Upon completion of this classification it was decided to take action simultaneously in regard to (a) those properties marked "very bad," (b) the most insanitary tenements within the "residential areas," (c) small and very insanitary properties containing less than ten tenements all over the town.

The progress made in the carrying out of improvements is recorded in respect of each insanitary property by means of symbols on the register of insanitary tenements.

- Thus P. — Plans called for from the Municipal Engineer.
 M. — Mandatory closure notice issued.
 V. — Dwelling vacated.
 I. — Dwelling improved.
 D. — Dwelling demolished.
 I.P. — Improvements in progress.

This register is submitted at stated intervals to the Chairman for his information.

The work of the Inspector of Insanitary Dwellings is under the direct charge of the Chief Assistant Medical Officer of Health who, after a personal inspection of each building, notes on the improvement plans the structural alterations which, in his opinion, are required. These plans are then, if necessary, submitted to the Medical Officer of Health for his approval, or amendment, before being sent on to the Chairman for his authority to apply for a closing order. The Inspector then applies to the Magistrate for a closing order, and files a copy of the improvement plan in the court record.

The following is a summary of the work done by the Inspector of Insanitary Dwellings from May 15 to December 31. It will be seen that considerable progress has been made, but a vast amount still remains to be done, much of which, however, can only be dealt with by "improvement schemes," such as are provided for in Part III. of Ordinance No. 19 of 1915. The Municipal Council has neither the organization nor the funds required for the carrying out of such schemes; but, with financial assistance from Government, a scheme for the improvement of a part of the Kochchikade slum area, estimated to cost eleven and half lakhs, is now under consideration, and it is hoped will be carried through:—

(47) *Statement of Work done by Inspector of Insanitary Dwellings,
 (May 15 to December 31, 1925.)*

1.	Number of plans called for from Municipal Engineer	...	90
2.	Number of plans received	...	12
3.	Number of applications for "closing order"	...	99
4.	Number of "closing orders" issued	...	92
5.	Number of applications for "closing orders" struck off	...	5
6.	Number of applications for "closing orders" pending	...	2
7.	Number of closure notices affixed on dwellings	...	813
8.	Number of premises vacated after closing order	...	6
9.	Number of tenements vacated under (8) above	...	55
10.	Number of persons dishoused	...	217
11.	Number of tenements demolished	...	65
12.	Number of persons dishoused	...	186
13.	Number of premises improved	...	7
	(a) Number of tenements in (13)	...	62
	(b) Number of tenements demolished (included in (11) and (12))	...	11
	(c) Number of persons dishoused as result of improvement	...	35
	(d) Number of new doors provided in (13)	...	2
	(e) Number of new windows provided in (13)	...	4
	(f) Number of doors enlarged in (13)	...	21
	(g) Number of windows enlarged in (13)	...	3
	(h) Number of rooms cemented in (13)	...	39
	(i) Number of masonry partitions removed in (13)	...	6
	(j) Number of plank partitions removed in (13)	...	8
	(k) Number of gunny partitions removed in (13)	...	11
	(l) Number of rooms trellised in (13)	...	1
	(m) Space unroofed, square feet, in (13)	...	520

XXXV.—DISPENSARIES.

There are four Free Municipal Dispensaries in Colombo, viz. :—

Slave Island	...	...	Established February 1, 1910.
St. Paul's and New Bazaar	...	...	Established July 1, 1914.
Maradana	...	...	Established November 1, 1919.
Modera	...	...	Established April 1, 1922.

Each dispensary has a qualified Medical Officer in charge and an Apothecary. Prior to the appointment of a lady Assistant Medical Officer of Health on February 1, 1925, and the consequent re-organization of the Child Welfare work of the Public Health Department, the Municipal Health Visitors and Midwives were attached to the Municipal Dispensaries, and worked under the direction of the dispensary Medical Officers. The initiation of a separate Child Welfare Branch, to which the Health Visitors and Midwives are attached, has thus relieved the dispensary Medical Officers of a very considerable amount of work, which should enable them to devote more time and attention to diagnosis and treatment than was formerly possible. This alone is a decided advantage of the new arrangement.

The following is a summary of the work done at the dispensaries during the year :—

(48) *Work done at the Municipal Dispensaries in 1925.*(a) *Slave Island Dispensary.*

Number of patients treated	...	...	...	21,632
Number of visits by patients	...	...	...	40,088
Daily average attendance	...	...	...	129
Number of outdoor visits paid by the Medical Officer	...	...	...	180
Number of cases sent in by Health Visitors' tickets	...	...	...	90
Number of labour cases in which medical or surgical aid rendered	...	...	...	3
Number of Municipal employees treated	...	...	...	128
Number of subjects inoculated	...	...	...	38

(b) *St. Paul's Dispensary.*

Number of patients treated	...	...	...	15,984
Number of visits by patients	...	...	...	23,956
Daily average attendance	...	...	...	77
Number of outdoor visits paid by the Medical Officer	...	...	...	73
Number of Municipal employees treated	...	...	...	31

(c) *Maradana Dispensary.*

Number of patients treated	...	...	...	12,968
Number of visits by patients	...	...	...	21,497
Daily average attendance	...	...	...	69
Number of outdoor visits paid by the Medical Officer	...	...	...	135
Number of labour cases visited by the Medical Officer	...	...	...	6
Number of Municipal employees treated	...	...	...	20

(d) *Modera Dispensary.*

Number of patients treated	...	...	...	12,947
Number of visits by patients	...	...	...	19,759
Daily average attendance	...	...	...	64
Number of labour cases visited	...	...	...	9
Number of outdoor visits paid by the Medical Officer	...	...	...	149
Number of Municipal employees treated	...	...	...	52

XXXVI.—CHILD WELFARE.

Child Welfare work in Colombo was initiated in 1905 by the appointment of 6 Municipal Midwives, whose free services were placed at the disposal of the poorer classes. The number of midwives so employed was increased to 7 in 1912. An additional midwife has been sanctioned for 1926. These midwives were, as stated in the previous section, attached to the Municipal Dispensaries and worked under the supervision of the dispensary Medical Officer.

This branch of work was further increased, in 1910, by the appointment of 2 Health Visitors, the number of whom was increased to 4 in 1914, 8 in 1919, and 11 in 1922. An additional Health Visitor has been sanctioned for 1926. When obtainable, the Health Visitors employed were always trained nurses; but apart from this, none of them had had any special instruction or practical experience in the duties of a Health Visitor, there being no school for such instruction in Ceylon. They thus laboured under a grave handicap. It was accordingly recommended that a lady Assistant Medical Officer of Health, with a special training and practical experience in Child Welfare work, should be appointed with a view to training the Health Visitors and directing and supervising their work and the work of the Municipal Midwives. No such officer was, however, available in Ceylon, and the Council therefore resolved to appoint a local lady doctor and to send her to India, at the Council's expense, to study Child Welfare work in Madras. In accordance with this resolution Dr. (Miss) Christoffelsz, L.M.S. (now Mrs. Rowlands), was appointed, and, after three months study in India, assumed duties in Colombo on May 1, 1925, as Assistant Medical Officer of Health (Child Welfare), a separate branch of the Public Health Department, called the Child Welfare Branch, being formed for that purpose. Dr. Rowlands has tackled the work earnestly, but, is at present working under the disadvantage that there is no Child Welfare centre in Colombo; the subscribers to the War Memorial Fund have, however, enabled the Council to build one, and a site has already been acquired at the junction of Hill street and Gintupitiya, plans have been prepared, and it is hoped that the centre will be ready for occupation before the end of 1926.

In the meantime, the Municipal Dispensaries are being utilized to some extent as centres, but this arrangement is far from satisfactory, the accommodation available being totally inadequate. It is essential, for the proper working of this important branch of the Public Health Department, that not only a chief centre, such as has been sanctioned, but also a number of subsidiary centres should be established in the various poor quarters or slums of the town. The experience already gained in regard to the renting of dispensaries clearly shows that it is not satisfactory to take on rent or lease, for this purpose, privately owned houses. The Council should undoubtedly build its own dispensaries and Child Welfare centres.

Dr. Rowlands' concise report is herein reproduced, and it need only be added, with regard to the supply of milk to infants, that the following sums were expended during the year on milk, ordered direct from dairies, by the Child Welfare Branch, the cost being met from the Child Welfare vote :—

(49) *Expenditure on Milk in 1925.*

				Rs. c.
June	...	...	...	15 75
July	...	...	...	46 70
August	...	...	...	156 75
September	...	...	...	95 10
October	...	...	...	134 30
November	...	...	...	239 60
December	...	...	...	488 70
Total ...				1,176 90

In addition to the above, 43 milk orders were issued by the Child Welfare Branch to the three milk depôts which the Social Service League maintains and conducts.

There can be no question that the issue of milk, either free or at a small cost, to weakly mothers and infants amongst the poorer classes, is a most important factor in promoting maternal and child welfare, and it is proposed considerably to extend this form of treatment in 1926. It is obviously futile to advise mothers that they must themselves take, and give to their children, more or better nourishment when they cannot afford to do so.

With a view of developing this line of work it is most desirable that the Council should themselves establish and maintain a series of milk depôts in the town, in association with the proposed welfare centres. The milk supply for these depôts could either be fresh milk, obtained on contract from the registered dairies, or dried milk, or both.

DR. ROWLAND'S REPORT.

MATERNITY AND CHILD WELFARE REPORT FOR 1925.

To the Medical Officer of Health.

I HAVE the honour to submit my report on the Maternity and Child Welfare work of my branch during 1925.

The Council sanctioned the organization of a Maternity and Child Welfare service, and I was appointed in February, 1925, as Assistant Medical Officer under you in charge of Child Welfare.

Before actually organizing a Child Welfare service I was immediately upon my appointment sent to Madras by the Council in order to study the methods of Child Welfare work in that city. On my return from Madras in May, 1925, I submitted my report to you on the system of work carried out there, and assumed duties as Assistant Medical Officer of Health (Child Welfare).

On my assumption of duties, there were already in the service 11 Health Visitors and 7 Midwives. Since then I have asked for 2 more Health Visitors for San Sebastian and Kotahena Wards and 1 Midwife for Wolfendahl, and this I am glad has been sanctioned by the Council.

Health Visitors.

The eleven Health Visitors are posted for duty as follows :—

Two in St. Pauls.	Two in Slave Island.
Two in New Bazaar.	Three in Maradana.
Two in Mutwal.	

Their hours of work are from 7 A.M. to 10 A.M. and 2 P.M. to 4 P.M. daily, except on Saturdays, when they only work in the morning. Each ward has been divided for Child Welfare work into sections, and each Health Visitor allotted a section and given a full list of the streets in that section as a guide. Every child under 1 year of age in that section is visited weekly by the Health Visitor. In the course of this visiting the children are inspected, and the mothers of those who appear to require medical attention are urged to take them to the nearest Municipal Dispensary for treatment and given tickets of admission to it.

They advise the mothers as to the proper feeding and general care of their infants. They keep a look out for pregnant women, and induce those who have not engaged qualified midwives to engage the free Municipal Midwife, whose address is given to them.

The Health Visitors also give advice on elementary hygiene, such as the importance of light and air and cleanliness in their houses. They also visit daily for a week after the confinement all cases conducted by the Municipal Midwives, and supervise their work.

The Health Visitors have paid 86,469 visits in all, of these 19,240 were paid by the Health Visitors of Slave Island, 24,187 by the Health Visitors of Maradana, 11,928 by the Health Visitors of Mutwal, 15,422 by the Health Visitors of New Bazaar, and 15,692 by the Health Visitors of St. Paul's.

Midwives.

The seven Midwives are posted for duty as follows :—

One in Slave Island.	One in Kotahena.
One in San Sebastian.	One in Mutwal.
One in New Bazaar.	One in Maradana.
One in St. Paul's.	

The Midwives answer all "labour calls" within their wards, both day and night. If the patient is in labour they remain with her till the child is born, and attend to both mother and child before leaving. If they cannot manage the case themselves they send for me. They visit the patient after confinement daily for a week, or longer if necessary, attend to her, and dress the child's cord.

887 cases were attended to by our Midwives in 1925, as against 534 in 1924. Every case delivered is within 24 hours notified to the Registrar of Births.

One case of difficult labour, L.O.P., was delivered by me with forceps at Dean's road on December 1, 1925.

Ante-Natal Clinics.

In the absence of a Child Welfare centre, I have held ante-natal clinics weekly at each of the four Municipal Dispensaries at 9 A.M., here expectant mothers were examined by me and advised and treatment given, where necessary.

336 ante-natal cases were treated by me at the various dispensaries, viz., 89 at Slave Island, 164 at Maradana, 66 at Mutwal, and 47 at St. Paul's.

417 other patients were treated by me at these dispensaries, being chiefly post-natal cases and infants.

Free Milk.

Seventy infants were supplied with free milk during the year 1925. Any infants appearing to be delicate and in need of milk, which the parents are unable to afford, are reported to me by the Health Visitors. I visit and examine such cases and, after making inquiries into the circumstances of the parents and satisfying myself, give orders to specified dairies with whom I have made arrangements to supply them with free milk. In all the wards, excepting Mutwal, the mothers call for their supplies at the dairies. In Mutwal milk is sent to the homes of the infants.

I personally issue special instructions to all mothers regarding the quantity and strength of each feed.

The milk bills are sent to me at the end of each month. These I verify and send on to the head office, where vouchers are made up and given to the dairymen, who receive payment on presenting them to the Shroff, Municipal Council.

Instruction of Staff.

When I assumed duties as Assistant Medical Officer of Health (Child Welfare) there were already in the department the 11 Health Visitors referred to earlier. I organized a system of lectures in order to give them a better training and to make them more efficient in the work they were doing. I am glad to report that all except one have at an examination held on November 20, 1925, shown very satisfactory results.

Results.

When I assumed duties I found that the people in the slums whom we visited did not appreciate our visits. I am happy to report that every month our work has been getting more and more appreciated and understood. In my opinion the general health and condition of the slum babies seem to have improved somewhat.

Statistics also show that the infant mortality rate for 1925 has been less than 1924.

In conclusion, I must take this opportunity of thanking, first, you for all the assistance and advice you have so kindly given me in any matters I referred to you, and then the staff for their ready co-operation in this undertaking.

RACHEL S. ROWLANDS,

Assistant Medical Officer of Health (Child Welfare).

January 16, 1926.

(50) Work Done by Municipal Midwives during the Year 1925.

Number of confinements attended ...	...	872
Number of children born ...	...	887
Number of stillbirths ...	...	44
Number of deaths within two weeks ...	...	23
Death-rate (exclusive of stillbirths) ...	...	2'59 per cent.

Ante-natal Clinic.—In addition to the Municipal Child Welfare activities, an ante-natal clinic is conducted at the Lying-in Home, a Government institution, where expectant mothers are examined and advised by a Medical Officer. This ante-natal clinic was started in 1921, and the following figures, kindly supplied by the Medical Superintendent, are very interesting :—

Year.	First Visits.	Subsequent Visits.
1921 ...	93 ...	97
1922 ...	216 ...	226
1923 ...	319 ...	326
1924 ...	335 ...	343
1925 ...	658 ...	667

It is obvious that this clinic is rapidly gaining in popularity.

Before leaving the subject of Infant Mortality it should be stated, that in addition to the official preventive measures, as represented by the work of the Public Health Department and its Child Welfare Branch, and the work carried on at the Government ante-natal clinic, the public themselves have for some years past been taking an active and useful part in the matter of prevention.

Child Welfare Association of Colombo.—An entirely voluntary organization conducted by a number of ladies, opened a crèche in a rented building at Skinner's road south on November 16, 1921, where they worked for two years, after which they removed on November 16, 1923, to their present specially designed and ideally situated building at Maligakanda. This crèche has twelve cots for infants, and a special room where older children can get recreation and rest. A charge of five cents per day for each child is recovered from the mothers, an abatement of one cent per child being made in the case of families from which more than one child is sent. During 1925 an average of fifty children per day was dealt with. The cost of maintenance, exclusive of the fees recovered, is estimated at twenty-five cents per child per day.

The manner in which this crèche is conducted leaves nothing to be desired. It is in fact a model of all that a crèche should be, and must undoubtedly have an excellent educative value as well as relieving many working mothers of anxiety in regard to their children while they themselves are earning their livelihood.

Social Service League.—A very important branch of Child Welfare work was initiated by the Social Service League when, in May 1921, they opened, at their headquarters at Maradana, the first milk depôt in Colombo. Subsequently, similar depôts were opened in Slave Island and Kotahena, and it is stated that the intention is to open a fourth depôt in the near future. At these depôts, which are under the supervision of ladies who voluntarily undertake this work, the babies to whom milk is issued are seen daily, and are weighed once a month. A clinic is held at headquarters, every Sunday, where a medical practitioner examines the children, advises the mothers, and prescribes for such as require medicine which is supplied by Government at cost price from the Civil Medical Stores.

I have been unable to obtain the figures in regard to milk issued from the Slave Island and Kotahena depôts for 1925, but the headquarter's return shows that 4,308 bottles of milk were issued during the year. Part of this milk is said to be purchased by the League and part is donated.

In addition to the above, mothers who are unable to nurse are given relief in the shape of milk and other foodstuffs for the first three months after confinement.

The Borella Social Service Circle employs a district nurse, who issues milk depôt tickets to such as, in her opinion, require such relief. She appears to have no definite district under her charge. A milk depôt was opened on June 17 at the headquarters of the circle. Babies are medically examined once a week, and are weighed once a month.

XXXVII.—ENTERIC HOSPITAL AND SEGREGATION CAMP.

Enteric Hospital.—In view of the completion of the new Government Infectious Diseases Hospital at Angoda, the Municipal Council resolved to close the Municipal Enteric Free Hospital at Kanatta on December 31, 1925. This was accordingly done. This hospital was established as a "temporary institution" on January 15, 1909, and although it has done a considerable amount of useful work the decision to close it was fully justified. Most cases of enteric fever occurring amongst the poorer classes find their way, in the first instance, into the General and other Government Hospitals, from which, by the time the diagnosis of enteric is made, it is seldom considered advisable to move them. The number of cases which have been admitted to the Municipal Enteric Hospital has in consequence usually been very small, even at times when the Government hospitals were seriously overcrowded, and the average cost per patient in the Municipal hospital has consequently been extravagantly high.

The following is the report of the Medical Officer in charge of the Enteric Hospital :—

REPORT OF THE MEDICAL OFFICER OF THE MUNICIPAL ENTERIC HOSPITAL FOR 1925.

I HAVE the honour to submit the following report of the Municipal Enteric Hospital for the year 1925.

The total number of cases treated during the year was 114, as against 166 during the previous year. The daily average sick for the year was 7.63, as against 8.54 during the previous year.

Of the 114 cases, 57 were males and 57 females; and of these, 96 were cured and discharged and 16 died, giving a death percentage of 14.03 of the total treated, as against 17.47 during the previous year. Two remained at the end of the year.

Of the 114 cases, 78 were enteric and the remaining 36 were other diseases: influenza, pneumonia, malaria, &c.

Of the 78 enteric patients, 34 were males and 44 females. Of the enteric cases, 20 were sent from the Lady Havelock Hospital, 29 by the Municipal Inspectors, 12 from the General Hospital, 6 from the Police Hospital, 4 from the Slave Island Dispensary, and 1 from St. Paul's Dispensary, and 6 came voluntarily. As usual, a very limited number of cases were sent from the General Hospital.

Of the total enteric cases treated, 65 were cured and discharged and 11 died, giving a mortality of 14 per cent. as against 24 per cent., for last year.

All enteric cases were discharged from the hospital only after ascertaining bacteriologically that they were not carriers.

Of the enteric cases admitted, the average duration of illness previous to admission was 12 days.

Of the 78 enteric cases treated, hæmorrhage occurred in 3 cases, of which 1 case recovered even after repeated hæmorrhages. Of these 3 cases, hæmorrhage took place in 2 cases after 8 and 11 days' stay in the hospital, and in the third after 2 days. Neither hæmorrhage nor perforation occurred in any case on admission or soon after.

Though the risk of removing enteric patients to hospitals has been much exaggerated, even in the later stage of the disease my experience is that the risk would be very little if properly and carefully removed in a suitable ambulance with trained nurses and attendants.

A statement of the town cases admitted to hospital is forwarded and also a statement of the bacteriological examination of the specimen sent and a statement showing the other diseases and the number treated in each case.

Municipal Enteric Hospital,
Colombo, December 31, 1925.

K. K. JACOB,
Medical Officer.

(51) *Municipal Enteric Hospital, 1925.*

	Enteric.	Other Diseases.	Total.
Number of patients remaining from previous year	—	3	3
Admission during the year	78	33	111
Deaths	11	5	16
Number discharged cured	65	31	96
Case mortality per cent.	14.1	13.9	14.0

Segregation Camp.

This institution was closed on December 31, 1925. Like the Enteric Hospital it also was a so-called "temporary establishment." It was opened in 1898, and has served its purpose admirably, many thousands of contacts having passed through it, without, except on very rare occasions, any complaint.

The following is the number of contacts segregated during 1925, a year of exceptionally low incidence of dangerous zymotic diseases:—

(52) *Segregation Camp. Contacts segregated during 1925.*

	Colombo.	Outside.	Total.
Plague	106	—	106
Cholera	10	—	10
Smallpox	19	12	31
Total	135	12	147

XXXVIII.—BACTERIOLOGICAL AND ANALYTICAL WORK.

The reports of the City Microbiologist and the City Analyst are annexed, but owing to the early date at which this report is required they were not received in time to permit of a detailed consideration by the writer. They, however, speak for themselves. I would only invite attention to the remarkable record of valuable research work carried out by Dr. Hirst, the City Microbiologist, in regard, especially, to plague, anchylostomiasis, and the water supply.

XXXIX.—CEMETERIES.

The question of the manner in which the Buddhist sections of the cemeteries at Kanatta and Madampitiya were maintained was raised during the year, the allegation being that the Buddhist sections were not so well maintained as the Church of England and the Non-Anglican Christian sections. Some objection was also made to the burial of Non-Buddhists in the Buddhist section at Kanatta. It was thereupon pointed out that no part of any of the Municipal cemeteries had been either legally vested in or even applied for by the Buddhist denomination, and that the Buddhists did not pay anything towards the upkeep of the so-called Buddhist sections of the cemeteries, nor did they maintain any staff of keepers or coolies. The Buddhist section was, in fact, maintained in exactly the same manner as other unallotted parts of the General Cemetery. The only denominations in whom portions of the cemetery have been legally vested are the Church of England and the Roman Catholic Church, both of whom maintain their own staff of keepers and coolies. The Non-Anglican Christian portion of the cemetery, although not legally vested in any denomination, is maintained mainly at the expense of the grave owners, the majority of whom pay a fee to the Municipal Council for doing the work, the fees being fixed by by-law.

The fact that these questions were raised appeared to indicate that the time had arrived when the Buddhist community were prepared to take upon themselves and pay for the task of maintaining their own burial grounds and so relieve the Municipal staff, and it is understood that a movement in this direction has already been made.

The following return for the year 1925 shows the number of burials in Kanatta cemetery of the various religious denominations, from which it will be seen that no less than 37 per cent. of the total burials were Buddhists. The result therefore of vesting a portion of the cemetery in the Buddhist denomination, which will include handing over to them the burial fees, will materially alter the present arrangements for the maintenance and upkeep of the cemetery. It is hoped that the change, if given effect to, will result in an improvement in the appearance of the Buddhist portion of the cemetery.

(53) *Statement of Burials and Cremations at Kanatta Cemetery during 1925.*

Denomination.	Total.
Buddhist	1,678
Hindu ...	67
Roman Catholic	532
Church of England	188
Presbyterian	45
Wesleyan	33
Baptist	20
Salvationist	2
Independent Catholic	4
Christians of no special denomination	37
Quaker	1
Paupers	1,940
Grand Total	4,547

XL.—PEARL FISHERY.

In consequence of the Government's decision to hold a pearl fishery in 1925, it became necessary to adopt measures with a view of preventing the creation of a nuisance when the pearl oysters were shipped to Colombo. It was, therefore, decided, as on the previous occasion, to confine the landing of oysters to the sand spit at the mouth of the Kelani river opposite Mutwal. The removal of oysters from this place, either into or through the town was strictly prohibited. A Sanitary Inspector was detailed for duty at the spot, and arrangements were made with the Works Department for a special scavenging gang to be in attendance. The result was that no nuisance arose.

XLI.—LEGISLATION.

The following legislation, relating to public health matters, was introduced during the year :—

*The Quarantine and Prevention of Diseases Ordinance, 1897.**Gazette No. 7481 of August 28, 1925. Grain Regulations.*

These regulations confer upon the Chairmen of Local Authorities power to enforce rat-proofing &c., of buildings used for the storage of grain.

The association between the transport and storage of grain, and the incidence of plague, has long been recognized, and it is now universally accepted that rat-proofing of buildings, especially where grain is stored, is essential as a measure of plague prevention. It is, however, difficult to devise regulations which will be reasonably effective without at the same time being unduly restrictive as regards trade, and it seems probable that the practical application of the published regulations will disclose the necessity for some slight modification.

*Housing and Town Improvement Ordinance, No. 19 of 1915.**(a) Gazette No. 7,449 of March 6, 1925. Residential and Trades Areas.*

These by-laws displace the by-laws of December 12, 1921, and introduce some amendments as regards the various areas, e.g., a "building committee" is made the authority in matters affecting the amenities of residential areas, and certain alterations are made in regard to the boundaries of such areas. Certain "dangerous," as distinct from "offensive," trades are brought within the scope of the by-laws, and some alterations are made in regard to the boundaries of the "offensive and dangerous trades areas." The western boundary of the "special trades area" is altered.

(b) Gazette No. 7,461 of May 8, 1925. Congested Areas.

These by-laws are entirely new, their object being to prevent dishousing or alienation of land suitable for the erection of dwellings in "congested areas." The congested areas referred to are, to a large extent, the same as the "major slum areas" described in Section XXXV. of the 1924 Annual Report. The necessity for the introduction of such legislation was demonstrated by the demolition, by a private company, of several blocks of fairly good tenements, and the consequent unhousing of a large number of workers, in an area which is conveniently situated for workers, and which is already notoriously deficient in housing accommodation.

(c) Gazette No. 7,479 of August 21, 1925. Dangerous Trades.

Copra, wood, timber, kapok, and coconut oil stores are added to the list of dangerous trades.

Further legislation is urgently required in regard to such matters as (a) Regulation of Food and Drugs, especially in the matter of condensed skimmed and separated milks, the importation of which it has been recommended should be totally prohibited. It has been pointed out that owing to the lack of legislation here, coupled with the fact that other countries in the East have protected themselves against the importation of this undesirable and indeed harmful form of milk, Ceylon is in danger of becoming, and in fact has become, the dumping ground for this objectionable form of so-called "milk."

XLII.—STAFF.

The following statement shows the changes in the personnel of the Public Health Department during the year :—

Assistant Medical Officer of Health.—Dr. (Miss) R. S. Christoffelsz appointed Assistant Medical Officer of Health (Child Welfare) on February 1, 1925.

Inspectors.—Mr. R. A. Horan, Inspector, appointed Inspector of Insanitary Buildings on May 15, 1925. (New Post).

Mr. S. de Silva, Relief Sanitary Inspector, appointed Sanitary Inspector on May 15, 1925, in place of Mr. R. A. Horan, promoted.

Mr. W. W. Wickremasinghe, Sanitary Sub-Inspector, appointed Sanitary Inspector on May 15, 1925. (New Post).

Mr. D. E. P. Karunaratne, Sanitary Sub-Inspector, appointed Sanitary Inspector on May 15, 1925. (New Post).

Mr. M. M. Molligoda, Sanitary Sub-Inspector, appointed Relief Sanitary Inspector, on May 15, 1925, in place of Mr. S. de Silva, promoted.

Sub-Inspectors.—Mr. M. Lowe, Clerk, Municipal Engineer's Department, appointed Sanitary Sub-Inspector on March 1, 1925, in place of Mr. M. M. Molligoda, promoted.

Mr. S. N. Silveste, Clerk, Municipal Treasurer's Department, appointed Sanitary Sub-Inspector on March 1, 1925, in place of Mr. W. W. Wickremasinghe, promoted.

Mr. W. E. Perera, Clerk, Municipal Treasurer's Department, appointed Sanitary Sub-Inspector, on March 1, 1925, in place of Mr. D. E. P. Karunaratne, promoted.

Mr. P. T. de Saram, Clerk, Municipal Treasurer's Department, appointed Sanitary Sub-Inspector on March 1, 1925. (New Post).

Mr. H. Weerappa, Clerk, Public Health Department, appointed Sanitary Sub-Inspector on March 1, 1925. (New Post).

Clerks.—Mr. B. J. Fernando, Clerk, Municipal Treasurer's Department, appointed Clerk on March 16, 1925. (New Post).

Mr. A. H. M. Nizar appointed Clerk on March 23, 1925, in place of Mr. H. Weerappa, promoted.

Mr. M. Ramapillay appointed Clerk on May 15, 1925, in place of Mr. B. J. Fernando, transferred.

Mr. W. F. Benzie appointed Clerk on August 1, 1925, in place of Mr. E. W. J. Silva, transferred.

Health Visitors.—Mrs. Erin Firth appointed Health Visitor on January 22, 1925, in place of Mrs. W. Paton, resigned.

Midwives.—Mrs. N. Dhamaratna appointed Midwife on January 16, 1925, in place of K. Thavamany, deceased.

Market-keepers.—Mr. A. Sebastian appointed Market-keeper on April 4, 1925, in place of Mr. E. G. Silva, dismissed.

Peons.—T. J. Edirisinghe appointed Peon on February 20, 1925, in place of K. K. Hinni Appu, promoted.

K. Simon Peris appointed Bicycle Orderly on December 18, 1925, in place of Abraham Peris, discontinued.

I have much pleasure in recording that all branches of the Department gave wholehearted and loyal assistance during the year. I should also like to gratefully acknowledge the encouragement and support given to the Department by the Chairman in all matters relating to Public Health, but especially in regard to Child Welfare, a branch of work which he has especially at heart.

W. MARSHALL PHILIP,

Medical Officer of Health.

Maligakanda, March 1, 1926.

Annexure A.

REPORT OF THE CITY MICROBIOLOGIST FOR 1925.

MY designation was changed during the current year from Municipal Bacteriologist to City Microbiologist. Most of the work done in this laboratory for several years past falls within the parasitological and entomological categories rather than the bacteriological.

There have been no changes in the staff during the year 1925.

The congestion in the present laboratory premises is increasing yearly. It is hoped that when the new Town Hall is opened more commodious premises will become available.

Diagnostic Service.

There was a great increase in the number of specimens of finger blood and excreta sent in to be tested for enteric. But only one blood culture was received from a practitioner.

I feel sure that the majority of practitioners in Colombo do not yet realize the importance of the microscopic examination of the stools of patients suffering from ill-health of obscure origin. Quite half the poorer class population harbour one or more hookworms and a large proportion the round worm *Ascaris lumbricoides*, while a significant percentage are infected with pathogenic protozoa, such as *Giardia intestinalis* and *Entamoeba histolytica*. Yet only 98 such specimens were received.

As regards hookworm disease there appears to be great variation in the susceptibility of human host to the poison secreted by this worm. While some individuals may be able to harbour a number of worms with impunity others seem sensitive to the presence of a few.

As regards the round worm fatal effects may be produced by its migrations. It should not be forgotten that the invasion of the lung by ascaris larvæ may play a part in the incidence of bronchitis and pneumonia.

Distribution of Clinical Specimens.

	Examined for	Number Received.	Number Positive.
Diagnostic service for practitioners ...	Enteric ...	332	98
	Tuberculosis ...	74	17
	Dysentery ...	94	32
	Diphtheria ...	14	7
	Hookworm ...	76	50
	Malaria ...	9	1
Municipal Enteric Hospital ...	Various ...	101	69
	Enteric ...	233	80
	Malaria ...	2	0
Public Health Department ...	Tuberculosis ...	3	0
	Enteric ...	643	39
	Human plague ...	26	13
	Dysentery ...	11	4
	Hookworm ...	39	30
	Tuberculosis ...	5	2
	Malaria ...	16	6
	Leprosy ...	3	1
Various ...	7	3	
		1,688	452

Of the 1,208 enteric specimens, 886 comprise finger blood for Widal's reaction, 20 blood cultures, 165 feces, and 136 urines. *B. typhosus* was isolated from 30 specimens and *B. paratyphosus B.* from 2.

PUBLIC HEALTH BACTERIOLOGY.

(a) *General Distribution of Specimens examined during 1925.*

Clinical specimens ...	1,688
Town water ...	290
Rat fleas for species distribution ...	4,269
Rodents for plague :—	
Port Commission ...	4,371
Veterinary Department ...	18,156
Public Health Department ...	1,925
Cats for plague ...	1
Veterinary Department :—	
Rats for flea index ...	1,552
Goats' blood for anthrax ...	261
Miscellaneous ...	37
	32,550

(b) *Distribution of Rodents examined for Plague.*

(1) *By Mode of Capture.*

	Species.	Number Examined.	Number Infected.	Percentage Infected.
Trapped rats ...	<i>R. rattus</i> ...	18,127	3	0'01
	<i>R. norvegicus</i> ...	3,058	1	0'03
	<i>M. musculus</i> ...	801	0	—
	Bandicoots ...	1	0	—
Rats found dead ...	<i>R. rattus</i> ...	36	4	11'11
	<i>R. norvegicus</i> ...	45	1	2'22
	<i>M. musculus</i> ...	3	0	—
Rats killed by fumigation ...	<i>R. rattus</i> ...	527	4	0'76
	<i>R. norvegicus</i> ...	1,266	0	—
	<i>M. musculus</i> ...	505	2	0'39
	Bandicoots ...	3	0	—
		24,372	15	0'06

(2) By Species and Source.

		Trapped Alive.			Found Dead.			Killed by Fumigation.		
		Number Examined.	Number Infected.	Percentage Infected.	Number Examined.	Number Infected.	Percentage Infected.	Number Examined.	Number Infected.	Percentage Infected.
R. rattus	Veterinary Department	13,557	2	0'01	—	—	—	—	—	—
	Public Health Department	—	—	—	17	3	17'65	940	4	0'42
	Port Commission	2,678	1	0'04	21	1	4'76	193	—	—
R. norvegicus	Veterinary Department	3,012	1	0'03	—	—	—	—	—	—
	Public Health Department	—	—	—	12	1	8'33	637	—	—
	Port Commission	934	—	—	15	—	—	164	—	—
M. musculus.	Veterinary Department	1,506	—	—	—	—	—	—	—	—
	Public Health Department	—	—	—	16	—	—	303	2	0'66
	Port Commission	299	—	—	3	—	—	61	—	—

One bandicoot trapped alive by the Veterinary Department and three bandicoots killed by Clayton machines by the Public Health Department were examined and found to be negative.

(c) Monthly Flea Index.

Month.	Number of Rats Examined.	Flea Index.
January	177	2'45
February	141	3'11
March	182	3'25
April	122	2'24
May	93	3'16
June	104	2'66
July	119	2'74
August	146	2'94
September	127	2'77
October	154	2'89
November	109	2'56
December	79	1'67

ENTERIC.

An exceptionally large number of enteric specimens were examined at the laboratory this year, viz., 1,208, including carrier tests.

The results of the investigation of two outbreaks are particularly noteworthy.

(1) *The Outbreak of Enteric due to B. Typhosus at the Echelon Barracks.*

The bacteriological work connected with the inquiry into this group of twenty-one cases was carried out on behalf of the Military Authorities.

In the first instance it may be noted that the blood of twenty suspected contacts of one of last year's cases was examined in January for presence of agglutinins in the hope of detecting a carrier.

No less than eight of these gave positive results, *i.e.*, one unit of agglutinin or more, but no bacilli of the enteric group could be found in their excreta. They had not been inoculated with typhoid vaccine and gave no definite history of enteric fever to account for such an abnormal proportion of typhoid agglutinations among apparently healthy adults.

Between May 5 and 14 seventeen rank and file of the Ceylon Light Infantry developed an enteric-like continued fever. Four secondary cases developed the disease between May 14 and June 23. *B. typhosus* was isolated in pure culture from the blood of ten of these cases and twice from the urine of another case.

These twelve strains of *B. typhosus* exhibited marked variability in their agglutinability to a high titre *B. typhosus* serum. Seven agglutinated to full or nearly full titre when first isolated. Two agglutinated feebly at first but more strongly on subculture. While one blood and one urine strain showed persistently low agglutinability when first isolated, the other urine strain obtained from a separate specimen from the same patient acquired agglutinability after frequent subcultures.

Sufficient anti-typhoid vaccine was issued from the laboratory from May 23 onwards to immunize the regiment. This measure doubtless contributed materially towards bringing about the arrest of the outbreak.

The excreta of the positive cases were examined till negative results were obtained before discharge from hospital.

The already mentioned group of twenty-one possible carriers were re-examined on May 23. A very interesting organism was isolated from the urine of a certain mess attendant, one of the eight whose blood serum had a definite action on the typhoid bacillus.

It was a motile bacillus having no action on lactose, saccharose, or dulcitol in four days and producing acid in glucose, maltose, and a trace of acid in mannite. It was not agglutinated at all by the typhoid serum. In other words the result of the preliminary tests indicated that it was an anomalous non-agglutinating strain of *B. typhosus* similar to those already isolated from some of the victims of this outbreak. The mess attendant accordingly fell under suspicion as an enteric carrier. But not only did the bacillus fail to develop any tendency to agglutinate on subcultivation, but first acid and then a trace of gas appeared in saccharose. Sorbite was unaffected. Eventually the bacillus turned out to be a gelatine liquifying member of the proteus group.

Proteus type bacilli have been repeatedly isolated by various observers from the excreta in cases of dysentery and enteric fever. I have found them in such cases both in Ceylon and Egypt. But I have never before known an organism of this kind simulate *B. typhosus* in early fermentation tests.

The relationship of the variety of non-lactose or feebly lactose fermenting bacilli which appear in the human bowel in states of gastro-enteritis to the specific infective germs such as *B. dysenteriae* (Shiga), *B. typhosus*, and *B. paratyphosus* A, B, and C, is still an open question. All that can be definitely stated is that they are frequent concomitants of the characteristic bacilli in many infective states.

Occasionally one of these concomitant bacilli, *B. fecalis alkaligenes*, an organism widely distributed in nature and usually regarded as a saprophyte, shows a tendency not only to multiply excessively in the human bowel but to invade the blood stream and appear in the urine with the production of a mild but definite enteric-like fever of short duration. Several series of such cases have been reported in Egypt, China, and elsewhere. I myself have described eight cases of this kind. A variety of similar fevers has been described by Castellani and others in association with a number of different organisms occupying a position intermediate between the pure saprophytic and the true parasitic bacilli occurring in the alimentary canal of man. They are now commonly known as the parenteric fevers and the parenteric bacilli. Many fevers of short duration in the tropics are probably due to organisms of this description. These fevers have as yet been inadequately studied.

The nearest ally to the proteus bacillus isolated from the case in question known to produce definite disease in man is *B. asiaticus*, first described by Castellani in Ceylon and further studied as the causative agent of a series of cases of a parenteric fever by Khalil in Egypt. *B. asiaticus*, however, ferments sorbite, has a definite action in mannite and does not liquify gelatine.

The remarkable organism known as X. 19 which is agglutinated by the blood serum of cases of typhus fever and which is used for the diagnosis of that disease is also a proteus bacillus, originally isolated from the urine.

(2) *The Outbreak at Mattakkuliya on the South Bank of Kelani River.*

This group comprises only six cases.

The Ward Inspector, Mr. C. W. Anthonisz, directed my attention to this outbreak. He suspected the source of infection to be the bathing place immediately opposite one of the infected premises. This bathing place consists of a small bay in the bank of the river situated about 550 yards below the outfall of the Colombo sewage works.

On visiting the spot I noted obvious signs of sewage effluent flowing along the banks of the river past the bathing place. The river was flowing down stream with moderate velocity. Untreated sewage was being discharged into the river at the time. Samples of water from the bathing place and its vicinity contained about 10,000 lactose fermenters per c.c., of which about 20 per cent. were true *B. coli*. From subsequent observations it would appear that it is only under exceptional circumstances that the presence of effluent is visible to the naked eye.

I was surprised to find evidence of definite pollution of the river banks so far from the outfall, since the results of previous bacteriological and chemical examinations of the Kelani river made in 1912 and 1914 showed that the effect of the effluent was scarcely discernible a few hundred yards below the outfall, when the current was running down stream. The sewage, however, was much weaker at that time and fully treated. It is possible that the river bed had a different contour in the neighbourhood of the sewage outfall.

The fate of the effluent at any given time depends altogether on the state of the river and tide. There are occasions when the effluent is dammed up near the outfall or even carried upwards towards Victoria bridge. These conditions arise from a combination of exceptionally low river and strong incoming tide. They seldom obtain for more than a few days in any given year. In fact a favourable opportunity for study of bacteriology of river in this condition has not presented itself for two years.

Risk of nuisance arising from inadequate dilution of the effluent with river water and of infection being carried to bathers from the banks above the outfall is at its maximum under these unusual circumstances. It may be noted here that a few hours sojourn in the septic tanks is unlikely to produce any great diminution in the numbers of the enteric and dysentery germs which must from time to time gain access to the sewage of the city.

A series of bacteriological observations have recently been made on the effect of the effluent on the river in full flow. The results indicate quite definitely that the effluent tends to be carried down in a broad stream along the Colombo banks of the river or across the shallow bay extending between the outfall and the Torbay mills. The stream of effluent impinges upon the bathing place used by the victims of enteric fever. No evidence whatever of sewage pollution can be detected in midstream. It would appear that under such circumstances effective dilution of the effluent with river water only begins about 600 yards below the outfall.

The result of these investigations will be reported in detail at a later date. In the meantime we may reasonably trace the ultimate source of infection of this group of enteric cases to the discharge of *B. typhosus* into the Kelani river from the sewage outfall.

At present the sewage effluent from the works at Madampitiya is discharged from an outfall situated at the bank of the river below low water level, *i.e.*, at a point where the velocity of the river water is at a minimum.

If means could be devised for discharging the effluent into the main body of river water, dilution would be much more rapid and effective, the risk of nuisance would be minimized, and the danger of the infecting the banks below the outfall correspondingly reduced.

FUMIGATION OF GRAIN.

I had the opportunity of witnessing two experiments carried out in the premises of the Port Commission on the fumigation of lighters containing bags of rice by the cyanogen chloride dumping process.

The rats exposed in all parts of the lighters and fleas contained in test tubes buried several inches in the interior of the bags of grain were all killed by an exposure of less than a quarter of an hour to the fumes evolved from a mixture of sodium cyanide and sodium chlorate dumped into strong solution of hydrochloric acid immediately before drawing the tarpaulin cover of the lighters.

The fumes evolved consist of a mixture of about two-thirds cyanogen chloride and one-third hydrocyanic acid gas. Both gases are highly poisonous and about equally diffusible. The former has the advantageous property of inducing intense lachrymation when its concentration in the air reaches the danger limit.

Four ounces of sodium cyanide and 3 ounces sodium chlorate in 17 ounces H.C.L and 17 ounces of water were used per 1,000 cubic feet of air space in the interior of the lighter.

The method, therefore, proved both rapid and effective for the destruction of both rats and fleas, but for some reason the lachrymatory warning effect of the cyanogen chloride was scarcely manifest on approaching the opened lighter at the conclusion of the experiment.

A two-hour exposure would be required to kill the numerous cockroaches infesting the lighters with a similar concentration of gas.

For reasons set forth in previous reports it is to be hoped that some effective method for disinfecting imported grain will eventually be adopted by the Port Commission.

In the United States the cyanogen chloride dumping method is now in regular use for the fumigation of the largest sea-going vessels, the fumes being subsequently driven out by motor aerotruss appliances.

The Australian, Italian, and South African sanitary authorities have also made extensive use of cyanide fumigation for the treatment of produce from plague-infected territories.

The cyanide gases are effective for the destruction of rats, fleas, mosquitoes, scale insects, bugs, lice, cockroaches, and other insect parasites without damage to ordinary produce or interference with the generation of the grain.

Hydrogen cyanide gas is less lethal to human beings than almost any species of animal, though a number of fatal accidents have been reported as a result of lack of due precautions in its use.

Creel and Faget advocated the following proportions of potassium cyanide for the destruction of insects under reference:—

Insect.	Quantity of Potassium Cyanide per 1,000 Cubic Feet of space.	Exposure.
Mosquitoes ...	0.4 oz.	15 minutes
Bed bugs ...	5 oz.	1 hour
Lice ...	10 oz.	2 hours
Cockroaches ...	10 oz.	1 hour
Fleas ...	2½ oz.	15 minutes

The principal cyanide compounds at present used for fumigation are hydrogen cyanide gas, the cyanogen chloride gas mixture, calcium cyanide, a solid substance which gives off hydrogen cyanide gas on exposure to air, and a lachrymatory liquid of German manufacture known as cyklon, probably composed of methy cyano-formate methyl chloro-formate.

These compounds may be applied by a variety of different methods. The dumping method used in the experiments in Colombo harbour is simple and appears to be highly efficient for the treatment of lighters. There is some uncertainty about the yield of lethal gases from the chemicals employed.

Hazard to the operators could be reduced and increased rapidity obtained by the use of blowing apparatus to dispose the gas on completion of the fumigation.

In 1914 I witnessed a highly successful demonstration of the use of the Glen Liston fumigator for the disinfection of a grain shed at Lucknow. This apparatus permits a measured concentration of the gas to be pumped both in and out of all parts of the space required to be disinfected.

The liquid preparations such as cyklon are usually sprayed.

Liquid hydrocyanic acid gas in cylinders has been used with great success in California. It is the simplest and most effective means of applying known quantities of the pure gas.

There are difficulties regarding transport of the cylinders owing to the risk of bursting of the cylinders from the great increase of pressure which follows the occasional polymerization of the liquid hydrogen cyanide.

Perhaps the most effective method for shore use is the vacuum cyanide process as used in Liverpool and Australia. The penetration of the gas into the interstices of the substance to be dealt with and its removal is greatly assisted by producing a vacuum in the closed disinfecting chamber before and after the generation of the gas.

NUISANCE FROM THE LAKE.

Numerous complaints were received in July from residents upon the lakeside of odours so strong and foul as to render their offices and dwellings uninhabitable. The inland bays of the lake were found to be choked with a dark green decomposing slime blown thither from all parts of the surface of the lake by the south-west wind. I examined a variety of samples of lake water. The nuisance was found to be due to the multiplication in vast numbers and subsequent decomposition of the freshwater algæ, *Microcystis flos-aquae* Kirchner.

RESEARCH.

Plague.—The completion of the series of investigations into the parasitology of plague in Colombo and the analysis of comparative data obtained from all parts of the world was the main task of the year under review. The report will take up two numbers of the Ceylon Journal of Science. Part I. dealing with the experimental and entomological aspects of the subject is in the press. Part II. on Epidemiology will be completed and published on receipt of further information regarding the flea surveys now in progress in India. As this Journal is the official scientific organ for the Colony and is published in Colombo it is felt to be a work of supererogation to enter into any further discussion of the findings here.

Reference may be made to the report of the Medical Officer of Health for information regarding their bearing on plague preventive measures and the practical results so far obtained.

Hookworm Disease.—The investigations into hookworm disease in relation to sewage disposal begun in 1921 were renewed during the last quarter of this year. It has not been necessary to apply for any further grant in aid from the International Health Board. Rapid progress is being made, especially with the new survey of the incidence of hookworm disease in Colombo. New apparatus and more refined methods are being employed with a view to obtaining an accurate estimate of the average egg output in different parts of the city.

I hope to report the general results next year. Cases of occupational hookworm infection among drainage works employees still continue to occur from time to time. I am endeavouring to discover the precise situation to which the infective hookworm larvæ develop.

Water Supplies.—The experiments at Labugama reservoir on the treatment of the water supply have been recently renewed. They were interrupted during the raising of the dam and the installation of the additional filters.

The raising of the spill level of the reservoir will do much to improve the average quality of the water supply. Nothing is clearer from the results of observations already carried out than the fact that the degree of aeration, iron content, colour, amount of suspended matter, taste, odour, and number of micro-organisms, including both iron bacteria and lactose fermenters, increase with the depth below the surface. The rate of increase is particularly rapid between the fifth and fifteenth feet.

The best level for drawing off the water is about eighteen inches beneath the surface.

The principal difficulty in applying the successful results of earlier laboratory experiments in actual practice is the limited space available for additional treatment works. It is a question of working out the most efficient and economical modification of the existing plant to achieve the ends in view, viz., the further reduction of the rate of incrustation of the water mains, of the suspended matter detached from this incrustation, of excess of iron and acidity with the associated plumbo-solvency and of removing the taste and odours liable to develop when the reservoir is exceptionally low.

It would appear from the results of the experiments already carried out that a complete set of aerating scrubbing filters for the treatment of the whole supply could not be accommodated on the side of the valley where the treatment works are situated.

This is unfortunate as the experimental coke and coral scrubber erected over the settling tank has given excellent results.

I hope to complete my share of the investigation of alternative plans of treatment during the current year.

PUBLISHED PAPERS.

The following papers issued from the laboratory were published during 1925 :—

- (1) Plague Fleas, with special reference to the Milroy Lectures, 1924,
Journal of Hygiene, Vol. XXIV., page 1.
- (2) The Treatment of Leprosy: a suggestion.
The Ceylon Journal of Science, Vol. I., Part 3, page 107.

Annexure B.

REPORT OF THE CITY ANALYST FOR 1925.

I HAVE the honour to send my annual report for the year 1925.

	<i>January.</i>			<i>July.</i>	
Milks	...	89	Milks	...	98
Town water	...	14	Town water	...	16
Well water	...	2			
	<i>February.</i>			<i>August.</i>	
Milks	...	84	Milks	...	93
Town water	...	14	Town water	...	16
Well water	...	1			
	<i>March.</i>			<i>September.</i>	
Milks	...	87	Milks	...	101
Town water	...	14	Town water	...	16
Well water	...	10	Concrete blocks	...	6
	<i>April.</i>			<i>October.</i>	
Milks	...	86	Milks	...	94
Town water	...	14	Town water	...	16
Well water	...	2	Concrete blocks	...	6
	<i>May.</i>			<i>November.</i>	
Milks	...	81	Milks	...	96
Town water	...	13	Town water	...	16
Well water	...	1	Well water	...	1
	<i>June.</i>		Concrete blocks	...	12
Milks	...	98		<i>December.</i>	
Town water	...	16	Milks	...	95
Rewash water from filter No. 12	...	2	Town water	...	16
			Water from Bacteriologist	...	3
			Concrete blocks	...	24
			Total	...	1,353

A total number of 1,353 samples were examined during the year.

Total number of milks	...	1,102
Total number of town water including Labugama water	...	186
Total number of well water	...	17
Total number of concrete blocks from new Town Hall	...	48
Total	...	1,353

Milk Supply.—The difficulties of the Colombo milk supply have not been solved, 33.5 per cent. of the milks sampled are still considered adulterated, but this by no means represents the total adulteration of the city milk supply, as only a fraction of deliveries are sampled. (See page 94, Table 1.)

Of a total of 1,102 samples taken, 732 were passed as being up to the standard and 370 considered adulterated by the addition of water; of these, 225 samples or 20.4 per cent. were found to have from 1-10 per cent. added water, 89 samples or 8 per cent. from 11-30 per cent. added water, 56 or 5 per cent. had over 30 per cent. added water. The maximum adulteration found was 74 per cent. from St. Paul's Ward. The maximum adulteration from the other wards is usually between 50-60 per cent. As the year advanced the adulteration became less, especially in the last quarter. (See page 94, Table 2.)

The first quarter of 1925 was worse than the previous quarters of 1924, but the second to the fourth quarters of 1925 show improvement, especially in the high adulteration figures. This improvement is due to stopping grazing on public and private lands of cattle owned by unlicensed dairymen.

Forty-eight sample concrete blocks (4 inches by 4 inches) representing the daily make of concrete used in building the Town Hall were tested from time to time. All the samples were satisfactory. Blocks 4 inches by 4 inches are rather small; for future reference it would be preferable to test one foot square blocks to eliminate sampling errors.

Seventeen well waters were examined, of which six were condemned as unfit for human consumption, ten were returned as suspicious, and one passed as fit for human consumption.

The city water supply keeps up its high standard of purity, 186 samples were examined from different stand pipes in the city and from Labugama reservoir.

Experimental work was carried out by spraying the reservoir water, drawn at the depth usually supplied to the filters, and letting it pass through two feet of coral. The result was to decrease the hydrogen-ion concentration (greatest increase 6.5 to 7.3 pts.), increase the lime content and decrease the iron. These spraying experiments have been hampered by the raising of the dam and the high level of the water in the reservoir. The experimental work on these lines required to be carried out in the worst conditions, after a severe drought.

The trials so far made indicate that lime is absorbed 8 to 10 (Cao) parts per million and the iron reduced from 20 to 25 per cent., the figures are not conclusive, but indicate that work is being carried out on right lines. The coral remains bright and clean, there being no choking. Submerged coral is being tried at the intake; water passing into the reservoir will be cascaded over coral, wherever practicable.

Table 1.

Adulteration of Milk.

Month	Total No.	0 Per Cent.	1-10 Per Cent.	11-30 Per Cent.	+ 31 Per Cent.	Maximum.
January	89	47	29	13'5	10	51
February	84	61	15'5	13'0	10'5	74
March	87	61	23'0	11'5	4'6	57
April	86	58	21'0	15'0	5'8	66
May	81	69	21'0	2'5	7'4	57
June	98	66	17'0	9'2	7'1	57
July	98	67'5	22'5	7'0	3'0	61
August	93	69'0	17'0	5'4	8'6	58
September	101	66'0	24'0	7'0	3'0	47
October	94	77'0	17'0	4'0	2'0	52
November	96	79'5	17'5	3'0	—	28
December	95	74'0	20'0	6'0	—	29

Table 2.

1924.

	0 Per Cent.	1-10 Per Cent.	11-30 Per Cent.	+ 31 Per Cent.
First quarter	58'6	21'6	11'5	8'3
Second quarter	69'3	21'4	4'5	4'9
Third quarter	57'3	20'3	10'8	11'6
Fourth quarter	58'7	23'2	9'8	8'5

1925.

	0 Per Cent.	1-10 Per Cent.	11-30 Per Cent.	+ 31 Per Cent.
First quarter	56'3	22'5	12'6	8'4
Second quarter	64'3	19'7	8'9	6'7
Third quarter	67'5	21'2	6'5	4'8
Fourth quarter	76'8	18'1	4'5	0'7

The Laboratory, Hyde park corner,
Colombo, February 23, 1926.

ALEXANDER BRUCE,
City Analyst.



