Annual report / Municipality of Singapore, Health Department.

MUNICIPALITY OF SINGAPORE

HEALTH DEPARTMENT

ANNUAL REPORT

FOR

1926

SINGAPORE
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1927

MUNICIPAL HEALTH OFFICE

SINGAPORE, *11th February, 1927.*

TO

THE PRESIDENT,
MUNICIPAL COMMISSIONERS,
SINGAPORE.

SIR,

I have the honour to report as follows for the year 1926:—

1. Zymotic Disease

There were 1,165 cases notified compared with 962 in 1925 and with 750 in 1924.

The following table shows the comparison between this year and the previous ten years:—

Year	Small Pox	Plague	Enteric Fever	Cholera	Diphtheria	Erysipelas	Chicken Pox	Puerperal Fever	Paratyphoid Fever	C. Spinal Fever	Scarlet Fever	Typhus Fever	Tuberculosis	Total
1916	70	23	104	13	30	4	127	2	13	—	—	—	—	386
1917	33	45	120	8	37	4	118	20	4	7	—	—	—	396
1918	11	176	287	—	31	4	107	8	2	5	—	—	104	735
1919	14	11	174	75	42	3	34	14	3	22	—	—	866	1,258
1920	4	61	129	33	33	1	68	15	2	29	—	—	520	895
1921	150	28	127	1	49	11	119	13	4	70	—	—	319	891
1922	268	39	68	1	52	7	127	16	2	32	—	—	169	781
1923	3	52	63	—	37	14	188	12	1	9	—	—	409	788
1924	9	20	64	11	38	9	230	22	—	16	—	—	331	750
1925	10	59	136	1	51	2	31	14	2	10	—	—	365	962
Average for 10 years	57.2	51.4	127.2	14.3	40.0	5.9	114.9	13.6	3.3	—	—	—	—	—
1926	34	7	197	22	46	14	169	25	1	6	1	1	642	1,165

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The following return shows the number of notifiable diseases for each month of the year :—

—	January	February	March	April	May	June	July	August	September	October	November	December	TOTAL
Enteric Fever ...	19	8	20	16	18	15	11	16	19	16	26	13	197
Diphtheria Fever ...	4	7	1	1	2	4	5	3	6	6	2	5	46
Chicken Pox ...	18	25	30	15	6	1	11	15	11	8	14	15	169
Puerperal Fever ...	1	...	1	6	6	1	3	2	...	...	2	3	25
Erysipelas ...	1	...	1	...	1	...	1	...	...	2	4	4	14
Cerebro Spinal Fever	1	1	1	...	1	...	...	...	...	...	1	1	6
Tuberculosis ...	46	53	65	39	67	45	64	65	61	51	46	40	642
Paratyphoid Fever ...	...	...	...	...	...	...	...	...	...	1	...	...	1
Small Pox ...	3	5	1	1	...	...	1	...	...	...	9	14	34
Plague ...	3	...	1	...	1	1	1	...	...	...	...	...	7
Cholera ...	...	...	...	1	...	...	2	...	...	...	6	13	22
Scarlet Fever ...	...	...	...	...	...	...	...	...	1	...	...	...	1
Typhus Fever ...	...	...	...	...	...	...	...	...	...	...	1	...	1
Total ...	96	99	121	79	102	67	99	101	98	84	111	108	1,165

The following table shows the incidence by nationalities :—

—	Europeans	Eurasians	Chinese	Malays	Indians	Others	TOTAL
Enteric Fever ...	10	3	155	8	18	3	197
Diphtheria ...	8	2	31	2	2	1	46
Chicken Pox ...	4	15	19	7	120	4	169
Puerperal Fever ...	2	...	16	...	7	...	25
Erysipelas ...	3	1	9	...	...	1	14
Cerebro Spinal Fever	1	...	3	...	2	...	6
Tuberculosis ...	2	10	465	52	99	14	642
Paratyphoid Fever ...	...	...	1	...	...	...	1
Small Pox ...	2	3	9	12	8	..	34
Plague	..	...	5	...	2	...	7
Cholera	1	...	14	...	5	2	22
Scarlet Fever ...	1	...	...	...	...	...	1
Typhus Fever ...	1	...	...	...	...	...	1
Total ...	35	34	727	81	263	25	1,165

Small Pox

During the year there were 34 cases, 2 Europeans, 3 Eurasians, 12 Malays, 9 Chinese and 8 Indians. There were 10 deaths.

23 of the cases occurred in the last two months of the year. There were two definitely localised small outbreaks, one of 7 cases during November in Kampong Bugis traceable to a Malay policeman who had concealed his illness and another in December, of 6 cases all found in one house in Jalan Sultan.

Plague

There were 7 cases, 4 of them being seen only after death. There were no recoveries. All occurred in the first seven months of the year, only one being in the North Division. Of the 6 remaining, 1 occurred in Tanjong Pagar Road, 1 in Duxton Road, 1 in Cross Street, 1 in Tanjong Pagar Coolie lines and two in New Market Road.

No connection could be traced between any of the cases.

No plague infected rats were found during the year.

The usual routine trapping and examination of rats was carried out by the Municipal Bacteriologist. The details of these examinations will be found in his report. In all, 5,241 rats were examined, and, as already said, none were found infected. Other findings from these examinations confirmed the results of previous years.

Cholera

There were 24 cases, 3 Europeans, 1 Japanese, 14 Chinese and 6 Indians. There were 14 deaths. 6 of the cases occurred in November and 13 in December. The 3 European cases were admitted to hospital direct from ships. Of the November cases, 3 occurred in a Kampong in Silat Road, while of the December cases, 4 were from Bali Lane. Two further cases occurred in Jalan Besar Incinerator Coolies, and it is possible they picked up their infection in the course of their duties in the Bali Lane district. Two cases occurred in permanent residents of the Convent. The likelihood is that an unsuspected case of Cholera in a child had been admitted to the Convent some days previously though this could not be traced.

Enteric

197 cases were reported. But as 109 deaths were reported as due to this disease it is obvious that there must have been many more cases. They were evenly spaced throughout the year, thus confirming what I have said in previous reports, that they have no common source of infection, but are all chance infections from existing cases or carriers, probably through the medium of contaminated cooked food supplies.

Tuberculosis

642 cases were reported—practically all Phthisis—but 1,370 deaths were registered as due to tuberculosis, so that the number notified gives no indication of the terrible prevalence of the disease.

None of the other Zymotic diseases call for special comment.

General

(1) Medical Inspection of Passengers.

There were 805 permits to land issued to 1,672 passengers of whom 155 failed to report.

(2) Disinfection of infected articles.

3,637 articles of an estimated value of $5,422 were passed through the steam disinfector. The disinfector was used on 39 occasions and was charged 49 times.

(3) Houses quarantined and released.

37 houses were quarantined and all were released before the end of the year. 1,029 houses (Phthisis Cases 757) were disinfected.

(4) Infected persons and Contacts.

295 patients were removed to hospital, 184 contacts were sent to St. Johns, 19 bodies were removed for autopsy and 52 bodies were buried under supervision.

II. Middleton Hospital

At the end of 1925 there were 10 patients remaining in hospital while during the year there were 425 admissions. Of these 366 were discharged, 36 died and 33 remained at the end of the year.

Dr. Thurai acted as Resident Medical Officer during most of the year while Dr. Gilmour was on leave.

Dr. Gilmour's report is appended.

III. Vaccination

The following vaccinations were reported :—

—	Successful	Modified	Failed	Not Seen	Total
Medicalmen	856	...	...	11	867
Private Vaccinators ...	1,735	1	6	4	1,746
Municipal Vaccinators ...	6,907	37	3	169	7,116
Total ...	9,498	38	9	184	9,729

Of the total number of 7,116 vaccinations performed by the Municipal Vaccinators 6,907 or 97 per cent. were successful, 3 were unsuccessful, 37 were modified and 169 remained to be seen a second time.

The nationalities of those vaccinated by Municipal Vaccinators were :— Europeans 17, Eurasians 179, Chinese 5,524, Malays 979, Indians 339, others 78. Of these 3,869 were males and 3,247 females of the following ages :—

Under 1 year of age	...	4,064
Between 1 and 2 years	...	1,463
„ 2 „ 5 „	...	306
„ 5 „ 10 „	...	174
„ 10 „ 20 „	...	523
Unknown ...	...	586
		7,116

At the Municipal Vaccination Stations there were performed 3,947 vaccinations, at Police Stations 2,389, at houses 311, at Child Welfare Clinics 88, at Municipal Office 35 and Contacts 346.

Two thousand one hundred and two tubes of lymph were issued by the Municipal Vaccinators being equivalent to an average of 3.3 persons per tube.

IV. Vital Statistics

Following a strong recommendation of the Housing Commission of 1918 that, in future, a quinquennial census of the Municipal area should be taken, powers for so doing were finally obtained in February, 1926. Accordingly on the night of June 30th, 1926 a census of the population of the Municipal area was held. To simplify the schedules, and in an attempt to obtain more accurate figures, only information with regard to roughly age, sex, and race was sought.

The results were somewhat disappointing as the figure obtained was only 376,762 whereas it was generally expected that the figure would be much higher than this, and even much higher than the estimated population for the year i.e. 408,273.

A check census was carried out in several areas and the figures then obtained showed a 10 to 15 per cent. increase on the actual census figures. Dr. Dawson, who was in charge of the census operations, in his report states his opinion that a 10 per cent. increase all over would give a reasonable estimate for the real population. This would give the figure 414,339 an increase of 6,066 on the estimated figure. While I intend to use an estimate based on this figure for 1927, taking everything into consideration, and especially as the weekly rates for the year were calculated on the original estimated figure I have decided to retain this latter figure for the annual report for 1926.

The following statistics therefore are calculated on an estimated mean annual population of 408,273 made up as follows:—

——	Males	Females	Total
Europeans	3,366	1,903	5,269
Eurasians	2,283	2,439	4,722
Chinese	212,846	111,738	324,584
Malays	21,156	16,565	37,721
Indians	25,195	4,427	29,622
Others	4,168	2,187	6,355
Total ...	269,014	139,259	408,273

The following return gives the population, the number and rates per 1,000 of births, infantile deaths and deaths at all ages for the last 10 years :—

Year	Population	Birth		Infantile deaths		Deaths at all ages	
		No.	Rate	No.	Rate	No.	Rate
1916 ...	296,951	7,688	25.88	2,001	260.2	8,689	29.26
1917 ...	304,815	8,156	26.75	2,447	300.0	11,900	35.75
1918 ...	312,995	8,065	25.76	2,131	264.2	13,172	41.08
1919 ...	321,480	8,535	26.54	2,234	251.7	10,756	33.45
1920 ...	330,303	8,969	27.15	2,233	248.9	11,731	35.51
1921 ...	351,461	10,237	29.12	2,383	232.7	11,947	33.99
1922 ...	362,597	10,368	28.59	2,488	239.9	11,553	31.86
1923 ...	373,513	10,757	28.79	2,431	225.9	10,049	26.90
1924 ...	384,758	11,757	30.55	2,614	222.3	10,420	27.08
1925 ...	396,341	12,363	31.19	2,600	210.3	11,184	28.21
Average 10 years	343,521	9,689	28.03	2,356	245.6	11,120	32.30
1926 ...	408,273	12,871	31.52	2,987	232.0	13,085	32.04

1. Births

The total number of births registered during the year was 12,871 compared with 12,363 in 1925 and 11,757 in 1924.

There were 6,849 male and 6,022 female births.

The birth rate was 31.52 per mille as compared with 31 19 in 1925 and 30.55 in 1924.

The birth rate is the highest recorded.

The following return gives the number of births and the birth rate for each month of the year :—

Month	Births	Birth Rate	Month	Birth	Birth Rate
January ...	980	28.80	July ...	1,037	30.48
February ...	853	25.07	August ...	1,038	30.50
March ...	1,039	30.53	September ...	1,096	32.21
April ...	1,035	30.42	October ...	1,173	34.47
May ...	1,077	31.65	November ...	1,250	36.74
June ...	1,090	32.03	December ...	1,203	35.35

The following return shows the number of births and birth rate for each nationality :—

—	Males	Females	Total	Birth Rate
Europeans	63	68	131	24.86
Eurasians	82	62	144	30.49
Chinese	5,587	4,799	10,386	31.99
Malays	712	674	1,386	36.74
Indians	326	328	654	22.07
Others	79	91	170	26.75
Total ...	6,849	6,022	12,871	31.52

There were 407 still births compared with 385 in 1925.

2. Deaths

The total number of deaths for the year was 13,085 and the death rate 32.04 per 1,000 compared with 28.21 in 1925 and 27.08 in 1924.

Eight hundred and fifty two persons died who had been less than 3 months resident in Singapore. Deducting these the death rate is reduced to 29.96 per 1,000.

The excess of deaths over births was 214.

The following return gives the number of deaths and the death rate for each month of the year :—

Month	Deaths	Death Rate	Month	Deaths	Death Rate
January ...	1,018	29.92	July ...	1,226	36.03
February ...	839	24.66	August ...	1,149	33.77
March ...	897	26.36	September ...	1,034	30.39
April ...	1,098	32.27	October ...	1,093	32.12
May ...	1,278	37.56	November ...	1,072	31.50
June ...	1,311	38.53	December ...	1,070	31.45

MORTALITY BY NATIONALITIES

The following return gives the number of deaths from each cause among males and females of the different nationalities. The classification followed is that of the International List (1912.)

DISEASES	Sex	Europeans	Eurasians	Chinese	Malays	Indians	Others	TOTAL	
1. General Diseases :—									
1. Enteric Fever	M	4	—	78	3	7	—	92	109
	F	—	—	15	1	—	1	17	
4. Malaria	M	—	—	1153	72	94	11	1330	1600
	F	3	2	195	54	13	3	270	
5. Small Pox	M	—	—	4	3	—	—	7	10
	F	—	—	2	1	—	—	3	
6. Measles	M	—	—	3	—	—	—	3	5
	F	—	—	1	—	1	—	2	
8. Whooping cough ..	M	—	1	—	—	—	—	1	2
	F	—	1	—	—	—	—	1	
9-A. Diphtheria	M	—	—	4	—	—	—	4	8
	F	—	—	3	—	1	—	4	
10. Influenza	M	—	—	44	30	27	5	106	175
	F	—	1	27	27	12	2	69	
12. Cholera	M	—	—	9	—	1	—	10	14
	F	1	—	3	—	—	—	4	
14. Dysentery	M	—	2	502	9	44	3	560	659
	F	—	—	80	10	9	—	99	
15. Plague	M	—	—	5	—	2	—	7	7
	F	—	—	—	—	—	—	0	
17. Leprosy	M	—	—	16	—	—	—	16	20
	F	—	—	3	1	—	—	4	
18. Erysipelas	M	—	—	1	—	—	—	1	3
	F	1	—	1	—	—	—	2	
20-A. Pyaemia	M	—	—	4	—	—	—	4	5
	F	—	—	1	—	—	—	1	
20-B. Septicaemia	M	—	—	36	2	2	—	40	48
	F	—	—	7	—	—	1	8	
24. Tetanus	M	—	—	31	1	5	—	37	51
	F	—	—	14	—	—	—	14	
27. Beri beri	M	—	—	642	26	5	4	677	798
	F	—	—	104	15	1	1	121	
28-A. Pulmonary tuberculosis ...	M	5	6	378	35	46	9	479	558
	F	—	4	42	17	13	3	79	
28-B. Phthisis	M	—	1	483	33	14	3	534	736
	F	—	1	168	25	8	—	202	
29-B. Miliary tuberculosis ...	M	—	—	3	1	3	—	7	9
	F	—	—	2	—	—	—	2	
30. Tuberculous meningitis ...	M	—	1	10	1	5	1	18	27
	F	—	—	8	—	1	—	9	
31-A. Tabes mesenterica ...	M	—	—	—	1	—	—	1	1
	F	—	—	—	—	—	—	0	
31-B. Other peritoneal and intestinal tubercle ...	M	—	—	2	—	1	—	3	11
	F	—	—	7	—	—	1	8	
32. Tuberculosis of spinal column	M	—	—	2	—	—	—	2	3
	F	—	—	1	—	—	—	1	
33. Tuberculosis of joints ...	M	—	—	6	2	—	—	8	10
	F	—	—	2	—	—	—	2	
34-C. Other tuberculosis included under 34	M	—	—	4	—	1	—	5	8
	F	—	—	3	—	—	—	3	
35. Disseminated tuberculosis ...	M	—	—	5	—	—	—	5	7
	F	—	—	2	—	—	—	2	

DISEASES	Sex	Europeans	Eurasians	Chinese	Malays	Indians	Others	TOTAL	
36-A. Rickets	M	—	—	1	—	—	—	1	1
	F	—	—	—	—	—	—	0	
37. Syphilis	M	—	—	109	6	4	1	120	160
	F	—	—	36	3	—	1	40	
39. Cancer of the buccal cavity	M	—	—	3	1	1	—	5	8
	F	—	1	2	—	—	—	3	
40. Cancer of the stomach, liver, &c.	M	1	2	57	1	5	3	69	88
	F	—	1	15	1	2	—	19	
41. Cancer of the peritoneum intestines and rectum ...	M	—	—	3	—	—	—	3	4
	F	—	—	1	—	—	—	1	
42. Cancer of the female genital organs	F	—	—	6	3	—	—	9	9
43. Cancer of the breast ...	F	1	1	6	3	1	—	12	12
44. Cancer of the skin ...	M	2	—	2	—	1	—	5	5
	F	—	—	—	—	—	—	0	
45. Cancer of other or upspecified organs	M	—	—	15	2	—	—	17	23
	F	—	—	6	—	—	—	6	
46-C. Other tumours ...	M	—	—	3	—	—	—	3	4
	F	—	—	—	—	—	1	1	
47. Rheumatic fever ...	M	—	—	3	1	—	—	4	6
	F	—	—	2	—	—	—	2	
48-A. Chronic Rheumatism ...	M	—	—	12	3	—	—	15	26
	F	—	1	6	4	—	—	11	
50. Diabetes	M	1	—	5	—	1	1	8	13
	F	—	—	5	—	—	—	5	
51. Exophthalmic goitre ...	M	—	1	—	—	—	—	1	1
	F	—	—	—	—	—	—	0	
53-A. Leucocythaemia ...	M	—	—	—	—	1	—	1	1
	F	—	—	—	—	—	—	0	
53-B. Lymphadenoma ...	M	—	—	—	—	—	—	0	1
	F	—	—	1	—	—	—	1	
54. Anaemia	M	—	—	8	—	2	—	10	18
	F	—	—	5	2	1	—	8	
55-B. Purpura	M	—	—	—	—	—	—	0	1
	F	—	—	1	—	—	—	1	
55-C. Haemophilia	M	—	—	—	—	—	—	0	1
	F	—	—	1	—	—	—	1	
55-D. Other diseases included under 55	M	—	—	—	—	—	—	0	2
	F	—	—	2	—	—	—	2	
56. Alcoholism	M	2	—	—	—	—	—	2	2
	F	—	—	—	—	—	—	0	
									5,270
II. Diseases of the Nervous System and of the Organs of Special Sense:—									
60. Encephalitis	M	—	—	3	—	—	—	3	4
	F	—	—	1	—	—	—	1	
61-A. Cerebro Spinal fever ...	M	—	—	2	—	2	—	4	6
	F	1	—	1	—	—	—	2	
61-B. Posterior basal meningitis	M	—	—	1	—	—	—	1	1
	F	—	—	—	—	—	—	0	
61-C. Meningitis—other forms ...	M	1	—	8	1	1	—	11	18
	F	—	1	6	—	—	—	7	
62. Locomotor Ataxy ...	M	—	—	2	—	—	—	2	2
	F	—	—	—	—	—	—	0	

DISEASES	Sex	Europeans	Eurasians	Chinese	Malays	Indians	Others	TOTAL.	
63-B. Other diseases included under 63	M	—	—	2	—	—	—	2	4
	F	—	—	1	—	1	—	2	
64-A. Apoplexy	M	1	—	9	—	—	—	10	19
	F	—	—	5	4	—	—	9	
64-B. Cerebral haemorrhage ...	M	1	1	27	—	2	3	34	55
	F	—	2	17	1	—	1	21	
65. Softening of brain ...	M	—	—	5	—	1	—	6	7
	F	—	—	—	—	—	1	1	
66-A. Hemiplegia	M	—	—	5	1	1	—	7	14
	F	—	1	2	2	2	—	7	
66-B. Paraplegia	M	—	—	14	1	1	—	16	19
	F	—	—	3	—	—	—	3	
66-C. Other forms of paralysis...	M	—	—	2	—	1	—	3	6
	F	—	—	1	1	—	1	3	
67. General paralysis of the insane	M	—	—	14	1	—	—	15	16
	F	—	—	1	—	—	—	1	
68. Other forms of mental alienation	M	—	—	2	—	—	—	2	2
	F	—	—	—	—	—	—	0	
69. Epilepsy	M	—	1	2	—	2	—	5	6
	F	—	—	1	—	—	—	1	
70-A. Epileptiform convulsions...	M	1	—	—	—	—	—	1	1
	F	—	—	—	—	—	—	0	
71-B. Other infantile convulsions	M	—	—	464	120	24	3	611	1,114
	F	—	4	363	111	21	4	503	
73-B. Neuritis	M	—	—	19	6	3	—	28	47
	F	—	—	12	7	—	—	19	
74-C. Cerebral tumour ...	M	—	—	1	—	—	—	1	1
	F	—	—	—	—	—	—	0	
74-D. Other diseases of the nervous system ...	M	—	—	—	—	—	—	0	1
	F	—	—	1	—	—	—	1	
75. Diseases of the eyes ...	M	—	—	—	—	—	—	0	1
	F	—	—	1	—	—	—	1	
76-A. Mastoid disease ...	M	—	—	3	—	—	—	3	3
	F	—	—	—	—	—	—	0	
76-B. Other diseases of the ears	M	—	—	3	—	—	—	3	3
	F	—	—	—	—	—	—	0	
III. Diseases of the Circulatory System :—									1,350
77. Pericarditis	M	—	—	18	—	3	—	21	23
	F	—	—	1	1	—	—	2	
78-A. Acute myocarditis ...	M	—	—	2	—	4	—	6	8
	F	—	—	—	1	1	—	2	
78-B. Infective endocarditis ...	M	—	—	4	—	1	—	5	6
	F	—	—	1	—	—	—	1	
78-C. Other acute endocarditis...	M	—	—	8	—	1	—	9	13
	F	—	—	3	—	—	1	4	
79-A. Valvular disease ...	M	—	1	76	2	4	1	84	115
	F	—	2	24	2	2	1	31	
79-B. Fatty degeneration of heart	M	—	—	1	—	—	—	1	1
	F	—	—	—	—	—	—	0	
79-C. Other organic diseases of the heart	M	2	2	26	—	1	—	31	39
	F	1	—	5	1	—	1	8	
80. Angina pectoris... ...	M	—	—	—	—	—	—	0	1
	F	—	—	1	—	—	—	1	
81-A. Aneurism	M	—	1	13	—	—	—	14	15
	F	—	—	1	—	—	—	1	

DISEASES	Sex	Europeans	Eurasians	Chinese	Malays	Indians	Others	TOTAL	
81-B. Arterial sclerosis ...	M	1	1	19	1	—	1	23	27
	F	—	1	2	1	—	—	4	
81-C. Other diseases of arteries	M	1	—	14	—	4	—	19	19
	F	—	—	—	—	—	—	0	
82-A. Cerebral embolism and thrombosis	M	—	1	1	—	—	—	2	4
	F	1	—	1	—	—	—	2	
82-B. Other embolism and thrombosis	M	—	—	—	—	—	—	0	1
	F	—	—	1	—	—	—	1	
83-B. Varix	M	—	—	1	—	—	—	1	1
	F	—	—	—	—	—	—	0	
84-B. Other diseases of the lymphatic system ...	M	—	—	1	—	—	1	2	3
	F	—	—	—	—	1	—	1	
85. Epistaxis	M	—	—	1	—	—	—	1	1
	F	—	—	—	—	—	—	0	
85-C. Other diseases of the circulatory system ...	M	—	—	1	—	—	—	1	2
	F	—	—	—	1	—	—	1	
									279
IV. Diseases of the Respiratory System:—									
87-C. Other diseases of larynx...	M	—	—	1	—	—	—	1	2
	F	—	—	1	—	—	—	1	
88. Diseases of the thyroid body	M	—	—	—	—	1	—	1	1
	F	—	—	—	—	—	—	0	
89 & 90-A. Bronchiectasis ...	M	—	—	1	—	—	—	1	1
	F	—	—	—	—	—	—	0	
89 & 90-B. Other bronchitis ...	M	—	1	61	8	11	2	83	151
	F	—	—	54	11	2	1	68	
91. Broncho-pneumonia ...	M	—	8	361	20	28	4	421	685
	F	—	2	226	22	11	3	264	
92-A. Lobar pneumonia ...	M	2	1	258	14	95	2	372	439
	F	1	4	42	6	12	2	67	
92-B. Pneumonia (type not stated)	M	1	—	413	25	32	1	472	719
	F	—	—	215	19	9	4	247	
93-A. Empyema	M	—	1	10	—	3	—	14	14
	F	—	—	—	—	—	—	0	
93-B. Other pleurisy ...	M	—	—	7	1	4	1	13	14
	F	—	—	1	—	—	—	1	
94-C. Hypostatic pneumonia ...	M	—	—	4	—	—	—	4	4
	F	—	—	—	—	—	—	0	
95. Gangrene of the lung ...	M	—	—	5	—	—	—	5	5
	F	—	—	—	—	—	—	0	
96. Asthma	M	—	—	27	3	5	—	35	48
	F	—	1	9	2	1	—	13	
98-A. Fibroid disease of lung ...	M	—	—	1	—	—	—	1	2
	F	—	—	1	—	—	—	1	
98-B. Other diseases of the respiratory system ...	M	—	—	3	—	1	—	4	4
	F	—	—	—	—	—	—	0	
									2,089
V. Diseases of the Digestive System:—									
99-A. Diseases of the teeth and gums	M	—	—	4	—	—	—	4	5
	F	—	—	—	1	—	—	1	
100-A. Tonsillitis	M	—	—	3	—	—	—	3	3
	F	—	—	—	—	—	—	0	
100-C. Other diseases of the pharynx	M	—	—	1	—	—	—	1	2
	F	—	—	1	—	—	—	1	

DISEASES	Sex	Europeans	Eurasians	Chinese	Malays	Indians	Others	TOTAL	
102. Perforating ulcer of stomach	M	1	—	19	—	2	1	23	25
	F	—	—	2	—	—	—	2	
103-A. Inflammation of the stomach	M	—	—	25	21	4	—	50	88
	F	—	—	16	14	6	2	38	
103-B. Other diseases of the stomach	M	—	—	5	—	—	—	5	9
	F	—	—	3	—	1	—	4	
104-A & 105-A. Infective enteritis	M	—	—	74	3	—	—	77	130
	F	—	—	53	—	—	—	53	
104-B & 105-B. Diarrhoea (not returned as infective) ...	M	—	1	87	2	4	—	94	156
	F	—	—	61	—	1	—	62	
104-C & 105-C. Enteritis (not returned as infective) ...	M	1	—	180	18	12	—	211	426
	F	—	1	199	12	3	—	215	
104-D & 105-D. Gastro-enteritis...	M	—	3	87	10	—	1	101	179
	F	—	1	69	5	3	—	78	
104-E & 105-E. Dyspepsia ...	M	—	—	—	—	—	—	0	1
	F	—	—	1	—	—	—	1	
104-H & 105-H. Duodenal ulcer...	M	2	—	3	—	—	—	5	5
	F	—	—	—	—	—	—	0	
106. Ankylostomiasis ...	M	—	—	7	1	4	—	12	21
	F	—	—	4	1	4	—	9	
107. Other intestinal parasites...	M	—	1	—	—	1	—	2	6
	F	—	—	4	—	—	—	4	
108. Appendicitis	M	1	—	27	—	4	2	34	35
	F	—	—	1	—	—	—	1	
109-A. Hernia	M	—	—	11	—	3	—	14	15
	F	—	—	1	—	—	—	1	
109-B. Intestinal obstruction ...	M	—	—	11	—	1	—	12	15
	F	—	—	3	—	—	—	3	
110. Other diseases of the intestines	M	—	—	5	—	—	—	5	7
	F	1	—	1	—	—	—	2	
113-A. Cirrhosis of liver (not returned as alcoholic) ...	M	2	1	50	2	5	—	60	72
	F	—	—	9	—	3	—	12	
113-B. Cirrhosis of liver (returned as alcoholic) ...	M	—	—	1	—	—	—	1	2
	F	—	—	1	—	—	—	1	
114. Biliary calculi	M	—	—	4	—	—	—	4	4
	F	—	—	—	—	—	—	0	
115. Other diseases of the liver...	M	—	—	30	1	2	2	35	36
	F	—	—	1	—	—	—	1	
116-A. Infarction of the spleen ..	M	—	—	4	—	—	—	4	5
	F	—	—	1	—	—	—	1	
116-B. Other diseases of the spleen	M	—	—	6	1	1	—	8	8
	F	—	—	—	—	—	—	0	
117. Peritonitis (cause unstated)	M	—	1	14	1	2	—	18	21
	F	1	—	2	—	—	—	3	
118-A. Abdominal abscess, subphrenic abscess ...	M	—	—	2	—	—	—	2	5
	F	—	—	3	—	—	—	3	
118-B. Other diseases of the digestive system ...	M	—	—	1	—	—	—	1	2
	F	—	—	1	—	—	—	1	
									1,283
VI. Non-Venereal Diseases of the Genito-Urinary System and Annexa:—									
119. Acute nephritis ...	M	—	—	34	4	4	2	44	67
	F	1	1	17	2	2	—	23	

DISEASES	Sex	Europeans	Eurasians	Chinese	Malays	Indians	Others	TOTAL	
120-A. Bright's disease ...	M	2	3	195	7	11	2	220	306
	F	—	1	74	6	2	3	86	
120-B. Nephritis	M	—	—	80	2	4	1	87	133
	F	—	—	40	1	4	1	46	
122-A. Abscess of kidney ...	M	—	—	1	—	—	—	1	1
	F	—	—	—	—	—	—	0	
122-C. Suppression of urine ...	M	—	—	1	—	—	—	1	1
	F	—	—	—	—	—	—	0	
122-D. Other diseases of the kidney and annexa ...	M	—	—	7	—	1	—	8	9
	F	—	—	—	—	1	—	1	
123. Calculi of the urinary passages	M	1	—	—	—	—	—	1	1
	F	—	—	—	—	—	—	0	
124. Diseases of the bladder ...	M	—	—	1	—	1	—	2	5
	F	—	—	3	—	—	—	3	
125-B. Other diseases of urethra, etc.	M	1	—	—	—	1	—	2	2
	F	—	—	—	—	—	—	0	
126. Diseases of the prostate ...	M	—	1	—	—	—	—	1	1
	F	—	—	—	—	—	—	0	
127. Non-venereal diseases of male genital organs ...	M	—	—	3	—	—	—	3	3
	F	—	—	—	—	—	—	0	
128-B. Other uterine haemorrhage	F	—	1	2	—	—	—	3	3
129. Uterine tumour (non cancerous)	F	—	—	1	—	—	—	1	1
130-B. Other diseases of the uterus	F	—	—	1	—	—	—	1	1
131. Ovarian cyst, tumour ...	F	—	—	2	—	2	—	4	4
132-B. Other diseases of the female genital organs ...	F	—	—	2	1	—	—	3	3
VII. The Puerperal State :—									541
134-C. Uncontrollable vomiting	F	—	—	—	—	1	—	1	1
134-D. Ectopic gestation ...	F	—	—	2	—	—	—	2	2
134-E. Other accidents of preguancy	F	—	—	2	—	—	—	2	2
135. Puerperal haemorrhage ...	F	—	2	13	—	1	—	16	16
136. Other accidents of childbirth	F	—	—	12	4	2	1	19	19
137. Puerperal fever ...	F	2	—	15	—	7	—	24	24
138-B. Puerperal albuminuria and Bright's disease ...	F	—	—	2	—	—	—	2	2
138-C. Puerperal convulsions ...	F	—	—	9	—	3	—	12	12
VIII. Diseases of the Skin and of the Cellular Tissue :—									78
142-A. Senile gangrene ...	M	—	—	1	—	—	—	1	1
	F	—	—	—	—	—	—	0	

DISEASES	Sex	Europeans	Eurasians	Chinese	Malays	Indians	Others	TOTAL	
142-B. Noma, gangrene of mouth	M	—	—	4	1	1	—	6	8
	F	—	—	2	—	—	—	2	
142-C. Noma pudendi ...	M	—	—	2	—	—	—	2	2
	F	—	—	—	—	—	—	0	
142-D. Other gangrene ...	M	—	—	15	1	2	—	18	19
	F	—	—	—	1	—	—	1	
143. Carbuncle, boil ...	M	—	—	1	1	1	—	3	7
	F	—	—	3	—	1	—	4	
144-A. Phlegmon	M	—	—	10	—	1	—	11	14
	F	—	—	2	—	1	—	3	
144-B. Acute abscess ...	M	—	—	5	—	—	—	5	7
	F	—	—	2	—	—	—	2	
145-A. Ulcer, bedsore ...	M	—	1	7	—	—	—	8	9
	F	—	—	1	—	—	—	1	
145-C. Pemphigus	M	—	—	—	—	—	—	0	1
	F	—	—	1	—	—	—	1	
145-D. Other diseases of integumentary system ...	M	—	—	1	—	3	—	4	5
	F	—	—	1	—	—	—	1	
IX. Diseases of the Bones and of the Organs of Locomotion :—									73
146. Diseases of the bones ...	M	—	—	2	—	—	—	2	4
	F	—	—	2	—	—	—	2	
147. Diseases of the joints ...	M	—	—	3	—	—	—	3	3
	F	—	—	—	—	—	—	0	
X. Malformations :—									7
150-A. Congenital hydrocephalus	M	—	—	2	—	—	—	2	3
	F	—	—	1	—	—	—	1	
150-D. Other congenital malformation	M	—	—	6	—	1	—	7	11
	F	—	—	3	1	—	—	4	
XI. Diseases of Early Infancy :—									14
151-A. Premature birth ...	M	—	3	150	29	13	1	196	373
	F	1	1	137	24	11	3	177	
151-B. Infantile atrophy, debility and marasmus ...	M	1	2	76	25	7	—	111	200
	F	—	1	63	18	6	1	89	
151-C. Icterus neonatorum ...	M	—	—	1	1	—	—	2	2
	F	—	—	—	—	—	—	0	
152-A. Diseases of umbilicus ...	M	—	—	—	—	—	—	0	2
	F	—	—	1	1	—	—	2	
152-B. Atelectasis	M	—	1	7	1	1	—	10	16
	F	—	1	2	1	2	—	6	
152-C. Injuries at birth ...	M	—	—	—	—	1	—	1	1
	F	—	—	—	—	—	—	0	
153. Lack of care	M	—	—	—	—	—	—	0	1
	F	—	—	1	—	—	—	1	
XII. Old Age :—									595
154-B. Senile Decay... ...	M	1	1	179	30	11	3	225	415
	F	—	1	136	37	14	2	190	
XIII. Affections Produced by External Causes :—									415
157. Suicide by hanging ...	M	2	—	27	—	—	—	29	34
	F	—	—	5	—	—	—	5	
159. Suicide by firearms ...	M	—	—	1	—	—	—	1	1
	F	—	—	—	—	—	—	0	

DISEASES	Sex	Europeans	Eurasians	Chinese	Malays	Indians	Others	TOTAL	
160. Suicide by cutting or piercing instruments ...	M	—	—	6	—	—	—	6	6
	F	—	—	—	—	—	—	0	
164. Poisoning by food ...	M	—	—	1	—	—	—	1	3
	F	—	—	2	—	—	—	2	
165. Other acute poisonings ...	M	2	—	5	—	2	—	9	12
	F	—	1	1	—	—	1	3	
167. Burns	M	—	—	8	—	4	1	13	24
	F	—	—	11	—	—	—	11	
168. Absorptions of deleterious gases	M	—	—	2	—	—	—	2	2
	F	—	—	—	—	—	—	0	
169. Accidental drowning ...	M	—	—	28	—	2	1	31	39
	F	—	—	7	—	1	—	8	
170. Injury by firearms ...	M	—	—	5	—	1	1	7	8
	F	—	—	1	—	—	—	1	
171. Injury by cutting or piercing instruments	M	—	—	1	—	—	—	1	1
	F	—	—	—	—	—	—	0	
172. Injury by fall	M	2	—	5	—	—	—	7	8
	F	—	—	1	—	—	—	1	
173. Injury by other crushing ...	M	—	—	12	1	4	—	17	24
	F	—	—	5	1	1	—	7	
180. Lightning	M	—	—	1	—	—	—	1	1
	F	—	—	—	—	—	—	0	
181. Electrocution	M	—	—	1	—	—	—	1	1
	F	—	—	—	—	—	—	0	
182. Homicide by firearms ...	M	—	—	13	—	1	—	14	14
	F	—	—	—	—	—	—	0	
183. Homicide by cutting or piercing instruments ...	M	—	—	11	1	2	1	15	20
	F	—	—	2	2	1	—	5	
184. Homicide by other means...	M	—	—	1	—	1	—	2	2
	F	—	—	—	—	—	—	0	
185. Fractures	M	1	—	44	3	9	—	57	63
	F	—	—	5	—	1	—	6	
186. Other violence	M	2	—	28	1	7	—	38	41
	F	—	—	2	1	—	—	3	
									304
XIV. Ill-Defined Causes :—									
187. Dropsy	M	—	—	87	3	2	—	92	124
	F	—	—	28	4	—	—	32	
189-A. Heart failure... ...	M	—	—	1	1	6	1	9	11
	F	—	—	2	—	—	—	2	
189-B. Atrophy, debility, marasmus	M	—	—	35	16	2	1	54	117
	F	1	1	40	15	6	—	63	
189-D. Pyrexia	M	—	—	180	30	16	—	226	345
	F	—	—	94	17	7	1	119	
189-E. Other ill-defined deaths...	M	—	1	123	2	10	—	136	160
	F	—	—	23	—	1	—	24	
189-F. Cause not specified ...	M	—	—	26	—	—	1	27	30
	F	—	—	3	—	—	—	3	
									787
Total males ...	M	48	53	7,679	657	686	82	9,205	13,085
Total females ...	F	17	44	3,015	530	225	49	3,880	
Grand Total ...	T	65	97	10,694	1,187	911	131		13,085

The death rates for the different nationalities were :—

—	1926			1925		
	Males	Females	Total	Males	Females	Total
Europeans ...	14.26	8.93	12.33	11.85	6.93	10.09
Eurasians ...	23.21	18.04	20.54	19.35	20.58	19.99
Chinese	36.07	86.98	32.94	30.70	25.59	28.96
Malays	31.05	31.99	31.46	27.54	28.16	27.81
Indians	27.22	50.82	30.75	23.79	49.31	27.65
Others	19.67	22.40	20.61	12.85	24.00	16.79
Total ...	34.21	27.86	32.04	29.18	26.31	28.21

The following return gives the death rates per 1,000 of each nationality from each group of diseases :—

——	Europeans	Eurasians	Chinese	Malays	Indians	Others
General Diseases	3.9	5.7	13.6	10.6	11.3	8.6
Diseases of Nervous System ...	0.9	2.1	3.0	6.7	2.0	2.0
Do. Circulatory System ...	1.1	1.9	0.6	0.2	0.7	0.9
Do. Respiratory System ...	0.7	3.8	5.2	3.4	7.2	3.1
Do. Digestive System ...	1.7	1.9	3.3	2.4	2.2	1.2
Do. Genito Urinary System	0.9	1.4	1.4	0.6	1.1	1.4
Do. Early Infancy ...	0.3	1.9	1.3	2.6	1.3	0.7
Ill defined causes	0.1	0.4	1.9	2.3	1.7	0.6

MORTALITY IN RELATION TO AGE AND SEX

The following return shows the number of deaths from each cause in the different age periods for each sex :—

DISEASES	Sex	Under 3 months	3 to 12 months	1 to 5 years	5 to 10 years	10 to 15 years	15 to 20 years	20 to 25 years	25 to 35 years	35 to 45 years	45 to 55 years	Over 55 years	Unknown	TOTAL	
1. General Diseases :—															
1. Enteric Fever	M	—	—	—	2	3	8	21	39	11	7	1	–	92	109
	F	—	—	—	2	5	3	3	2	1	1	—	–	17	
4. Malaria	M	—	5	13	19	25	81	185	430	322	191	58	1	1330	1600
	F	1	5	8	25	15	22	29	55	59	32	19	–	270	
5. Small Pox	M	—	—	1	—	1	1	—	2	1	1	—	–	7	10
	F	—	—	1	—	—	—	1	1	—	—	—	–	3	
6. Measles	M	—	—	3	—	—	—	—	—	—	—	—	–	3	5
	F	—	1	1	—	—	—	—	—	—	—	—	–	2	
8. Whooping cough ..	M	—	—	1	—	—	—	—	—	—	—	—	–	1	2
	F	—	—	1	—	—	—	—	—	—	—	—	–	1	
9-A. Diphtheria	M	—	—	2	1	—	—	—	1	—	—	—	–	4	8
	F	—	—	1	2	—	—	—	—	—	—	1	–	4	
10. Influenza	M	1	11	13	8	3	5	10	15	15	13	12	–	106	175
	F	—	13	14	4	2	7	6	3	5	5	10	–	69	
12. Cholera	M	—	—	—	—	—	—	—	4	3	2	1	–	10	14
	F	—	—	—	—	1	—	1	—	—	2	—	–	4	
14. Dysentery	M	—	3	3	5	6	6	38	128	151	141	79	–	560	659
	F	1	1	5	5	1	4	11	18	15	16	22	–	99	
15. Plague	M	—	—	—	—	—	—	—	6	1	—	—	–	7	7
	F	—	—	—	—	—	—	—	—	—	—	—	–	0	
17. Leprosy	M	—	—	—	—	—	3	—	4	5	2	2	–	16	20
	F	—	—	—	—	—	1	—	2	1	—	—	–	4	
18. Erysipelas	M	—	—	—	—	—	—	—	1	—	—	—	–	1	3
	F	—	—	—	—	—	—	—	—	—	1	1	–	2	
20-A. Pyaemia	M	—	—	—	—	—	—	1	2	—	1	—	–	4	5
	F	—	—	—	—	—	—	—	1	—	—	—	–	1	
20-B. Septicaemia	M	—	2	—	2	—	1	7	9	7	7	5	–	40	48
	F	2	3	—	—	—	—	1	—	2	—	—	–	8	
24. Tetanus	M	25	—	—	—	2	—	1	4	3	2	—	–	37	51
	F	13	—	—	—	—	—	—	—	—	—	1	–	14	
27. Beri beri	M	—	1	—	2	1	32	83	242	172	119	25	–	677	798
	F	—	—	—	—	1	7	16	34	40	17	6	–	121	
28-A. Pulmonary tuberculosis ...	M	—	1	1	1	—	7	33	130	153	116	35	2	479	558
	F	1	—	1	—	2	3	8	26	21	12	5	–	79	
28-B. Phthisis	M	—	—	1	3	1	7	39	104	171	147	61	–	534	736
	F	—	—	1	1	2	8	21	53	55	46	15	–	202	
29-B. Miliary tuberculosis ...	M	—	—	—	—	—	—	—	5	1	1	—	–	7	9
	F	—	—	1	1	—	—	—	—	—	—	—	–	2	
30. Tuberculous meningitis ...	M	—	—	5	4	1	—	3	3	—	2	—	–	18	27
	F	—	—	4	2	—	2	—	1	—	—	—	–	9	
31-A. Tabes mesenterica ...	M	—	—	—	—	—	—	—	—	—	1	—	–	1	1
	F	—	—	—	—	—	—	—	—	—	—	—	–	0	
31-B. Other peritoneal and intestinal tubercle ...	M	—	—	—	1	1	—	—	1	—	—	—	–	3	11
	F	—	—	—	2	1	1	—	3	1	—	—	–	8	
32. Tuberculosis of spinal column	M	—	—	—	—	—	—	1	1	—	—	—	–	2	3
	F	—	—	—	1	—	—	—	—	—	—	—	–	1	
33. Tuberculosis of joints ...	M	—	—	—	1	1	2	—	3	1	—	—	–	8	10
	F	—	—	—	—	1	—	—	1	—	—	—	–	2	
34-C. Other tuberculosis included under 34	M	—	—	—	—	—	—	—	2	3	—	—	–	5	8
	F	—	—	1	1	—	—	—	—	—	1	—	–	3	
35. Disseminated tuberculosis ...	M	—	—	—	—	—	—	2	1	2	—	—	–	5	7
	F	—	—	1	—	—	—	—	—	1	—	—	–	2	

DISEASES	Sex	Under 3 months	3 to 12 months	1 to 5 years	5 to 10 years	10 to 15 years	15 to 20 years	20 to 25 years	25 to 35 years	35 to 45 years	45 to 55 years	Over 55 years	Unknown	TOTAL	
36-A. Rickets	M	—	—	1	—	—	—	—	—	—	—	—	—	1	
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
37. Syphilis	M	29	13	3	—	—	—	4	18	20	27	6	—	120	
	F	18	9	1	—	—	—	3	4	4	1	—	—	40	1
39. Cancer of the buccal cavity	M	—	—	—	—	—	—	1	—	1	2	1	—	5	
	F	—	—	—	—	—	—	—	1	—	2	—	—	3	
40. Cancer of the stomach, liver &c.	M	—	—	—	—	—	—	3	4	14	35	13	—	69	
	F	—	—	—	—	—	—	—	2	3	3	11	—	19	
41. Cancer of the peritoneum, intestines and rectum ...	M	—	—	—	—	—	—	—	—	1	1	1	—	3	
	F	—	—	—	—	—	—	—	—	1	—	—	—	1	
42. Cancer of the female genital organs	F	—	—	—	—	—	—	—	1	2	4	2	—	9	
43. Cancer of the breast ...	F	—	—	—	—	—	—	—	1	4	5	2	—	12	
44. Cancer of the skin ...	M	—	1	—	—	—	—	—	—	—	1	3	—	5	
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
45. Cancer of other or upspecified organs	M	—	—	—	—	—	2	1	3	5	4	2	—	17	
	F	—	—	—	—	—	—	—	—	1	2	3	—	6	
46-C. Other tumours ...	M	—	—	—	—	—	—	—	—	2	—	1	—	3	
	F	—	—	—	—	—	—	—	—	—	—	1	—	1	
47. Rheumatic fever ...	M	—	—	—	—	—	—	—	1	—	3	—	—	4	
	F	—	—	—	—	—	—	—	—	2	—	—	—	2	
48-A. Chronic Rheumatism ...	M	—	—	—	—	—	—	—	—	—	—	15	—	15	
	F	—	—	—	—	—	—	—	1	—	—	10	—	11	
50. Diabetes	M	—	—	—	—	—	—	—	—	—	4	4	—	8	
	F	—	—	—	—	—	—	—	—	1	1	3	—	5	
51. Exophthalmic goitre ...	M	—	—	—	—	—	—	—	—	1	—	—	—	1	
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
53-A. Leucocythaemia ...	M	—	—	—	—	—	—	—	1	—	—	—	—	1	
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
53-B. Lymphadenoma ...	M	—	—	—	—	—	—	—	—	—	—	—	—	0	
	F	—	—	—	1	—	—	—	—	—	—	—	—	1	
54. Anaemia	M	—	—	—	—	—	—	1	4	3	1	1	—	10	
	F	—	—	1	—	—	2	2	1	1	1	—	—	8	
55-B. Purpura	M	—	—	—	—	—	—	—	—	—	—	—	—	0	
	F	—	—	—	1	—	—	—	—	—	—	—	—	1	
55-C. Haemophilia	M	—	—	—	—	—	—	—	—	—	—	—	—	0	
	F	—	—	—	—	1	—	—	—	—	—	—	—	1	
55-D. Other diseases included under 55	M	—	—	—	—	—	—	—	—	—	—	—	—	0	
	F	—	1	1	—	—	—	—	—	—	—	—	—	2	
56. Alcoholism	M	—	—	—	—	—	—	—	—	1	1	—	—	2	
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	2
II. Diseases of the Nervous System and of the Organs of Special Sense :—															5.20
60. Encephalitis	M	—	—	—	—	—	—	—	—	1	2	—	—	3	
	F	1	—	—	—	—	—	—	—	—	—	—	—	1	4
61-A. Cerebro spinal fever ...	M	—	—	—	—	—	1	—	1	2	—	—	—	4	
	F	—	1	1	—	—	—	—	—	—	—	—	—	2	6
61-B. Posterior basal meningitis	M	—	—	—	—	—	—	—	1	—	—	—	—	1	
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	1
61-C. Meningitis—other forms ...	M	2	1	—	1	1	1	—	2	1	2	—	—	11	
	F	—	4	1	1	—	1	—	—	—	—	—	—	7	8
62. Locomotor Ataxy ...	M	—	—	—	—	—	—	—	—	2	—	—	—	2	
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	2

DISEASES	Sex	Under 3 months	3 to 12 months	1 to 5 years	5 to 10 years	10 to 15 years	15 to 20 years	20 to 25 years	25 to 35 years	35 to 45 years	45 to 55 years	Over 55 years	Unknown	TOTAL	
63-B. Other diseases included under 63	M	—	—	1	—	—	—	—	—	1	—	—	—	2	4
	F	—	1	—	—	—	—	—	—	—	1	—	—	2	
64-A. Apoplexy	M	—	—	—	—	—	—	—	—	2	4	4	—	10	19
	F	—	—	—	—	—	—	—	—	—	6	3	—	9	
64-E. Cerebral haemorrhage ...	M	1	—	—	—	1	—	—	7	6	11	8	—	34	55
	F	1	—	—	—	—	—	—	—	2	8	10	—	21	
65. Softening of brain ...	M	—	—	—	—	—	—	—	—	2	3	1	—	6	7
	F	—	—	—	—	—	—	—	—	1	—	—	—	1	
66-A. Hemiplegia	M	—	—	—	—	—	—	1	2	1	1	2	—	7	14
	F	—	—	—	—	—	—	—	—	2	2	3	—	7	
66-B. Paraplegia	M	—	—	—	—	—	—	1	2	3	3	7	—	16	19
	F	—	—	—	—	—	—	—	—	1	1	1	—	3	
66-C. Other forms of paralysis...	M	—	—	—	—	—	—	—	—	—	2	1	—	3	6
	F	—	—	—	1	—	—	1	—	1	—	—	—	3	
67. General paralysis of the insane	M	—	—	—	—	—	—	—	4	4	6	1	—	15	16
	F	—	—	—	—	—	—	—	1	—	—	—	—	1	
68. Other forms of mental alienation	M	—	—	—	—	—	—	—	1	1	—	—	—	2	2
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
69. Epilepsy	M	—	—	—	—	—	3	—	2	—	—	—	—	5	6
	F	—	—	—	—	—	1	—	—	—	—	—	—	1	
70-A. Epileptiform convulsions...	M	—	—	—	—	—	—	—	—	—	1	—	—	1	1
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
71-B. Other infantile convulsions	M	173	240	92	5	—	—	—	—	—	—	—	1	611	1,114
	F	199	186	114	4	—	—	—	—	—	—	—	—	503	
73-B. Neuritis	M	—	—	—	—	—	1	2	2	3	9	11	—	28	47
	F	—	—	—	—	—	2	2	8	2	2	3	—	19	
74-C. Cerebral tumour ...	M	—	—	—	—	—	—	—	1	—	—	—	—	1	1
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
74-D. Other diseases of the nervous system ...	M	—	—	—	—	—	—	—	—	—	—	—	—	0	1
	F	—	—	—	—	1	—	—	—	—	—	—	—	1	
75. Diseases of the eyes ...	M	—	—	—	—	—	—	—	—	—	—	—	—	0	1
	F	—	—	—	1	—	—	—	—	—	—	—	—	1	
76-A. Mastoid disease ...	M	—	—	—	—	—	—	—	1	—	1	1	—	3	3
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
76-B. Other diseases of the ears	M	—	—	2	—	—	—	—	—	—	1	—	—	3	3
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
III. Diseases of the Circulatory System:—															1,350
77. Pericarditis	M	—	—	—	—	—	1	1	7	9	3	—	—	21	23
	F	—	—	—	—	—	—	—	1	—	1	—	—	2	
78-A. Acute myocarditis ...	M	—	—	—	—	—	—	1	4	—	—	1	—	6	8
	F	—	—	—	—	—	—	—	1	1	—	—	—	2	
78-B. Infective endocarditis ...	M	—	—	—	—	—	—	1	2	—	2	—	—	5	6
	F	—	—	—	—	—	—	1	—	—	—	—	—	1	
78-C. Other acute endocarditis...	M	—	—	—	—	—	—	—	4	3	2	—	—	9	13
	F	—	—	—	—	—	—	1	1	1	—	1	—	4	
79-A. Valvular disease ...	M	—	—	—	—	—	—	1	12	28	28	15	—	84	115
	F	—	—	—	—	1	4	3	6	3	3	11	—	31	
79-B. Fatty degeneration of heart	M	—	—	—	—	—	—	—	—	—	1	—	—	1	1
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
79-C. Other organic disease of the heart	M	—	—	—	—	—	1	2	6	9	6	7	—	31	39
	F	—	—	—	—	—	—	1	1	1	1	4	—	8	
80. Angina pectoris... ...	M	—	—	—	—	—	—	—	—	—	—	—	—	0	1
	F	—	—	—	—	—	—	—	—	1	—	—	—	1	
81-A. Aneurism	M	—	—	—	—	—	—	—	3	7	2	2	—	14	15
	F	—	—	—	—	—	—	—	—	—	1	—	—	1	

DISEASES	Sex	Under 3 months	3 to 12 months	1 to 5 years	5 to 10 years	10 to 15 years	15 to 20 years	20 to 25 years	25 to 35 years	35 to 45 years	45 to 55 years	Over 55 years	Unknown	TOTAL	
81-B. Arterial sclerosis ...	M	—	—	—	—	—	—	—	1	3	8	11	—	23	27
	F	—	—	—	—	—	—	—	—	—	2	2	—	4	
81-C. Other diseases of arteries	M	—	—	—	—	—	—	—	4	4	4	7	—	19	19
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
82-A. Cerebral embolism and thrombosis	M	—	—	—	—	—	—	—	—	1	—	1	—	2	4
	F	—	—	—	—	—	—	—	—	1	—	1	—	2	
82-B. Other embolism and thrombosis	M	—	—	—	—	—	—	—	—	—	—	—	—	0	1
	F	—	—	—	—	—	—	—	—	—	1	—	—	1	
83-B. Varix	M	—	—	—	—	—	—	—	—	1	—	—	—	1	1
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
84-B. Other diseases of the lymphatic system ...	M	—	—	1	—	—	—	—	1	—	—	—	—	2	3
	F	—	—	—	1	—	—	—	—	—	—	—	—	1	
85. Epistaxis	M	—	—	—	—	—	—	—	1	—	—	—	—	1	1
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
85-C. Other diseases of the circulatory system ...	M	—	—	—	—	1	—	—	—	—	—	—	—	1	2
	F	—	—	—	—	—	—	—	1	—	—	—	—	1	
IV. Diseases of the Respiratory System:—															279
87-C. Other disease of larynx ...	M	—	—	—	—	—	1	—	—	—	—	—	—	1	2
	F	—	—	1	—	—	—	—	—	—	—	—	—	1	
88. Diseases of the thyroid body	M	—	—	—	—	—	—	1	—	—	—	—	—	1	1
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
89 & 90-A. Bronchiectasis ...	M	—	—	—	—	—	—	—	1	—	—	—	—	1	1
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
89 & 90-B. Other bronchitis ...	M	13	32	23	3	—	—	—	2	5	1	4	—	83	151
	F	5	25	26	3	1	—	1	1	1	1	4	—	68	
91. Broncho-pneumonia ...	M	24	99	124	33	5	4	18	34	38	25	17	—	421	685
	F	18	71	118	26	6	4	4	3	5	5	4	—	264	
92-A. Lobar pneumonia ...	M	5	15	11	1	3	7	45	87	109	65	23	1	372	439
	F	2	9	10	7	2	2	4	16	5	7	3	—	67	
92-B. Pneumonia (type not stated)	M	8	53	59	16	6	25	41	84	67	71	42	—	472	719
	F	11	65	68	14	8	6	8	18	28	9	12	—	247	
93-A. Empyema	M	—	—	1	—	—	—	1	5	3	3	1	—	14	14
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
93-B. Other pleurisy ...	M	—	—	1	—	—	1	6	2	1	1	1	—	13	14
	F	—	—	—	—	—	—	1	—	—	—	—	—	1	
94-C. Hypostatic pneumonia ...	M	1	—	—	—	—	—	—	1	1	—	1	—	4	4
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
95. Gangrene of the lung ...	M	—	—	—	—	—	—	1	2	—	—	2	—	5	5
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
96. Asthma	M	—	—	—	—	—	—	—	3	4	13	15	—	35	48
	F	—	—	—	—	—	—	—	1	2	4	6	—	13	
98-A. Fibroid disease of lung ...	M	—	—	—	—	—	—	—	1	—	—	—	—	1	2
	F	—	—	—	—	—	—	1	—	—	—	—	—	1	
98-B. Other diseases of the respiratory system ...	M	—	—	—	—	—	—	—	2	2	—	—	—	4	4
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
V. Diseases of the Digestive System:—															2,080
99-A. Diseases of the teeth and gums	M	—	1	—	1	—	—	1	—	1	—	—	—	4	5
	F	—	—	—	1	—	—	—	—	—	—	—	—	1	
100-A. Tonsillitis	M	—	—	1	—	1	—	—	—	1	—	—	—	3	3
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
100-C. Other diseases of the pharynx	M	—	—	—	—	—	—	—	—	1	—	—	—	1	2
	F	—	—	—	—	—	—	—	—	1	—	—	—	1	

DISEASES	Sex	Under 3 months	3 to 12 months	1 to 5 years	5 to 10 years	10 to 15 years	15 to 20 years	20 to 25 years	25 to 35 years	35 to 45 years	45 to 55 years	Over 55 years	Unknown	TOTAL	
2. Perforating ulcer of stomach	M	—	—	—	—	—	2	—	6	10	4	1	—	23	25
	F	—	—	—	—	—	—	—	—	—	—	2	—	2	
3-A. Inflammation of the stomach	M	16	18	2	—	—	—	1	—	3	8	2	—	50	88
	F	10	10	3	—	—	—	1	1	3	5	5	—	38	
3-B. Other diseases of the stomach	M	—	—	—	—	—	—	1	1	1	2	—	—	5	9
	F	—	—	—	—	—	—	1	2	—	1	—	—	4	
4-A & 105-A. Infective enteritis	M	9	50	18	—	—	—	—	—	—	—	—	—	77	130
	F	9	26	16	2	—	—	—	—	—	—	—	—	53	
4-B & 105-B. Diarrhoea (not returned as infective) ...	M	48	29	15	—	—	—	—	—	1	—	1	—	94	156
	F	27	20	13	1	—	—	—	—	—	—	1	—	62	
4-C & 105-C. Enteritis (not returned as infective) ...	M	42	95	61	3	—	2	—	2	2	2	2	—	211	426
	F	58	92	60	2	—	—	1	—	—	1	1	—	215	
4-D & 105-D. Gastro-enteritis...	M	31	47	13	3	1	—	—	1	1	1	3	—	101	179
	F	21	39	15	—	—	—	—	1	—	1	1	—	78	
4-E & 105-E. Dyspepsia ...	M	—	—	—	—	—	—	—	—	—	—	—	—	0	1
	F	—	—	—	—	—	—	—	—	—	—	1	—	1	
4-H & 105-H. Duodenal ulcer...	M	—	—	—	—	—	—	—	—	5	—	—	—	5	5
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
5. Ankylostomiasis ...	M	—	—	—	—	—	—	1	6	3	2	—	—	12	21
	F	—	—	—	—	1	—	2	1	2	1	2	—	9	
7. Other intestinal parasites...	M	—	—	2	—	—	—	—	—	—	—	—	—	2	6
	F	—	—	4	—	—	—	—	—	—	—	—	—	4	
8. Appendicitis	M	—	—	—	—	1	3	6	14	6	3	1	—	34	35
	F	—	—	—	—	—	1	—	—	—	—	—	—	1	
9-A. Hernia	M	—	—	1	—	—	1	1	2	4	2	3	—	14	15
	F	—	—	—	—	—	—	—	1	—	—	—	—	1	
9-B. Intestinal obstruction ...	M	—	—	1	—	—	1	1	2	3	2	2	—	12	15
	F	—	1	—	—	—	—	—	—	—	1	1	—	3	
10. Other diseases of the intestines	M	—	—	—	—	—	—	—	2	—	3	—	—	5	7
	F	—	—	—	—	—	—	—	—	—	1	1	—	2	
13-A. Cirrhosis of liver (not returned as alcoholic) ...	M	—	—	—	1	—	2	—	12	23	10	12	—	60	72
	F	—	—	—	—	—	1	1	2	4	4	—	—	12	
13-B. Cirrhosis of liver (returned as alcoholic) ...	M	—	—	—	—	—	—	—	—	1	—	—	—	1	2
	F	—	—	—	—	—	—	—	1	—	—	—	—	1	
14. Biliary calculi	M	—	—	—	—	—	—	—	1	2	—	1	—	4	4
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
15. Other diseases of the liver...	M	—	—	—	—	1	—	4	9	12	7	2	—	35	36
	F	—	—	—	—	—	1	—	—	—	—	—	—	1	
15-A. Infarction of the spleen ..	M	—	—	—	—	—	—	—	3	1	—	—	—	4	5
	F	—	—	—	—	—	—	—	—	1	—	—	—	1	
15-B. Other diseases of the spleen	M	—	—	—	—	—	—	1	2	3	2	—	—	8	8
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
17. Peritonitis (cause unstated)	M	—	—	—	1	—	2	1	6	5	1	1	1	18	21
	F	—	—	—	—	—	—	—	2	1	—	—	—	3	
18-A. Abdominal abscess, sub-phrenic abscess ...	M	—	—	—	—	1	—	—	1	—	—	—	—	2	5
	F	—	—	—	—	—	—	—	1	1	1	—	—	3	
18-B. Other diseases of the digestive system ...	M	—	—	—	—	—	—	—	—	—	1	—	—	1	2
	F	—	—	—	—	—	—	—	—	—	1	—	—	1	
															1,283
I. Non-Venereal Diseases of the Genito-Urinary System and Annexa :—															
1. Acute nephritis ...	M	1	1	1	4	1	1	2	11	11	7	4	—	44	67
	F	—	1	2	6	1	1	5	2	2	2	1	—	23	

DISEASES	Sex	Under 3 months	3 to 12 months	1 to 5 years	5 to 10 years	10 to 15 years	15 to 20 years	20 to 25 years	25 to 35 years	35 to 45 years	45 to 55 years	Over 55 years	Unknown	TOTAL	
120-A. Bright's disease ...	M	—	—	1	1	1	2	1	21	26	68	99	–	220	
	F	—	—	3	1	1	3	3	14	20	13	28	–	86	X
120-B. Nephritis	M	—	—	4	2	—	1	6	11	17	22	24	–	87	
	F	—	—	4	1	1	—	5	5	13	11	6	–	46	13
122-A. Abscess of kidney ...	M	—	—	—	—	—	—	—	—	1	—	—	–	1	
	F	—	—	—	—	—	—	—	—	—	—	—	–	0	1
122-C. Suppression of urine ...	M	—	—	—	—	—	—	—	—	—	1	—	–	1	
	F	—	—	—	—	—	—	—	—	—	—	—	–	0	1
122-D. Other diseases of the kidney and annexa ...	M	—	—	—	—	—	1	1	2	—	3	1	–	8	
	F	—	—	—	—	—	—	—	1	—	—	—	–	1	9
123. Calculi of the urinary passages	M	—	—	—	—	—	—	—	—	1	—	—	–	1	
	F	—	—	—	—	—	—	—	—	—	—	—	–	0	1
124. Diseases of the bladder ...	M	—	—	—	—	—	—	—	1	—	1	—	–	2	
	F	—	—	—	—	—	—	1	—	2	—	—	–	3	5
125-B. Other diseases of urethra, etc.	M	—	—	—	—	—	—	—	—	1	—	1	–	2	
	F	—	—	—	—	—	—	—	—	—	—	—	–	0	2
126. Diseases of the prostate ...	M	—	—	—	—	—	—	—	—	—	—	1	–	1	
	F	—	—	—	—	—	—	—	—	—	—	—	–	0	1
127. Non-venereal diseases of male genital organs ...	M	—	—	—	—	—	—	—	2	—	1	—	–	3	
	F	—	—	—	—	—	—	—	—	—	—	—	–	0	3
128-B. Other uterine haemorrhage	F	—	—	—	—	—	—	—	2	1	—	—	–	3	1
129. Uterine tumour (non cancerous)	F	—	—	—	—	—	—	—	—	—	—	1	–	1	
130-B. Other diseases of the uterus	F	—	—	—	—	—	—	—	1	—	—	—	–	1	
131. Ovarian cyst, tumour ...	F	—	—	—	—	—	—	—	3	1	—	—	–	4	
132-B. Other diseases of the female genital organs ...	F	—	—	—	—	—	—	—	1	1	1	—	–	3	
VII. The Puerperal State :—															5
134-C. Uncontrollable vomiting	F	—	—	—	—	—	1	—	—	—	—	—	–	1	
134-D. Ectopic gestation ...	F	—	—	—	—	—	—	1	1	—	—	—	–	2	
134-E. Other accidents of pregnancy	F	—	—	—	—	—	—	—	2	—	—	—	–	2	
135. Puerperal haemorrhage ...	F	—	—	—	—	—	1	2	8	5	—	—	–	16	
136. Other accidents of childbirth	F	—	—	—	—	—	—	6	9	4	—	—	–	19	
137. Puerperal fever ...	F	—	—	—	—	—	3	5	10	6	—	—	–	24	2
138-B. Puerperal albuminuria and Bright's disease ...	F	—	—	—	—	—	—	—	1	1	—	—	–	2	
138-C. Puerperal convulsions ...	F	—	—	—	—	—	3	4	5	—	—	—	–	12	1
VIII. Diseases of the Skin and of the Cellular Tissue :—															7
142-A. Senile gangrene ...	M	—	—	—	—	—	—	—	—	—	—	1	–	1	
	F	—	—	—	—	—	—	—	—	—	—	—	–	0	

DISEASES	Sex	Under 3 months	3 to 12 months	1 to 5 years	5 to 10 years	10 to 15 years	15 to 20 years	20 to 25 years	25 to 35 years	35 to 45 years	45 to 55 years	Over 55 years	Unknown	TOTAL	
142-B. Noma, gangrene of mouth	M	—	—	1	1	—	1	—	1	2	—	—	—	6	8
	F	—	—	1	1	—	—	—	—	—	—	—	—	2	
142-C. Noma pudendi ...	M	—	—	—	—	—	—	—	—	1	1	—	—	2	2
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
142-D. Other gangrene ...	M	—	1	—	—	—	—	2	4	6	5	—	—	18	19
	F	—	—	—	—	—	—	—	—	—	1	—	—	1	
143. Carbuncle, boil ...	M	—	—	—	—	—	—	—	1	—	1	1	—	3	7
	F	1	3	—	—	—	—	—	—	—	—	—	—	4	
144-A. Phlegmon	M	—	—	—	—	—	—	—	2	7	2	—	—	11	14
	F	2	—	—	—	—	—	—	1	—	—	—	—	3	
144-B. Acute abscess ...	M	—	2	—	—	—	—	—	2	1	—	—	—	5	7
	F	—	—	—	—	—	—	1	—	—	—	1	—	2	
145-A. Ulcer, bedsore ...	M	—	—	—	—	—	—	2	1	5	—	—	—	8	9
	F	—	—	1	—	—	—	—	—	—	—	—	—	1	
145-C. Pemphigus	M	—	—	—	—	—	—	—	—	—	—	—	—	0	1
	F	1	—	—	—	—	—	—	—	—	—	—	—	1	
145-D. Other diseases of integumentary system ...	M	—	—	—	—	—	—	1	1	1	1	—	—	4	5
	F	—	—	—	—	—	—	—	—	—	—	1	—	1	
IX. Diseases of the Bones and of the Organs of Locomotion :—															73
146. Diseases of the bones ...	M	—	—	1	—	—	—	—	—	1	—	—	—	2	4
	F	—	—	—	—	—	1	1	—	—	—	—	—	2	
147. Diseases of the joints ...	M	—	—	—	—	—	—	1	—	1	—	1	—	3	3
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
X. Malformations :—															7
150-A. Congenital hydrocephalus	M	2	—	—	—	—	—	—	—	—	—	—	—	2	3
	F	—	1	—	—	—	—	—	—	—	—	—	—	1	
150-D. Other congenital malformation	M	5	2	—	—	—	—	—	—	—	—	—	—	7	11
	F	4	—	—	—	—	—	—	—	—	—	—	—	4	
XI. Diseases of Early Infancy :—															14
151-A. Premature birth ...	M	193	1	—	—	—	—	—	—	—	—	—	2	196	373
	F	174	2	—	—	—	—	—	—	—	—	—	1	177	
151-B. Infantile atrophy, debility and marasmus ...	M	81	30	—	—	—	—	—	—	—	—	—	—	111	200
	F	62	27	—	—	—	—	—	—	—	—	—	—	89	
151-C. Icterus neonatorum ...	M	2	—	—	—	—	—	—	—	—	—	—	—	2	2
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
152-A. Diseases of umbilicus ...	M	—	—	—	—	—	—	—	—	—	—	—	—	0	2
	F	2	—	—	—	—	—	—	—	—	—	—	—	2	
152-B. Atelectasis	M	8	2	—	—	—	—	—	—	—	—	—	—	10	16
	F	6	—	—	—	—	—	—	—	—	—	—	—	6	
152-C. Injuries at birth ...	M	1	—	—	—	—	—	—	—	—	—	—	—	1	1
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
153. Lack of care	M	—	—	—	—	—	—	—	—	—	—	—	—	0	1
	F	—	1	—	—	—	—	—	—	—	—	—	—	1	
XII. Old Age :—															595
154-B. Senile Decay... ...	M	—	—	—	—	—	—	—	—	—	—	225	—	225	415
	F	—	—	—	—	—	—	—	—	—	6	184	—	190	
XIII. Affections Produced by External Causes :—															415
177. Suicide by hanging ...	M	—	—	—	—	1	1	1	10	6	6	4	—	29	34
	F	—	—	—	—	—	2	—	—	2	1	—	—	5	
179. Suicide by firearms ...	M	—	—	—	—	—	—	—	1	—	—	—	—	1	1
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	

DISEASES	Sex	Under 3 months	3 to 12 months	1 to 5 years	5 to 10 years	10 to 15 years	15 to 20 years	20 to 25 years	25 to 35 years	35 to 45 years	45 to 55 years	Over 55 years	Unknown	TOTAL	
160. Suicide by cutting or piercing instruments ...	M	—	—	—	—	—	—	1	2	2	1	—	—	6	6
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
164. Poisoning by food ...	M	—	—	—	—	—	—	—	—	1	—	—	—	1	3
	F	—	—	—	—	—	1	—	1	—	—	—	—	2	
165. Other acute poisonings ...	M	—	—	—	—	—	—	—	4	1	4	—	—	9	12
	F	—	—	1	—	—	—	—	1	1	—	—	—	3	
167. Burns	M	—	1	5	—	—	1	—	3	1	1	1	—	13	24
	F	—	—	2	1	1	—	1	—	4	1	1	—	11	
168. Absorption of deleterious gases	M	1	—	—	—	—	—	—	1	—	—	—	—	2	2
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
169. Accidental drowning ...	M	—	—	—	1	4	1	4	11	5	4	1	—	31	39
	F	1	2	—	1	2	—	—	—	2	—	—	—	8	
170. Injury by firearms ...	M	—	—	1	—	—	—	1	2	3	—	—	—	7	8
	F	—	—	—	—	1	—	—	—	—	—	—	—	1	
171. Injury by cutting or piercing instruments	M	—	—	—	—	—	—	—	1	—	—	—	—	1	1
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
172. Injury by fall	M	—	—	—	—	—	—	—	1	4	1	—	1	7	8
	F	—	—	—	—	—	—	—	—	—	1	—	—	1	
175. Injury by other crushing ...	M	—	—	—	2	4	1	1	4	3	1	1	—	17	24
	F	—	—	—	—	1	—	1	—	—	1	4	—	7	
180. Lightning	M	—	—	—	—	—	1	—	—	—	—	—	—	1	1
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
181. Electrocution	M	—	—	—	—	—	—	1	—	—	—	—	—	1	1
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
182. Homicide by firearms ...	M	—	—	—	—	—	1	3	5	2	2	1	—	14	14
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
183. Homicide by cutting or piercing instruments ...	M	—	—	—	—	—	1	2	5	3	2	1	1	15	20
	F	—	—	—	—	—	—	2	—	2	1	—	—	5	
184. Homicide by other means...	M	—	—	—	—	—	—	—	2	—	—	—	—	2	2
	F	—	—	—	—	—	—	—	—	—	—	—	—	0	
185. Fractures	M	—	—	2	2	2	2	4	11	10	18	5	1	57	63
	F	—	—	1	—	1	—	—	—	—	—	4	—	6	
186. Other violence	M	—	—	—	—	2	3	7	12	8	4	1	1	38	41
	F	—	—	—	—	1	—	—	1	1	—	—	—	3	
															304
XIV. Ill-Defined Causes:—															
187. Dropsy	M	—	—	—	—	1	—	1	5	12	25	48	—	92	124
	F	—	—	—	—	—	—	—	6	5	5	16	—	32	
189-A. Heart failure... ...	M	—	1	—	—	—	—	—	2	1	2	3	—	9	11
	F	—	—	—	—	—	—	—	1	1	—	—	—	2	
189-B. Atrophy, debility, marasmus	M	—	—	31	5	3	2	1	2	2	3	5	—	54	117
	F	—	—	38	3	3	—	—	5	2	5	7	—	63	
189-D. Pyrexia	M	18	32	50	4	3	9	16	39	24	21	10	—	226	345
	F	12	36	28	8	5	4	6	15	1	1	3	—	119	
189-E. Other ill-defined deaths...	M	9	8	5	2	—	3	1	17	39	37	15	—	136	160
	F	9	6	3	—	—	1	—	1	—	—	2	2	24	
189-F. Cause not specified ...	M	3	1	—	—	1	1	1	3	5	5	—	7	27	30
	F	—	1	2	—	—	—	—	—	—	—	—	—	3	
															787
Total males ...	M	852	799	578	141	90	247	636	1736	1697	1413	997	19	9,205	13,085
Total females ...	F	672	663	579	134	70	104	180	379	368	274	454	3	3,880	
Grand Total ...	T	1524	1462	1157	275	160	351	816	2115	2065	1687	1451	22	—	13,085

Mortality According to Nationalities and Ages

The following return shows the number of deaths at different age periods in the different nationalities :—

Nationalities	Sex	Under 3 months	3 to 12 months	1 to 5 years	5 to 10 years	10 to 20 years	20 to 25 years	25 to 35 years	35 to 45 years	45 to 55 years	Over 55	Unknown	Totals	
Europeans	M	2	2	...	...	2	1	5	13	8	15	...	48	65
	F	1	...	2	...	1	1	2	3	4	3	...	17	
Eurasians	M	6	9	6	1	1	...	2	10	2	16	...	53	97
	F	5	4	5	1	3	1	7	1	6	11	...	44	
Chinese	M	678	607	479	117	258	511	1,447	1,487	1,261	817	17	7,679	10,694
	F	529	523	483	109	140	128	283	280	213	324	3	3,015	
Malays	M	128	126	48	16	34	26	95	53	57	74	...	657	1,187
	F	100	102	53	9	19	21	53	56	37	80	...	530	
Indians	M	33	47	37	5	39	90	178	120	73	62	2	686	911
	F	25	31	30	12	11	22	32	19	12	31	...	225	
Others	M	5	8	8	2	3	8	9	14	12	13	...	82	131
	F	12	3	6	3	..	7	2	9	2	5	...	49	
Total males	...	852	799	578	141	337	636	1,736	1,697	1,413	997	19	9 205	13.085
Total females	...	672	663	579	134	174	180	379	368	274	454	3	3,880	
Grand Total	...	1,524	1,462	1,157	275	511	816	2,115	2,065	1,687	1,451	22	...	13,085

The six chief causes of death for the last 4 years were:—

	1923	1924	1925	1926
Pneumonia	1,244	1,262	1,481	1,843
Malaria	869	848	962	1,600
Phthisis	1,434	1,276	1,254	1,294
Convulsions	644	839	877	1,114
Beri Beri	636	678	740	798
Dysentery	514	576	605	659

General Death Rate

The death rate was 3.83 per 1,000 higher than that of last year. Had the rate remained the same there would have been upwards of 1,500 fewer deaths. Owing to our imperfect methods of certification of deaths, theories as to the cause of this excess, must be largely speculative, but it is interesting nevertheless to examine the chief causes of deaths and see to what extent they have contributed to this excess.

In the first place there was a big increase in Malaria deaths. In 1925 Malaria accounted for 962 and in 1926 for 1,600. Assuming the same rate as for year 1925 there would have been approximately 1,000 deaths from this cause i.e. Malaria accounted for 600 of the excess.

The year 1926 was a very malarious one especially in the F.M.S. While there is no question that the Singapore rate was swollen by the

deaths of infected coolies from the F.M.S., there was undoubtedly a large increase of indigenous Malaria in certain parts of Singapore itself. This increase can, I think, be largely explained by climatic conditions but I propose to go more fully into that in my remarks on anti-malarial work.

Convulsions, by the same method of reckoning accounted for 200 more deaths than usual, Enteritis and Diarrhoea for 100, and Premature birth and debility also for 100. It is difficult to see what connection these causes of death have with Malaria especially as they operated mostly in the case of infants under one year. The excess of deaths from the first two of these causes is much more likely to be explained by the fact that it was a dry year, or at any rate the rainfall was unevenly spaced, when intestinal diseases would naturally be expected to be more prevalent. It is feasible however that the third cause Premature Birth and debility might have some reference to Malaria—it might operate in the case of malarious mothers.

The Pneumonias accounted for 300 more deaths than they would have done at the 1925 rates. This might be associated to some extent with the increased Malaria but it is much more likely to be explained by the increasing overcrowding.

Turning to the chief causes of death generally, we find that Phthisis accounted for 1,294 deaths as against 1,264 in 1925 and the Pneumonias for 1,843 as against 1,481. The total deaths from these two causes, 3,137, as last year, accounted for almost one quarter of the deaths from all causes. I will content myself with repeating as last year, that most of those deaths are avoidable in that they are caused by overcrowding. I do not propose to elaborate further as an Improvement Bill is at long last in process of being considered by the legislators. It has a reasonable chance of becoming law and while it omits much, it is at least a beginning. But I would like to strike one note of warning.

During the year one particularly bad slum area was acquired and demolished. Many of the plots have been sold and rebuilding on modern lines will soon be in progress. One of the conditions of sale by the Commissioners was that no new building in this area should be more than three storey. This is a very wise and a very necessary condition, as anything higher must mean overcrowding to the acre—with a continued high mortality rate from the two causes mentioned.

I say, therefore, that it should be made an absolute rule applicable all over the town both in the old and the new areas that no domestic building, and all shophouses are domestic buildings, will be allowed to exceed three storeys. And this question cannot be fought out too soon because there is undoubtedly a regrettable tendency on the part of Architects and others whose opinions unfortunately must carry weight, to back owners in their demand to build higher houses in order to get a better rental return.

It is the same old thing from which Singapore has always suffered—an attempt made to balance financial considerations against health. And it can't be done.

We are in grave danger of perpetuating slums almost as dangerous as they are to-day, for it is a certainty that anything more than three storey buildings will result in as heavy a density of population per acre as at present exists. One fact revealed by the census was that the present congested areas are full to saturation point. In other words the more accommodation is provided in these areas the more people will go there. What this means can only be realised by those who take the trouble to see for themselves, the present awful conditions in the congested areas.

The truth is that our present Ordinance is hopelessly out of date in the light of modern thought. The section dealing with the open area to be provided round a building lays down that one third of the site must be unbuilt on. When this was drawn up, our legislators had no knowledge of reinforced concrete buildings, and they meant it to apply to two storey or at most three storey buildings. But the Singapore Architect owner combine would have it applied to seven and eight storey buildings—which is ridiculous and was obviously never intended.

There are two ways of dealing with this coming evil.

(1) To increase the open area in proportion to the height of the building

(2) To limit, as said, all domestic dwellings to three storeys.

And I think the latter is preferable. For in this country where there is so little wind movement, especially at midday, the air in the back lanes and open spaces behind high buildings is stagnant, and the Sun's rays only penetrate to ground level for a few hours of the day.

It is tragic to think that to-day in England, with its too often sunless skies, Municipal Authorities are spending money feverishly in establishing light clinics in an attempt to capture what nature withholds, while we in Singapore, where nature is so bountiful, refuse the gift that means life to those born in our slums—because forsooth we refuse to keep pace with modern knowledge.

The objection urged that land in the congested areas is so expensive that high buildings must be built on it to return a reasonable rental leaves me unmoved. All the more reason for introducing new legislation now, so that anyone who buys property in future will know what to expect. But that apart, the argument is an unsound one. It is a vicious circle, for within limits the higher the building the greater the rental, as people will crowd in to the centre, and in consequence values go even higher. Whereas the real truth is that property in the congested areas has an entirely artificial value—due to the simple law of supply and demand. There is no place elsewhere for the people to go. The congested areas meantime can only expand in one direction—upwards. The real solution is to make the contiguous vacant lands fit for immediate building by putting in roads and all essential services. There is no question but that it will be built up—with a resulting fall in the value of domestic dwelling land in the congested areas.

I will close my remarks on this subject with one figure. Of the 8,966 mothers visited after confinement by the European Sisters of the Welfare Branch 7,789 were living in cubicles or single rooms.

But to show how little they understand who ought to help, let me relate that on account of the opposition of the local Architects Association it was with the utmost difficulty we were able to obtain in our byelaws a small increase in the kitchen accommodation of the domestic buildings in which these poor mothers live. In these houses every available foot of floor space is thrown into cubicles; there are no dining rooms or public rooms. Whole familien exist and have their entire being—house all their belongings—eat their food and often in addition cook it are born and live and die in a space of 100 square feet.

The same association I see from press reports, wishes to establish a tribunal of two Architects and one barrister to protect them from the arbitrary rulings of the Commissioners staff when that staff demands a very meagre pound of flesh. I shudder to think of the new Singapore left to their tender mercies.

Infantile Death Rate

The infantile death rate was 232 per 1,000 births compared with 210.3 in 1925 and 222.3 in 1924.

The rate for each nationality and sex was as follows:—

——	Males	Females	Total
Europeans	63.4	14.7	38.1
Eurasians	182.9	145.1	166.6
Chinese	229.9	219.2	225.0
Malays	356.7	299.7	329.0
Indians	245.3	170.7	207.9
Others	164.5	164.8	164.7
Total ...	241.0	221.6	232.0

As compared with the previous year these rates show increases for all races except Europeans.

It is disappointing that the steady improvement for the past three years has not been maintained. It is difficult to account exactly for the increased rate. I have nothing further in this connection, to add to my remarks under the general death rate.

Corrected Infantile Death Rate

From figures supplied by the Protectorate it appears that during the year 4,731 infants came to Singapore from China. Of these 1,451 left for other places leaving a balance of 3,280 who presumably remained in the city. If these are added to the total births then the infantile mortality rate falls to 185 per 1,000 which figure I am convinced more nearly represents the real rate. The corresponding figure for last year was 177.52 per 1,000.

Certification of Deaths

The following return shows the percentage of deaths the causes of which were certified by medicalmen, the Coroner and the Inspecting Registrars respectively :—

—	Europeans	Eurasians	Chinese	Malays	Indians	Others	Total
Registrars ...	1	11	3,433	769	234	16	4,464
Medicalmen ...	50	83	6,577	394	592	103	7,799
Coroner ...	14	3	684	24	85	12	822
Total ...	65	97	10,694	1,187	911	131	13,085

This gives a percentage of 34.1 certified by Registrars, as against 33.9 last year, 59.6 by Medicalmen as against 58.7 last year and 6.2 certified by the Coroner as against 7.2 last year.

The percentages for the last 10 years have been as follows :—

—	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926
Registrars ...	45.3	38.8	39.9	36 8	36.1	35.1	37.3	35.0	33.9	34.1
Medicalmen ...	49.4	55.8	55.2	58.1	58.3	58.2	55.4	58.5	58.7	59.6
Coroner ...	5.2	5.3	4.8	5.0	5.4	6.5	7.1	6.3	7.2	6.2

V. Registration of Births and Deaths

The numbers registered at the different offices were as follows :—

	Births.	Deaths.
Central Office ...	... 1,268	3,304
Prinsep Street Office ...	... 6,911	5,497
Kreta Ayer Office ...	... 4,692	4,284
	12,871	13,085

Sixteen births were registered in the Post Registration Book and the sum of $215 was received in late regisrtation fees.

Eleven queries were sent to Medical Practitioners for further information where the causes of death had been indefinitely stated.

VI. Analyst

During the year 9,928 samples were submitted for analysis. Details will be found in Mr. Harrington's report which is appended.

Municipal Water Supply. 7114 samples taken from all points were analysed. The results of these show that a very high standard of purity was maintained throughout the year. It is also pleasing to note that the slow sand filters began to give longer runs than ever before so that by

the end of the year 100 per cent. of the total supply was being filtered. If this is continued then as the Analyst points out it will be unnecessary to instal any mechanical filters with which experiments were carried out some years ago.

A certain amount of chlorination was successfully carried out on the water from both reservoirs throughout the year.

No taste troubles were reported.

37 samples from Gunong Pulai were analysed and all gave good analyses. The Analyst points out that the raw water from Johore almost approaches the condition of the island filtered supplies.

40 samples of well water were examined and all condemned as unfit for use.

Municipal Sewage Works. 1,506 samples from the works were analysed.

A special feature of the working of the Sewage Installations during the year was the addition of small amounts of Chlorine to the tank effluent before passing to the filter beds. In the words of Mr. Harrington "this addition improved the working of the filter beds almost beyond recognition." Further experiments of this nature will be carried out and will be watched with interest.

Private Sewage installations. 310 samples were examined.

Results on the whole were very satisfactory and go to prove that these small plants with reasonable supervision give consistently good results. Experience shows that more frequent desludging of these plants should take place.

With Mr. Harrington I agree that the control of these plants should be taken out of the hands of private individuals.

Milk Supplies. 398 samples were collected from itinerant vendors and of these 18.8 per cent. were adulterated. 17.8 per cent. were adulterated by the addition of water the average amount of adulteration being 12.6 per cent.

232 other samples of food supplies were analysed.

VII. Bacteriologist

Public Health Examinations. 9,737 specimens were received for examination. Details will be found in Dr. Gilmour's report which is appended.

Rats. The bodies of 5,241 rats were examined. None were found infected. Since the end of 1923 when systematic identification of rat fleas was commenced 19,440 fleas have been identified of which 19,362 were X. Cheopis 22 Astia and 56 Otenocephalus. The average number of fleas on all rats for the four years is 3.1. It is not proposed to carry this examination any further as enough evidence has been obtained to show the varieties present.

Municipal Water. 5,573 samples of water from various points in the supply were examined.

The Bacteriologist records that results are better than over before and that a high standard for the tropics has been maintained throughout the year. He also reports the great improvement in the running of the filters and mentions that on one day five woodleigh filters, all on long runs, showed no lactose fermenters in 100 c.c. (the home standard).

Mortuary. 21 postmortems were made during the year. 7 being cases of Cholera and 4 of Plague.

VIII. Anti Mosquito Work

Dr. Dawson's report is appended.

Anti Malarial Work. New works were carried out in ten big areas some of which were not completed at the end of the year. In these 5,027 yards of subsoil pipes, and 3,096 yards of concrete channels of anti malarial type were put down while 14,495 yards of main earth ditches were cut.

Extensions and repairs in existing areas involved the laying of a further 4,401 yards of subsoil pipes, and 1,655 yards of open channels.

With one exception all the work carried out was Anti Mosquito in nature i.e. an attempt being made to abolish breeding grounds of all mosquitoes. The method followed is to commence the drainage of any area, however small, at the point where the water from the area finds its final outlet into a main stream. Deep ditches are cut from this point, at the lowest possible level, back through the lowlying or swamp lands to the ravines The ravines are trenched in the same manner by one deep central ditch, and the floors are given a chance to dry out. Any seepages left in thn ravines are piped immediately while depending on the built up state of the country the main ravine ditches are channelled or left as they are until such time as permanent drains are required to carry off house drainage. Lower down in the swamp lands the subsoil water is dropped several feet in many cases and automatically acres of ordinary mosquito breeding grounds are abolished without filling. Naturally, in the process, many pig and duck ponds are dissipated but until such time as the land is required for other purposes squatters are allowed under general supervision, to carry on dry vegetable gardening. No interference with the main ditches is permitted. In this way large tracts of country have been freed of all natural breeding grounds.

The exception was in the many low lying tidal areas on the banks of the Kallang and Geylang rivers. in pools in these districts A. Ludlowi bred in large number during the year and undoubtedly was responsible for the increased malaria. In these districts an attempt was made to abolish the Ludlowi breeding grounds by preventing the entrance of salt water. This was done by bunding the area and providing the outlets with tidal gates. When the bunding is completed the smaller inside bunds enclosing vegetable and duck ponds are broken down and the water released so that in addition to the destruction of A. Ludlowi and Culex Sitiens breeding grounds by the cutting out of salt water the breeding grounds of countless other mosquitoes are destroyed. At the same time, as much of the land is so low lying, many breeding grounds must be left and only raising the land can make the districts mosquito free.

At the end of 1926 there had been completed since the work was first commenced, 15¾ miles of open channels of anti malarial type, 43¾ miles of subsoil pipes and 14½ miles of open earth ditches. With the exception of some miles of these last, which were made in the Ludlowi areas, practically all the rest of the work is in the hill and ravine areas where Maculatus breeds. The total ravine floor so treated is 1951 acres and the total country protected is approximately 17½ square miles.

To the end of 1926 approximately $850.000 have been spent on anti mosquito work. This figure embraces all costs including all maintenance and repairs of all work since the work was first begun, 15 years ago.

A figure of some interest is the cost of maintenance and repairs of all the completed areas for 1926, approximately $16,400, which, taking the estimated population for the year, works out at about 4 cents per head. The cost of all works for 1926 i.e. new works and maintenance of old, including all overhead charges is approximately 25 cents per head per annum.

During the year 4 gangs of 20 men each were permanently employed in maintaining the existing areas, 2 gangs were permanently employed in Patrol Work—cutting and trimming ditches filling or draining ponds,—collecting and disposing of empty tins, and clearing undergrowth &c. These two gangs work in a specified district, one in the General Hospital area and one in Katong. It is intended when all major works are completed to establish patrol gangs in all districts. They will carry out all anti mosquito work, including maintenance of areas in their districts. They will be in charge of the district Sanitary Inspector.

On new works some 6 gangs were permanently employed throughout the year. Towards the end of the year the force was augmented by 3 more gangs in order to expedite the Anti Ludlowi measures.

As previously mentioned in this report the year 1926 was more than usually malarious, both in the F.M.S. and in the Colony. There was undoubtedly a large increase of Malaria in Singapore in certain districts. Mosquito surveys in these districts revealed that Anopheles Ludlowi, a brackish water breeder, was present in unusual numbers. I have always found it breeding to a limited extent in these same districts, but during 1926 it was found in more pools than ever before and in far greater numbers. I am of opinion, that, so far at least as Singapore is concerned, this mosquito, in that it is always to be found, is not a relatively important carrier of Malaria, but that when it is breeding in large numbers in a fairly heavily populated district it becomes a carrier of serious importance. And I think the reason for the prolific breeding in 1926 has to do with the rainfall. It was a dry year, or at any rate a year when the rainfall was more unevenly spaced than usual.

The Ludlowi pools as a rule are found on the limits of the tidal rise. A high tide fills them with brackish water. A certain amount of rain dilutes them down to a point at which they are specially suitable for Ludlowi breeding. And when conditions are suitable for Ludlowi it breeds in enormous numbers so that the larvae may appear on occasion like a scum on the surface of the water. Continued rain dilutes the pools down until conditions are no longer suitable, when Ludlowi dies out or at any rate

breeds only with difficulty and in very small numbers. So that it would appear that a series of high tides followed by an unusually dry spell would produce conditions especially favourable to the breeding of Ludlowi. And undoubtedly these conditions were approached in 1926.

During the N. E. Monsoon some of the biggest tides of the year are experienced in January, February and March. These tides fill the further pools with salt water and should they be coincident with or followed immediately by a dry spell then the conditions are favourable for Ludlowi. Reference to the rainfall for 1926 shows that something like this actually happened. During March the rainfall was only 3.17 inches as against an average for March for the past 35 years of 9.03 inches. Allowing 3 months before the Malaria deaths would show, which is, I think, reasonable, we find on further reference to the mortality tables, that in June the Malaria death rate was .48 per 1,000, the highest reached during the year.

In 1911, one of the worst Malaria years, in the same way we find that in March the rainfall was 1.37 inches while the Malaria death rate in June was 1.92 per 1,000. Again in 1918 in March the rainfall was 1.90 while the Malaria rate was .75 per 1,000.

This is only theory but it would seem to be supported generally by the rainfall and Malaria death rate figures. In negative support of this theory it is found that the rainfall in March 1924 was 17.95 inches, while the Malaria death rate in June was .17 per 1,000 while the corresponding figures for 1925 were 7.99 and .19. During 1925 the rainfall for the first three months of the year, when highest tides are found, was nearly 43 inches against an average of 28.

My own experience in Singapore is that a dry spell also favours the breeding of Maculatus, but whatever the case upcountry I think Maculatus had nothing to do with the Singapore 1926 Malaria. Maculatus is not found in the districts in which Ludlowi is found. Maculatus is found only in the hill land, already protected and no evidence could be obtained of any undue prevalence of Malaria in this district. But the best proof of the absence of Malaria in the protected district is to be obtained from the Army figures. I understand that amongst the troops stationed at Tanglin Barracks, fomerly a notoriously unhealthy district no single case of Malaria occurred which could have been contracted in Tanglin. This absence of Maculatus Malaria in a malarious year, is incidentally the finest proof of the value of the anti malarial works already carried out in Singapore.

Gunong Pulai

Since my report of 1925 was issued no further figures with regard to the health of the labour force there, have been published. I consider it advisable therefore to bring them up to date and record them here.

During 1926 the average daily population of the village was 840. There were recorded during the year, malarious as it was only 120 cases which might have been contracted in the Gunong. Only those cases are included which showed positive microscopic findings or who had been over ten days in residence.

On analysis of these 120 cases it is found that only 45 are definitely labelled as first attacks all the others having had one or more previous

attacks. While many of these cases had their first attacks, at the 14th mile, 19th mile, Scudai and Pontian, all notoriously unhealthy places, all are treated as having been contracted in the Gunong except 12 which are treated as relapses, a definite history of previous attacks within a few weeks being obtained. Undoubtedly many more of the 120 were relapses but with ever changing coolies it is difficult to say what is relapse and what is a fresh attack. Nevertheless many must have contracted their Malaria outside and support for this statement is found in the fact that in those cases where the history can be relied upon definite proof was obtained that the infection was incurred elsewhere. For instance one European developed Malaria 12 days after a week end camp at Gemas another had had several attacks while living at the 18th mile before his quarters were built, while yet a third, shown as a sixth attack, had several attacks including his first while living at the 14th mile before coming to live in the Gunong.

Of the 45 labelled as first attacks 6 had been in the Gunong between 12 and 15 days only but all six had very much enlarged spleens and could not therefore have contracted their Malaria in the Gunong.

I propose therefore to discount only the 12 known relapses and these 6 leaving a total of 102 cases. This works out at 121.5 per 1,000 per annum.

Taking the first attacks only i.e. 45 and discounting the 6 who must have contracted their Malaria elsewhere the figure works out at 46.5 per 1,000 per annum.

I am satisfied therefore that the work originally carried out is sufficient and that the amount of Malaria contracted in the Gunong is to all intents and purposes negligible.

Several little extensions and repairs were carried out during the year; otherwise the work has stood the test of several heavy rains splendidly.

Pontian

Dependence is placed here on purely temporary measures so far, as the country is not yet opened up. All evidence goes to prove it is intensely malarious. No large body of labour moved in until September from which date returns were kept. From September to December the Malaria rate was 207 per 1,000. The figure for the corresponding period in the Gunong was 17 per 1,000.

IX. Nurses and Clinics

The European Sisters paid 12,767 visits during the year. Of these 8,999 were first visits, 2,436 revisits and in 1,332 wrong addresses had been given

Infants seen at first visits numbered 8,539 or 66.2 per cent. of total births, as compared with 70.2 per cent. in 1925. Of these 67 were ailing, and in 137 cases the cord was unhealthy.

There were 63 cases of twin births. Infants not seen numbered 460, of whom 174 had been put out to nurse, 188 were still born, and 98 had died before a visit could be paid.

6,385 infants were being breast fed 1,825 were receiving tinned milk, 308 were partly on breast and partly on tinned milk while 21 were receiving other suitable foods.

Of the 2,121 bottles in use 609 were of unsuitable pattern while 35 were dirty.

The condition of the mothers on first visits was satisfactory in 8,863, unsatisfactory in 74 while 9 had removed and 20 had died.

Of the mothers 49 had been attended by medical men, 28 by A. Class midwives, 6,110 by B. Class, 1,376 by C. Class, 1,028 by friends while 375 were unattended.

Of the 8,966 mothers seen 7,789 were living in cubicles or single roomed houses, and 1,177 in houses of more than one room.

Revisits

2,430 mothers and 2,436 infants were seen on revisits. Of the former 2,381 remained in satisfactory condition, 31 were ailing, 15 had removed and 3 had died. Of the infants 2,339 remained healthy 25 were ailing, 31 had been removed and 41 had died.

Clinics

During the year 9,286 new babies were entered on the books of the Clinics.

In the Clinics 20,778 consultations were held by the Sisters in charge.

In the districts first visits were paid by the Asiatic Health Visitors to 9,062 infants in their homes; 30,429 subsequent visits were paid to these infants.

Summarised the work of the two Clinics amounted to 64,432 consultations on 9,286 babies.

The work of the European District Visitors and that of the Clinics is now harmonised to prevent all possibility of overlapping. Whenever the sister is satisfied that a baby on her district requires no further attention from her it is struck off her list and added to that in the Clinic where it in turn comes under the attention of the Sister in charge of the Clinic and the Asiatic Health Visitors.

Four more Asiatic Visitors were appointed during the year bringing the total up to eight.

While I was on leave Dr. Lyall was in temporary charge of the Clinics. She effected many improvements in their running generally, and her work and advice were invaluable.

It becomes more and more apparent that a lady Medical Officer should be appointed to take permanent charge of all Infant Welfare Work, including the work of the European Sisters with supervision of the midwives, and the Clinics.

X. Midwives

At the end of the year there were 354 midwives on the Register. During the year the registered midwives attended 8,150 cases.

The following return shows the number and nationality of cases attended by B. and C. class midwives.

Europeans ...	... 3
Eurasians ...	... 89
Chinese ...	... 6,707
Malays ...	... 1,047
Indians ...	... 217
Others ...	... 47
Total	... 8,110

A. class midwives attended	... 40 cases
B. and C. do.	... 8.110 ,,
In Hospital there were	... 1,811 ,,
Total	... 9,961

The number of births registered during the year was 12,871 so that 77.3 per cent. of the mothers received some kind of skilled attention at the birth of their children.

In 680 cases the whole of the midwife's fee and in 1,102 part of it, was paid by the Commissioners—the total amount paid being $6,495.

XI. Food and Markets

The report of the Market Inspector is appended.

XII. Food Shops, etc.

Licenses were issued for.

394 Coffee Shops
227 Eating Houses
77 Meat Shops
21 Bakeries
12 Aerated Water Factories
2 Biscuit Factories
217 Milk Vendors
29 Lodging Houses

XIII. Places of Public Resort

Theatres, Hotels, Public Houses, Liquor Shops and Cinematograph Halls were periodically inspected and were found as a rule in a cleanly condition.

XIV. Slaughter Houses

233,014 animals were received for slaughter compared with 217,148 in 1925.

The figures are as follows :—

	1925	1926
Pigs	160,784	168,164
Sheep	28,402	33,320
Goats	6,220	8,770
Bullocks	21,199	22,374
Buffaloes	543	386
Total ...	217,148	233,014

41 animals were rejected as being in bad condition. The carcases of 1,396 dead or diseased animals were destroyed and 5,215 portions, injured or diseased, removed and destroyed.

There were 18,476 Australian Sheep received for slaughter.

XV. Offensive Trades

2,207 licenses for offensive trades were issued the fees amounting to $7,692.50.

There were 73 prosecutions for carrying on offensive trades withou license and 70 convictions were obtained with fines amounting to $762.50.

XVI. Hawkers

Hawkers were licensed and fees drawn as follows :—

	Number	Fees
Day Hawkers	1,818	$ 4,964.80
Night Hawkers	3,130	16,712.40
Itinerant Hawkers	1,815	1,815.00
	6,763	$23,492.20

XVII. Burial Grounds

The number of burials in Municipal Burial grounds was as follows :—

	1926	Since opening
Bidadari.—		
Protestant Division	168	2,225
French Roman Catholic Division ...	171	2,574
Portuguese do. ...	63	958
Pauper Division	599	8,289
Serangoon Road.—		
Mohammedan	421	3,590
Bukit Brown.—		
Chinese	1,218	3,040
Infectious Disease.—		
Serangoon Road	47	509
Yeo Chu Kang Road	Nil	554
Hindoo Cemetery.—		
Burials	285	310
Cremations	101	107
Total ...	3,073	22,156

There were 4,758 inspections made during the year by the Burial Ground Inspector.

19 exhumations were attended.

There were 131 cremations.

The following return shows the number of burial grounds in use, Public and Private, belonging to various nationalities, within Municipal limits.

	Public	Private	Total
Christian	2	—	2
Jewish	1	—	1
Parsee	1	—	1
Parsee Islam	1	—	1
Malay	5	5	10
Hokien	8	80	88
Teochew	1	9	10
Hindoo	1	—	1
Kling Islam	1	2	3
Prison and General Hospital	1	—	1
	22	96	118

The total number of burials inside Municipal limits for the year was 7,970 made up as follows:—

Europeans	92
Eurasians	129
Chinese	5,632
Malays	1,448
Indians	604
Others	65
...	7,970

XVIII. Staff

I went on long leave in March and returned in November. Dr. Dawson acted as Health Officer during my absence.

Dr. N. A. Canton was appointed A.H.O. and joined the service in January. Dr. A. J. Copeland was appointed A.H.O. and joined the service in June.

Dr. Gilmour, Bacteriologist and Resident Medical Officer Middleton Hospital returned from leave in October. Dr. Thurai acted in charge of the Hospital during his absence.

Mrs. Lyall was appointed Lady Medical Officer in charge of Infant Welfare Work during my absence on leave.

Mr. Wilson, Divisional Sanitary Inspector returned from leave in February. During most of the year he acted as Chief Sanitary Inspector.

Mr. McMorine Divisional Sanitary Inspector returned from leave in December.

Mr. Holley, Superintendent of Abattoirs returned from leave in June.

The services of Mr. Cuckney, Chief Sanitary Inspector were dispened with in February. Mr. Benjafield of the Anti Mosquito Department was appointed to the vacancy with effect from January, 1927.

Health of Municipal Staff

There were 6,384 cases of sickness treated, 636 persons were sent to hospital, 4,321 days sick leave were granted and 5,488 dressings were applied. 67 visits were paid to patients in their homes.

XIX. General

There were 12,063 notices including 7,955 intimations served during the year which with 1,419 from the previous year made a total of 13,482.

Of these 11,325 were complied with during the year.

There were 77 arrest cases—mostly unlicensed milk sellers. There were 114,278 inspections made, 15,27 prosecutions 1,380 convictions and fines imposed amounting to $9,770.90.

XX. Appendices

The following reports and returns are appended :—

A. Report of Analyst.
B. Report of Bacteriologist.
C. Anti-Mosquito Report.
D. Report of Superintendent Middleton Hospital.
E. Report of Food and Market Inspector.
F. Return of Inspections, Prosecutions, etc.
G. Return of Notices.
H. Summary of Arrest Cases.
I. Return of Licenses for Offensive Trades.

I have the honour to be,

Sir,

Your obedient servant,

P. S. HUNTER,
M.A., M.B., Ch.B., D.P.H.,
Municipal Health Officer.

SINGAPORE MUNICIPALITY.

NINETEENTH ANNUAL REPORT

OF THE

MUNICIPAL ANALYTICAL LABORATORY

FOR THE YEAR

1926

BY

A. C. HARRINGTON, F.I.C., F.C.S.

SINGAPORE, *5th February, 1927.*

TO,

THE MUNICIPAL HEALTH OFFICER.

SIR,

I have the honour to submit herewith the Nineteenth Annual Report of the Municipal Laboratory.

During the year 1926 a total of 9,928 samples were analysed and the following table summarises the nature of these samples.

Waters from Municipal Public Supply	7,114
Waters from Johore	50
Well Waters	40
Miscellaneous Waters	28
Sewages, Effluents, etc. from Municipal Sewage Works	1,506
Sewages, Effluents, etc. from Private Installation ...	310
Milks from Itinerant Vendors	398
Tinned Milk	93
Milk Foods	6
Emulsified Milks	15
Cream and Ice Creams	8
Butter	8
Flour, Bread and Biscuits	18
Vegetable Ghee	7
Tea	9
Tinned Meat and Fish	17
Aerated Waters	19
Sugar and Jams	15
Alcoholic Liquors	17
Samples from C. R. E. J.	65
Do. Municipal Engineer	70
Do. Gas Department...	8
Do. Electrical Department	6
Do. Water Department	10
Do. Bridge Engineer	2
Do. Building Surveyor	1
Do. Sanitary Engineer	1
Do. Fire Brigade	1
Do. Health Department	16
Action of Water on Concrete pipes	110

Waters from Municipal Public Supply

During the year 7,114 samples of water from the Municipal public supply were analysed. The samples came from the Impounding Reservoirs, the streams feeding these Reservoirs, Filter beds at Bukit Timah Road and Woodleigh, clear water tanks, high level service reservoirs, and various stand pipes and taps in the town.

The water passed into the Town's supply showed no signs of unoxidised sewage contamination on any occasion and as the supplies were analysed daily it may be said that the water for consumption was above suspicion throughout the year.

The intermittent contamination in some of the streams leading into Thomson Road Reservoir that was reported on last year has gradually died away until at the end of the year it may be said to have ceased entirely. It is fortunate that the outlets of these streams are situated some considerable distance from the outlet valves of the reservoir as sufficient time is given in the passage of the water down the reservoir for these contaminations to become fully oxidised and thus to be rendered innocuous before they reach the supply pipes leading direct to the filter beds. Daily analyses of samples taken from the Valve Tower at Thomson Road Reservoir were made and on every occasion the water was above suspicion.

It is however advisable not to rely entirely on the fact that the contamination of streams will be rectified in the reservoir and it should not be a difficult matter to keep these contaminations down to a minimum.

Daily analyses were made of samples taken from the various streams and the Valve Tower at the Kallang River Reservoir. The results showed that this supply was above suspicion.

The alterations made in the filter beds were a great success and towards the end of the year the results given by the beds were excellent. Long runs of over 100 days were made at the rate of 400 gallons per square yard. Such results have not been made previously. Analyses showed that throughout these long runs the chemical characteristics of the effluent were good. I would suggest however that when it is possible the effluent be run to waste for at least a day, (longer if possible) after a bed has been rested as the first water delivered is rather high in free ammonia.

As it is now possible with the slow sand filter beds at our disposal to filter well over the maximum amount that will be required from the island reservoirs it is indicated that it will not be necessary to instal the rapid mechanical filters with which experiments heve been made. This is satisfactory as the slow sand filter accomplishes the work that is required as well as any other type of filter. We start here with a supply which has no sewage contamination but which has suspended and colloidal vegetable and mineral matter. The amount is comparatively small but the water cannot be considered entirely satisfactory unless it is filtered before distribution. Unfiltered water especially in the very hot weather is liable to develop disagreeable odours and an unsightly appearance. Water which is allowed to stand in jars and other receptacles for some time shows a green deposit and has a bad smell and this is due to the rapid multiplication of vegetable organisms not visible at the time of delivery. So as the slow sand filter beds at Bukit Timah Road and Woodleigh filter out the suspended and colloidal vegetable and mineral matter they do all that is required and probably in the most efficient and cheapest way.

The end of the period of efficiency of a filter is shown by the rise in the Free Ammonia figure which indicates that the vegetable matter is coming through in a dissolved and presumably decomposed condition. Samples are taken from each filter bed every day and the results of the analysis are sent to the Water Engineer so that he can see how each bed is progressing.

Samples from the service reservoirs were analysed daily. In every case they were free from contamination. As this water represents that delivered direct to the town the results are very satisfactory.

Samples from various taps and standpipes in the town were analysed from time to time. On occasions the amount of vegetable matter was high indicating that the pipes required flushing. Recommendations were made to this effect.

The colour of a sample of water from a tap in my laboratory is still taken daily in a 2 foot tube by a Lovibond's Tintometer. This is a useful test as the colour registered gives a very good idea of the amount of vegetable matter in the water. Towards the end of the year when 100 per cent. of the water was being filtered the colour was very good.

Samples from the Seletar area were analysed daily. The contamination of this supply was very infrequent as compared with previous years. When this supply was in use it was chlorinated and analyses of the chlorinated water were made daily with satisfactory results.

Chlorination of the water from the Thomson Road Reservoir to the extent of ½ part per million commenced towards the end of the year. Examination of the water when it arrived at Bukit Timah Road filters showed that all the free chlorine had been absorbed by the water.

I append the results of chemical analyses of average samples of water taken from the two impounding reservoirs and an average sample of filtered water.

	Results expressed in parts per 100,000		
	Thomson Road Reservoir	Kallang River Rerervoir	Filtered Water
Total Solids	2.19	2.47	0.85
Total Organic Solids	1.19	1.21	0.39
Total Inorganic Solids	1.00	1.26	0.46
Suspended Organic Solids	0.79	0.81	0.02
Suspended Inorganic Solids	0.55	.78	0.01
Dissolved Organic Solids	0.40	0.40	0.37
Dissolved Inorganic Solids	0.45	0.48	0.45
Chlorine as Chlorides	0.03	0.03	0 03
Free and Saline Ammonia	Absent	Absent	Absent
Albuminoid Ammonia	0.005	0.005	0,001
Nitrogen as Nitrites	Absent	Absent	Absent
Nitrogen as Nitrates	Absent	Absent	Absent
Oxygen absorbed in 15 minutes at 84°F	0.019	0.022	0.009
Oxygen absorbed in 4 hours at 84° F	0.068	0.075	0 029
Total Hardness	0.5°	0.5°	0.5°
Temporary Hardness	0.0°	0.0°	0 0°
Permanent Hardness	0.5°	0.5°	0.5°
Poisonous Metals	Absent	Absent	Absent
Iron	0.11	0.12	Absent
Appearance in 2 foot tube	Slightly turbid	Slightly Turbid	Clear
Colour in 2 ft. tube Lovibonds Yellow	5.1	5.7	1.2
Do. do. Red	0.9	1.2	0.3
Do. do. Blue	0.5	0.5	1.1
Microscopical Examination	Fungi and Vegetable Debris	Fungi and Vegetable Debris	Few Fungi
Reaction	Neutral	Neutral	Neutral

Waters from Johore

Thirty seven routine samples from Gunong Pulai were analysed.

All these samples were free from unoxidised sewage matter and other harmful contamination.

The characteristics of this water are very similar to the present public supply. It is a very pure supply from the point of view of its potability and the only objection that can be taken to it is the vegetable and inorganic matter contained in suspension. However it contains far less vegetable matter than the water which is delivered from our island reservoirs and in its present condition is very similar to the filtered supply. It is probable however that when this water is collected in a reservoir the amount of vegetable matter will increase considerably.

I append representative analyses of samples taken from the usual streams.

	Results expressed in parts per 100,000		
	Pulai II	Pulai III	Pontian Guage
Total Solids	3.12	2.85	3.37
Organic Solids	0.87	0.73	0.86
Inorganic Solids	2.25	2.12	2.51
Free and Saline Ammonia	0.0015	0.002	Absent
Albuminoid Ammonia	0.0035	0.0025	0.0035
Chlorine as Chlorides	0.05	0.05	0.05
Nitrogen as Nitrites	Absent	Absent	Absent
Nitrogen as Nitrates	Absent	Absent	Absent
Oxygen absorbed in 15 minutes ...	0.20	0.17	0.20
Do. do. 4 hours ...	0.60	0.58	0.63
Total Hardness	0.5°	0.5°	0.5°
Temporary Hardness	0.0°	0.0°	0.0°
Permanent Hardness	0.5°	0.5°	0.5°
Poisonous Metal	Absent	Absent	Absent
Appearance	Clear & bright	Clear & bright	Clear & bright
Colour in 2 foot tube Lovibonds Yellow ...	1.0	1.0	3.0
Do. do. Red ...	0.25	0.20	0.7
Do. do. Blue ...	0.35	0.35	0.5
Reaction	Neutral	Neutral	Neutral

Seven special samples from Gunong Pulai II Guage were analysed for Mr. Gourlay. On two days slight trace of unoxidised sewage were present.

Four samples of water from Pontian were analysed. The samples were from the temporary drinking supply. On the first two occasions I reported that the water was contaminated with unoxidised sewage matter. On the other occasion two samples were sent one from "Tributary Stream" and the other from "Present Supply." The first was quite a pure supply the second was again contaminated with unoxidised sewage matter.

A sample taken from the 5th mile Scudai was contaminated with unoxidised sewage matter.

Well Waters

Forty samples were analysed and all were condemned as unfit for use owing to heavy contamination with unoxidised sewage matter.

All samples were taken from the more populous districts of the town and as I have consistently pointed out, it is impossible for wells situated as these are to yield a pure supply. They must be constantly contaminated.

No well should be allowed to be open in the more thickly populated parts of the town and a strict look-out should be kept that such wells are not re-opened.

Miscellaneous Waters

Twenty eight samples were analysed.

Twenty two samples from Mandai Quarry were received. This water is disinfected by the addition of Chlorinated Lime. As on occasions the water has contained a considerable excess of free chlorine the dosing would not appear to be very regular. The chemical results vary and sometimes the water is only of poor quality.

Six samples were sent in by the Water Engineer for decision as to whether water running down drains alongside roads was due to broken mains or to natural causes.

Sewages Effluents, etc. from Municipal Sewage Works

1,506 samples were received for analysis and these consisted of the following :—

Crude Sewage	232
Imhoff Tanks	232
Filter Beds	810
Fall	232

The strength of the Crude Sewage varied very considerably throughout the year. For instance in the month of November the highest figure for Suspended Matter was 210 parts per 100,000 and the lowest was 28 parts. These variations which cannot be avoided must to a certain extent interfere with the efficient working of the installation.

The Crude Sewage taken as a whole is much stronger than that dealt with in similar installations in Great Britain but on the other hand the more equable and higher temperatures experienced here allow the purification processes to proceed at a greater rate. Another favourable point in the

Singapore installation as compared with home installations is that there are no upsetting trade wastes to interfere with the purification processes.

The Imhoff Tanks have a great effect in reducing the inequalities of the crude sewage but in the month of November referred to above, the suspended Matter figures varied considerably. The highest was 58 parts per 100,000 and the lowest 12 parts. As a rule however the suspended matter is fairly constant and varies between 24 and 36 parts per 100,000.

New Imhoff Tanks were built during the year but were not in operation until the end of December.

The scum that forms on top of the sewage in the Imhoff tanks still causes a good deal of trouble in its removal. The composition of this scum is in my opinion the same as that of the deposit or sludge but the reason for its appearance as scum is that gas forms in particles of the decomposing sludge and these particles are thus carried to the surface. Undoubtedly a good deal of the scum would be avoided if the dumping of crude night soil were decreased.

The great feature of the working of the Sewage Installation this year has been the addition of small amounts of free Chlorine to the Imhoff Tank effluent just before it is passed on to the filter beds. There can be no doubt that this addition has improved the working of the filter beds almost beyond recognition and it is now a pleasure to watch the effluent from these beds flowing down the channels to the Humus Tanks. In 1925 I gave in my annual report a figure of 1.53 parts per 100,000 of Oxygen absorbed in four hours for an average sample of effluent from the Coral Beds. An average figure for the same beds during the last two or three months since the addition of chlorine would be between 0.7 to 0.6. This figure, which is, in my opinion the best one by which to judge the quality of an effluent, compares very favourably with those from the best installations in England. These results therefore are very encouraging when it is remembered that they are obtained from beds many years old and which have been thoroughly overworked.

The results obtained from the Granite Beds by chlorinating the Imhoff Tank effluent before it passes on to them have been equally encouraging. The Oxygen Absorbed figure has been somewhat lower and has on occasions gone as low as 0.5 parts per 100,000. This again compares very favourably with the average figure I gave last year of 0.96 parts.

The first experiment, suggested by the P.M.C. after reading an article in the Engineering News Record by Mr. Morris M. Cohn, was tried on the old coral bed No. 3. It was decided to dose it to the extent of 2 parts per million. A chlorine water was made, its strength determined and the correct volume was added to the Imhoff Tank Effluent being sprayed on to the bed. On the first day the Filter Effluent was of bad quality as the amount of suspended matter rose to 14 parts per 100,000. It would thus appear that the first effect of the chlorine was the liberation of Humus in the bed. On the second and third days the effluent improved very considerably and the last figures obtained were 0.65 parts per 100,000 of Oxygen absorbed in 4 hours and 2.4 parts per 100,000 of suspended matter.

The experiment was then continued on a granite bed and similarly encouraging results were noted. After a few weeks chlorination was stopped and it was noted then that the character of the effluent slowly changed for the worse.

A Paterson's Chlorinome was then installed and all the Imhoff Tank Effluent was dosed with free chlorine to the extent of 2 p.p.m. All the filter beds immediately responded and excellent results have been obtained to date.

An increase of the dose to 3 p.p.m. was tried for a short time and as this did not increase the efficiency of the beds the amount was again reduced to 2 p.p.m.

It is hoped by chlorination to stop the growth of the film that grows on the surface of the coral beds and causes ponding. Experiments have been carried out on the effect of strong chlorine solution on pieces of this film and in a comparatively short time disintegration has been noticed. It is therefore hoped that even if the weaker chlorine solution does not remove the film which has already formed it may stop further growth.

As the amount of chlorine added to the Imhoff tank effluent is so small the great improvements noted cannot be explained chemically. The results I think must be due to bacteriological action. Preliminary tests by the Municipal Bacteriologist indicate that the number of denitrifying organisms is reduced by the addition of free Chlorine to the Imhoff Tank effluent. It may therefore be suggested that the chlorine has a selective action on the organisms in the sewage, destroying or rendering less powerful those which are harmful in the purification process and not affecting those, such as nitrifying organisms, which have a beneficial action, to anything like the same degree.

The chloride content of the sewage has varied considerably during the year. The amount I think depends on the proportion of sea or sub-soil water which leaks into the sewers.

I append some typical results obtained during the latter part of the year when chlorination was in full swing.

	Result expressed in parts per 100,000	
	Crude Sewage	Imhoff Tank Effluent
Free Ammonia	4.1	6.0
Albuminoid Ammonia	3.2	2.5
Nitrogen as Nitrites	Present	Present
Nitrogen as Nitrates	Trace	Trace
Oxygen absorbed in 4 hours ...	16.65	8.61
Reaction	Alkaline	Alkaline
Suspended Matter	90.2	28.0
Suspended Organic Matter	69.9	23.7
Suspended Inorganic Matter ...	20.3	4.3
Chlorine as Chlorides	168.0	176.5

Effluents	Coral Bed	Granite Bed	Fall
Free Ammonia	0.54	0.16	2.8
Albuminoid Ammonia... ...	0.12	0.04	0.36
Nitrogen as Nitrites	Present	Present	Present
Nitrogen as Nitrates	1.0	1.6	0.2
Oxygen absorbed in 4 hours ...	0.70	0.51	1.41
Dissolved Oxygen absorbed in 5 days	4.4	2.4	...
Reaction	Alkaline	Alkaline	Alkaline
Suspended Matter	2.6	1.2	5.4
Suspended Organic Matter ...	2.1	1.0	4.6
Suspended Inorganic Matter ...	0.5	0.2	0.8
Chlorine as Chlorides	161.0	158.0	160.0

The character of the fall effluent of course depends to a great extent on the amount of Imhoff Tank effluent by-passed.

Sewages. Effluents, etc. from Private Installations

310 samples were analysed altogether and these consisted of samples of the tank effluent delivered on to the coral beds and also samples of the purified effluent from the coral beds.

These installations are now on the whole looked after better than they were a few years ago and undoubtedly this care is shown in the improved character of the effluents. If unsufficient care is taken to ensure the cleansing and removal of obstructions in the distributing apparatus, this is at once reflected in the character of the filtered effluent which becomes very turbid and putrescible. For these reasons I am of the opinion that it would be far more satisfactory if the care of these installations were under direct Municipal control as they would then receive proper and constant cleaning.

The de-sludging of sedimentation tanks is also an important point in the proper working of these plants and I have now recommended that everyone be desludged at least once a year.

The increase in the size of the plant at Keppel Rest House has had the desired effect of greatly improving the quality of the effluent. This shows that an installation should not be used for a greater number of persons than that for which it was originally designed.

I append results obtained in November 1926, and compare them with the results obtained in September 1925 when practically no purification was taking place.

Keppel Rest House Filtered Effluent	Results in parts per 100,000	
	November 1926	September 1925
Free and Saline Ammonia	0.80	3.0
Albuminoid Ammonia	0.08	0.76
Oxygen absorbed in 4 hours ...	0.61	5.73
Suspended Matter	3.4	19.2
Suspended Organic Matter	2.4	14.4
Suspended Inorganic Matter ...	1.0	4.8
Chlorine as Chlorides	7.0	7.4
Nitrogen as Nitrates	1.1	0.2

The installation for the Straits Trading Co. at Bushy Park continues to work excellently and the results obtained from double filtration are very good. The oxygen absorbed figure is as low as 0.23 parts per 100,000 and the suspended matter only 1.2 parts.

The installation at Sea View is now working well since the beds have ripened.

It is intended to chlorinate one of the private installations by means of bleaching powder to the extent of two parts of free chlorine per million of tank effluent. It is hoped that occasional doses will have a tonic effect on beds which are deteriorating.

Milks from Itinerant Vendors

398 samples were collected and handed to me for analysis.

Out of these 75 or 18.8 per cent. were adulterated. 71 or 17.8 per cent. were adulterated by the addition of water and 4 or 1.0 per cent. were deficient in fat.

The following table shows the total number of samples taken during the past ten years, the percentage adulterated and the average adulteration.

Year	Number	Percentage Adulteration	Average Adulteration
1917	118	78.8	21.35
1918	20	85.0	42.6
1919	396	26.8	...
1920	807	18.3	13.8
1921	728	18.1	9.2
1922	819	15.4	13.6
1923	534	18.7	14.3
1924	444	17.8	19.2
1925	319	24.6	15.1
1926	398	18.8	12.6

The average adulteration for added water was 12.6 per cent. and the following table classifies the percentage adulterations by the addition of water for the year.

Between 60 per cent. and 50 per cent. of added water						...	1
,,	50	,,	40	,,	,,	...	1
,,	40	,,	30	,,	,,	...	4
,,	30	,,	20	,,	,,	...	7
,,	20	,,	10	,,	,,	...	23
,,	10	,,	4	,,	,,	...	20
Below 4 per cent. of added water					...	...	15

The deficiencies in fat varied from 20 per cent. to 6.15 per cent.

No other form of adulteration was detected.

Tinned Milk

Ninety three samples were analysed. They were of the usual three varieties viz. natural milk, condensed unsweetened and condensed sweetened.

All the natural milks were up to the standards required by the Foods and Drugs Ordinance.

The samples of condensed milk were satisfactory except that in four cases the dilution clause was not properly stated. The vendors were warned that they must alter their labels and have them approved by the Colonial Secretary.

Milk Foods

Six samples were analysed and these were all infants' foods. They did not contain any woody fibre or any mineral substance insoluble in acid.

The main constituents of these foods are desiccated milk powder with added milk sugar and in some cases desiccated malt extract.

Emulsified Milks

These are the product of desiccated skimmed milk powder butter fat and water.

Fifteen samples were analysed and all were up to standard.

Cream and Ice Cream

Three samples of cream were analysed. They were all single creams containing from 25.28 per cent. of milk fat.

Five samples of ice cream were analysed. All were of good quality and contained over 10 per cent. of milk fat.

Butter

Eight samples were analysed. All contained over 80 per cent. of milk fat and not more than 16 per cent. of water and therefore complied with our regulations.

Boric acid was present in three of the samples but in all cases the amount present was under 0.5 per cent.

Flour, Bread and Biscuits

Ten samples of flour, six of bread and two of biscuits were analysed.

In two cases the acidity of the flour indicated that the sample was not as fresh as it should be. Subsequent samples taken from the same vendors did not show this acidity.

Vegetable Ghee

Seven samples were analysed and all were of good quality.

They contained no animal fat.

Tea

I analysed nine samples of tea and tea dust.

One sample of dust contained more than 5 per cent. of ash insoluble in water. The import of this inferior tea dust was stopped.

All the other samples were up to standard.

Tinned Meat and Fish

Ten samples of tinned meats and seven samples of tinned fish were examined.

All these foods were in good condition and poisonous metals in solution were absent.

Aerated Waters

Nineteen samples were analysed to see if they contained poisonous metals in solution.

Four samples contained lead and copper in solution and this was reported to the Chief Sanitary Inspector.

Sugar and Jams

Ten samples of sugar were analysed. All were up to standard and contained over 99.5 per cent. of saccharose.

Five samples of jam were analysed and all complied with the regulations under the Sale of Food and Drugs Ordinance.

Alcoholic Liquors

Three samples of whisky were analysed owing to complaints that inferior brands were being filled into bottles of well known makes. The analytical figures obtained were compared with those obtained from unopened and sealed bottles. In all cases the result obtained showed that the suspicions were groundless.

Five samples of Brandy were analysed and these contained the requisite amount of Ethers and were of the correct alcoholic strength.

Nine samples of Beer were analysed. They were all arsenic free. Four samples contained sulphur dioxide added as a preservative but in all cases the amount was under that allowed.

Samples from C. R. E. J.

I analysed 64 samples of soil and reported as to whether they were acid alkaline or neutral.

I analysed one sample of mosquito gauze which was said to be made of brass. As it contained no copper I reported that it could not be brass. The main constituent was iron.

Samples from Municipal Engineer

I analysed the following samples and sent in reports on same.

Coral	5
Clay	1
Sand	12
Flux Oil	1
Asphalt Oil	1
Porous Concrete	1
Granite Filler	22
Stone Filled Sheet Asphalt	20
Binder Sheet Asphalt...	5
Trinidad Sheet Asphalt	2

Samples from Gas Engineer

I analysed three samples of spent oxide one of Dutch Bog Ore, three of coal and one of coke.

Samples from Electrical Department

I analysed one sample of Coal including an estimation of its Calorific Value.

I analysed two samples of Transformer Oil with special reference to their Sulphur content and reaction.

I analysed two samples of Condensate for their Sodium Chloride content.

I determined the composition of a brown powder forwarded to me by the Meter Superintendent.

Samples from Water Department

I determined the action of the Municipal water on lead and copper pipes. In both cases after short contact the water had taken up distinct traces of these poisonous metals.

I analysed a sample for the presence of Kerosene Oil and found it absent.

I analysed two samples of sand, four of coal and one of liquid fuel.

Samples from Bridge Engineer

I analysed one sample of concrete.

Samples from Building Surveyor

I analysed one sample of concrete.

Samples from Sanitary Engineer

I carried out an absorption test on a Concrete pipe.

Samples from Fire Brigade

I analysed a sample of perfume and found that the solvent consisted of Ethyl Chloride.

Samples from Health Department

I analysed a sample of effluent from a rubber works on Bukit Timah Road and also a sample of water from the canal just above the inflow.

The results showed that the effluent was very high in oxidisable and suspended matter.

Several samples of Urine were analysed for sugar and Albumin.

Action of water on Concrete Pipes

A comparison of the amount of inorganic matter in the Kallang River Reservoir Water and the same water after it has passed through the concrete main, has been made by a number of tests throughout the year.

The tests still show that the water has a very distinct solvent action on the pipes. The amount of cement dissolved per gallon is however slightly less than in previous year.

The absorption of cement by a tap water from different Hume pipes was also investigated. Three pipes were taken, one was an ordinary Hume pipe, another an ordinary Hume pipe coated with silicate of soda, another a Hume pipe made partially of Tras. No conclusive results were obtained after many tests.

I have the honour to be,
Sir,
Your obedient servant,
A. G. HARRINGTON, F.I.C., F.C.S.,
Municipal Analyst.

FOURTEENTH ANNUAL REPORT

OF THE

MUNICIPAL BACTERIOLOGICAL LABORATORY

SINGAPORE

BY

COLIN C. B. GILMOUR, M.A., M.B.

BACTERIOLOGICAL LABORATORY,
SINGAPORE, 11th February, 1927.

TO,

THE MUNICIPAL HEALTH OFFICER.

SIR,

I have the honour to forward the report on the working of this department during the year 1926.

Public Health Examinations

During the year 9,737 specimens were received for examination made up as follows:—

Malaria

1,418 blood films were examined in 520 of which or 36.6 per cent. the malaria parasite was found 246 were Subtertian, 262 Benign Tertian, 10 Quartan and 2 mixed infections. Of the positive films 229 came from Gunong Pulai, 38 from Mandai Quarry, 35 from the Health Department and 215 from practitioners.

Tuberculosis

379 specimens of sputum were examined, in 92 of which the Tubercle bacillus was demonstrated. 3 specimens of urine and 2 of pus were examined with negative results.

Typhoid and Paratyphoid Fevers

In this group 516 examinations were made. 25 specimens of serum gave a positive Widal Reaction with the B. typhosus, 2 gave a positive reaction with B. paratyphosus A, and 2 a positive reaction with B. paratyphosus B. B. paratyphosus B. was isolated from blood culture in 1 case.

Dysentery

Amoebic:—550 specimens were examined in 47 of which the E. histolytica or its cystic form was found.

Bacillary:—112 specimens were examined by culture and the B. dysenteriae (Shiga) isolated from 2 of them and Hiss and Russels bacillus from 13.

Cho'era

79 specimens of faeces were examined from 29 of which the cholera vibrio was isolated. 16 samples of water were examined in connection with one outbreak but no vibrics could be isolated. The vibrio was isolated from cases of the disease in April, July, November and December.

Plague

8 specimens of human origin were examined in 4 of which the B. pestis was demonstrated.

The positive results were obtained in January, May and June.

Rats:—5,241 Rats were examined and none of them found infected with plague. The species of rats and their numbers are shewn in the following table :—

Species	Male	Female	Total	Infected
R. Decumanus	1,814	2,197	4,011	...
R. Rattus	208	209	417	...
R. Concolor	205	266	471	...
R. Musculus	...	...	3	...
Crocidura	...	...	339	...
Total ...	...	...	5,241	...

The systematic collection of fleas and their identification was stopped at the end of September.

The following table shews the species of fleas and their distribution during the first 9 months of the year :—

Rat	Number examined	X. Cheopis	X. Astia	Ctenocephalus	Total	Average per rat
R. Decumanus ...	2,146	5,515	7	16	5,538	2.7
R. Rattus	285	1,361	2	3	1,366	4.8
R. Concolor ...	262	485	2	...	487	1.9
R. Musculus ...	...	...	...	...	...	...
Crocidura ...	204	309	...	...	309	1.5
Total ...	2,897	7,670	11	19	7,700	2.7

Since the end of 1923, when collection of fleas was started 19,440 fleas have been identified of which 19,362 were X. cheopis, 22 X. astia, and 56 Ctenocephalus. The average number of fleas per rat has been low as shewn in the following table :—

Year	Average on Decumanus	Average on Rattus	Average on Concolor	Average on Crocidura	Average on all rates
1923	3.5	6.5	1.0	...	3.7
1924	2.7	5.6	2.5	1.9	2.9
1925	3.1	4.3	1.9	2.2	3.1
1926	2.7	4.8	1.9	1.5	2.7

I do not propose to continue flea counts further as it is evident that our immunity from epidemics of plague is not due to specific differences in the rat fleas present in Singapore.

Cerebro-spinal Fever

8 specimens of cerebro-spinal fluid were examined and in 6 of them the meningococcus was demonstrated.

Diphtheria

497 throat swabs were examined in 84 of which the Klebs Loeffler bacillus was found in culture.

Leprosy

59 specimens were examined in 29 of which the B. leprae was found.

Miscellaneous included :—

34	specimens	of urine for General Examination.	
23	,,	,, ,, Causative organisms.	
16	,,	pus ,, ,, ,,	
2	,,	pathological fluids for Causative organisms.	
120	,,	pus for gonococci (48+ve.)	
11	,,	urine ,, (3+ve.)	
3	,,	prostatic fluid for gonococci (- ve.)	
505	,,	faeces for ova (Anky 9 Ascaris 51.)	
10	,,	,, (dog) (Anky 7.)	
6	,,	,, (horse) (Anky 2 Strongyloides 3.)	
2	,,	,, (bullocks) for coccidia	(- ve.)
1	,,	,, (goat) for coccidia	(- ve.)
4	,,	blood (horse) for anthrax	(- ve.)
3	,,	,, (dog) for filaria	(- ve.)
1	,,	,, (bullock) piroplasmosis	(- ve.)
2	,,	urine for Flagellates	(1+ve.)
2	,,	urine for S. hoematobium	(- ve.)
3	,,	serum for Sp. pallida	(- ve.)
2	,,	semen for spennatozoa	(2+ve.)
1	,,	culture for B. enteritidis Gaertner	(- ve.)
1	,,	skin scrapings for microspores	(- ve.)
1	,,	blood for differential count.	
5	,,	tumors.	
2	,,	tape worms.	
89	,,	milk.	

Milk.—In 1922 I did bacterial counts on 4 specimens of "fresh milk" and found the average number of organisms to be 27,200,000 per c.c. At that time it did not seem worth while continuing this work and it was

dropped. At the beginning of October, the Government Veterinary Surgeon suggested that an investigation should be made. It did not seem to me that any very elaborate or very exact technique was called for but that what was wanted was a quick and simple test and I accordingly used the methylene blue reduction test. In this test 1 c.c. of a dilute solution of methylene blue is added to from 10 to 40 c.c.s. of milk which is then incubated at 37°C. Actually 1 c.c. of a 2.5 per cent. solution of alkaline methylene blue was added to 15 c.c.s. of milk. The milk shows at first a distinct bluish colour which disappears in a few minutes or after several hours according as the number of bacteria in the milk is high or low. By this test milk is divided into 4 grades.

I. GOOD.—Time of reduction more than 5½ hours, bacterial Count 500,000.

II. MEDIUM.—Time of reduction 2-5½ hours, count ½-4 million.

III. POOR.—Time of reduction 20 minutes—2 hours, count 4—20 million.

IV. VERY POOR.—Time of reduction less than 20 minutes, count over 20 million per c.c.

The samples were at first taken from those received by the Municipal Analyst, later special samples were obtained for the purpose of the test, 3 of these within 2 hours of the cow being milked. In addition tests were done on tinned milk and reconstituted milk.

The results of all these tests were as follows:—

Grade	I	...	... 5 samples.
Grade	II	...	... 3 „
Grade	III	...	... 18 „
Grade	IV	...	... 63 „

None of the "fresh milk" samples came up to Grade I, the 5 in that grade being all tinned or reconstituted milks and the 3 in Grade II were those taken within 2 hours of milking. It is thus evident that the fresh milk sold here is of exceeding poor quality bacteriologically 70 per cent. of the samples being little better than bacterial cultures grown in milk. All the samples in Grade I retained the blue colour for more than 7 hours, one of them for more than 22 hours, while 17 of those in Grade IV were completely decolorized in less than 5 minutes and in some cases the blue colour was discharged in the few seconds occupied in walking from the bench to the incubator.

No special examination for pathogenic organisms was made as the object was merely to investigate the cleanliness of the milk supplied. It is evident that the methods of handling fresh milk in Singapore are far from being even moderately cleanly.

Water

5,573 samples of Municipal water were examined during the year. As in previous years the examination consisted of (a) An estimation of the

total number of colonies per c.c. growing on agar at 37°C. (b) An estimation of the smallest quantity of the sample in which lactose fermenting organisms were present. (c) From time to time the organisms growing in (d) were isolated and studied.

(a)

The average number of colonies per c.c. was in

Seletar Reservoir	3,279
MacRitchie Reservoir	80
Pierce Reservoir	301
Bukit Timah Raw Water ...	263
Mount Emily	209
Pearls Hill	274
Laboratory Tap	100

The very low count in MacRitchie reservoir is remarkable and the water from this reservoir has been of an exceedingly high degree of purity bacteriologically on several occasions during the year. In 1924 doubts were expressed as to the purity of the catchment area for this reservoir but these must now disappear. The counts on the whole are somewhat higher than last year and this is associated with the presence of B. violaceum. It is a harmless organism as far as is known and has appeared at interval during the last 4 years but is now thoroughly established through the whole system.

(b)

The determination of the quantity of water in which lactose fermenting organisms are present is of importance as these organisms are taken as indicators of faecal pollution, and this is especially true of waters in England and Scotland. The ideal aimed at is to have no faecal organisms present in 100 c.c.s. in the water as delivered to the consumer. If we take faecal organisms as meaning lactose fermenters, this appears to be an impossibly high standard in the tropics and much work has been done to show that such a standard is not necessary in tropical countries. In previous years owing to difficulty in running the sand filters in use, and the impossibility of treating all the water demanded, we have made 50 c.c.s. our standard and used a somewhat arbitrary descending scale of quantities of water examined, viz :—50, 25, 15, 10, 5, 2.5, 1, 0.5 c.c.s., etc. This makes it difficult to compare our results with those at home where a decimal series is used. The long runs obtained from filter No. 5 at Woodleigh in 1925 and the introduction of chlorination suggested that the time had come to use 100 c.c.s. as our standard and this system was started with the consent of the Water Engineer at the beginning of this year, the quantities examined of each sample being 100, 10, 1, 0.1, 0.01 c.c.s., etc.

The results of examination are given in the following table. In the case of the service reservoirs and tap water three sets of figures are given viz :—for the months of January to June, from July to December and average for year. In the first half of the year the amount of filtered and treated

water was under 46 per cent. and was sometimes as low as 15 per cent. whereas it rose in the second half of the year from 46 to nearly 96 per cent.

SOURCE	Times Examined	No faecal organisms in 100 c.c.	Lactose fermenters present in				
			100 c.c.	10 c.c.	1 c.c.	0.1 c.c.	0.01 c.c.
Seletar	220	...	100	92.4	68 8	32.4	11.4
Pierce Reservoir ...	220	...	100	80.3	50.3	27.6	18.1
McRitchie Reservoir ...	220	1.4	98.6	92.9	46.6	6.4	0.4
Bukit Timah... ...	220	0.4	99.6	94.7	74.7	29 3	7.3
Mount Emily to June ...	100	...	100	83.0	54 0	24.0	12.0
Pearls Hill to June ...	100	1.0	99.0	86.0	51.0	20 0	8
Tap to June	101	74.2	25.8	13.0	9.0	4.0	2 0
Mount Emily to Dec. ...	87	19.6	80.5	65.5	26.5	13.9	4.6
Pearls Hill to Dec. ...	120	0 9	99.1	67.4	29.1	13.3	1.7
Tap to Dec.	119	85.0	15.0	1.7	1.7	...	...
Tap average over year ...	220	80 0	20.0	6.1	4 0	1.8	0.9

These results must be considered satisfactory and lead us to hope that before long the tap water will shew no lactose fermenters present in 100 c.c.s. in 100 per cent. of samples. The table shews MacRitchie reservoir to be better than Pierce reservoir and this is probably due to the period of storage in the former being longer than in the latter where the draw off during the year I am told has been very heavy.

Great improvement has taken place in the running of the filters particularly in obtaining long runs with good filtrates, and this is specially so at Woodleigh. On 8th November for example filters 1, 2, 3, 4, 5 & 6 at Woodleigh had been running for 51, 64, 16, 22, 64 & 84 days respectively and were all giving a filtrate with no lactose fermenters present in 100 c.c.s. It is safe to say that such results have never been obtained in Singapore before. The Bukit Timah filters have not given such good results on the whole, though long runs are being obtained. Filter No. 15 ran for 98 days up to 29th December and on that date showed no lactose fermenters in 100 c.c.s. though the total count was rather high viz: 238, filter 11 also ran for 90 days and gave a good effluent all the time.

(c)

The isolation and study of the lactose fermenting organisms present is important. No organisms of the susceptible class were isolated from the Municipal water supply during the year, those present being all of class 2 or 3.

Endeavours are always being made to find a method of clearly and with certainty distinguishing between faecal organisms of human origin and others, but hitherto without much success. Lately Stuart and Koser have described a medium in which certain lactose fermenters grew readily while others failed to do so and it was claimed that those failing to grow in this medium, where the only available source of carbon present was in the form of Sodium Citrate, were of human origin or at least clearly of faecal origin and therefore dangerous. The method used in this laboratory is that described by Clemesha who has shewn that some faecal organisms tend to die out quickly in water while others can persist and even multiply. The former are looked on as dangerous their presence being evidence of recent pollution while the latter may be looked on as almost normal inhabitants of tropical waters. The method is laborious and it was thought worth while to make trial of Stuart & Kosers medium. I started the experiments

before going on leave and they were carried on during my absence by my assistant Mr. Chin Chin Fong, whose work has been most carefully carried out. Altogether 211 colonies were studied, of which 55 failed to grow in the citrate medium while 156 grew more or less luxuriantly. Nearly all of these organism were obtained from water samples.

There were great differences in the rate of growth of different organisms, some growing with extraordinary rapidity others apparently with difficulty. Definite opalescence to the naked eye in the tube at the end of 48 hours was taken as growth. The following table shews the results obtained in this medium and in the routine media used fn the laboratory.

Glucose	Lactose	Saccharose	Dulcit	Mannite	Adonite	Maltose	Indol formed	Citrate medium	Name
AG	AG	AG	AG	AG	...	AG	+	O	Neapolitanus
AG	AG	...	...	...	...	AG	+	O	Colotropicalis
AG	AG	...	...	AG	...	AG	+	O	Paragrunthal
AG	AG	...	AG	AG	...	AG	+	O	Coli communis
AG	AG	AG	...	AG	...	AG	+	O	Coscoroba
AG	AG	...	...	AG	AG	AG	+	O	Acidi lactici
AG	AG	AG	...	AG	AG	AG	+	O	Capsulatus
AG	AG	AG	AG	AG	AG	AG	+	O	Oxytocus
AG	AG	AG	AG	AG	...	AG	−	G	74
AG	AG	AG	...	AG	...	AG	−	G	Cloacae
AG	AG	AG	...	AG	AG	AG	−	G	Lactis aerogenus
...	...	...	...	...	...	...	−	G	Alcaligenes
AG	AG	AG	AG	AG	AG	AG	−	G	Pneumoniae

AG = Acid & Gas
− = No change
+ = Indol formed
O = No growth
G = Growth

It was found that all the organisms that formed Indol failed to grow in the medium while those that did not form indol grew more or less luxuriantly in it.

Of those failing to grow and therefore to be considered dangerous B. coli communis and B oxytocus perniciosus are recognized as susceptible organisms, common in faeces but dying out quickly in water. B. paragrunthal I have sometimes isolated from urine, in cases of cystitis. It differs from B. grunthal in fermenting maltose and this latter organism is recognized as being more resistant than B. coli communis though very frequent in faeces. B. coscoroba, neapolitanus, capsulatus, and acidi lactici are all of the moderately resistant class, so that the application of this test of growth in Kosers medium would condemn almost all the samples examined. It would seem that this test does not make the work of judging the quality of a water in the tropics any easier, and is just as arbitrary as the test of indol formation as an indicator of the faecal origin of a bacillus. B. cloacae and B. pneumoniae are quite common in faeces but do not form indol and grow well in the citrate medium. A sample of faeces was plated and 12 colonies picked off, and inoculated into the citrate medium. Of these 7 grew luxuriantly and 5 failed to grow, so that this faecal sample showed more non faecal organisms, than faecal.

Outside Samples

Samples of water from ponds at Sago Factories were examined and condemned as shewing organisms of the susceptible group. 4 samples were analysed for the Air Ministry and condemned as containing susceptible organisms. Samples were also analysed from Sandakan and recent contamination detected.

Soda Water

19 samples of soda water were examined, only one of which shewed no lactose fermenters in 100 c. cs while some shewed them present in 0.1 c.cs. In all cases only resistant organisms were found. It is interesting to ncte here that of 8 samples examined since the beginning of 1927, 7 shewed no lactose fermenters in 100 c.cs. and the average number of organisms was 23 per c.c.

Mortuary

21 post mortem examinations were made during the year, the causes of death being.

Cholera	7
Bubonic Plague ...	4
Valvular disease of the Heart	3
Malaria	2
Diphtheria	1
Bacillary Dysentery ...	1
Pericarditis	1
Small-pox	1
Uraemia	1

I have the honour to be,

Sir,

Your obedient servant,

C. C. B. GILMOUR, M.A., M.B.,

Municipal Bacteriologist.

MIDDLETON HOSPITAL,
SINGAPORE, 28th January, 1927.

TO,
THE MUNICIPAL HEALTH OFFICER.

SIR,

I have the honour to forward the Middleton Hospital annual report for the year 1926.

The following table gives a summary of cases treated at the Middleton Hospital during the year 1926.

DISEASE	Remaining at the end 1925	Admitted during 1926	Discharged during 1926	Died during 1926	Total remaining at the end of 1926
Plague ...	...	1	...	1	...
Cholera ...	...	16	6	6	4
Small pox ...	1	30	13	6	12
Cerebro Spinal Fever ...	...	6	...	6	...
Chicken pox ...	3	155	151	...	7
Diphtheria ...	4	25	23	4	2
German Measles	...	3	2	...	1
Measles ...	...	70	67	2	1
Erysipelas ...	...	11	8	2	1
Tuberculosis ...	...	1	1	...	...
Mumps ...	1	47	47	...	1
Whooping Cough	1	6	7	...	...
Enteric Fever ...	...	3	1	2	...
Observation ...	...	18	14	...	4
Other Diseases ...	...	32	25	7	...
Scarlet Fever ...	...	1	1	...	...
Total ...	10	425	366	36	33

At the end of 1925 there were 10 patients remaining in Hospital. viz:—1 Smallpox, 3 Chickenpox, 4 Diphtheria, 1 Mumps, and 1 Wooping Cough.

During the year 1926 there were 425 admissions.

1. *Other Diseases.*—32 cases admitted for observation, or said to be suffering from one of the notifiable infectious diseases, were found to be suffering from the following diseases:—

3 Tonsilitis, 4 Syphilis, 3 Scabies, 5 Whooping Cough, 2 Dysentery, 3 Dermatitis, 1 Pneumonia, 2 Urticaria, 1 Uraemia, 1 Convulsion. 1 Pyorrhoea, 1 Laryngitis, 1 Tubercular Peritonitis, 1 Acute Gastro Enteritis, 1 Malaria, 1 Tubercular Meningitis, 1 Pneumococcal Meningitis.

In this series there were 7 deaths. viz:—1 Pneumonia, 1 Uraemia, 1 Convulsion, 1 Tubercular Peritonitis, 1 Acute Gastro Enteritis, 1 Tubercular Meningitis, 1 Pneumococcal Meningitis.

The remainder were discharged or transferred to other Hospitals.

II. *Observation.*—18 contacts were kept in Hospital for one or more days. 14 were discharged and 4 remained at the end of the year.

III. *Diphtheria.*—25 cases were admitted and 4 remained from last year, a total of 29. Of these 23 recovered, 4 died and 2 remained in Hospital at the end of the year. 12 cases were of the Laryngeal type, 6 necessitating Tracheotomy of whom 1 died after operation. 3 laryngeal cases died upon whom tracheotomy was not done.

IV. *Smallpox.*—31 cases were admitted, 13 discharged, 6 died, and 12 remained at the end of the year. 16 were of the discrete type, 12 confluent and 2 haemorrhagic.

7 of the discrete and 3 of the confluent type were vaccinated, the others were unvaccinated.

V. *Chickenpox.*—155 cases were admitted during the year, of this total 120 amongst adult Tamils.

IV. *Cerebro Spinal Fever.*—6 cases were admitted during the year all of whom died.

The following table shows the admission to Middleton Hospital during the past 10 years.

DISEASES	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926
Cholera	2	...	45	8	...	...	...	5	...	16
Small pox	30	10	11	3	139	248	2	8	9	30
Plague	26	66	7	30	16	20	29	11	21	1
Chicken pox	35	28	18	39	98	103	172	210	277	155
Diphtheria	3	1	2	15	20	13	18	17	32	25
Cerebro Spinal Fever ...	5	...	14	27	57	29	6	13	7	6
Influenza	...	70	23	14	5	1	...	...	...	...
Measles	...	...	...	...	39	23	20	29	49	70
Erysipelas	...	...	...	...	9	3	8	5	2	11
Mumps	...	...	...	...	25	...	6	...	27	47
Whooping Cough ...	...	...	...	...	1	...	1	...	1	6
Typhoid Fever ...	...	...	...	...	1	...	1	..	1	3
Pulmonary Tuberculosis	...	...	...	...	5	4	2	...	1	1
German Measles ...	...	...	...	...	...	1	...	21	7	3
Scarlet Fever ...	...	...	...	...	...	1	...	...	...	1
Observation (Contacts) ...	...	...	...	...	...	...	...	...	19	18
Other Diseases ...	19	34	55	46	61	58	15	41	17	32
Total ...	120	209	175	182	476	504	282	361	473	425

I took over charge of the Hospital from Dr. Thurai on 5th December.

I have the honour to be,

Sir,

Your obedient servant,

C. C. B. GILMOUR, M.A., M.B.,

Medical Superintendent,

Middleton Hospital.

SINGAPORE, *25th February, 1927.*

TO,

HEALTH OFFICER,
SINGAPORE.

SIR,

I have the honour to forward the following report on anti-mosquito measures carried out in the Municipal Area during the year 1926.

Anti-Malarial Work

New permanent works were carried out in the following areas :—

(1) Mount Pleasant and Mount Rosie Ravines.
(2) Irwell Bank Road.
(3) Sarkies Road.
(4) Pearls Hill.
(5) Wayang Satu.
(6) Holland Road—Bukit Timah Road Ravine.
(7) Chancery House Ravine.
(8) Kampong Bahru Road Ravines.
(9) Katong (Grove Road) Area.
(10) Grove Road—Geylang Road Area.

1. Mount Pleasent and Mount Rosie Ravines

Mosquito surveys carried out over this area revealed a large number of anopheline breeding places.

In the old experimental fish pond sites, A. sinensis, A. kochi, A. fuliginosus, and A. rossi were found.

A. karwari was found in seepages coming away from the ravine slopes. There are four subsidiary ravines in this area, one behind Thomson Road Police Station known as Thomson Road Ravine, one between Malcolm Road and the Chinese Cemetery (Ravine A), one between the Police quarters and a rubber estate (Ravine B), and one which is crossed by Malcolm Road near Chancery House (Ravine C).

A main trench averaging 4 feet in depth was cut from the Sungei Whampoe through the main ravine floor to the head of ravine "A," and a branch drain was cut throughout the length of ravine "B."

The total length of main drain cut was 3,405 yards.

The swampy floor of Ravine C was filled during the progress of building operations on Mount Rosie but the concrete channel drains were not laid at a sufficient depth to provide satisfactory subsoil drainage. Much dangerous seepage appeared in the upper portion of the ravine owing to the obstruction caused by the construction of Malcolm Road and the insufficient depth of the culvert under this road. The concrete channel above the culvert was taken up for a length of 174 feet and relaid at a lower level whilst the seepages were dealt with by the cutting of contour drains and the laying of subsoil pipes.

The concrete channel in the lower portion of the ravine was also taken up for a distance of 450 feet and relaid 2½ feet lower. This channel was also extended for 119 feet.

Fifty acres of the surrounding country were cleared of undergrowth and roots and a large number of rubber trees were removed from the floor of the ravines.

The cutting of deep earth drains throughout the ravines dried out many of the mosquito breeding places but permanent seepages were later dealt with by laying subsoil pipes as follows :—

6 in. subsoil pipes	...	1,238 yards.
8 in. ,,	...	1,842 ,,
5 in. ,,	...	644 ,,

During the later part of the year the work of replacing the earth ditches by an open concrete channel was commenced. At the end of the year the following channels had been laid :—

18 in. open concrete channel	...	465 yards.
21 in. ,,	...	700 ,,

Work is in progress.

2. Irwell Bank Area

Anopheles maculatus and A. karwari were found breeding in seepages in a cutting at Irwell Bank Road.

These were dealt with by laying

110 yards of 8 in. subsoil pipes

and 42 ,, 9 in. ,,

3. Sarkies Road Area

Anopheles karwari were found in large numbers in seepages coming away from the hill at the top of Sarkies Road.

Subsoil pipes were laid along the toe of the hill and led to discharge into the Bukit Timah Road drain.

259 yards of 6 in. subsoil pipes were laid.

4. Pearl's Hill Area

Anopheles maculatus were found breeding in seepages at the foot of the slope near the railway.

Contour drains were cut and subsoil pipes laid as follows :—

6 in. subsoil pipes	...	... 362 yards.
8 in. ,,	...	... 29 ,,

Subsoil pipes were also laid in a section of the earth drain along the railway.

A nine inches open concrete channel was also laid along the foot of the slope for a distance of 204 yards.

5. Wayang Satu Area

This area extends from Swiss Cottage Estate to Khiam Hock Road.

The main ravine extends from Bukit Timah Road opposite the Wayang Satu Police Station to Bukit Brown Cemetery.

To the right of the main ravine there are three subsidiary ravines.

The floors of the ravines comprise an area of nearly 30 acres entirely covered with bunded vegetable ponds.

Anopheles sinensis were found breeding in large numbers in the ponds, and A. karwari were found at the head of the subsidiary ravines.

A main earth ditch was cut through the floor of the main ravine and continued to the head of the three subsidiary ravines.

Connecting drains were also cut and the water from the ponds released.

As the area dried out, the bunds were broken down and the land levelled off.

The total length of main drain cut was 1,972 yards and about 10 acres of the property have been levelled.

Work is in progress.

Holland Road—Bukit Timah Road Area

This area extends from Bukit Timah Road near Cluny Railway Station across country to the 4½ mile stone Holland Road.

Anopheles karwari, A. sinensis, A. fuliginosus and A. rossi were found breeding throughout the area.

The existing stream bed was straightened and deepened throughout its length.

Three subsidiary ravines join the main ravine.

Branch drains were cut through the floors of these ravines and connected to the main ravine.

Contour drains were cut to trap seepages and subsoil pipes laid where necessary.

All the ponds in the ravine were drained.

The total length of main drain cut was 4,318 yards.

Sixty one large and twenty five small ponds were drained.

In subsidiary ravine (3) subsoil pipes were laid as follows :—

6 in. subsoil pipes	...	20 yards.
8 in. „	...	50 „
5 in. „	...	155 „

Work is in progress.

7. Chancery House Ravine

In this area Anopheles karwari were found breeding in seepages, and A. sinensis in the pond in the floor of the ravine.

A main ditch was cut through the floor of the ravine and a 21" concrete invert channel with revetment slabs was laid.

Contour drains were cut to trap seepages which were later subsoil piped.

The following material was used:—

21" open concrete channel 125 yards.

6" subsoil pipes 197 yards.

8. KAMPONG BAHRU ROAD RAVINES

8a. Bukit Permai Ravine

This area extends from Kampong Bahru Road near the United Engineers workshop to Bukit Permai.

A large number of ponds in the floor of the ravine were drained off and 815 yards of 21" open concrete channels and 263 yards of 18" concrete channels were laid.

8b. Silat Road Ravine

This area extends from Kampong Bahru Road to Silat Road. Originally it was a swamp where a large number of both culicine and anopheles mosquitoes were found breeding.

A trench was cut through the floor of the ravine and was replaced later by 524 yards of 18" open concrete channels.

Seventy nine yards of 6" subsoil pipes were also laid.

9. Katong—Grove Road Area.

This is a low lying bunded area of about 35 acres situated near the bridge crossing the Geylang River.

Mosquito surveys were carried out here, and large numbers of Anopheles ludlowi and some A. umbrosus were found.

The whole area was cleared of mangrove and blukar.

Two 13 inch sluice gates were laid near the mouth of Geylang river and large earth drains were cut around the property, the water from which discharged through the sluice gates at low tide.

The area can now be kept under control but is still swampy and a certain amount of filling will be necessary before it is thoroughly satisfactory.

10. Grove Road—Geylang Road Area

The year under review was a particularly dry year and there was a heavy incidence of fresh malaria cases in the districts bordering the tidal waters of the Katong and Geylang Rivers. Throughout this area there are extensive breeding grounds of A. ludlowi which in the Municipal area ranks second in importance to A. maculatus as a carrier of malaria. Continued drought had undoubtedly produced conditions very favourable for the breeding of this mosquito and a high incidence of malaria in a district comparatively free since the last very dry year viz:—1911.

Exhaustive mosquito surveys were carried out and all anopheline breeding grounds carefully charted. Based on these surveys, the work of limiting the tidal waters of the Kalang and Geylang Rivers by means of a system of tidal gates was begun.

The area involved is a very large one and it was decided to tackle first the area bounded by Grove Road, Geylang Road and the Geylang River.

The tide gains entrance to this low lying belt through several creeks.

Sluice gates were laid in the beds of the creeks on bakau piles, and clay bunds thrown across the creeks, preventing the access of the tide.

Bakau piles were also used to support the sides of the bunds.

The drains in the lorongs off Geylang Road were deepened from Lorongs 2 to 18 and cross connecting were drains cut.

Old pond sites were drained and the area levelled.

Undergrowth was cleared from lorongs 2 to 32.

Four sluice gates were constructed and 4,800 yards of earth drain cut.

Work is still in progress in this area.

Maintenance of Existing Works

Extensions and repairs to existing areas were carried out at:—

Nassim Road and Dalvey Road Area

The main 21" open concrete channel was extended and connected up with the Bukit Timah Road drain.

553 yards of 21" open concrete channel were laid.

An extension of the main drainage of this area was carried cut from the main drain near Bukit Timah Road through the old Economic Gardens and along the foot of the hill of the new Raffles College site to Cluny Road opposite Cluny Ravine.

750 yards of 21" open concrete channel with concrete revetment slabs were laid.

The old subsoil pipes in the compound of Balaclava were found to be eroded and water was appearing on the surface.

These pipes were taken up and replaced by 163 yards of 15" revetted open concrete channels to which the house sullage drainage was connected.

Kings Road—Tyersal Area

The earth drain in this area was replaced by a concrete channel and connected up with the existing channel in the main ravine floor. Nine earth wells were closed and the springs led into the main channel by subsoil pipes.

The materials used were as follows:—

18" open concrete channel	...	148 yards.
6" subsoil pipes	...	102 „
8" „	...	46 „

Small extensions were made to deal with dangerous breeding places at:—

One Tree Hill, Tiong Bahru, Wishart Ravine, Radin Mas, Ballestier Road, Holland Park, Rochalie, Bukit Brown, Jervois Road, Grange Road, Tanglin Barracks, Fort Canning, Henderson Road, Barker Road, Glencaird, Fern Hill, Watten Estate, Keith's swamp, Orchard Road, Woodneuk, Holland Road, Kampong Java Road, Chandu Ravine, Tanglin Hill, Morse Road, Swiss Cottage, Cluny Ravine and Bukit Timah Road.

Work in these areas called for the use of:—

21" Concrete inverts	...	10
18" "	...	9
22" "	...	22
Concrete revetment slabs	...	395
9" subsoil pipes	...	69
8" "	...	835
6" "	...	1,931
5" "	...	953
4" "	...	465

Routine maintenance was carried out over the following areas:—

Anderson Road, Barker Road, Bukit Timah Road, Claymore, Cluny Ravine, Cuppage Road, Glencaird, Kings Road, Nassim and Dalvey Road, Fernhill, Paterson Road, Scotts Road, Stevens Road, Watten Estate, Woodleigh Filters, Tyersal, Chandu Factory Ravine, Hammer & Co's. Ravine, Singapore Harbour Board Ravine, Jervois Road No. 1, Jervois Road No. 2, Jervois Road earth drains, Keith's swamp, Leonie Hill, Morse Road Ravine, Mosque Ravine, One Tree Hill, Orchard Road No. 1, Orchard Road No. 2, Orchard Road earth drain, Payah Goyang, Radin Mas, River Valley Road, Shanghai Road, Tiong Bahru, Wishart Ravine, Woodneuk, Alexandra swamp, Ballestier Plain, Cluny Road Ravine, Gallop Road, Grange Road, Holland Park Ravine No. 1, Holland Park Ravine No. 2, Holland Road, Melrose, Newton Road Area, Rochalie, Swettenham Road Ravine, Tanglin Barracks No. 1, Tanglin Barracks No. 2, Tanglin Barracks No. 3, Tanglin Hill No. 1, Tanglin Hill No. 2, Fort Canning Hill, Henderson Road, Bukit Brown, Kampong Java Area, Moulmein Road, Bukit Berlayer, Mandai Quarry, Kramat Road, Swiss Cottage No. 1, Thomson Road, Botanical Gardens, Tanglin Road, Spottiswoode Park, Pearls Hill, Balestier Road Ravine, Chancery Lane No. 1, Tanglin Road Ravine, Irwell Bank, Mandalay Road, Mckenzie Road, Government Hill, Napier Road, Goodwood Hill, Scotts Road No. 2, Serangoon Road, Economic Gardens, Mount Rosie, General Hospital, Swiss Cottage No. 2, Chancery Lane No. 2, Balmoral and Bukit Timah Roads, Sarkies Road, Thomson—Balestier Road Ravine, Thomson Road and the Jewish Cemetery.

Mosquito Surveys

Mosquito surveys have been carried out over the whole of the Municipal area and much information obtained regarding the breeding places of the various species of anophelines and of the more prevalent species of culicines.

The most important survey was that carried out around the Kallang and Geylang river basins in connection with the outbreak of malaria.

Of the samples of mosquito larvae collected and examined from this area 270 were A. ludlowi, 12 A. umbrosus, 48 A. kochi, 306 A. Rossi and 210 A. sinensis.

All these larvae were collected from still collections of water.

Anopheles ludlowi were found most frequently within 100 yards of the tidal area, whilst in the ponds further distant from the tidal area A. sinensis was the most prevalent anopheline, A. kochi were found most frequently in shallow drains.

A. maculatus was found on three occasions near the junction of Telok Blangah Road and Alexandra Road, and on one occasion in a ravine between Watten Estate and Bukit Timah Golf Course.

General Anti Mosquito Work

Two gangs were employed on this work during the year, one in the General Hospital area, and one in the Katong area.

Their work was mainly cleaning and regrading of earth drains, cutting of undergrowth and collecting tins. Each gang dealt with approximately 10,000 yards of earth drain.

Oiling

The amount of oil used during the year was:—

Solar oil ...	...	3,900 gallons.
Liquid fuel	...	3,400 ,,
Anti-Malarial Mixture ...		7,800 ,,

The bulk of the oiling work was done in the Katong and Geylang districts.

Control of Domestic Mosquitos

During the year mosquito larvae principally Stegomyia were found by Sanitary Inspectors during their daily rounds in 21,622 houses and compounds 18.92 per cent. of those visited.

423 notices were served during the year under the Destruction of Mosquitos Ordinance.

The following table shows the permanent drainage carried out since 1911.

Year	Length of Concrete channel in yards	Approximate Length of Concrete channel in miles	Length of Subsoil pipes in yards	Approximate Length of Subsoil pipes in miles
1911—1924 ...	19,984	11½	62,663	35¾
1925 ...	2,397	1½	7,739	4½
1926 ...	5,050	2¾	6,253	3½
Total ...	27,431	15¾	76,655	43¾

I append three graphs bearing on the prevalence of malaria in Singapore.

No. 1 shows the total deaths from malaria from 1910 to 1926 and also the relationship between the prevalence of malaria and the average annual rainfall.

The prevalence of malaria is reflected in the death rate from all causes and

No. 2 shows the average monthly death rate from all causes in the ten year periods 1903—1912, 1913—1922, and from 1923 to 1926.

No. 3 shows the average monthly death rate for the malarial years 1911 and 1926.

There can be no doubt that the death rate from malaria would have been exceedingly high in 1926 but for the work carried out since 1911. The experiences of 1926 have however indicated the necessity for more permanent anti-malarial works in the tidal areas, in which alone malaria was prevalent.

I have the honour to be,

Sir,

Your obedient servant,

W. DAWSON,

Deputy Health Officer.

MUNICIPAL HEALTH OFFICE,
SINGAPORE, *24th February, 1927.*

TO,

THE MUNICIPAL HEALTH OFFICER,
SINGAPORE.

SIR,

I have the honour to submit my Seventh Annual Report upon the running of the Municipal Markets, their repair and upkeep and also inspection of all foodstuffs exposed for sale in them. All shops, stores and hawker's pitches in the Municipal Area were periodically visited and appended returns will show an appreciable amount of unsound foodstuffs was destroyed.

MUNICIPAL MARKETS

(a) Cleansing

The market coolies carry out the cleansing of the markets, quick removal of all garbage to the refuse bins and the limewashing of the fish slabs as often as necessary.

The Annual Cleansing took place on Chinese New Year's Day (13th March) and below is a table of the vermin caught and destroyed in each Market.

	Rats	*Mice.*
Clyde Terrace	146	76
Ellenborough	14	9
Telok Ayer	32	...
Orchard Road	...	...
Kandang Kerbau	12	83
Rochore	...	...

(b) Repairs

Clyde Terrace Market.— New Vegetable section over the sea completed.

Under structure of fish section strengthened and encased in concrete.

Floor of Auction space repaired.

Old vegetable section painted and underside of roof limewashed.

Two front rows of fish slabs demolished.

Ellenborough Market.— Railings broken by lorry repaired, and charged to owner of lorry.

Sliding gates attended to.

Floor of main market repaired where broken.

Guttering and downspouts where leaking were repaired.

Telok Ayer Market.— Floor of fish section repaired.

Awnings in main market replaced and rattan chicks supplied over all doorways.

Orchard Road Market.— Two sliding gates were taken to Municipal Workshop and repaired.

Roof over Market office rendered water tight.

New vegetable shed completed and ready for occupation.

The subsoil under the floor of this market is continually sinking or being washed away and the whole flooring is in need of constant attention.

Kandang Kerbau Market.— Two sliding gates repaired.

All Markets.— A complete list of repairs still required was sent to the Municipal Architect on 5th November. These will probably be effected next year.

(c) Unsound foodstuffs

Altogether 63,014 catties of unsound foodstuffs were collected and destroyed from the Markets. 304 catties were seized 34 summonses being issued in respect of these latter. Fines amounting to $340 were imposed One summons was withdrawn as the stallholder absconded.

(d) Quantity of Foodstuffs

This has increased 20 % over the quantity for 1925 and the approximate value is $350,000 more. This is accounted for practically by wet fish alone. Since the rubber boom Singapore has been a distributing centre for wet fish and tons are sent away to places which previously sent us fish. Evidently the fishermen have gone to more lucrative employment on land, or turned rubber smugglers.

Below is a table of prices of staple articles of food showing the highest and lowest prices ruling for the year and compared with 1914 and the years since 1922 for which records are available.

Article	Quantity per	8.8.14 average Price	1922		1923		1924		1925		1926	
			Highest	Lowest	Highest	Lowest	Highest	Lowest	Highest	Lowest	Highest	Lowest
		cents	cents	cents	cents	cents	cents	cents	cents	cents	cents	cents
Beef ...	Kati	24/27	51	28	50	40	43	39	48	45	52	42
Mutton ...	,,	35	61	43	73	45	73	50	80	80	80	66
Pork ...	,,	38	76	68	68	59	66	60	68	60	68	60
Tea ...	,,	50	1.05	70	90	76	95	88	1.10	95	1.00	90
Coffee beans...	,,	36	45	32	50	36	48	45	65	48	70	40
Sugar ...	,,	07	17	11	20	11	17	12	13	08	12	09
Salt ...	,,	02	05	04	04	03	04	03	03	03	3	03
Potatoes ...	,,	8.5	15	10	14	09	14	09	12	10	12	10
Yams ...	,,	03	12	03	06	03	08	03½	08	04	8	04
Onions ...	,,	6/7	18	08	13	07	12	07	12	06	14	08
Geese ...	Each	$1/50-$2/10	4.50	2.25	3.50	2.50	...	...	...	...	...	...
Ducks ...	Dozen	$5-$7	15.50	9.00	13.20	9.00	11.40	7.80	$15.00	$8.40	14.40	9.96
Pigeons ...	Pair	75	1.60	80	1.50	1.00	1.20	1.00	1.30	80	1.40	85
Eggs (hens) ...	Dozen	30	84	52	60	48	54	50	72	35	65	43
Capons ...	Kati	42	1.00	45	87	50	78	68	85	70	90	70
Fowls ...	Each	40/70	2.75	80	2.10	80	60	46	2.10	70	1.50	3.00
Rice ...	Gantang	$6.50 per picul	54 per gantang	50 per gantang	55 per gantang	45 per gantang	63 per gantang	50 per gantang	56 per gantang	52 per gantang	60 per gantang	54 per gantang

(e) Revenue

Market	1921	1922	1923	1924	1925	1926
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Clyde Terrace ...	134,723 52	131,544 61	142,099 13	144,159 61	150,812 40	178,753 52
Ellenborough ...	139,257 33	121,651 39	111,677 12	109,563 23	110,419 43	120,022 76
Telok Ayer ...	42,790 21	44,282 44	43,830 52	38,317 92	35,726 99	36,678 21
Orchard Road ...	13,927 04	14,380 00	14,740 00	14,403 00	14,275 00	13,496 00
Kandang Kerbau ...	13,632 43	16,356 50	15,433 00	16,647 50	17,835 00	17,947 00
Rochore ...	10,752 62	10,685 00	9,155 00	9,305 00	9,330 00	9,664 00

5 per cent. Commission

Market	1922	1923	1924	1925	1926
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Clyde Terrace ...	56,635 61	71,661 13	74,272 61	81,793 40	106,072 52
Ellenborough ...	70,791 47	64,123 12	64,245 23	66,911 43	76,598 76
Telok Ayer ...	4,438 44	3,920 52	3,038 92	2,841 99	2,971 21
Total ...	131,865 52	139,704 77	141,556 76	151,546 82	185,642 49

The above return of 5 per cent. Commission on fish sales shows the remarkable increase in sales of wet fish effecting even Telok Ayer Market which for three years previously showed a decline. From this market fresh fish is now being sent to Djambi.

(f) Prices

From figures supplied by the Registrar of Statistics prices have shown a slight increase all round on the 1923 figures and I don't hold out much hope for any decline.

(g) Licenses

As usual all licenses were renewed on 1st January. Telok Ayer Market is the most poorly patronized, in fact if the ship chandlery business was non-existent this market would in all probability have to close down as such.

(h) Staff

No change has been made in the Keepers Staff or in the number of coolies employed.

M. K. Jacobs fell sick and was granted a few days leave in July.

Twenty coolies reported sick during the year. Two were cases of Chickenpox and were despatched to hospital. The rest were given various periods of leave or medicine. All have resumed work.

(i) Market Byelaws

160 prosecutions for breaches of the byelaws were instituted and fines totalling $508 were collected.

Clyde Terrace Market Extension

This having been completed, arrangements were made for occupation. All the vegetable stalls were moved into it on the night of 23rd August.

To give the Market a more orderly appearance it was decided to increase the width of passages and in consequence all the former licensees could not be accomodated.

Notices were served cancelling all the hawkers licenses and licenses for stalls used as stores and also notifying the dry goods stallholders of the reduction of their numbers to 50, all to take effect from 1st of Chinese New Year. This caused an uproar and many interviews and explanations were necessary but I have no doubt that when the actual shift takes place next year no trouble will occur. The stallholders will really benefit in the end because all stalls will be more accessible to purchasers and being cleaner and more presentable will be likely to attract more customers.

The old Dry good shed will be taken down and re-erected as a new Market at Tanglin.

Peoples Park Hawkers Shelter

It is intended to follow out the proposal of April 1925 and turn this into a market and hawker's shelter combined.

To this end all licensees were warned that no new licenses would be issued in 1927 until full arrangements had been made.

Applications from hundreds have been received and tabulated and much office work entailed.

These sheds are in the heart of China town and the occupants need education and discipline before smooth running can be expected.

General

(I) Two Toledo balances were installed at Kandang Kerbau Market. These were rarely used by the public so one was transferred to Orchard Road Market. There too it has lain idle. Either the public don't buy by weight or are satisfied with the daching used by the vendors.

(II) The new vegetable shed in Orchard Road was put into use in May, but new stalls are still required before the Market can be put ship shape.

(III) A report on the number of locally reared pigs in the Municipal Area was submitted to you in November.

(IV) While Mr. Holley was on long leave I acted for him as Superintendent of Abattoir.

(V) Town

A great deal of time is taken up in periodical visits to shop and stores in the Municipal area. It is a large area and cannot be systematically inspected. however 60,366 cases etc. of unsound foodstuffs were collected and destroyed and thus prevented from circulating amongst the public.

Three prosecutions for exposing unsound pork (measly) for sale resulted in convictions and fines amounting to $25.

A prosecution for selling fruits within 50 yards of a public market failed. It was not without effect however, as the Ordinance has now been altered.

I attach summary of prosecutions undertaken, table of unsound foodstuffs destroyed, a return of some of the foodstuffs passing through the Markets, together with a return of vacant stalls as on 31st December.

I have the honour to be,

Sir,

Your obedient servant,

M. N. MACMAHON,

Cert. R. San. Inst.,

Food and Market Inspector.

SUMMARY OF VACANT STALLS END OF DECEMBER, 1926.

Fee	$30	$15	$15	$12	$15	$10	$6	$15	$10	$5	$15	$30	$5	$5	$10	$7	$5	Total No.
Market	Dry goods	Salted Vege-tables	Beef	Mutton	Pork	Curry stuff	Bean cakes	Poultry	Vege-tables and fruit	Eggs	Money Changer and Cigar.	Eating	Fish	Shell Fish and Tripang	HAWKERS			Licenses issued
Clyde Terrace ...	...	...	3	...	2	...	...	6	2	...	...	...	29	...	7	...	...	49
Ellenborough ...	...	...	...	...	...	...	...	9	20	...	...	...	4	...	4	...	...	37
Telok Ayer ...	15	1	...	...	4	...	...	2	20	...	...	2	1	...	3	6	14	68
Orchard Road ...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	4	...	...	5
Kandang Kerbau...	8	2	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	13
Rochore ...	2	...	...	...	...	...	...	...	1	...	...	3	8	...	12	...	...	26

Summary Total ... 198

M. N. MACMAHON,

Cert. R. San. Inst.,

Food and Market Inspector.

RETURN OF SOME OF THE FOODSTUFFS PASSING THROUGH MARKETS WITH THEIR APPROXIMATE VALUE, YEAR 1926.

MARKET	Wetfish ctts	Boiled fish ctts	Shell fish ctts	Beef ctts	Mutton ctts	Pork ctts	Fowls	Capons	Geese	Ducks	Pigeons	Turkeys	Bean cakes ctts	Bean sprouts ctts	Approximate VALUE
							HEADS								$ cts.
Clyde Terrace ...	7,402,675	33,336	7,511	325,963	53,957	316,234	17,762	...	626	16,771	...	...	302,714	17,641	2,121,450 40
Ellenborough ...	5,255,424	62,852	377,300	24,147	...	722,425	71,072	10,594	1,723	80,321	...	...	92,285	101,732	2,157,185 43
Telok Ayer ...	145,180	...	99,800	39,458	64,015	212,762	67,778	...	385	20,046	3,216	175	...	...	365,654 13
Kandang Kerbau	869,243	29,604	9,991	178,307	91,120	626,958	53,590	82	...	21,810	...	...	34,834	48,331	854,422 36
Orchard Road ...	517,585	47,814	...	293,005	43,572	285,399	37,675	102	...	3,919	2,558	...	49,124	49,221	567,288 59
Rochore ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL ...	14,190,107	173,606	404,602	860,880	252,664	2,163,778	247,877	10,778	2,734	142,867	5,774	175	478,957	216,925	6,064,999 91

M. N. MACMAHON,
Cert. R. San. Inst.,
Food and Market Inspector.

(80-D)

UNSOUND FOODSTUFFS DESTROYED DURING YEAR 1926

MARKET	Wetfish ctts	Saltfish ctts	Beef ctts	Mutton ctts	Pork ctts	Vegetables ctts	Fruits ctts	Tinned Goods		Bottles preserves No.	Eggs No.	Miscellaneous	TOTAL ITEMS
								Cases	Tins				
Clyde Terrace ...	9,121	1,845	1,692	...	69	8,169	2,013	...	133	...	2 066	2,699	...
Ellenborough ...	2,815	345	...	...	65	2,993	168	...	69	...	735	3,569	...
Telok Ayer ...	19	48	7	...	37	6,647	7,240	...	...	...	...	61	...
Kandang Kerbau ...	272	347	24	67	356	3,631	765	...	...	...	80	3	...
Orchard Road ...	199	47	19	15	20	1,933	2,594	...	...	...	...	17	...
Rochore ...	...	...	...	...	...	...	...	...	...	...	...	...	...
	12,426	2,632	1,742	82	547	23,373	12,780	...	202	...	2,881	6,349	63,014
TOWN ...	215	71	...	...	491	28,160	2,781	1,935	12,553	660	1,435	12,065	60,366
TOTAL ...	12,641	2,703	1,742	82	1,038	51,533	15,561	1,935	12,755	660	4 316	18,414	123 380

M. N. MACMAHON,
Cert. R. San. Inst.,
Food and Market Inspector.

RETURN OF PROSECUTIONS FOR THE YEAR 1926

MARKETS	Prosecutions	Convictions	Postponed	Withdrawn	Warrants	Total Fines	
						$	cts.
Clyde Terrace							
M. O. 192	21	21	...	...	...	290	...
Market Bye-laws ...	45	44	...	1	...	132	...
Ellenborough							
M. O. 192	2	2	...	...	...	20	...
Market Bye-laws ...	50	49	...	1	...	161	...
Telok Ayer							
M. O. 192	1	1	...	...	...	25	...
Market Bye-laws ...	9	9	...	...	...	31	...
Kandang Kerbau							
M. O. 192	4	3	...	1	...	40	...
Market Bye-laws ...	4	4	...	...	...	15	...
Orchard Road							
M. O. 192	2	2	...	...	...	105	...
Market Bye-laws ...	4	4	...	...	...	18	...
Rochore							
M. O. 192	3	3	...	...	...	25	...
Market Bye-laws ...	...	...	...	...	...	...	...
Peoples Park Hawker Shelter							
M. O. 192	...	...	...	...	...	...	...
Market Bye-laws ...	13	13	...	...	...	44	...
Town							
M. O. 192	...	...	...	...	...	...	...
M. O. 186	1	...	...	1	...	...	...
GRAND TOTAL ...	159	155	...	4	...	$906	...

M. N. MACMAHON,
Cert. R. San. Inst.,
Food and Market Inspector.

MUNICIPAL HEALTH OFFICE.

RETURN OF ARREST CASES DURING THE YEAR 1926.

Date	Name	Address	By whom Arrested	Offence	By whom Tried	Results	Remarks
4/2/26	Kaloo Singh ...	Syed Alwee Road ...	P.C. 316	Selling milk without a license	3rd Magst.	Fined $5.00	
,,	Jangbahdoor ...	81, St. Michaels Road...	,, 443	Do.	Do.	,, 5.00	Case No. 339
10/2/26	Jaganath Guala ...	8, Market Street ...	Do.	Do.	Do.	,, 12.00	,, 339
1/4/26	Bolah Singh ...	Dunlop Street ...	P.C. 801	Do.	Mag. Howitt	,, 5.00	,, 888
26/5/26	Bishart Singh ...	79, Dunlop Strect ...	W. E. Jansen	Do.	Magst. Bull	,, 10.00	,, 1986
17/6/26	Rum Rook ...	Unknown ...	W. W. Hoeden	Do.	Do.	,, 10.00	,, 2390
,,	Jajay ...	Do. ...	Do.	Do	Do.	Cautioned & discharged	,, 2390
,,	Nara Singh ...	Do. ...	Do.	Do.	Do.	Fined $10.00	,, 2391
,,	Ramrath ...	75 Dunlop Street ...	O. Phillips	Do.	Do.	,, 15.00	,, 2380
18/6/26	Manish Singh ...	Unknown ...	W. J. Collick	Do.	Do.	Cautioned & discharged	,, 2400
21/6/26	Subadi Singh ...	Do. ...	Do.	Do.	Do.	Do.	,, 2401
17/6/26	Bisunath ...	Do. ...	W. E. Jansen	Unlicense milk seller	Do.	Fined $15.00	,, 2378
,,	Ragunath ...	Do. ...	Do.	Do.	Do.	,, 15.00	,, 2379
				Carried forward ...			

MUNICIPAL HEALTH OFFICE

RETURN OF ARREST CASES DURING THE YEAR 1926—*continued.*

Date	Name	Address	By whom Arrested	Offence	By whom Tried	Results	Remarks
				Brought forward ...			
23/6/26	Chanda Singh ...	Unknown	W. E. Jansen.	Unlicensed milk seller	Magst. Bull	Fined $15.00	Case No. 2,477
24/6/26	Naar Singh ...	Do.	Do.	Do.	Do.	,, 15.00	,, 2,497
,,	Chogojaj Singh ...	Do.	Do.	Do.	Do.	,, 15,00	,, 2,498
5/8/26	Monah Sha ...	Do.	P. C. 21	Do.	2nd Magst.	,, 15.00	,, 3,137
4/8/26	Letchman Singh ...	Do.	P. C. 1021	Do.	Do.	,, 15.00	,, 3,140
,,	Rengasamy ...	Do.	Do.	Do.	Do.	,, 15.00	,, ,,
,,	Ramwai Ram ...	Do.	P. C. 1051	Do.	Do.	, 15.00	., 3,139
,,	Baboo Ram ...	Do.	Do.	Do.	Do.	,, 15.00	,, ,,
,,	Geepow ...	Do.	Do.	Do.	Do.	,, 15.00	,, ,,
4/8/26	Loorjarat ...	Do.	P. C. 1051	Do.	Do.	,, 15.00	,, ,,
,,	Balm Singh ...	Do.	Do.	Do.	Do.	Withdrawn	,, ,,
,,	Nar Singh ...	Do.	Do.	Do.	Do.	Fined $15.00	,, ,,
,,	Vera Singh ...	Do.	Do.	Do.	Do.	,, 15.00	,, ,,
				Carried forward ...			

MUNICIPAL HEALTH OFFICE

RETURN OF ARREST CASES DURING THE YEAR 1926.—*continued.*

Date	Name	Address	By whom Arrested	Offence	By whom Tried	Results	Remarks
				Bronght forward ...			
4/8/26	Chatterpatti ...	Unknown	P. C. 1051	Unlicenced milk seller	2nd Magst.	Withdrawn	Case No. 3,139
,,	Bisnar Singh ...	Do.	P. C. 217	Do.	3rd Magst.	Fined $20.00	,, 2,118
,,	Ram Gurai ...	Do.	Do.	Do.	Do.	,, 20.00	,, 2,119
,,	Markandee ...	Do.	P. C. 963	Da.	2nd Magst.	,, 15.00	,, 3,127
,,	Harinan ...	Do.	Do.	Do.	Do.	,, 15.00	,, ,,
,,	Mahabee ...	Do.	P. C. 143	Do.	Do.	,, 15.00	,, 3,130
,,	Singaram ...	Do.	Do.	Do.	Do.	,, 15.00	,, ,,
,,	Karapiah ...	Do.	Do.	Do.	Do.	,, 15.00	,, ,,
,,	Sri Ram ...	Do.	Do.	Do.	Do.	,, 15.00	,, ,,
,,	Maharaj ...	Do.	Do.	Do.	Do.	,, 15.00	,, ,,
,,	Shaba Singh ...	Do.	P. C. 27	Do.	Do.	Discharged	,, 3,137
,,	Sri Kan ...	Do.	P. C. 143	Do.	Do.	Fined $15.00	,, 3,130
,,	Ramnath ...	Do.	P. C. 1051	Do.	Do.	,, 15.00	,, 139
				Carried forward ...			

MUNICIPAL HEALTH OFFICE

RETURN OF ARREST CASES DURING THE YEAR 1926.—*continued.*

Date	Name	Address	By whom Arrested	Offence	By whom Tried	Results	Remarks
				Brought forward ...			
4/8/26	Amat b. Kaman ...	Unknown	P. C. 1051	Unlicensed milk seller	2nd Magst.	Fined $15.00	Case No. 139
5/8/26	Tairam ...	Do.	Do.	Do.	Do.	Withdrawn	,, ,,
4/8/26	Boodoo ...	Do.	Do.	Do.	Do.	Fined $15.00	,, ,,
,,	Ramasamy ...	Do.	Do.	Do.	Do.	,, 15.00	,, ,,
,,	Arman ...	Do.	Do.	Do.	Do.	,, 15.00	,, ,,
,,	Sinnakann ...	Do.	Do.	Do.	Do.	Withdrawn	,, 3,139
5/8/26	Veeramuttu ...	Do.	Do.	Do.	Do.	Fined $15.00	,, ,,
27/8/26	Ramdhiri ...	Do.	P. C. 3183	Do.	Do.	Withdrawn	,, 3,183
,,	Adikan ...	Do.	Do.	Do.	Do.	Fined $15.00	,, ,,
7/8/26	Gopee ...	Do.	P. C. 895	Do.	3rd Magst.	Withdrawn	,, 2,168
,,	Mahadi Ram ...	Do.	P. C. 700	Do.	Do.	Fined $15.00	,, 2,165
,,	Sadu ...	Do.	P. C. 65	Do.	Do.	,, 15.00	,, 2,164
,,	Rocknanan ...	Do.	Do.	Do.	Do.	,, 15.00	,, ,,
				Carried forward ...			

MUNICIPAL HEALTH OFFICE

RETURN OF ARREST CASES DURING THE YEAR 1926.—*continued.*

Date	Name	Address	By whom Arrested	Offence	By whom Tried	Results	Remarks
				Brought forward ...			
7/8/26	Chabiraj ...	Unknown	P. C. 65	Unlicensed milk seller	3rd Magst.	Fined $15.00	Case No. 2,164
14/8/26	Anarsee ...	Do.	P. C. 272	Do.	2nd Magst.	Withdrawn	„ 3,167
7/8/26	Karapayah ...	Do.	P. C. 1044	Do.	Do.	Fined $15.00	„ 3,177
28/8/26	Jagan ...	Do.	Do.	Do.	Do.	Fined $18.00	„ 3,176
14/8/26	Sadoo ...	Do.	Do.	Do.	Do.	„ 15.00	„ 3,178
„	Natu Buala ...	Do.	Do.	Do.	Do.	„ 17.00	„ 3,179
„	Palto Singh ...	Do.	Do.	Do.	Do.	Withdrawn	„ 3,180
27/8/26	Dasarat ...	Do.	P. C. 1644	Do.	Do.	Fined $15.00	„ 3,212
14/8/26	Gowkoran ...	Do.	P. C. 171	Do.	Do.	Discharged	„ 3,181
„	Brignath ...	Do.	Do.	Do.	Do.	Fined $15.00	„ „
„	Ramnath ...	Do	Do.	Do.	Do.	Withdrawn	„ „
27/8/26	Hara Singh ...	Do.	P. C. 134	Do.	Do.	„	„ „
„	Bani Singh ...	Do.	Do.	Do.	Do.	Fined $15.00	„ 3,182
				Carried fotward ...			

MUNICIPAL HEALTH OFFICE

RETUNN OF ARREST CASES DURING THE YEAR 1926.—*continued.*

Date	Name	Address	By whom Arrested	Offence	By whom Tried	Results	Remarks
				Biought	*forward* ...		
7/8/26	Lochan Singh ...	Unknown	P. C. 134	Unlicensed milk seller	2nd Magst.	Fined $18.00	Case No. 3,182
,,	Chinnasamy ...	Do.	P. C. 267	Do.	Do.	Fined $15.00	,, 3,183
,,	Kalandar ...	Do.	Do.	Do.	Do.	Do.	,, ,,
,,	Ramikbal ...	Do.	Do.	Do.	Do.	Do.	,, ,,
,,	Pikiri ...	Do.	Do.	Do.	Do.	Do.	,, ,,
1/9/26	Laljoo ...	42 Mc. Pherson Road	V. Bracken and P. C. 930	Unlicensed Cattleshed	1st Magst.	Fined $50 00	C. S. I's case Warrant No. 4.
17/9/26	Renggamuttu ...	146 Joo Chiat Road	P. C. 87	Unlicensed milk Seller	3rd Magst.	,, 15.00	
20/10/26	Soorajbanch ...	MacPherson Road	P. C. 617	Do.	2nd Magst.	Do.	
23/10/26	Sadnar Singh ...	114 Syed Alwee Road	P. C. 61	Do.	Do.	Do.	
8/11/26	Keng Wang ...	side of 79 Bras Bassah Road	W. J. Collick	Unlicensed Coffee stall	Mr. Bull 2nd Court	Fined $ 5.00	
18/11/26	Rengamuttfu ...	164 Joo Chiat Road	P. C. 214	Unlicensed milk seller	3rd Magst.	,, 20.00	
12/11/26	14 hawkers ...	Arrested in Shanghai Road	A. C. Carnegy and 2 P. Cs.	Unlicensed Hawkers	2nd Court	,, 5 00	
					TOTAL ...		

H. J. BENJAFIELD,
Chief Sanitary Inspector.

RETURN OF LICENSES (OFFENSIVE TRADES) ISSUED DURING THE YEAR 1926

Nature of License	Number issued	Amount	Remarks
		$ cts.	
Blachan Store	11	246 00	1 at 3 months fee.
Brick Kiln	...	...	
Dye House	7	84 00	
Drying and Sorting Fish ...	5	60 00	
Fish Curing	...	...	
Fruit Preserving	8	400 00	
Knacker's Yard	1	12 00	
Lime Making	...	...	
Lye Making	...	...	
Laundry	336	336 00	
Offal Boiling	1	12 00	
Pottery Works	...	...	
Private Market	1	1 00	
Rags and Bones Store	3	18 00	
Sago Factory	5	250 00	
Sheep or Goat Pens	2	24 00	
Sugar Boiling	15	750 00	
Soap Boiling	11	112 00	2 at 6 months fee and 1 at 4 months fee.
Tannery	13	650 00	
Cowsheds	8	200 00	
Cattle Sheds...	39	925 00	
Pony Stables	26	182 50	
Piggery	1,715	3,430 00	
TOTAL ...	2,207	7,692 50	
Singapore Cold Storage	1	1,000 00	

H. J. BENJAFIELD,
Chief Sanitary Inspector.

RETURN OF NOTICE SERVED AND COMPLIED WITH ETC., DURING THE YEAR 1926.

Nature of Notices	Brought forward from last year	Served during the year	Total	Complied with during the year	Carried forward to next year	REMARKS
Nuisance	375	534	909	642	266	(1 Cancelled)
Limewash	471	3,016	3,487	2,707	766	(14 „)
Intimation	416	7,955	8,371	7,733	572	(66 „)
Drain	...	6	6	2	4	
Latrine	1	24	25	25	...	
Well	3	7	10	8	2	
Abatement Order	...	4	4	4	...	
Dest. of Mosquito	152	513	665	203	462	Mr. Buckeridge
Dest. of Mosquito	1	4	5	1	...	Sanitary Inspector (4 Cancelled)
TOTAL ...	1,419	12,063	13,482	11,325	2,072	(85 Cencelled)

H. J. BENJAFIELD,
Chief Sanitary Inspector.

HEALTH DEPARTMENT

RETURN OF PROSECUTIONS FOR THE YEAR 1926

OFFENCES	Division A. (South) Districts 1 to 13 — Total				Division B. (North) Districts 14 to 55 — Total			
	Prosecutions	Withdrawn	Convictions	Fines $	Prosecutions	Withdrawn	Convictions	Fines $
Municipal Ordinance 135								
Filthy premises ... ... Section 226	53	1	52	305	77	2	75	657
Allowing premises to be overcrowded ... „ 230	...	...	...	...	...	...	...	...
Non-compliance with Nuisance Notice ... „ 239	22	5	17	10	20	2	18	50
Do. do. do. Order ... „ 240	17	10	7	13	12	7	5	...
Do. do. Well Notice ... ... „ 247	3	...	3	10	...	...	...	...
Opening Well without permission ... ... „ 247	5	1	4	70	...	...	...	...
Limewash notice not complied with ... „ 227	1	...	1	...	5	1	4	...
Latrine etc. notice not complied with ... „ 212	...	...	...	...	...	...	...	...
Using nightsoil/or urine as manure ... „ 206	1	...	1	5	11	...	11	70
Nightsoil kept for more than 48 hours ... „ 216	...	...	...	...	1	...	1	5
Offensive matter flowing into Public Drain ... „ 127	...	...	...	...	...	...	...	...
Unlicensed Offensive Trades ... ... „ 204	42	1	41	184.50	31	2	29	578
License not exhibited .. .. „ 371	...	...	...	...	2	...	2	7.50
Obstructions ... ... „ 116	...	...	...	...	...	...	...	...
Carried forward ...	144	18	126	597.50	159	14	145	1,367.50

RETURN OF PROSECUTIONS FOR THE YEAR 1926—*continued.*

OFFENCES	Division A. (South) Districts 1 to 13 — Total				Division B. (North) Districts 14 to 25 — Total			
	Prosecutions	Withdrawn	Convictions	Fines $	Prosecutions	Withdrawn	Convictions	Fines $
Brought forward ...	144	18	126	597.50	159	14	145	1,367.50
Byelaws-Sections 57 & 204 M. O. 135								
Unlicensed Foodshops	52	9	43	349	282	42	240	2,107
Do. Milk Vendors	38	6	32	418	38	5	33	452
Recovery of Daily fines	...	...	...	...	...	...	...	...
Employing women without permission of H. O. ...	...	...	...	...	1	...	1	3
Breaches of the Piggery Byelaws	2	...	2	25	18	1	17	150
Unlicensed Piggeries	13	...	13	32	36	16	20	20
Filthy Stables, Cowsheds etc.	6	...	6	45	8	...	8	155
Breaches of the Foodshop Byelaws	196	4	192	1,076	283	4	279	1,621
Markets and Slaughter Houses								
Unsound Food ... ... Section 192	6	...	6	70	27	1	26	435
Slaughtering Animals excepts in Abattoirs ... „ 197	...	...	...	...	...	...	...	...
Selling vegetables within 50 yards of market ... „ 186	...	...	...	...	1	1	...	...
Market Byelaws	72	1	71	236	53	1	52	165
Carried forward ...	529	38	491	2,848.50	906	85	821	6,475.50

RETURN OF PROSECUTIONS FOR THE YEAR 1926—*continued.*

OFFENCES	Division A. (South) Districts 1 to 13				Division B. (North) District 14 to 25			
	Total				Total			
	Prosecutions	Withdrawn	Convictions	Fines $	Prosecutions	Withdrawn	Convictions	Fines $
Brought forward ...	529	38	491	2,848.50	906	85	821	6,475.50
Hawkers-Section 187 & 188 and Byelaws made there-under								
Stalls in unspecified Streets ... ... Section 187	...	...	...	...	5	1	4	25
Unlicensed Hawkers	27	13	14	65	14	1	13	65
Hawkers Byelaws	...	...	...	...	5	...	5	27
Sale of Food and Drugs Ordinance No. 139								
Selling Adulterated Milk ... ... Section 11-1	4	...	4	35	8	...	8	100
Selling Milk deficient in fat ... ... Section 11-1	...	...	...	...	...	...	...	...
Q. and P. of Disease Ordinance No. 157								
Failing to report case of Inf. Disease ... Section 3	...	...	...	...	3	...	3	50
Moving patient without permission ... „ 15	...	...	...	...	...	...	...	...
Exposing patient while suffering ... „ 15	...	...	...	...	2	...	2	40
Conveying patient in public vehicle ... „ 19	...	...	...	...	...	...	...	...
Failing to have child vaccinated ... „ 31	2	...	2	...	...	...	...	...
Failing to bring child for inspection ... „ 32	...	...	...	...	...	...	...	...
Carried forward ...	562	51	511	2,948.50	943	87	856	6,782.50

HEALTH DEPARTMENT

RETURN OF PROSECUTIONS FOR THE YEAR 1926—*continued.*

OFFENCES	Division A. (South) Districts 1 to 13				Division B. (North) Districts 14 to 25			
	Total				Total			
	Prosecutions	Withdrawn	Convictions	Fines $	Prosecutions	Withdrawn	Convictions	Fines $
Brought forward ...	562	51	511	2,948.50	943	87	856	6,782.50
Registration Births and Deaths Ordinance No. 59								
Failing to Register Births ... ... Section 11	10	1	9	3	4	2	2	...
Failing to Register Deaths ... ... „ 11-1	...	...	...	...	...	...	...	...
Destruction of Mosquitos Ordinance No. 174								
Failing to comply with notice ... ... Section 8-1	...	...	...	...	...	...	...	...
Recovery of costs of work done ... „ 7-1	1	...	1	26.90	1	1	...	...
Failing to report for examination 9 (3) Ord. 157 ...	1	1	...	...	1	...	1	10
Breaches of Section 31 Ord. 96 Minor offences ...	4	4	...	...	...	...	...	...
TOTAL ...	578	57	521	2,978.40	949	90	859	6,792.50

Summary

Total Inspections	114,278
„ Prosecutions	1,527
„ Withdrawn	147
„ Convictions	1,380
„ Fines	$ 9,770.90

H. J. BENJAFIELD,
Chief Sanitary Inspector.

N.B.—Costs are not included in the amount of fines.