

Report of the Medical Officer of Health on the public health and sanitary circumstances of Johannesburg.

Contributors

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Reports - Sanitary.

No. 16.



Municipal Council of Johannesburg.

REPORT of the MEDICAL OFFICER OF HEALTH on the PUBLIC HEALTH and SANITARY CIRCUMSTANCES of JOHANNESBURG during the Year, 1st JULY 1919—30th JUNE 1920.

CHARLES PORTER, M.D., D.P.H., *BarFister-at-Law,*
Medical Officer of Health; Member, Public Health Council, Union of South
Africa; Hon. Cons. Medical Officer to the Rand Water Board; Medical
Officer under Native Labour Regulations, Johannesburg Mining District.

JOHANNESBURG,
JUNE, 1921.


JOHANNESBURG:
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REPORT OF MEDICAL OFFICER OF HEALTH

1919-20.

30th June, 1921.

TO HIS WORSHIP THE MAYOR OF JOHANNESBURG.

MR. MAYOR,—I have the honour to present herewith my Report for the official year 1919-20. Its appearance is belated, because of the constant pressure of important routine and special work and the labour which its compilation always involves.

The year's statistical record was satisfactory. The Population was 150,000 Whites and 136,000 Native and Coloured, or 286,000 in all. The Marriage-rate was no less than 28·92 per 1,000. The ^{Birth} ~~Birth~~ ^{rate} was high (28·92), both as compared with English rates and those for South African cities. The General Death-rate (White residents) was 10·88, as against 10·66 Capetown, 9·5 Durban, and 12·5 for 96 Great Towns of England and Wales. The White infantile mortality-rate was 87·4 per 1,000 births.

The only Epidemic occurrences were a mild recrudescence of Influenza in July-August, 1919, and several outbreaks of Smallpox limited, by the vigilance of your Infectious Diseases Staff, to a total of 77 cases.

The outstanding event of the year was the enactment of the Public Health Act, No. 36 of 1919, thanks largely to the efforts of Sir Thomas Watt, K.C.M.G. (Minister of Interior) and Dr. J. A. Mitchell, now Secretary for Public Health, who are to be congratulated upon their epoch-marking work.

As regards your City, the other most noteworthy occurrences were the opening of the first Venereal Clinic in South Africa (*vide* pp. 12, 13), on which the Council was complimented by The Minister; the very successful propaganda work of screening the film "Whatsoever a Man Soweth" (*vide* p. 13), and the Council's enlightened and business-like tackling of the very difficult Native and Coloured housing problem (*vide* pp. 33-36).

Other matters to which I beg to invite attention include:—

The Union Health Department's discovery of Plague Rodents (night-mice, etc.) in the O.F.S. (pp. 17-18).

Anthrax and Japanese Shaving Brushes (pp. 18-19).

Influenza Infection Experiments (p. 19).

Freezing Experiments *re* Measles in Beef and Pork (p. 22).

Milk Supply and Supervision and Municipal Sale of Milk (pp. 23-25).

Town Planning and Housing (pp. 30-33).

Recruitment of Sanitary Inspectors (p. 40).

In connection with Town Planning and Housing, I beg to emphasise my remarks at p. 36, as to the importance of securing, on New Zealand lines, for all Municipalities, immunity from the extortionate demands which so often thwart all reasonable effort to acquire land for much-needed public purposes.

My grateful acknowledgments are again due to Dr. Watkins Pitchford, Director, South African Institute for Medical Research, and Dr. J. McCrae (Government Analyst) for unfailing assistance and kindly co-operation. I am also indebted to my colleagues, the Heads and Sub-heads of Departments, and to my Staff. Finally, I beg to record my appreciation of the courtesy and support of the Chairman (Mrs. Councillor Fitzgerald) and of the Health Committee.

I have the honour to be,

MR. MAYOR,

Your obedient servant,

CHARLES PORTER

Medical Officer of Health.

30th June, 1921.

SUMMARY OF STATISTICS

FOR THE

MUNICIPALITY OF JOHANNESBURG.

Latitude.—26 degrees 11 minutes 44 seconds South.

Longitude.—1 hour 52 minutes 10 seconds East.

Mean Altitude.—5,850 feet.

Climate.—Our climate is a beautiful reality, and does not consist of "samples." The days are bright and warm, the nights cool and, in winter, often very cold. The following averages of Johannesburg records for 16 years are kindly supplied by R. T. A. Innes, Esq., Union Astronomer:—Temperature: maximum, 69·6 degrees F.; minimum, 49·5 degrees F. Rainfall: 30·74 inches on 96 days. Relative Humidity: 65·5 at 8.30 a.m. Bright Sunshine: 8·9 hours daily.

Area.—The area of the Municipality of Johannesburg is 52,330 acres (*vide Government Gazette*, October, 1903); the extreme length, 11½ miles; extreme breadth, 9½ miles; extent of perimeter, 41½ miles.

Annual Rateable Value.—As assessed in accordance with Ordinance 43 of 1903, and representing "the full and fair price or sum which the same" would realise if brought at the time of valuation to voluntary sale," was in 1919-20, £34,945,423.

The Town Council can now impose a rate not exceeding 10d. in the £. The rate for 1919-20 was 7d. in the £ on land. Rate produced £444,072 5s. 10d.

In 1919-20, the valuation was: Land, £14,722,444; Improvements, £20,222,979.

POPULATION.	Whites.	Natives.	Eurafricans.	Asiatics.	Total Persons.		
1918 Government Census (5th May, 1918)	140,750	—	—	—	—		
Estimated for 1919-20 ...	150,000	120,000	16,000	—	286,000		
	1913-14	1914-15	1915-16	1916-17	1917-18	1918-19	1919-20
MARRIAGE-RATE per 1,000 population (white) ...	24·56	22·91	24·58	23·16	21·75	23·51	28·53
BIRTH-RATE per 1,000 population (white)	31·87	30·61	29·69	29·30	29·80	29·66	28·92
DEATH-RATES (including non-residents).	White.		Natives.	Eurafricans.	Asiatics.	All Persons.	
	Gross.	* Corrected for Age and Sex distrib.					
1903-4 ...	17·2	—	32·4	—	19·5	—	23·9
1904-5 ...	15·2	21·12	29·3	—	7·3	—	20·8
1905-6 ...	17·5	24·3	32·4	—	11·3	—	22·9
1906-7 ...	13·0	—	28·6	—	24·4	—	20·8
1907-8 ...	12·6	—	29·3	—	24·1	—	21·0
1908-9 ...	14·1	—	31·3	—	14·7	—	22·1
1909-10 ...	11·3	12·9972	24·5	25·2	18·5	—	18·3
1910-11 ...	13·3	15·2976	33·6	31·1	19·7	—	23·4
1911-12 ...	11·6	13·3423	25·5	24·4	—	—	18·9
1912-13 ...	10·52	12·10	27·63	23·21	—	—	18·68
1913-14 ...	8·98	10·32	16·34	21·19	—	—	12·66
1914-15 ...	10·84	†	18·00	28·11	—	—	14·39
1915-16 ...	9·55	—	19·95	21·81	—	—	14·32
1916-17 ...	12·04	—	16·73	23·21	—	—	14·69
1917-18 ...	10·55	—	14·14	20·25	—	—	12·69
1918-19 ...	16·06	—	26·94	38·15	—	—	21·94
1919-20 ...	10·88	—	17·58	27·54	25·20	—	14·58

* Factor for correction 1·1502.

† No factor available (see page 6).

REPORT, 1st JULY 1919—30th JUNE 1920.

POPULATION.

		1918.			1919-20.
		Males.	Females.	Persons.	(<i>Estimate</i>
WHITES—					<i>150,000 based on Census</i>
<i>Census, 1918</i>	...	71,174	69,576	140,750	<i>Returns, 5-5-21).</i>
NATIVES (<i>estimated on Native Affairs Returns</i>)	...			105,520	120,000
EURAFRICANS	} <i>Estimate</i>	...	...	18,610	11,000
ASIATICS		...	...		5,000
Totals	...	...	...	264,880	286,000

MARRIAGES.

For the year 1st July, 1919, to 30th June, 1920, the White marriage-rate was 28.53 per 1,000. In 1919, the figure for London was 22.1 and for England and Wales 19.7.* For the three-year period ending 30th June, 1919, the Johannesburg rate was 22.45.

BIRTHS.

From 1st July, 1919, to 30th June, 1920, the number of White births registered was 4,334.

The White birth-rate was high, being equal to 28.92 per 1,000 for 1919-20. For "The 96 Great Towns" of England and Wales, in 1919 the birth-rate was 19.0,* in Pretoria 23.56, in Capetown 25.1, and in Durban 21.37.

White Illegitimate Births.—These numbered 124, and constituted about 2.85 per cent. of all births, as against 6.05† in England and Wales in 1919, 4.6 in 1920, and 6.4 in Capetown.

The native and coloured births registered during 1919-20 numbered 1,355. But as the ratio of females to males in the native and coloured population is only about 1 to 7, it would merely mislead to strike a birth-rate.

In the consideration of vital statistics, a correct appreciation of the influence of birth-rate upon death-rate is essential. In large towns,

"high death-rates go with high birth-rates. High death-rates, however, are not the result of high birth-rates—they are more generally caused by bad sanitary conditions. Populations having a continuously high birth-rate should (sanitary conditions being equal) have lower death-rates than populations having low birth-rates; for if, year by year, the births exceed the deaths amongst a population, not only are additional children under 5 years of age, whose mortality is high, added to the population, but a still larger increase of those between 10 and 40, whose mortality is low, takes place, and counterbalances the other; whilst the proportion of old people over 55 to the total population is diminished. Conversely, a continuously low birth-rate means a small proportion of young adults and a large proportion of old people, and is therefore unfavourable to a low death-rate."—(*Newsholme.*)

* R.G.'s Report, 1919, pp. xiii and xxiii; 4th Quarterly Return, 1919, p. 39; Annual Report, 1919, p. xxiv.

M.O.H. 1919-20.

DEATHS AND DEATH-RATES.

Deaths and
Death-rates.
Infantile
Mortality.
Causes of
Death.

The deaths herein referred to are those of persons who died within the extended Municipal Area as defined by Proclamations 13 of 1902 and 46 of 1903.

RACE.	DEATHS.		DEATH-RATE per 1,000.	
	Total.	Of Non-Residents.	Gross Recorded.	Excluding Non-Residents.
1919-20 —				
Whites	1,632	203	12·23	10·88
Natives	2,110	428	21·15	17·58
Eurafricans	303	18	29·18	27·54
Asiatics	126	3	25·80	25·20
All Persons	4,171	652	16·86	14·58

(See also Table at foot of p. 4.)

Factors for correction have not been applied in this Report, for the reasons stated at p. 8 of the Medical Officer of Health's Report, 1914-15.

INFANTILE MORTALITY, i.e., deaths of infants under 1 year per each 1,000 births registered, was 81·44; Natives and Euraficans, 355·81; and Asiatics 184·21.

RACE.	1913-18.	1918-19	1919-20.
Whites	93·36	89·79	81·44
Natives and Euraficans	352·24	401·37	355·81
Asiatics	258·35	227·27	184·21

DEATH-RATE IN BRITISH, COLONIAL AND FOREIGN CITIES.—Appended, for purposes of comparison, are particulars as to the "Death-rate per 1,000 from All Causes" in large cities in other parts of the world:—

Greater London (i.e., Metropolitan and City Police Districts) ...	12·4 (1920)	Capetown	10·64 (1919-20)
"96 Great Towns" of England and Wales	12·5 ..	Pretoria	9·23 ..
Bombay (including plague deaths)	46·7 ..	New Orleans	17·2 (1920)
Madras do. do.	41·2 ..	New York	11·9 ..
Paris	15·1 ..	JOHANNESBURG—	
Calcutta	38·9 ..	Whites	10·88 (1919-20)
East London	10·9 (1919-20)	Natives	17·58 ..
Durban	9·5 ..	Eurafricans	27·54 ..
Kimberley	14·8 (1919)	Asiatics	25·20 ..
		All Persons	14·58 ..

Except in regard to South African Towns, these figures are taken from the 4th Quarterly Returns of the Registrar-General for England and Wales, 1920.

CAUSES OF DEATH.

The causes of and ages at death and the local distribution are analysed in the usual Tables A to D for "Whites," "Natives," "Euraficans" and "Asiatics" respectively. For reasons of economy, these voluminous tables have not, however, been printed, but are available for inspection.

FACTORS OF MORTALITY, 1918-19 and 1919-20.

M.O.H. 1919-20.

DISEASE.		1918-19.		1919-20.		DISEASE.		1918-19.		1919-20.		Factors of Mortality.
		Deaths.	Rates.	Deaths.	Rates.			Deaths.	Rates.	Deaths.	Rates.	
Enteric Fever ...	W.	19	0.13	13	0.086	Whooping Cough ...	W.	6	0.04	8	0.05	
	N.	27	0.25	16	0.21		N.	3	0.02	1	0.008	
	E.	—	—	1	0.12		E.	1	0.05	1	0.06	
	A.	—	—	1	—		A.	—	—	—	—	
Scarlet Fever ...	W.	30	0.21	6	0.040	Diphtheria ...	W.	10	0.07	21	0.14	
	N.	1	0.009	—	—		N.	1	0.009	1	0.008	
	E.	—	—	—	—		E.	1	0.05	1	0.06	
	A.	1	—	—	—		A.	—	—	—	—	
Tuberculosis of Lungs	W.	59	0.41	60	0.4	Cancer ...	W.	95	0.67	101	0.67	
	N.	217	2.05	234	1.95		N.	15	0.14	13	0.10	
	E.	—	—	24	2.00		E.	6	0.32	5	0.56	
	A.	18	0.94	8	—		A.	—	—	4	—	
Heart Diseases ...	W.	140	0.99	165	1.10	Influenza ...	W.	667	4.73	100	0.66	
	N.	36	0.34	68	0.56		N.	1,157	10.96	233	1.86	
	E.	—	—	23	1.86		E.	263	14.13	5	0.37	
	A.	12	0.64	7	—		A.	—	—	1	—	
Pneumonia ...	W.	205	1.45	119	0.79	Cerebral Haemorrhage and Softening ...	W.	43	0.30	39	0.26	
	N.	427	4.04	351	2.92		N.	3	0.02	7	0.05	
	E.	—	—	25	2.18		E.	—	—	5	0.56	
	A.	89	4.78	10	—		A.	—	—	4	—	
Other Respiratory Diseases ...	W.	93	0.66	94	0.62	Acute Bronchitis ...	W.	38	0.26	36	0.24	
	N.	98	0.92	146	1.21		N.	64	0.60	90	0.75	
	E.	—	—	31	2.56		E.	72	3.86	33	3.25	
	A.	50	2.68	10	—		A.	—	—	19	—	
* Congenital Debility and Malformation	W.	155	1.10	142	0.94	Chronic Bronchitis ...	W.	27	0.19	32	0.21	
	N.	93	0.88	99	0.82		N.	14	0.13	15	0.12	
	E.	—	—	27	2.75		E.	6	0.32	5	0.5	
	A.	44	2.36	17	—		A.	—	—	3	—	
Violent Deaths ...	W.	63	0.44	61	0.40	Acute Nephritis and Bright's Disease ...	W.	31	0.22	39	0.26	
	N.	150	1.42	244	2.03		N.	20	0.18	22	0.18	
	E.	—	—	8	0.81		E.	4	0.21	1	0.25	
	A.	7	0.37	5	—		A.	—	—	3	—	
Diarrhoeal Diseases ...	W.	135	0.95	132	0.88	Silicosis ...	W.	78	0.55	62	0.41	
	N.	132	1.25	151	1.25		N.	46	0.43	40	0.33	
	E.	—	—	50	3.93		E.	4	0.21	2	0.12	
	A.	68	3.65	13	—		A.	—	—	—	—	
Meningitis ...	W.	23	0.16	23	0.15	Other Forms of Tuberculosis ...	W.	14	0.09	8	0.05	
	N.	75	0.71	84	0.70		N.	88	0.83	83	0.69	
	E.	—	—	1	0.18		E.	10	0.53	5	0.37	
	A.	8	0.42	2	—		A.	—	—	1	—	
Measles ...	W.	23	0.16	25	0.16							
	N.	7	0.06	20	0.16							
	E.	—	—	5	0.31							
	A.	5	0.26	—	—							

* "Congenital Debility and Malformation" include congenital malformations, injuries and debility at birth, atelectasis icterus neonatorum, atrophy, marasmus, dentition, rickets.

The following observations are suggested by inspection of this Table:

1. That during 1919-20 the Chief Factors of Mortality were:

- (a) For Whites: Heart diseases (165 deaths); congenital debility (142); diarrhoeal diseases (132); pneumonia (119); cancer (101); influenza (100); other respiratory diseases (94); silicosis (62); violent deaths (61); tuberculosis of lungs (60); cerebral haemorrhage (39); acute nephritis and Bright's disease (39); acute bronchitis (36); chronic bronchitis (32); measles (25); meningitis (23); diphtheria (21); enteric (13); whooping cough (8); other forms of tuberculosis (8); and scarlet fever (6).

M.O.H. 1919-20.

Infantile
Mortality,
Maternity
and Child
Welfare.

- (b) For Natives: Pneumonia (351); violent deaths (244); tuberculosis of lungs (234); influenza (223); diarrhoeal diseases (151); other respiratory diseases (146); congenital debility and malformation (99); acute bronchitis (90); meningitis (84); other forms of tuberculosis (83); heart diseases (68); silicosis (40); enteric fever (26); acute nephritis and Bright's disease (22); and measles (20).
- (c) For Eurafrians and Asiatics: Diarrhoeal diseases (63); acute bronchitis (52); congenital debility and malformation (44); other respiratory diseases (41); pneumonia (35); tuberculosis of lungs (32); heart diseases (30); and violent deaths (13).

2. That the comparison with 1918-19 is as follows:—

- (a) As regards Whites, influenza claimed 100 deaths in 1919-20 as compared with 667 in the previous year, the death-rate being 0.66 per 1,000 as against 4.73. Enteric fever shows a decrease, the rate falling from 0.13 in 1918-19 to 0.08 in 1919-20. The number of cases notified increased from 107 in 1918-19 to 125 in 1919-20. The death-rate per cent. of cases for the year 1919-20 was 10.4. Heart diseases were responsible for 165 deaths, the rate rising from 0.99 to 1.10 in 1919-20. Pneumonia with 119 deaths showed a decrease, the rate being 0.79 against 1.45 in 1918-19. No difference was noted with regard to tuberculosis of lungs, the rate remaining 0.41 in both years. Several other causes of death show a slight fall, viz.: "Other respiratory diseases," from 0.66 in 1918-19 to 0.62 in 1919-20; congenital debility and malformation, 1.10 in 1918-19 to 0.94 in 1919-20; diarrhoeal diseases, 0.95 in 1918-19 to 0.88 in 1919-20. Cancer, with a rate of 0.67, shows no difference from 1918-19. Violent deaths fell from 0.44 in 1918-19 to 0.40 in 1919-20.
- (b) With regard to Natives, as with Whites, influenza claimed a death-roll of 223 in 1919-20, or a rate of 1.86 per 1,000, as against 10.96 in 1918-19. Pneumonia, with 205 deaths in 1918-19, declined to 119 in the year 1919-20, the rate for the year being 2.92. The tuberculosis of lungs rate fell slightly in 1919-20; violent deaths (244) showed a big increase over 1918-19 (150); enteric fever declined from 0.25 to 0.21.
- (c) With regard to Eurafrians and Asiatics, influenza was responsible for 6 deaths during 1919-20, or a rate of 0.37 per 1,000, as against 26.4 and 14.13 in 1918-19. Pneumonia deaths fell from 89 in 1918-19 to 35 in 1919-20; diarrhoeal diseases show a decrease of 5; tuberculosis of lungs an increase of 14.

INFANTILE MORTALITY, AND MATERNITY AND CHILD WELFARE MEASURES.

By the term "Infantile Mortality" is meant the number of deaths of infants under one year of age per each one thousand births during a given period, and, in the words of the Registrar-General for England and Wales, infantile mortality "has always been regarded as a valuable test for the health of communities."

WHITE INFANTILE MORTALITY.—This rate for 1919-20 was 81.44. In the following Table the infantile mortality rates for Johannesburg are compared with those of the Great Towns of England and Wales and of the other large South African towns:—

TABLE "A."
WHITE INFANTILE MORTALITY.

	1918	1919	1920
England and Wales:			
96 Great Towns ...	106	93	85
148 Smaller Towns ...	94	90	80
Kimberley ...	98.4	85.0	—
	1917-18	1918-19	1919-20
Capetown ...	79.33	114.49	81.64
Durban ...	66.5	—	90.4
East London ...	76.7	100	100
Pretoria ...	84.9	120.6	58.6
Johannesburg ...	81.04	89.79	81.44
Union of South Africa ...	82.37	81.81	—
New Zealand ...	—	48.41 (1918)	45.26 (1919)

The 1919 rate for Auckland was 49.17, Wellington 59.64, Christchurch 50.99 and Dunedin 45.42. Dr. M. H. Watt, Director of Public Hygiene, in

a suggestive article in "New Zealand Journal of Health," April, 1921, attributes these astonishingly low rates to general Public Health administration measures (such as the Midwives Act, hospitals like the St. Helen's, Wellington, and the better control of the milk supply), aided by "the meritorious work" of the Society for the Health of Women and Children. He says:—

M.O.H. 1919-20.

Infant
Mortality.
Child
Welfare.

"... it must be acknowledged that New Zealand is exceedingly fortunate as compared with other countries. A healthy stock, an equable and genial climate, a plentiful food-supply, an absence in great degree of overcrowded centres of population and of industrial employment of women, and, perhaps above all, a lack of the depressing poverty seen in older lands, are all factors which favour a low infant death-rate. Assisted by these natural advantages, State and voluntary efforts have succeeded in reducing the infant mortality from seventy-five in 1900 to forty-five in 1919, a figure which in comparison with the experience of other countries is astonishingly low. The most marked success, perhaps, has been the decrease of deaths from intestinal diseases, which in 1900 were responsible for some fifteen deaths in every thousand infants born, as against only some two deaths in 1919. A natural pride in this achievement is tempered by the knowledge that little effect has been produced as yet upon deaths under one month, for which developmental conditions are mainly responsible. . . . Nowhere, either in New Zealand or elsewhere, has either State or voluntary effort yet succeeded in improving to any appreciable extent the chances of the new-born babe of surviving its first month."

From the Table on p. 8 it is seen that the infantile mortality for Johannesburg compares favourably with that of "The 96 Great Towns of England and Wales," and also, on the whole, with the large towns of South Africa, including (in 1919-20) Durban.

The highest Johannesburg rate in recent years was 108.8 in 1916-17, the general death-rate from all causes at all ages in that year being also considerably higher than usual.

As one is accustomed to hear uninformed allegations as to the supposed alarming infantile mortality of South Africa generally, and of Johannesburg in particular, these figures for recent years are illuminating.

But as 76 per cent of White infant deaths in 1919-20 were due to digestive disorders or malnutrition, there is probably no sufficient reason why the present infantile mortality rate of 80 to 90 should not be materially lowered, and perhaps, in time, even approximate to that of the large towns of New Zealand, which in 1917 averaged 51.

The Medical Officer of Health is also deeply convinced that an honest, energetic policy in regard to venereal diseases will contribute largely to this end, by lessening the number of premature births and of diseased and weakly infants who often (fortunately, perhaps, for themselves) survive their birth but a few days or weeks.

COLOURED INFANTILE MORTALITY.—In 1911 the Medical Officer of Health investigated, with some care, the question of the very high infantile mortality amongst Natives, Cape Coloured and Asiatics in South Africa generally, and in Johannesburg in particular, and reported fully to the Council on 3rd May of that year.

The following figures for 1917-20 are available:—

TABLE "B."
COLOURED INFANTILE MORTALITY (per 1 000 Births).

	1917-18	1918-19	1919-20		1917-18	1918-19	1919-20
Pretoria ...	436.0		327.48	Kimberley ...	461 (1918)	250 (1919)	
East London	302.7		418.6	Johannesburg : Natives and Eurafricans }	298.5	411.9	355.81
Capetown ...	200.9	299.0	183.89	Asiatics ...	225.7	212.7	184.21

In Bombay (1909) the rate was 404 per 1,000 births, and in Bangalore 352.

MATERNITY AND CHILD WELFARE MEASURES.

These measures have in recent years received special and increasing attention, and the official scheme suggested by the English Ministry of Health was recorded in detail in the Medical Officer of Health's Report, 1916-19, pp. 11, etc. Its main elements are: (1) Supervision of Midwives; (2) Supervision and Medical and General Care of Expectant Mothers; (3) Care of Mothers during Lying-in Period; and (4) Care of Infancy and Early Childhood.

M.O.H. 1919-20.

School
Clinic.
Pneumonia,
Diarrhoeal
Diseases.

In September, 1919, the Medical Officer of Health reported fully hereon to the Public Health Committee, emphasising the necessity for Registration of Midwives in urban districts, Education of Elder School Girls in Infant Hygiene, provision of District Midwifery Nurses, appointment of two additional Health Visitors, establishment of three additional "Baby Welcomes," and a grant-in-aid of the New Market Welfare Centre. Effect was given to the last three recommendations by resolution of the Council, 8th June, 1920, at an estimated cost of £1,874.

The necessity for lying-in accommodation for coloured women, and the question of provision of Municipal depôts for the sale of milk (*vide* pp. 24-25) were also commended to the Committee's consideration.

SUMMARY OF HEALTH VISITORS' WORK FOR YEAR ENDING 30TH JUNE, 1920.

Number of first visits, 1,116; re-visits, 7,491. Inquiries *re* deaths under five years of age, 90. Mothers referred to Maternity Hospital, 72; to Miss Ellershaw's Institute, 154. Infants sent to Hospital, 165; to Children's Aid Society, 30. Mothers attending at Babies' Welcome, 1,758; at Health Visitors' Office, 671. Cases referred to Relief Board, 16. Inquiries for Governor-General's Fund, 34. Births investigated: Premature, 22; full-time, 1,090; stillborn, 14. Of these 1,126, 32 were illegitimate, 36 were attended by a doctor, 352 by a trained midwife; 732 by an untrained nurse, and 6 by friends.

SCHOOL CLINIC: PROVINCIAL EDUCATION DEPARTMENT.

A very fine School Clinic, designed by Dr. C. F. L. Leipoldt, Chief School Medical Officer, Education Department, has recently been completed, and is fully described in "The Lancet," 28th May, 1921, p. 1151. It is claimed to be the finest of its kind in existence, and the equipment has been selected by Dr. Brincker, of the London County Council. It will be in charge of Dr. A. F. Cleaver, assisted by eleven school nurses, and will include a pre-natal clinic, a baby clinic, a psychological clinic, and a department for advising "leavers." Treatment will be given free to all necessitous patients for defects of the eyes, teeth, nose and throat, and for minor ailments, practitioners being paid a nominal honorarium calculated on the basis of one guinea per hour of work. These arrangements are, however, subject to modification if the profession prefers that part-timers—as is at present the case—should be employed. The clinic will be open during vacations as well as during term, and it is hoped to make it a propaganda centre for social and public hygiene. For that purpose the waiting-room has been specially fitted up to enable the cinematograph to be used for lectures.

PNEUMONIA.

The death-rates per 1,000 from this disease are as follow:—

	WHITES.	NATIVES.	EURAFRICANS AND ASIATICS.	LONDON.
1914-15	0.74	3.80	2.30	1.24 (1914)
1915-16	0.77	5.89	2.79	1.25 (1915)
1916-17	1.15	3.51	3.38	
1917-18	0.76	2.93	3.06	2.00 (1918)
1918-19	1.45	4.04	4.78	1.062 (1919)*
1919-20	0.79	2.92	2.18	

DIARRHOEAL DISEASES.

The following are the mortality rates per 1,000 of population for the period under notice:—

	WHITES.	NATIVES.	EURAFRICANS AND ASIATICS.	96 GREAT TOWNS IN ENGLAND AND WALES.
1918-19	0.95	1.25	3.65	0.35 (1918)
1919-20	0.88	1.25	3.93	0.28 (1919)

* R.G.'s Report, 1919, p. xc.

The proportion of the foregoing deaths which took place amongst the children under five years of age of the different races was:—For Whites, 88 per cent.; Natives, 83 per cent.; Eurafrians, 90 per cent.; Asiatics, 100 per cent.

As regards both S.A. Coloured and Asiatics in Johannesburg, it must, however, be remembered that comparatively and absolutely there are few children. Diarrhoeal diseases are the chief cause of death amongst children under five years.

M.O.H. 1919-20.

Miners'
Phthisis,
Heart
Diseases,
Cancer.

MINERS' PHTHISIS, ROCK-DRILL PNEUMONIA OR SILICOSIS.

The registered deaths from this disease are recorded below:—

YEAR.	WHITES.	NATIVES.	EURAFRIANS.	ASIATICS.
1915-16	78	38	2	—
1916-17	83	23	1	—
1917-18	61	20	6	—
1918-19	80	46	4	—
1919-20	62	40	2	—

Early in 1920, Dr. Mavrogordata, of Oxford, commenced on the Mines, and in the laboratories of the S.A. Institute for Medical Research, an investigation into the preventive effect, as regards development of silicosis, of the inhalation of fine coal dust simultaneously with the inhalation of our mine dust. It is understood that his inquiry is approaching completion and that his findings will shortly be published in the "Proceedings" of the Institute.

ORGANIC DISEASES OF HEART.

These heart affections include pericarditis, endocarditis, valvular disease and hypertrophy. The deaths recorded during the year 1st July, 1919, to 30th June, 1920, were 165 for Whites, an increase of 17·8 per cent. as compared with the previous year, this figure representing a rate of 1·12 per 1,000 as against 1·4 for England and Wales in 1919.* For Natives the rate was 0·58; for Eurafrians and Asiatics, 1·61.

Of the White deaths, 93 were those of males and 72 those of females, indicating a greater proportionate incidence on males; 29 died under 15 years of age and 136 at later periods.

MALIGNANT DISEASE OR CANCER.

Amongst Whites—

The deaths from cancer were 128 (27 being non-residents) for the year 1919-20. Of the total, 70 were males and 58 females, and 117 (66 males and 51 females) occurred at ages over 35. Stated in terms of the 1918 Census population, the mortality was 0·910 per 1,000 for males and 0·792 per 1,000 for females, as against 1·280 for males and 1·124 for females in England and Wales in 1919.

In 2 cases the seat of the disease was not stated, in 51 the stomach was affected, in 20 the head and neck, in 14 the womb, in 14 the breast, in 11 the liver, in 11 the intestines, in 2 each the chest and groin, and in 1 the glands.

Natives—

Seventeen (including 4 non-residents) deaths were recorded, 6 being at ages under 35 and 11 at later periods. The parts affected are recorded as follow:—Liver, 11; stomach, 5; and neck, 1. The death-rate per 1,000 living was 0·11, but it should be remembered that this population consists in Johannesburg mainly of young male adults, who remain here a comparatively short time.

Eurafrians—

Five deaths were recorded, 3 being females; all were over 35, the organs affected being: Stomach, 3; liver, 1; and unspecified, 1.

Asiatics—

Four deaths—3 being males over 35—occurred. The parts affected were the stomach, liver, neck and womb.

* R.G.'s Report, 1919, p. 31.

MEASLES.

Measles.
Venereal
Disease.

The death-rates per 1,000 were as follow:—

	1917-18	1918-19	1919-20
Whites	0.04	0.16	0.16
Natives	0.037	0.06	0.16
Eurafricans	0.053	0.26	0.31
Asiatics			
96 English Towns ...	0.36 (1918)	0.13 (1919)	0.22 (1920)

VENEREAL DISEASE.

Appended is a return, kindly supplied by Dr. Mehliss, of the Johannesburg cases of syphilis and other venereal diseases treated at the Lazaretto during the official years 1917-20:—

Years.	Whites.	Coloured.
1917-18	293	882
1918-19	289	1,074
1919-20	338	1,280

PREVENTION AND FREE TREATMENT OF VENEREAL DISEASE.

In August, 1916, the Medical Officer of Health recommended the adoption of a scheme for Johannesburg based upon the recommendations of "The Royal Commission on Venereal Diseases," which had reported in February, 1916, but for various reasons—including that of finance—no practical action was then taken. On 1st January, 1920, however, the Public Health Act (No. 36 of 1919) became operative, and provided (Sect. 66 (d)) for the refund to any Local Authority, by Government, of two-thirds of the nett cost of any such approved scheme. English working experience had also in the meantime become available, and in October, 1919, modified proposals were submitted by the Medical Officer of Health and accepted by the Public Health Committee for—

- (1) Skilled bacterial diagnosis, both for purposes of diagnosis and for testing the efficiency of treatment.
- (2) The establishment at the General Hospital of a special, but unnamed, Clinic for the gratuitous treatment of venereal patients, free from unwelcome and embarrassing conditions of discrimination or publicity.
- (3) The gratuitous, but carefully controlled, issue of special drugs, such as salvarsan, for administration in consultation with the Director of the Clinic.
- (4) The "part-time" appointment of a recognised expert in venereal diseases as Director of the Clinic, at a salary of £750 per annum.
- (5) The provision at the General Hospital of a special ward of 15 beds for cases requiring treatment as in-patients.

The Capital Expenditure involved for fitments to rooms in the Out-patient Department, erection of venereal block, and for equipment (including instruments) was £8,000, less two-thirds refund by Government, or a nett sum of £2,667.

The Annual Establishment Charges included salary of Director and of trained orderly, upkeep of beds and other hospital services, were estimated at £3,050, less two-thirds refund, or a nett total of £1,018.

On 6th February, 1920, the Board of the General Hospital decided to accept the foregoing proposals "in so far as concerns the Hospital Board, provided that it is understood by the Municipal Authorities that any arrangement in regard to work inside the Hospital premises must be under the direction of the Superintendent of the Hospital and with the approval of the Hospital Board."

The following letter (No. 45/97/31 of 16/2/1920) from the Secretary of Public Health, conveyed the approval of the Honourable the Minister:—

"I am directed to acknowledge the receipt of your letter of the 5th instant, with enclosed report regarding a scheme for the prevention and treatment of venereal diseases in Johannesburg, and to express the Minister's appreciation of the Municipality's prompt action in the matter."

" (2) The Regulations provided for by Section 66 of Act No. 36 of 1919 have not yet been promulgated, but the scheme as indicated in your letter meets with the general approval of the Minister.

" (3) As regards the proposed capital expenditure, estimated at £8,000, it will be necessary to submit further particulars, together with plans of the buildings proposed. It is noted that it will probably be possible to provide temporary accommodation pending the erection of the new wards.

" (4) As regards laboratory services, these will be provided by the Government by arrangement with the South African Institute for Medical Research, under Section 66 (a) of the Public Health Act. Salvarsan and substitutes will also, as far as possible, be provided by the Government under Clause (c) of the above-mentioned section. The other items mentioned under 'Establishment Charges' (Annual) will, subject to audit and to the Regulations to be made under Section 66 of the Act, be accepted for part refund under Clause (d) of that Section."

M.O.H. 1919-20.

Venereal
Clinic.
Venereal
Film.
Notifiable
Diseases.

The Public Health Committee recommended the adoption of this scheme to the Council in the following terms:—

In submitting this matter, we would remind the Council that the Royal Commission, in their Final Report of February, 1916, stated that "the effects of venereal disease upon the individual and upon the race are grave and far-reaching, involving a heavy loss to the community in actual and potential population, as well as in money," operating with disastrous effects alike on the birth-rate, upon child-life, and upon working efficiency. They are responsible for a large proportion of cases of paralysis and insanity which fill the mental hospitals, and for many deaths from heart disease and heart failure. It is, indeed, questionable whether any other public health problem possesses the significance and importance of that of the prevention and treatment of these scourges.

On the other hand, the Royal Commission was satisfied from the evidence given before them that "by early and efficient treatment venereal disease could be brought under control and reduced within narrow limits, but that at present treatment is in most cases unduly deferred, while the best modern methods of diagnosis and treatment are not within the reach of the population generally."

We think, therefore, that the time has arrived for facing and dealing with this problem in Johannesburg.

On 27th April, 1920, this recommendation was adopted by the Council. Arrangements with the Hospital Board and adaptation of existing accommodation were smoothly and satisfactorily completed, and were immensely facilitated by the valuable and kindest help in every possible way of Dr. R. P. Mackenzie, C.M.G., the Superintendent. The details of arrangement and equipment were suggested and supervised by Dr. H. Gluckman (now Acting Director), in conjunction with the Council's medical officers. At the end of July, 1920, the Clinic was opened, and its success hitherto has been uninterrupted, though the number of women attending on the days set apart for them was, at first, disappointingly small. In this respect, however, English experience is similar, but there are indications that increasing advantage will be taken of the facilities offered.

The Medical Officer of Health desires to record with great appreciation the keenness of the Chairman (Mrs. Councillor Fitzgerald) and of every member of the 1919-20 Health Committee in launching this scheme, and congratulates the Council upon being the first in South Africa to organise a Venereal Clinic.

CINEMA FILM PROPAGANDA WORK.

Early in 1920, the Medical Officer of Health obtained, through the courtesy of the Director of Medical Services (Col. P. G. Stock, C.B., formerly Assistant Medical Officer of Health, Johannesburg), and of Dr. J. A. Mitchell, Secretary for Public Health, the loan of a copy of the War Office film, "Whatsoever a Man Soweth." This was shown gratuitously on a number of occasions to packed audiences in the Town Hall, and at several suburban bioscopes. It was also screened at Krugersdorp, Germiston, Boksburg, Springs, and later on at Bloemfontein. It was witnessed by some 40,000-50,000 people, none of whom can now say that they have since contracted venereal in ignorance of the risk they accepted. The Medical Officer of Health was greatly impressed by the educational value of this film, and can conceive no other method remotely comparable thereto for engaging and fixing the interest of an audience, and driving home essential truths which would be regarded (or disregarded) as a tiresome sermon if presented in any other way. There can be no doubt that the frequent screening, under official supervision, of such films is the most powerful and essential factor of propaganda work.

The Medical Officer of Health gladly acknowledges the valuable co-operation of the Press in this matter and, in particular, many useful practical suggestions as to the screenings from Mr. J. Langley Levy, Editor, "Sunday Times."

NOTIFIABLE INFECTIOUS DISEASES.

The Public Health Act (No. 36 of 1919), Section 18 (1) and (2), provides for notification of the following diseases:—

Small-pox (Amaas, Kaffir-pox and any disease resembling small-pox, except chicken-pox).

M.O.H. 1919-20.

Small-pox.
Scarlet
Fever.
Typhus.

Scarlatina or scarlet fever.

Typhus fever.

Diphtheria or membranous croup.

Puerperal fever (including septicaemia, pyaemia, septic pelvic cellulitis or other serious condition occurring during the puerperal state).

Asiatic cholera.

Enteric or typhoid fever (including para-typhoid fever).

Erysipelas.

Epidemic cerebro-spinal meningitis or cerebro-spinal fever.

Acute poliomyelitis; leprosy; plague; anthrax; glanders; rabies; Malta fever; sleeping sickness or human trypanosomiasis.

All forms of tuberculosis (which are clinically recognisable apart from reaction to the tuberculin test).

Acute encephalitis lethargica, acute polio-encephalitis and all other forms of acute encephalitis of similar causation.

Yellow fever.

Ophthalmia neonatorum (all forms).

Gonorrhoeal ophthalmia.

During the year under notice, 2,193 cases were notified, viz.: 842 amongst Whites, 1,298 amongst Natives, 30 amongst Eurafrians, and 23 amongst Asiatics. These occurrences are discussed elsewhere in this Report.

The procedure adopted in regard to notified infectious diseases, disinfection, etc., has been the same as in previous years (see Report 1904-6).

872 houses and 91,034 articles of clothing, bedding, etc., were disinfected.

SMALL-POX.

77 attacks were reported during the year, of which 52 were whites and 25 natives. Two of the white cases were "imported" from the Pretoria district, and 1 from the Cape Province, whilst 14 native cases contracted the disease elsewhere, *e.g.*, in Mozambique, Witbank, and the Pretoria district, including the Alexandra Native Township, some seven miles north-east of Johannesburg. This township was very thoroughly searched by your staff on 19th September, 1919, and nearly 900 vaccinations effected.

Two small outbreaks occurred in the La Rochelle and Siemert Road districts, which were effectively dealt with by appropriate measures of compulsory vaccination and supervision of contacts.

The total expenditure on vaccination was £712 1s. 9d.

SCARLET FEVER.

RACE.	1917-18		1918-19		1919-20	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Whites	2,080	45	992	30	186	6
Natives	5	—	1	1	1	—
Eurafrians	1	—	9	1	—	—
Asiatics	1	—	—	—	—	—

In 1919-20 the case-incidence (186) was the lowest on record, the mortality-rate per 1,000 of White population (0.40) being the same as that of the 96 Great British Towns in 1919 and 1920.

In Johannesburg, only carefully selected cases of scarlet fever are removed to the Isolation Wards, unless the patient or his friends guarantee payment of all expenses.

TYPHUS.

In September, 1920, one case of typhus was discovered at the W.N.L.A. This native came from the Transkei.

During 1920 the value of the Weil-Felix diagnostic reaction was the subject of limited investigation by the South African Institute for Medical Research, the general conclusion reached being that a positive reaction is of very definite value, but failure to secure a positive reaction does not necessarily mean that the condition investigated is not typhus.

The Director (Dr. Watkins-Pitchford) concludes his report with the following statement:—

"It is my considered opinion that the eradicating of typhus fever from this country depends, not upon further research, but upon intensive Public Health activities. The expenditure of much money is called for, and this should be mainly directed to the delousing of the Native population in the affected areas."

M.O.H. 1919-20.

Diphtheria.
Puerperal
Septicæmia.

DIPHThERITIC DISEASE, INCLUDING MEMBRANOUS CROUP.

RACE.	1917-18		1918-19		1919-20	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Whites ...	77	25	42	10	79	21
Natives ...	—	1	2	1	1	1
Eurafricans ...	—	1	1	1	2	1
Asiatics ...	—	—	—	—	—	—

In 1919-20 there was an increase of 37 in the number of cases, the case-mortality being 26·58 per cent. as compared with 23·80 in 1918-19.

PUERPERAL SEPTICÆMIA, ETC.

	1918-19		1919-20	
	Cases	Deaths	Cases	Deaths
Whites ...	3	3	18	9 (including 3 from outside)
Natives ...	3	4	1	2 (including 1 from outside)
Eurafricans ...	—	1	—	3
Asiatics ...	—	—	—	—

The death-rate from puerperal febrile conditions per 1,000 births was 4·12 in England and Wales in 1919 (*vide R.G.'s Report, 1919, p. xci*).

It is probable that the notification of pyæmic and septicæmic states associated with the puerperal period has been incomplete.

The Public Health Act, 1919, Section 18, requires the notification of "puerperal fever, including septicæmia, pyæmia, septic pelvic cellulitis or other septic condition during the puerperal state."

Of the 18 White cases which arose in Johannesburg, 7 were medically attended during confinement, and 11 were looked after by certified nurses or midwives.

MORTALITY OF WOMEN IN CHILDBIRTH PER 1,000 LIVE BIRTHS.

	SEPSIS.		OTHER CAUSES.		TOTALS.	
	Deaths	Rate	Deaths	Rate	Deaths	Rate
Whites ...	6	1·38	19	4·38	25	5·76
Natives and Euraficans ...	4	3·54	8	7·09	12	10·64
Asiatics ...	—	—	2	8·77	2	8·77
All ...	10	1·75	29	5·09	39	6·85
England and Wales (1919)		1·76		2·36		4·12

MENINGITIS.

Meningitis.
Enteric
Fever
"Carriers."
Erysipelas.

The characteristics of this disease were fully dealt with in the Medical Officer of Health's Report for 1904-06 at pp. 20-24.

The "ages at death" during 1919-20 are set out in the following table:—

	All Ages	—1	—5	—15	—25	—35	—45	—65	+ 65
Whites ...	26	10	6	2	2	2	1	1	2
Natives ...	94	2	1	1	36	36	12	6	—
Eurafricans ...	1	—	—	—	1	—	—	—	—
Asiatics ...	2	2	—	—	—	—	—	—	—
Totals ...	123	14	7	3	39	38	13	7	2

ENTERIC OR TYPHOID FEVER.

Of the 165 sufferers reported, 125 were Whites, 35 Natives, 4 Euraficans and 1 Indian. Thirty (30) of the White and 9 of the Native cases were "imported," *i.e.*, were infected outside Johannesburg.

The following figures show the seasonal incidence for Whites:—

	Local.	Imported.	Total.
July-December, 1919 ...	22	6	28
January-March, 1920 ...	45	9	54
April-June, 1920 ...	28	15	43

As regards these occurrences, there was no evidence of "grouping," nor of community of circumstances.

When enteric is reported, the native servants on the premises, especially those employed in the preparation or handling of food, are now subjected to the Widal Test for detection of "carriers." Extra "score-card marks" are awarded to all dairies where this precaution is adopted as a matter of routine at time of engagement of all natives, and the test is repeated wherever there is the slightest suspicion of a milk-supply being involved.

The mortality-rates per 1,000 of the White population were as follows:—

	1917-18	1918-19	1919-20
Johannesburg ...	0.12	0.13	0.086
96 Great Towns of England and Wales	0.02 (1918)	0.01 (1919)	0.01 (1920)
Capetown ...	0.17	—	0.23
Pretoria ...	0.13	0.11	0.26

The enteric fever occurrences amongst native and coloured persons call for no special comment.

THE SPREAD OF ENTERIC OR TYPHOID FEVER BY NATIVE "CARRIERS"

EMPLOYED IN DAIRIES OR KITCHENS.

This matter was dealt with in the Medical Officer of Health's report of 26th August, 1916, to the Public Health Committee (see p. 12 of Medical Officer of Health's Annual Report for 1915-16). Under Section 36 (n) of the Public Health Act, 1919, the Minister may make regulations for

"the prevention of the spread of any infectious disease by persons who, though not at the time suffering from such disease, are 'carriers' of and liable to disseminate the infection thereof, and the keeping under medical surveillance and the restriction of the movements of such persons."

Such regulations have now been prepared by the Secretary for Public Health (Dr. Mitchell) and approved by the Public Health Council of the Union. At the request of the Public Health Committee, they are about to be gazetted as applying to the Municipal Area of Johannesburg.

ERYSIPELAS.

Only one white death from erysipelas was registered. It occurred in the north-eastern districts.

Erysipelas having been deleted some years ago from the list of diseases notifiable under the Public Health By-laws, no notifications were received during 1919-20.

INFANTILE PARALYSIS.

(Acute Poliomyelitis.)

Two notifiable cases were reported, 1 in Mayfair and 1 in Fordsburg. There was no community of circumstances and they presented no special feature.

M.O.H. 1919-20.

Infantile
Paralysis.
Tuberculosis.
Leprosy.
Plague.

TUBERCULOSIS.

Appended is a statistical summary of the mortality from tuberculosis in Johannesburg for the two years 1918-19 and 1919-20:—

DEATH-RATE PER 1,000.

	PULMONARY PHTHISIS.		TUBERCULAR MENINGITIS.		OTHER FORMS OF TUBERCULOSIS.	
	1918-19	1919-20	1918-19	1919-20	1918-19	1919-20
Johannesburg—						
Whites	0·41	0·41	0·02	0·006	0·09	0·05
Natives	2·05	2·01	0·009	0·04	0·83	0·71
Asiatics and Euraficans	0·96	1·70	—	0·160	0·55	0·48
	1918	1919	1918	1919	1918	1919
England and Wales ...	1·323	0·996	0·128	0·100	0·242	0·162

Compulsory Notification of Tuberculosis.—On 1st January, 1920, “all forms of tuberculosis which are clinically recognisable apart from reaction to the tubercular test” became compulsorily notifiable under Section 18 of the Public Health Act, 1919.

511 notifications were received during 1919-20, namely, in regard to 11 Whites and 500 Coloured.

LEPROSY.

One White, 3 Natives and 1 Asiatic were notified in 1919-20. All these cases were imported.

PLAGUE PREVENTION.

No case of plague occurred during the period under review. The usual precautionary measures were, however, continued. These included the continued employment of two ratcatchers, the bacterial examination of 2,349 rat carcasses, the bacterial examination of pneumonia sputum in certain cases, and supervision for ten days of Malays and Indians arriving from plague-infected centres.

The following Circular No. 9 of 1921, dated 3rd May, 1921, from the Secretary for Public Health is of great interest:—

“I have to direct your special attention to the occurrence of cases of plague in the Hoopstad District and neighbouring parts of the Orange Free State, as notified in the Department's Weekly Bulletin. Isolated cases or occasional small outbreaks of plague, mostly in remote farms, have been occurring in this area at intervals since 1916. Up to recently, the mode of persistence and spread of the infection causing these outbreaks was an unsolved problem. In the Bulletin of 4th December, 1919, it was stated that the circumstances suggested that the infection existed amongst, and was being perpetuated and spread by, ‘wild’ rodents, though no proof of this had so far been discovered, despite the most careful investigation.

“In the Bulletin of 26th February, 1920, it was stated that the plague-infected ‘wild’ rodents (garbilles or ‘nachtmuis’ and multimammate mice) had been dug out dead or sick by a search party employed by the Department from burrows on a farm on which human cases had occurred shortly before. Further investigations have fully confirmed this discovery, and there is no longer any doubt that plague infection exists and is being perpetuated and spread by wild veld rodents, and possibly also the small carnivora, such as the striped muishond and yellow mongoose or rooi muishond, in this area. These animals are infected with fleas, especially at certain seasons. Most of their fleas will bite man, and the flea is no doubt the connecting link with man in the chain of infection.

“The limitation or eradication of the infection in these wild animals is an exceedingly difficult problem. Apart from the risks of spread to man and to the ordinary rats or mice in towns or villages in the infected districts, the disease may be conveyed to distant parts of the Union by mild or ‘ambulant’ human cases, or by infected rats or mice in crates of merchandise, bagged or baled foodstuffs, such as bales of tef and Soudan grass, or otherwise. All practicable precautions to

M.O.H. 1919-20.

Rat
Destruction.
Anthrax.

"prevent this are being taken, but the facts—and the need for the greatest vigilance—
"should be known to local authorities and their health and sanitary staffs, and to
"medical men throughout the Union. Attention in this connection is called to
"Sections 38, 39 and 40 of the Public Health Act, 1919, regarding the prompt
"reporting of any case of suspected plague or of any unusual sickness or mortality
"amongst rats, mice or wild rodents, cats or other animals susceptible to plague.

"Local authorities are also urged to organise a campaign against rats, and to
"deal with conditions favouring the harbouring or multiplication of rats."

Methods of Rat Destruction.

During 1919 the Zoological Society of London published a useful report by Mr. E. G. Boulenger, F.Z.S., upon the result of the investigations undertaken by him for the Society, with the cordial approval of the Government.

The rats experimented with were the black rat and the common brown or Norway rat, both of which exist in large numbers in South Africa. His conclusions are, in some respects, surprising, and demonstrate the efficiency of methods that are simple, inexpensive and without danger either to humans or live stock. In a word, the best bait is plain dry bread (as a poison-carrier), the best gas is sulphur dioxide, the best poison squills (*scilla maritima*) in the liquid form, rat-viruses are quite unreliable, and the best trap is an open-ended tunnel-shaped device, such as the Brailsford trap, not dangerous to other animals.

As a rat poison, squills should be used in liquid form, mixed with an equal proportion of milk, into which 1 lb. of bread is soaked for every gallon of mixture. But all forms of squills are not efficacious, and it is recommended that chemical determination be made of the active agent in the plant and with the best means of preparing and supplying it.

Barium carbonate has been selected as the most suitable poison by the United States Department of Agriculture and the Indian Government. $1\frac{1}{2}$ to 2 grs. will kill a rat, but it is comparatively harmless to domestic animals and fowls. In most cases, the poison was mixed in equal proportions with tallow-fat and put down smeared on bread.

The Report dated April, 1920, by the Medical Officer of Health of the City of London, confirms the value of squills and barium carbonate as poisons, but mentions the simple break-back trap as the most effective type.

Major J. C. G. Kunhardt, I.M.S., late member of the Indian Plague Research Commission, in a Report, dated 1919, on "The Rat Problem of India," recommends barium carbonate as the most effective rat poison, and, next to that, arsenious acid, and finds pure dough freshly prepared from ordinary flour the best material to convey these poisons to the rat. As regards traps, he says "no trap has yet been found, or devised, which will capture more rats than one known as the 'Wonder Trap,' a French pattern 'made by Henri Marty.' Major Kunhardt does not, however, describe this trap.—(*Indian Jl. Med. Research*, 1919.)

Rodier Method—Killing only Females.—This has been tried with marked success at the Manchester Zoo by G. Jennison, to whom it was suggested by a gamekeeper who found that the best way to replenish a depleted rabbit-warren was to net the poor remnant and kill every male that came to hand. As early as 1634 the same policy was known to Canadian Indians in regard to beavers. In each case it is based upon the known tendency of the male "to harry the breeding doe."—(*Jl. Roy. San. Inst.*, vol. xli, No. 5, p. 358.)

ANTHRAX.

Two cases of this disease were notified, one being a white man from Witkopjes, who had been handling hides, and the other a native who was sent to the General Hospital from Vereeniging and was said to have eaten infected meat.

SHAVING BRUSHES AND ANTHRAX.

On 6th February, 1920, at the request of the Secretary for Public Health, a sample brush from a consignment found in England to be infected with anthrax was recovered from a local firm and examined, with negative results, at the South African Institute for Medical Research, and the Director confirmed the Medical Officer of Health's opinion that, in view of their structure, no method exists by which these brushes can be reliably disinfected without destroying their commercial value. As the result of Press warnings, several firms applied for advice as to the disposal of consignments, and were informed of the disinfecting difficulty and of their serious responsibility in the event of anthrax occurrence traceable to brushes sold by them.

They were further notified that the Medical Officer of Health, Johannesburg, was not prepared to accept any foreign Government certificate of

disinfection unless it was countersigned by a qualified English medical bacteriologist who certified to personal knowledge of the process employed and of the identity of the consignment. The soundness of this advice as regards the particular matter in question is indicated by the following significant lines in the Ministry of Health Report for 1919-20, p. 35:—

M.O.H. 1919-20.

Influenza.
Encephalitis
Lethargica.

“ Although some of these consignments were accompanied by official certificates of freedom from infection of anthrax, so many brushes were found to be actually infected with anthrax spores that the Ministry were satisfied that all shaving brushes of Japanese origin must be regarded with suspicion.”

On 9th February, 1920, the High Commissioner for South Africa was notified by cable that the importation into the United Kingdom of shaving brushes from Japan had been prohibited, and on 14th May, 1920, their importation into the Union of South Africa was prohibited by Government Proclamation.

INFLUENZA.

As stated at page 28 of the Medical Officer of Health's Report, 1916-19, a recrudescence of comparatively mild epidemic influenza occurred during the months of May to August, 1919. From 1st May, pneumonia (including primary pneumonia, influenzal pneumonia and influenzal pulmonary oedema) were made notifiable. Serious cases were dealt with at the General Hospital, at the New Fever Hospital and at De Meillon's house.

During the twelve months under review, 365 Whites and 754 Coloured persons were notified as suffering from pneumonia. The number of registered deaths from influenza during the same period was 107 Whites and 254 Coloured persons, and from pneumonia 130 Whites and 451 Coloured.

The total expenditure which this recrudescence involved was £2,152 6s. 8d., of which £964 18s. 10d. was recovered from the Union Government.

EXPERIMENTAL TRANSMISSION OF INFLUENZA.

In Vol. 34 (1919), No. 2, p. 34 of the U.S.A. Public Health Reports are recorded the interesting results of two series of experiments at Boston and San Francisco, consisting of inoculations with pure cultures of Pfeiffer's bacillus, exposure for 45 minutes to secretions sprayed and coughed from the upper respiratory passages, and sub-cutaneous inoculations with blood from typical cases. None of the volunteers developed any evidence of illness.

In February-March, 1919, similar experiments on 11 human subjects (Europeans) and 4 Cape Vervet monkeys were carried out by F. S. Lister and E. Taylor on Salisbury Island, Durban Bay, under the auspices of the South African Institute for Medical Research. The results of this investigation are thus summarised (*vide Publication No. 12, 1919*):—

- “ 1. The transference of an unfiltered mixture of nasal washings and sputum from three cases of Epidemic Influenza to the nasal cavities and throats of human volunteers was followed in two instances out of five by illness indistinguishable clinically from Influenza.
- “ 2. The incubation period in each case was about 36 hours.
- “ 3. The filtrate obtained by passing a mixture of nasal washings and sputum from three cases of Epidemic Influenza through a Berkefeld 'N' candle failed to give rise to illness in all of six human volunteers.
- “ 4. The monkeys employed were unaffected by instillations into the nose and mouth of either unfiltered or filtered nasal washings and sputum derived from cases of Epidemic Influenza.
- “ 5. The spraying of living cultures of *Bacillus influenzae* and also two unidentified organisms into the noses and mouths of human volunteers and monkeys was followed by a mild indisposition in one human volunteer only.”

With reference to the Boston and San Francisco experiments, the U.S.A. Public Health Department observes that it is probably still wise to assume for preventive purposes that Influenza is a “droplet infection,” with “an infective period at the very earliest stages of the attack.”

ENCEPHALITIS LETHARGICA.

This disease and all other forms of acute encephalitis of similar origin were made notifiable in August, 1920, and particulars as to occurrences during the official year 1919-20 are therefore not available. The number of registered deaths from the various forms of acute encephalitis was 8 White and 18 Native.

M.O.H. 1919-20.

Itch.
Bacterio-
logical
Diagnosis.
Disinfecting
Station.

In the Medical Officer of Health's Report for 1916-19, page 28, the question of the suggested common bacterial origin of this disease, of epidemic influenza and of infantile paralysis is discussed. Prof. Boyd, of Manitoba University, considers, however, as the result of careful local inquiry into a serious outbreak of encephalitis lethargica at Winnipeg in October-November, 1919, that this alleged relationship is "more apparent than real." He further records that in the early part of this outbreak a most remarkable prevalence of persistent hiccupping occurred in Winnipeg and the neighbouring towns. One of the numerous cases (a medical man) kept hiccupping at an interval of about a minute for five days. An attack usually lasted from 24 to 48 hours, but yielded readily to a single injection of morphine.—(*Br. Med. J.*, 16/4/1921, p. 572.)

ITCH (SCABIES).

In June, 1920, the Medical Officer of Health learned that some 60 cases of itch existed at an orphanage for 700 children. Combating this outbreak involved considerable trouble, but with the keen co-operation of Dr. Cluver, it was tackled with notable success on the lines specified in the English Local Government Board Memo. G 14, Sch. 17 of 2/1921, p. 8. All obviously infested children were promptly segregated and treated (*see below*) in two cottages; and, in each of the other cottages and wards, each remaining inmate was well bathed and medically examined daily, all clothing being simultaneously disinfected, at first by steam at 205° F. for 15 minutes, later (and preferably) by dry heat of 145° F. for 10 minutes.

The treatment prescribed for each of three successive days was as follows:—

1. *Preliminary Bath*.—Patient to sit up to his neck for 20 minutes in a hot bath at 100° F. containing 2 ozs. washing soda to each 10 galls. water. The whole body, and particularly parts where itch-mite "burrows" most plentiful, or where skin hard, to be then thoroughly lathered with soft soap (1 oz. for child, 2 ozs. for adult). Soap to be then washed off and skin dried with clean towel.

2. *Application of Sulphur Ointment (strength, 1 in 15)*.—The ointment to be thoroughly massaged into the skin for 20 minutes (1 oz. for child, 2 ozs. for adult), and clean or disinfected clothes put on.

On the fourth day, careful search to be made with a lens for the itch-mite and for unopened burrows. Should any be found, the whole treatment to be repeated, using *Balsam of Peru* or *Beta Naphthol* instead of sulphur in order to avoid causing inflammation of the skin.

BACTERIOLOGICAL DIAGNOSIS.

The following are particulars of the specimens examined under this heading for the Town Council at the South African Institute for Medical Research during the years under review:—

Disease Product.				Positive.	Negative.	Doubtful.
Typhoid	...	...	...	80	247	3
Tuberculosis	...	...	...	—	1	—
Diphtheria	...	...	...	141	357	5
Leprosy	...	...	...	2	2	—
Anthrax	...	...	...	—	1	—
Tetanus	...	...	...	—	1	—
				223	609	8

These figures do not include rats examined for suspected plague (*v. p.* 17).

DISINFECTING STATION.

This is well equipped with two Geneste-Herschler steam disinfectors, formalin chamber, baths for "contacts," and ambulance sheds.

ISOLATION HOSPITALS.

M.O.H. 1919-20.

Appended are details as to White cases treated at the new Fever Hospital in Johannesburg. The Coloured cases all went to Rietfontein.

	Scarlet Fever.	Measles.	Chicken- pox.	Eczema.	Parotitis.	Diphtheria	Isolation Hospital. Receiving Hospital. Ambulances. Nursing Homes. Abattoirs.
WHITES, 1919-20—							
Admissions	62	6	—	—	—	—	
Recovered	58	6	—	—	—	—	
Not Discharged	2	—	—	—	—	—	
Died	2	—	—	—	—	—	
COLOURED, 1919-20—							
Admissions	2	5	92	1	1	4	
Recovered	2	4	88	1	1	2	
Not Discharged	—	1	4	—	—	1	
Died	—	—	—	—	—	1	

Total Cases:—Whites, 68, with 2 deaths; Coloured, 105, with 1 death.

Average length of isolation:—Whites, 31·11 days; Coloured, 16·07 days.

Cost per head per day:—Whites, 10s. 6d.; Coloured, 2s.; Total cost, £1,279 12s.

RECEIVING HOSPITAL.

De Meillon's house, west of Ohlsson's Brewery in Braamfontein, was early in 1919 materially altered and equipped, at a cost of £202, as an auxiliary hospital for the reception of influenza cases, and was used for this purpose in May-June, 1919.

AMBULANCE EQUIPMENT.

There are four motor ambulances for Whites and Coloured. There are also five light-running four-wheeled canvas-covered American vans for removing clothing, contacts, sitting-up patients, etc., and one Cape cart.

During the period under review, 51 White cases and 116 Coloured were removed to Rietfontein by the above transport, and 266 White cases to the Fever Hospital. In addition, 228 White and 92 Coloured patients were removed to the Johannesburg Hospital, and transport for 1 leper to Pretoria was arranged for. A few cases were also removed from outside districts at the request of, and on payment by, the local authorities concerned.

NURSING HOMES.

There are 27 registered nursing homes in Johannesburg. These places are inspected as regards sanitary conditions only, and licensed by the Public Health Department.

PUBLIC ABATTOIR.

The Abattoir was opened on the 24th October, 1910, and with the Stock Yard and Cattle Market is under the direction of Mr. J. Irvine Smith, M.R.C.V.S. The following information is excerpted from his Annual Reports for 1916-20:—

COMPARATIVE STATEMENT OF ANIMALS SLAUGHTERED AT JOHANNESBURG ABATTOIR.

DESCRIPTION.	1916-17	1917-18	1918-19	1919-20
Cattle	116,107	116,889	112,456	109,443
Sheep, Lambs and Goats	330,412	314,994	307,715	304,288
Calves	4,150	3,973	4,455	5,150
Pigs	24,347	32,123	41,967	49,042
Totals	475,016	467,979	469,593	467,923

M.O.H. 1919-20.

Slaughtering
and
Inspection of
Animals.
Measles in
Meat.

System of Slaughtering.—The methods of slaughtering at the Johannesburg Abattoir are:—(a) Simple bleeding by sticking in the thorax or cutting the throat. To this group belongs the Jewish method. (b) Bleeding after previous pithing or severance of the spinal cord. All sheep, pigs and 25 per cent. of cattle are slaughtered under (a) group, and 75 per cent. of cattle under (b).

Nature and System of Inspection and Supervision.—Staff: 2 whole-time approved Veterinary Surgeons, 13 Meat Inspectors and 5 lay Live Stock Inspectors. All animals and carcasses undergo inspection, and no meat is permitted to be exposed for sale in the Johannesburg Municipal Area unless it bears the Municipal stamp.

QUANTITY OF UNSOUND OR DISEASED MEAT CONDEMNED AND DESTROYED.

1910-11	...	142½ tons	1915-16	...	368 tons
1911-12	...	283½ tons	1916-17	...	407 tons
1912-13	...	430 tons	1917-18	...	349 tons
1913-14	...	427½ tons	1918-19	...	422½ tons
1914-15	...	357 tons	1919-20	...	494½ tons

"MEASLES" IN BEEF (*CYSTICERCUS SAGINATA*) AND PIG FLESH (*CYSTICERCUS CELLULOSA*).

On 27th February, 1920, the Secretary of the Associated Auctioneers' Cattle Indemnity Fund wrote the Director of Abattoirs, and requested

"that all carcasses found to be measly on examination should not be condemned, but be placed in cold storage for a period of one month, then to be re-examined."

This demand appears to be suggested by German practice, based upon the statement of Rissling, Glage and Reissman that beef and hog measles-worms are killed by freezing (*vide* Ostertag's "Meat Inspection," 1919).

English opinion, however, differs. For example, Stockman states that the destruction of cysticerci in flesh by prolonged cold storage appears to be impracticable.

The Medical Officer of Health and the Director of Abattoirs accordingly conferred with Dr. Watkins Pitchford (Director) and Dr. Annie Porter, D.Sc., Lond. (Parasitologist), of the S.A. Institute for Medical Research, who concurred with the opinion that the proof that measly flesh could be rendered harmless by freezing had not been satisfactorily established; that its sale after such treatment should, therefore, not be allowed at the present time, and that, in view of the general interests involved, it was highly desirable that a skilled investigation of this question be made by the Institute.

Drs. Pitchford and A. Porter pointed out that the description of the German experiments is so meagre that it hardly permits the formation of a sound judgment thereupon. The viability of the cysticercus appears to be mainly decided by the presence or absence of movements when the open cyst is examined microscopically at blood-heat, but Dr. A. Porter stated that non-living material, such as cat-gut, may or may not exhibit movements when warmed after being frozen.

Investigations were at once undertaken on a commercial scale by Dr. A. Porter at the Institute, and, in November, 1920, she presented a short and qualified interim report, to the effect that after six weeks' freezing on a commercial scale as carried out at the Abattoir—that is, at a mean temperature of 22° F. or 10° below freezing point—cysticerci near the bone (exclusive of the inner surface of the rib bones) are still apparently alive as judged by staining reaction; a large proportion is, however, apparently dead.

In the meantime, no modification of our system of inspection in this regard has been made, pending the result of further investigations and the receipt of Dr. A. Porter's report thereon.

In connection with the belief recorded in several English text-books that whilst beef-measles (*Taenia saginata*) "is certainly an inconvenience to man, its cystic (or bladder) forms do not invade his muscles and organs," Dr. Watkins Pitchford makes the following very important statement (13/3/1920):—

"... as far as South Africa is concerned, this is an erroneous statement, as mentioned in the recent discussion on tapeworm in kaabeljauw (a South African sea-fish) which you opened at a meeting of the British Medical Association. We have met with almost as many cases of humans infested with the cystic form of *T. saginata* as with those of the *T. solium*, which latter causes tapeworm in pigs."

MILK SUPPLY.

M.O.H. 1919-20.

COWSHEDS AND MILKSHOPS.

Milk Supply.
Outside
Dairies.

The question of the milk supply of Johannesburg was specially investigated and reported on in January-June, 1913 (*vide* M.O.H. Annual Report, 1912-13, pp. 32-34).

Within the Municipal Area.—331 cowsheds and 110 milkshops were licensed and, as far as practicable, kept under observation.

Outside the Municipal Area.—As recorded in the Medical Officer of Health's Report for 1915-16, milk cannot be introduced from farms or dairies outside the Municipal Area without a permit from the Council, which permit is only issued when the Council's requirements are complied with. The Council's rights in this respect have been upheld by the Court of Appeal (*vide Cooper vs. Johannesburg Municipality, 17/1/1917*).

Appended is the report, dated 30th June, 1920, of the Outside Inspectors for the year 1919-20:—

Herewith we beg to submit a general report on the milk supply of Johannesburg, as obtained from Dairies situated Outside this Council's area as from 1st July, 1919, to 30th June, 1920.

Situation of Dairy Farms.

As stated in our previous reports, the dairy farms supplying Johannesburg with milk are situated within ten miles of the various railway lines leading throughout the Transvaal, Orange Free State and North of Natal. No milk has been sent from Cape Colony during the period under review—in fact, there is a tendency towards the very long distance suppliers to drop out of the business, the reason being that there is an increase in the number of applications for permits in connection with nearer farms, and milk produced nearer Johannesburg is preferred by the distributing depôts.

Farm Premises Inspected.

The following figures give the position in regard to inspections made: (1) Applications dealt with, 379; (2) permits granted, 287; (3) permits refused, 52; (4) premises in course of construction, 40.

Enforcing Dairy Regulations.

Regular periodical inspection of all dairies supplying milk to Johannesburg has been carried out, and, where any infringement of the By-laws has been found, action has been immediately taken. As an instance, the case of a large milk producer in the Potchefstroom District is given. This person was paid a surprise visit by one of your Inspectors, and, notwithstanding his dairy premises were of an approved type, the cows were being milked in a large unpaved kraal, in which there was an accumulation of manure, not to mention other unsatisfactory conditions. His permit to supply milk to this area was, at your instance, immediately cancelled, under the powers contained in the Dairy By-laws.

Additional Powers Granted to Your Dairy Inspectors.

It had been felt for some considerable time that this Department had no control over the farmer in regard to the legal standard of milk as affecting total solids or adulteration by water, and that the blame for any such deficiencies was always placed upon the receiver, whether at a depôt or elsewhere. Instances were given where farmers were sending adulterated milk to this area, and steps were taken to effect proper control. Representation was made through the Superintendent of Dairying of the Union (Mr. E. O. Challis) to the Minister of Agriculture as to the desirability of gazettement of your Inspectors under The Dairies Act, for the purpose of taking action against any parties suspected of adulterating milk consigned to Johannesburg. We are pleased to state that this has now been done.

Representations were also made to the General Manager, South African Railways, asking that your Inspectors be allowed to examine or sample any milk at any station or portion of the railway system, so long as such milk was consigned to Johannesburg. This proposal was accepted by the Assistant General Manager (Mr. Barrett) and instructions issued accordingly. The granting of these powers means that any milk consigned to Johannesburg can now be effectively controlled at any point in course of transit; and, while we are of opinion that there is not much done in the way of adulteration, such as there may be can be stopped.

East Coast Fever.

Reference was made to you that East Coast fever had broken out in districts from which milk was being sent to Johannesburg. After inquiry by you, we were instructed that no harm could arise from milk obtained from such sources.

Cleanliness of Milk.

Tests are now being carried out at the premises of the milk producer, by which he can be shown the general cleanliness of the milk he handles, and, if the result turns out other than satisfactory, the reason is pointed out. This test is, in our opinion, a most important innovation, being carried out as it is at the point of origin, and thereby bringing the responsibility right to the door of the guilty party. Already improvement has resulted from tests made.

In conclusion, we are of opinion that the general methods employed in the production of clean milk improve yearly, and any improvement in this direction receives every encouragement from this Department.

G. CHRISTIE,

W. C. WATSON,

Outside Dairy Inspectors.

The total cost of this work to the Council, including salaries and all travelling expenses, was £1,308 9s. 5d.

M.O.H. 1919-20. *Dairy Score-Card System.*

Dairy
Score-Card.
East Coast
Fever.
Dipping in
Arsenic
Solutions.
Milk Cans.
Municipal
Milk
Supply.

The adoption of this system in Johannesburg was first recommended by the Medical Officer of Health in 1911, but was only sanctioned in June, 1919. During 1919-20 it came into full operation as regard dairies inside the Municipality and within 10 miles radius.

The score reflects conditions as to cleanliness, efficiency of methods and health of humans and animals, but not the quality of the milk as regards percentage of fat or cream. Considerable improvement has resulted in dairy conditions, and a healthy spirit of competition has been created by publication of the lists and the annual award of certificates of merit based on the results of the four quarterly inspections.

East Coast Fever and Milk Supply.

In reply to an inquiry by the Medical Officer of Health, the following (with which the Secretary for Public Health concurred) was received from the Principal Veterinary Surgeon in August, 1920:—

"I do not consider the existence of East Coast fever infection on a farm justifies any interference with milk supplies coming therefrom. No restrictions of the description contemplated have ever been imposed in previous instances, and I am not aware that it has ever been shown that the use of milk derived from herds amongst which cases of East Coast fever have occurred is injurious in any way to the consumers thereof."

Dipping of Dairy Cattle in Arsenical Solutions.

It has been suggested that the consistent dipping of cattle in arsenical solutions may possibly affect both milk and flesh of animals so treated. The opinion of the Government Superintendent of Dairying (Mr. E. O. Challis) was, therefore, sought. It is as follows:—

"In my opinion, there is no danger in dipping or spraying cows with arsenical dips, and several years ago Colonel Watkins Pitchford (then Principal Veterinary Surgeon for Natal) carried out a series of experiments with milk taken by me from a large herd of cows dipped with arsenical solutions over a period of four years. . . . No trace of arsenic could be found in the meat or milk."

"The Acting Principal Veterinary Surgeon for the Union also holds the view that such dipping is not dangerous."

Milk Cans, Construction of.

The Council's By-laws for Regulating Dairies and Milk Shops, No. 27, provide that

"No person shall sell or offer or expose for sale, or have in his possession for the purpose of sale or delivery or distribution, any milk in a bottle or a can or a churn or other receptacle which is not of material and pattern approved by the Council in writing."

The following is a note of the requirements of this Department:—

(a) The ideal milk can should be seamless and cylindrical in body and without angles or acute curves at the junction of the body and the floor. The contraction of the body to take the lid should be rounded and without seams.

(b) If seamed cans are used, the joins should be flushed fair with pure tin, but said cans should be cylindrical in body with obtuse curves at points of contraction and at junction of body to floor.

(c) Cans should be tinned inside and out with pure tin.

(d) All metal used in the making of milk cans must be free from lead.

(e) The lids of cans should be formed without angles or acute curves.

(f) Milk cans should be vessels constructed of one wall, and should not under any circumstances be constructed with double walls or jackets or false bottoms.

PROPOSED MUNICIPAL SALE AND DISTRIBUTION OF MILK.

During the second half of 1919, a desire was expressed by the Council for information as to "municipalisation" of the milk supply, by which is understood the sanitary and commercial control and distribution of the milk sold in a community.

The only information obtainable, after considerable search and after inquiry in England and America, is contained in the United States of America Public Health Reports, vol. 33, No. 50, 13/12/1918, in which is described "The Experimental Municipalisation of the Milk Supply of Tarboro, Edgecombe County, North Carolina."

Space does not permit of the reproduction of details of the undertaking in question, but its objects were to supply clean, safe and whole milk at the lowest price consistent with working expenses, considerable economy being effected (a) by preventing overlapping of milk routes, and (b) by giving one delivery a day, the milk being so treated and bottled that it would keep, not merely for 24 hours, but for several days.

Very full and painstaking inquiry, including the preparation of plans and detailed estimates, was made by your Special Dairy Inspectors (Messrs. Watson and Christie, assisted by Mr. G. Bidwell) as to the possibility of such an undertaking in Johannesburg, and on 8th January, 1920, the Medical Officer of Health reported very fully thereupon. The whole question was, however, held up by the unwillingness of the Provincial Executive to sanction the necessary empowering legislation until the Local Government Commission had submitted its report. And as this report has not yet materialised, nothing has been done.

In England, during 1919 and 1920, similar proposals were also discussed and examined, notably in Manchester and Scarborough, and in each of these cases the Town Council eventually decided to take no action in the matter. But, according to a recent cable, Haverfordwest Town Council, who established a Municipal Milk Depot during the war, are now retailing milk at 5d. per quart (Johannesburg "Sunday Times," 19/6/21).

The *Wellington City (N.Z.) Milk Supply Act, 1919*, empowers that Municipality to produce, buy and sell milk and milk-products, and prohibits any other sale or delivery of milk within the City "save under a licence issued by the Council." But apparently (*Sect. 12*) no licensee may sell in one day more than 30 gallons of milk, if produced on his dairy premises in the city or within two miles thereof. The Council may also advance money from its milk account to any dairy farmer under milk-supply-contract to the Council in order to improve his premises.

INSPECTION OF FOODSTUFFS.

The following goods were condemned by the Foods and Drugs Inspector:—
Fish, 46,915 lbs.; smoked fish, 84 boxes; salt herrings, 61 barrels; kippers, 1,309 boxes; salmon, 55 boxes; bacon, 14 lbs.; soles, 6,800 lbs.; pork, 2 sides; shrimps, 14 bags; sardines, 2,500 tins; cream, 10 galls.; and jam, 10 cases.

During the period under review he passed 1,523,304 lbs. of bacon, etc., 9,071,778 lbs. of fish, 1,000 ox tongues, and 60 lbs. veal.

ANALYSIS OF FOODS 1919-20.

Milk.—Appended is a tabulated summary of the results of analyses and prosecutions:—

	1915-16	1916-17	1917-18	1918-19	1919-20
No. of Samples taken ...	366	332	266	229	323
No. examined bacterially ...	30	—	—	—	—
No. deficient Solids not Fat ...	9	14	26	15	27
No. deficient Fat ...	15	16	7	14	17
No. of Preservatives ...	—	—	—	—	—
No. of Prosecutions ...	11	3	11	17	36
Amount of Fines ...	£42	£37/10/-	£107	£81/10/-	£146

In addition to the 437 water examinations (see page 26), some 343 articles of food were examined during 1919-20 at the Government Laboratories. Details are appended:—

Description.	Genuine or Pure	Adulterated or Impure	Doubtful
Milk ...	281	42	—
Butter ...	3	—	—
Rice ...	—	—	1
Olive Oil ...	—	1	—
Jam ...	—	1	—
Sneezing Powder ...	—	—	7
Syrup ...	—	1	—
Flock ...	1	3	—
Coffee ...	1	—	—
Chicory ...	1	—	—

M.O.H. 1919-20.

Foodstuffs,
Inspection
and
Analysis of.

M.O.H. 1919-20.

Water
Supply.
Aerated
Water
and Ice
Factories.

This is 2.34 samples per annum per 1,000 of the white population, as compared with 5.3 per 1,000 in 1907 of the population (1901 Census) in London, and 2.5 per 1,000 in the English Provinces. Formerly it was understood by the Local Government Board of England that one sample per 1,000 of the population should be aimed at; but, as will be seen from the above, this figure is considerably exceeded at the present time. The English Board of Agriculture tries to encourage the taking of three per 1,000, and divide these amongst milk, butter and cheese.

The work of Food Analysis is by an agreement, dated 27th February, 1917, between the Union Government and the Municipal Council, carried out by the Government Analyst (Dr. John McCrae, Ph.D.), on the following conditions:

(1) The Government shall undertake the chemical work required by the Public Health Department of the Council to the extent of 724 samples, as per the following list, viz.: *Water*, 10 per month; *Sewage*, 4 per month; *Butter and Coffee*, 7 per month; *Various Foods and Sundries*, 9 per month; *Milk*, 7 per week; in return for the payment of £400 per annum, with effect from the first day of January, 1918.

(2) The said amount shall be payable in four (4) equal instalments of £100 each, due on the 31st March, 30th June, 30th September and 31st December in each year, the first of such payments to be made on the thirty-first day of March, 1918.

(3) Six months' notice of intention to terminate this agreement shall be given by either of the contracting parties.

(4) The enumeration of samples in Clause (1) hereof is necessarily only an approximate estimate, and, as an increase in the total number of samples per annum of any item or items may occur, such increase will be deemed to be compensated for by a decrease in the total number per annum of another item or items. It is, therefore, agreed that in such event no alteration in the scale of payment be provided for, but that, in the event of any extraordinary investigation requiring an extended amount of work being required by the Council, it shall not be deemed to be covered by the aforesaid payment, but shall be subject to special payment.

(5) In the event of any dispute between the parties, the same shall be referred to arbitration under the provisions of the Arbitration Ordinance, 1904.

WATER SUPPLY.

Water is supplied in bulk by the Rand Water Board to the Municipal Council. The Municipal Council controls the distribution of water throughout the town, and owns the reticulation.

Source.	Total Quantity Pumped during Year ending 31st March.		Percentages.	
	1919. Gallons.	1920. Gallons.	1919.	1920.
From Zwaartkopjes	1,634,809,700	1,822,853,000	40.34	43.46
From Zaubekom	1,828,305,300	1,855,847,000	45.11	44.24
From Local and Town Supplies:				
From Ellis Park and Natal Spruit ...	52,996,000	41,028,000	1.31	0.98
From Braamfontein	Nil	Nil	Nil	Nil
Farm Roodepoort	111,066,000	86,528,000	2.74	2.06
Grand Total	3,627,177,000	3,806,256,000		

Vaal River Scheme.—This scheme has been delayed by the late war, but since the Armistice revised estimates for five million and ten million gallon schemes have been prepared, and the work is now progressing rapidly.

Zwaartkopjes.—The water from the western series of wells at Zwaartkopjes has been satisfactory, but, as in previous years, the bacterial content of the water from the southern section has varied considerably.

The bleaching powder process of sterilising water at Zwaartkopjes has been replaced by chlorine produced electrically from common salt. This method is both cheaper and more effective.

The length of mains within the Municipal Area is now 370.93 miles, 4.74 miles having been added during 1919-20, while during the same period 1,170,610,200 gallons of water were supplied to consumers connected to same.

CHEMICAL AND BACTERIOLOGICAL EXAMINATIONS.

437 samples of water were taken for examination during the year 1919-20, namely, 55 chemical and 382 bacteriological.

AERATED WATER AND ICE FACTORIES.

The By-laws for the regulation of these trades, which were gazetted on the 6th April, 1906, continue to work well.

SEWERAGE.

M.O.H. 1919-20.

The Town Engineer has kindly supplied the following information:—

On 30th June, 1920, there were 110-14 miles of sewers completed, chiefly in the following districts:—Johannesburg (south of Railway), Braamfontein, Ferreira's, Fordsburg, Marshallstown, City and Suburban, Doornfontein, New Doornfontein (south of Railway), Hillbrow (south of the Hospital Hill side), and the Malay Location. All sewers for 1917 and 1918 were laid in Jeppes.

On the same date, 11,634 premises had been connected.

Owing to the torrential seasonal rains, the "Separate System" has been adopted, i.e., surface and storm waters are excluded from the sewers and carried off in separate culverts and pipes, the latter often being laid in the same trench as, but above, the sewers.

Sewerage.
Sewage
Disposal.
Dung Fly.
Burning
Sludge.
Cattle
Drinking
Sewage.
Septic
Tanks.

SEWAGE DISPOSAL.

Klipspruit Farm, about ten miles to the west of Johannesburg, lies in the district of Nancefield, but by Section II. (1) of Private Ordinance, 1906, is included within the Municipal Area of Johannesburg. It was bought in 1904 for £84,500, and is used for the treble purposes of a sewage farm, of a native location, and of a large native washing site.

In the Medical Officer of Health's last Report (1916-19, pp. 33-35) particulars were recorded at some length as to the history, lay-out and conduct of the Sewage Farm, and Councillors who desire information in regard thereto are referred to that description.

As stated last year, possibility of improvement will, doubtless, always remain, and there are years of work ahead in the lining of carriers, but the Medical Officer of Health considers that the present condition and management of your farm afford unusually small opportunity for criticism.

Your position as regards resistance to speculative actions for damages in respect of alleged nuisance has, moreover, been strengthened by Section 143 of the Public Health Act, No. 36 of 1919, which provides that proof that the best known or the only or most practicable and available methods have been adopted shall constitute a valid defence. In consequence of this provision, which became operative in January, 1920, the "observers," who had been stationed by the Council on the farm for a number of years, were dispensed with.

The Yellow Dung Fly (Scatophaga stercoraria).

The Sewage Farm Manager (Mr. S. Spencer) drew the Medical Officer of Health's attention to the very interesting fact that during October, November and December, a large number of greenish-yellow flies infest the creepers on his house (which is about 300-400 yards from the outfall) and attack and kill in great numbers the ordinary house-fly. This yellow fly was identified by Dr. Milne (Assistant Medical Officer of Health) as probably *Scatophaga stercoraria*, which is described at p. 37 of "Flies and Disease—Non-blood-sucking Flies," Cambridge Public Health Series.

Burning of Dried Sludge in situ.

In January, 1920, during a very hot dry spell, the Medical Officer of Health, noticing smoke from an old sludge-trench, found that, by accidental ignition, its dried contents, to a depth of 4 to 9 inches, had burned to a very fine soft ash.

Cattle Drinking Sewage.

About 80 ploughing oxen and 300-400 other cattle graze on the farm, and daily drink sewage with avidity. The farm started in 1908, and, so far, no ill results whatever have been observed.

Septic Tanks, Nuisance and Danger from.

In the "Provincial Gazette" of 11th August, 1915, were published by-laws for regulating, controlling or prohibiting the construction or use of septic tank and filter installations or other works for the disposal of sewage on private property. These regulations (*vide* Public Health By-laws, Chap. II., Articles 46-50) provide, *inter alia*, that every such installation must be in the open air and 100 feet at least from any building and from the boundary of the owner's ground; that it be sufficiently covered and ventilated, and so protected as to minimise smell therefrom and to prevent the breeding of mosquitoes; thirdly, and most important, that provision shall be made for the innocuous disposal of effluent or filtrate, provided that in no case shall the disposal of the effluent or filtrate by sub-irrigation or discharge underground be permitted.

During the preceding 12 or 13 years, however, numerous unregulated installations had been constructed, mostly in districts which, up to that time, were comparatively sparsely populated. These townships have, however, in

M.O.H. 1919-20.

Septic Tanks.
Sewage
Storage
Tank.

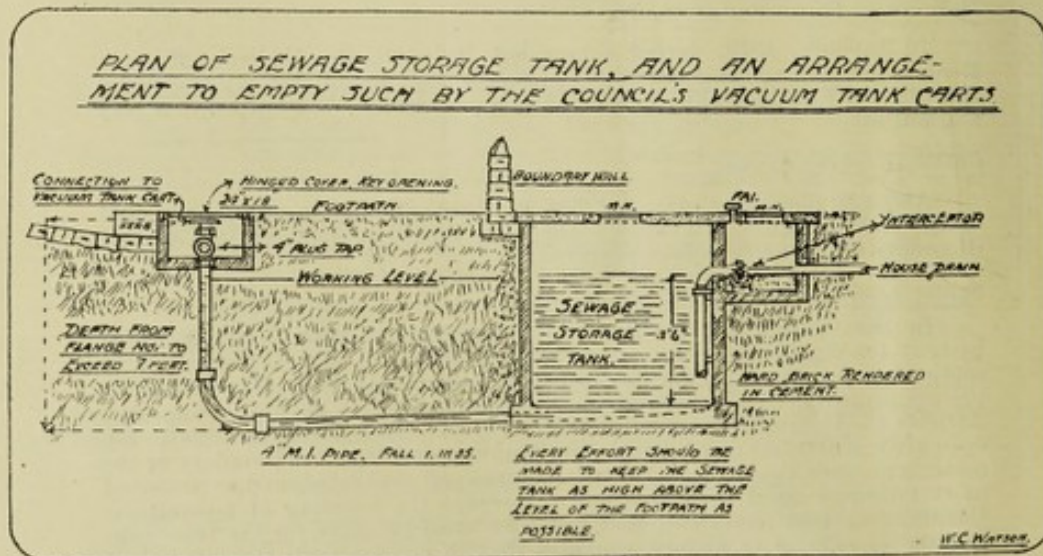
recent years been much more closely built over, and, in many instances, boreholes have been sunk for purposes of domestic water supply. Many of these older tanks were constructed to discharge their effluent underground, and in not a few of the newer tanks the exceedingly important provision of the by-laws in this respect has been deliberately ignored. The resulting danger to water supplies is obvious from the following finding, in 1908, of the Royal Commission on Sewage Disposal (*vide* Fifth Report, page 22, par. 33):—

“ . . . we find as a result of a very large number of observations that
“ the sewage issuing from septic tanks is, bacteriologically, almost as
“ impure as the sewage entering the tanks.”

In addition, the Union Public Health Act, No. 36 of 1919, Section 120, places on Local Authorities the very far-reaching and definite duty of taking

“ all lawful, necessary and reasonably practical measures for . . .
“ preventing the occurrence therein of, or for remedying or causing to be
“ remedied, any . . . condition liable to be injurious or dangerous to
“ health, and to take proceedings at law against any person causing or
“ responsible for the continuance of any such . . . condition.”

In November, 1920, this question was raised in an acute form by the action of Mr. J. A. Moffat, architect, in installing, on behalf of his clients, in connection with the Escombe Nursing Home, a porous septic tank in permeable shale, at a point about 150 feet from the water borehole of a neighbouring residence, towards which there is a very rapid slope. In April, 1906, it was proved by the use of fluorescein (which was suggested by Dr. J. McCrae, Ph.D., Government Analyst) that a well at the Braamfontein Pumping Station, sunk in the same vicinity and formation, was liable to pollution by percolation from a source some 240 feet distant. The danger in this Escombe case was, of course, greatly emphasised by the fact that in this Nursing Home returned soldiers suffering from enteric and dysentery were to be treated; and the position appeared so serious to the Medical Officer of Health that, with the sanction of the Health Committee and in default of the necessary action by Mr. Moffat, the premises were entered, the septic tank “cut out,” and the Nursing Home sewage removed from a water-tight effluent-well by the Council's vacuum-tank-carts. At the same time, an interdict against the use of the septic tank was sought and obtained by consent, and this necessitated the temporary closing of the Nursing Home. This occurrence, and particularly the private litigation which followed, indicated the necessity of a prompt and careful survey of all the septic tanks within the Municipality. This is now in progress, and most disquieting conditions have been discovered, which are being dealt with as rapidly as practicable. In most instances the owners are being called upon to provide a sewage-storage tank so constructed and situated that its contents can be evacuated by the Council's vacuum-tank-cart, and to facilitate this process an arrangement has been devised by Messrs. Watson & Clarkson, which needs no further description than the appended diagram.



It is unlikely that in future the Council will be recommended to permit the installation of any septic tank in any district of Johannesburg which is residential in nature or likely to become so.

MINES SANITATION.

M.O.H. 1919-20.

Appended is the Mines Sanitation Inspector's Report for 1919-20:—

21/5/1921.

Mines
Sanitation.
Factory
Inspection.
Laundries.

A.—SURFACE SANITATION.—Your Mines Sanitation Inspectors have continued the usual systematic inspections of the various mines in the Johannesburg area, and the results have been carefully reported to and dealt with by you. This work has included the inspection and re-inspection of, and any necessary report and action in regard to, all native compounds, locations and hospitals, married and single white quarters, contractors' compounds, railway stations and quarters, brickfields, dairies, cowsheds, native eating houses, stone-crushing works, mine boarding houses, timber yards, pumping and power stations, the sanitary arrangements at the various works, disposal of refuse, and generally the maintenance of proper structural sanitary conditions and daily cleaning up and scavenging at all places and premises on the surface.

All cases of infectious disease among whites, natives and coloured have been visited, inquired into and reported upon in the usual way.

You have examined all plans submitted in regard to new or additions and alterations to existing housing accommodation, drainage and other sanitary requirements. Such plans have been amended where necessary so as to comply with the Public Health By-laws.

Without going into unnecessary details, it may be said that, as the result of reports by your Inspectors, considerable improvements have been effected in regard to the general sanitary conditions throughout the mines during the period under review. Full particulars of such improvements have been carefully reported to you in the usual way.

B.—UNDERGROUND SANITATION.—As usual, regular and systematic inspections have been made of the sanitary arrangements, conveniences and general conditions underground. Detailed reports thereon have been submitted to the Inspector of Mines, Johannesburg, who forwards a copy of each report to you. There has been a continued improvement in this branch of mines' sanitation work, owing to the increasing interest therein which has been displayed by the various underground officials. At almost every mine a special white sanitary overseer is employed, whose duty it is to see to the daily cleansing and disinfecting of the sanitary conveniences, stations, drives, cross-cuts, ladder-ways and mine workings generally.

C.—GENERAL.—On certain properties a water-carriage system of sewage removal has been carried out by the mining authorities, the final treatment being by means of septic tank installations. The Public Health Act, which is now in force, makes the question of permitting the installation of septic tanks a matter of very serious consideration, owing to the possibility of the pollution of underground water supplies.

For this reason, it is again pointed out that the question of granting the mining authorities, wherever possible, every facility for connecting their various water-carriage systems to the public sewer is one of great importance, and should be dealt with without further delay.

Many of the industrial sites on the mines, particularly in the central area, have been acquired by business firms and industries commenced. Such premises are regularly inspected, and action taken where necessary.

Your Mines Sanitation Inspectors have again to acknowledge the reasonable and sympathetic attitude taken up by the mine managers towards the requirements called for by your Department.

The Government Mining Engineer and the Director of Native Labour and mine medical officers concerned have been kept in close touch with the general work of mines sanitation under your direction.

The Medical Officer of Health wishes to record once again very clearly the opinion which he has repeatedly expressed, that it is highly desirable in the interests of the public health that a water-carriage system be installed as soon as possible on the mines, and the mines connected to the outfall sewer.

A code of "*Recommendations in regard to Underground Sanitation*" was drawn up in this office in 1910, and suitably circulated. In 1913 a similar *résumé* re "*Surface Sanitation*" was prepared and issued in pamphlet form.

FACTORY INSPECTION.

The Factory Act, No. 28 of 1918, came into force on 1st May, 1919. "Factory" includes any premises where power is used for manufacturing purposes for gain; also where three or more whole-time workers are employed, any laundry, dyeing or cleaning works, as well as any premises where the manufacture or transport of goods is carried on for gain. Mine reduction works and the preparation and packing at farms of farm produce are exempted.

As regards sanitation shortcomings, the Factory Inspector must notify the Municipal Authority, and thereafter defer any further action till that Authority has failed to take the necessary steps. Every Municipal Council must afford the Factory Inspector opportunity of inspecting any plan in respect of erection, alteration or repair of any factory, and, before approving plan, must forward copy of the Inspector's report to the submitter of such plan.

Laundries.—The following notice was sent to the licensee of every laundry:—

1. Under the Public Health By-laws, Chapter IX., every laundry wherein five or more persons, including the employer and his partners, are engaged in washing must be licensed by the Municipal Council.

M.O.H. 1919-20.

Rag-Flock.
Town
Planning.

The walls, passages and rooms and the surfaces of ceilings must be either painted with oil or varnished or limewashed.

- (a) If painted with oil or varnished, these surfaces must be washed with soap and hot water at least once in six months, and oftener if in the interval they become dirty.
- (b) If limewashed, they must be re-limewashed at least once in six months, and oftener if in the interval they become dirty.

2. The Factory Act, No. 28 of 1919, includes within the term "factory" any laundry where three or more persons are employed on whole-time work for gain. Owners of such laundries must obtain a certificate of registration from the Inspector of Factories, Winchester House, Johannesburg, which certificate will continue in force for five years. The Act's requirements include the following:—

Sanitary Convenience.—At least one satisfactorily constructed closet must be provided for every twenty persons employed therein. Where members of different sexes are employed, not being members of the same family, the closet accommodation shall be entirely separate for each sex and so as to ensure privacy; but in laundries in which the majority of employees are of one sex and not more than two of the other sex, separate closet accommodation for the different sexes shall not be insisted on if, in the opinion of the Factory Inspector, the same is suitably provided in adjacent premises. The closet accommodation for native, coloured or Indian employees shall be properly separated from the closets for white persons.

Prevention of Overcrowding.—A minimum cubic space allowance of 250 feet for persons employed must be made, and the floor space per head must not be less than 25 square feet.

Height of Rooms.—Regulation 20 made under the Factory Act Regulations requires that every room shall have a minimum height of 10 feet throughout, but, in the case of existing laundries with a minimum height of not less than 8 feet 6 inches, special exemption may be granted, provided the provision for ventilation and space allowance per person are satisfactory.

Ventilation and Temperature.—The laundry must be efficiently ventilated and a wholesome temperature maintained.

Floors must be in a sound and satisfactory condition.

Refuse Disposal.—Approved covered metal receptacles must be provided.

Washing Accommodation.—Adequate facilities as regards washing accommodation for employees must be provided.

RAG-FLOCK MANUFACTURE.

The Rag-Flock By-laws adopted by the Council on the 17th April, 1919, were gazetted on 3rd September, 1919, and enforced as from the 1st January, 1920.

Two firms were engaged in this business. One of them was prosecuted, convicted and cautioned. Thereafter they amalgamated, and now carry on work in new premises under satisfactory conditions in Newtown.

TOWN PLANNING.

Town Planning is well termed "The Preventive Medicine of Urban Development."

Previous to the laying out of the first township in 1886, a miners' camp was formed on the ground since known as Ferreirstown. In 1886 the township of Johannesburg proper (bounded on the north by Noord Street, on the east by End Street, on the south by Commissioner Street, and on the west by Diagonal Street) was laid out in chessboard fashion, apparently, and (at that time not unnaturally) with regard only to the financial advantage of the land-owners. The ruling size of the blocks is 200 feet square, subdivided into four 100 feet by 50 feet stands and eight 50 feet by 50 feet stands. Five squares or open spaces were left, namely, Market Square, Von Brandis Square, Union Ground, Plein Street Park and End Street Park.* The limited size of the blocks of small stands and the width and number of streets (*e.g.*, Frederick and Anderson Streets are only 50 feet apart) give a street mileage and area which are altogether out of proportion to the area available for building, and are most costly to maintain. Various other townships were subsequently laid out on similar principles, with the result that, in the words of the Town Engineer, Mr. G. S. Burt Andrews, M.I.C.E., it

"is a very common thing to find a natural depression between two streets
"with no way-leave for the flow of storm-water, and long roads with flat
"longitudinal grades and heavy transverse grades running parallel to a
"public stream, and similarly without outlet, except through private
"property, for the flow of surface water. There are roads with flat grades
"having hilly roads running at right angles on the high side and ground
"not subdivided on the lower side, roads through vleis ground and roads
"over rough kopjes."

* Vide Paper by G. S. Burt Andrews, M.I.C.E., in *Jour. of S.A. Assoc. of Engineers*, Vol. XIII., No. 12, p. 258.

The principles of modern town planning were then but little appreciated, even in Europe, and the result, as the town developed, has been considerable public inconvenience, enormously costly street upkeep, dangerous rectangular "collision" corners, disregard for street vistas, and, in certain districts, "sweating of the land" by crowding of dwellings on site, which is a sure embryo of future slums.

M.O.H. 1919-20.

Town
Planning.

The Transvaal Ordinance No. 19 of 1905 was, it is believed, the first attempt to regulate the laying out of townships on private land. It provided for submission to the Colonial Secretary of a preliminary plan showing the extent of the proposed township, the number and size and source of water supply of dry and water erven or lots offered for public sale or retained for private disposal, and the number and position of erven, squares or open spaces to be devoted to the use of the public. A Township Board was formed to consider such applications and to recommend the terms and conditions upon which they should be granted. This Ordinance was amended, chiefly as regards legal technicalities, by Acts Nos. 33 of 1907, No. 34 of 1908 and No. 29 of 1909.

About 1910, instances were noted of aggravated crowding of dwellings on site, perpetrated with regrettably ingenious compliance with modern by-laws, as many as five cottages being, in some cases, crowded on a stand 100 feet by 50 feet. At the suggestion of the Medical Officer of Health, the following clause, No. 88 (16) was therefore included in the Local Government Ordinance of 1912:—

"88. The Council may from time to time make, alter and revoke
"by-laws for all or any of the following purposes, namely:—

"(16). For regulating the size of pieces of ground on
"which buildings may be erected, for prescribing with due
"regard to the local conditions of different parts of the
"Municipality the extent and disposition of the open space
"on private land to be provided and maintained in connection
"with new buildings in order to secure proper sanitary condi-
"tions, amenity, and convenience in connection with the
"laying out and use of land in the locality in which such
"buildings are erected and for prohibiting the erection of
"buildings on any open space so provided."

Owing to the subsequent practical difficulty of framing a by-law to combat crowding on site, and the seriousness of the question, the Medical Officer of Health attended in 1914 the Summer School of Town Planning at University College, London, under the direction of that distinguished Town Planner, Mr. Raymond Unwin, F.R.I.B.A., and found that in modern town planning schemes the proportion of a residential site which might permissibly be built over varied from one-third to one-half.

In 1919, at the suggestion of the Medical Officer of Health and with the concurrence of the Chief Health Officer for the Union (Dr. Mitchell), Senators Ware and Whiteside secured amendments to Section 132 (h) of the Public Health Bill, which (as the Public Health Act, 1919) now reads as follows:—

"132. (1) The Minister may make regulations, and may confer powers
"and impose duties in connection with the carrying out and
"enforcement thereof on local authorities, magistrates,
"owners and others as to

"(h) The subdivision and general lay-out of land
"intended to be used as building sites, the width and number
"of streets and thoroughfares, the limitation of the number
"of dwellings or other buildings to be erected on such land,
"the proportion of any building site which may be built upon
"and the establishment of zones within which may be pro-
"hibited the establishment or conduct of occupations or
"trades likely to cause nuisance or annoyance to persons
"residing in the neighbourhood."

This is South Africa's charter in town planning. Until it is given a chance, further legislation is not pressingly necessary. The wideness of the Minister's powers, as quoted, would probably permit of much less costly and ponderous machinery than that of the English Acts, and of regulations which might perhaps usefully follow, in a very general way, those of the English Ministry of Health, while of greater adaptability to local Provincial and Municipal conditions. The large Municipalities can also make their own town planning regulations; but regulations entirely free from the influence of local politics would probably be much more effective. It is hoped that such regulations will be framed during the coming year.

In December, 1919, a Town Planning Association of the Transvaal was formed, which it is hoped will arouse public interest in the subject, and do good work in many respects. Naturally, the majority of active members are

M.O.H. 1919-20.
Housing.

architects or Municipal engineers, and for the future it may be hoped, as regards the relatively minor but important matter of back-elevations of dwellings, that imposing "Queen Anne fronts" will not be coupled with the unsightly "Mary Ann backs" which are so frequent and squalid in almost every town one knows.

HOUSING.

In July, 1919, the Ministry for Public Works appointed a Committee, to which the Medical Officer of Health, Johannesburg, submitted very detailed evidence, to inquire into matters concerning housing accommodation in urban areas in the Union.

This Committee reported on the 19th December, 1919, and the following extract from its main references to Johannesburg (*vide* pp. 25-28, pars. 63-72) are appended:—

"63. In Johannesburg bad housing and overcrowding exist to a very considerable extent.

"A number of houses are being erected by private enterprise, chiefly in the northern and eastern suburbs, the majority of which will, it is stated, be occupied by the owners. It appears that new houses which have recently been or are now being erected are about sufficient to meet the normal increase of population, but during the past five or six years there have been periods of inactivity in house building, due to various causes, and this has resulted in a shortage which cannot apparently be made good by private enterprise under existing circumstances. This shortage is estimated by the Municipal Council at 1,600 houses for Europeans, and, though it is impossible to arrive at actual figures, there seems to be no reason for thinking the number is over-stated, and some of the witnesses thought the estimate ought to be placed higher.

"It may be taken as correct that the shortage is principally of small dwellings for clerks, artisans, etc., and unskilled workers.

"64. At present there are a great number of houses occupied by two or more families, and there are many families compelled to occupy one room in the poorer class dwellings. In such cases the family generally consists of man, wife and from two to four children.

"Natives and Indians in Johannesburg are living under very unhealthy and unsatisfactory conditions, and they have increased in large numbers in what may be claimed as white residential quarters.

"65. Additional reasons for the shortage of houses are to be found in the fact that a number of people have been unhoused by the operation of closing orders in respect of premises unsuitable for human habitation, and a considerable number of small dwellings and buildings with a large number of residential rooms have been demolished to make place for the erection of warehouses and business premises of various descriptions.

"The closing down of insanitary premises has received constant attention at the hands of the Municipal Health Authorities in Johannesburg, and we have been furnished with particulars of premises containing 144 rooms which were closed in the two years from October, 1917, to October, 1919. The persons affected numbered 211 adults and 100 children; of these, five adults were white and the rest coloured.

"In the closing of insanitary houses, the authorities here, as elsewhere, are compelled to hold their hands at present, owing to the absence of other accommodation for the people. In a report dated 30th June, 1919, the Medical Officer of Health stated he was prepared to certify a considerable number of premises as unfit for human habitation, and that he would do so if the Health Committee of the Municipal Council so directed, but not otherwise. He added: 'As, however, the crowded population of these places is almost exclusively coloured, the Medical Officer of Health begs to record his definite opinion that to close these premises until extensive provision for the housing of coloured people has been made would only mean increasing the dangerous congestion which already exists in the Malay Location.'

"The number of people inhabiting the dwellings referred to by the Medical Officer of Health in his report quoted above was 1,946, made up as follows:—

	Adults.	Children.
Europeans	166	172
Indians	128	65
Coloured	114	86
Native	855	360
	<u>1,263</u>	<u>683</u>

"66. In the earlier stages of the growth of many South African towns, dwellings were built, not of durable material, but of wood, wood and iron, etc., and in most towns they are still inhabited, though a large number are quite worn out.

"This especially applies to Johannesburg, where the early population housed itself in cheap and rapidly-constructed buildings. Many of these buildings remain, and, having fallen to the use of the poorer and coloured people, have rapidly deteriorated.

"Ferreirstown and its neighbourhood fully exemplify this.

"71. We visited, under the guidance of the Medical Officer of Health and some members of the Town Council, several typical examples of bad housing and overcrowding to be found in the town.

"In Ferreirstown, Morris and Rayner's Building, in Becker Street, is a three-storied building in an extremely dilapidated condition, built round four sides of a narrow oblong court. It is densely packed with white and coloured people. The whole place is filthy, and the building itself in need of much repair.

M.O.H. 1919-20.

Housing of Natives.

"In what is known as Rabinowitz Yard, the Medical Officer of Health showed us an instance of overcrowding on an area which is most undesirable, though not an infringement of the Municipal Regulations. As a result of closing orders obtained by the Medical Officer of Health, the former insanitary dwellings have been demolished, and in their place have been erected three two-storied brick houses close alongside of one another. There is no power at present to compel landlords to have adequate open space around buildings.

"We saw numerous other places where the dwellings were closely packed on area and overcrowded.

"72. The Municipal Council is not empowered to build houses for white people, and consequently it has been unable to provide a remedy for the overcrowding which exists amongst that class of the population."

A *Closing Order* was made on 3rd October, 1919, in respect of 28 rooms unfit for human habitation on Stands 518-21, Johannesburg, site of the old Grand Hotel.

HOUSING OF NATIVES.

The following appears at p. 28 of the Report of the Union Housing Committee of 1919:—

"As regards Natives, the Municipality is possessed of adequate powers, but practically the only provision which has been made in past years for the housing of natives is at Klipspruit Location, which is badly situated, being twelve miles from the centre of the town. Within the last six months some activity in this direction has been shown, and on some Municipal land near Newlands seventy houses, each containing two rooms, verandah and E.C., have already been erected, at a cost of £240 each, and the Council, after a full inquiry, now proposes to adopt a more commodious but less expensive type of house (two rooms, verandah, kitchen and E.C., costing about £143), and erect sufficient of these upon the land mentioned to accommodate about 5,000 people."

Housing of Natives in Town is the subject of frequent private complaint and periodical public discussion, and though the position has been fully stated in various reports by the Medical Officer of Health, and especially in the Annual Report for 1914-15, much misunderstanding and misapprehension persist.

In January last, pursuant to a request by Mr. Councillor Crocker, on behalf of ratepayers of the Southern Suburbs, the following was addressed to him:—

"In concluding your letter of the 14th instant, you ask for information as to—

"(a) By-laws bearing on the subject.

"(b) This Department's past experience of the problem.

"(c) Any point which may be helpful to residents in this connection.

"(a) By-laws bearing on the subject.

"I desire to make perfectly clear to yourself and your Association that the Council has no powers whatever to regulate the choice of residence of Asiatics or Malays, nor of any other coloured persons (e.g., Somalis, half-castes, etc.) who do not fall within the definition of 'native' in Section 4 of the Johannesburg Municipal (Private) Ordinance, No. 2 of 1906, which is as follows:—

"'Native' includes any person belonging to any of the aboriginal races or tribes of Africa south of the Equator, and any person one of whose parents belongs to any such race or tribe as aforesaid."

"(In the Council's 'By-laws for Native Locations' the term 'native' is, however, defined as 'any person both of whose parents belong to any aboriginal race or tribe of Africa' (not merely South Africa). But these By-laws were made in 1904 under some Crown Colony power.)

"The Council's power as regards residence of natives is to make by-laws under Section 41 (76) of the above Ordinance—

"'To control and supervise the housing of natives by employers and to prevent annoyance to persons in the neighbourhood arising therefrom, to compel all natives not residing on the premises of their European employers or not holding letters of exemption whilst lawfully within the Municipality to reside at any location for natives which may have been established by the Council.'

"Under this power the following By-law was gazetted (*vide* Administrator's Notice No. 297 in the "Provincial Gazette" of 6th December, 1912):—

"'From and after a date to be hereafter fixed by resolution of the Council, every native dwelling or remaining within the limits of the Municipality, with the exception of such natives as may reside on the premises of their European employer and such natives as hold letters of exemption, shall be required to reside in a location, and after the said date every native hereby required to live in a location who shall at any time between the hours of 9 p.m. and 5 a.m. be within any part of the Municipality other than the location shall be guilty of a breach of these By-laws.'

M.O.H. 1919-20.

Housing of
Natives.

"By Administrator's Notice No. 255 in "Provincial Gazette" of 11th August, 1915, the following was gazetted (*vide* Public Health By-laws, Chapter II., Article 25):—

"No person shall, without permission in writing from the Council, establish
"or maintain any compound or other place for the housing of natives,
"not being domestic or household servants in the employment and
"residing on the premises of their European employer or not holding
"letters of exemption. Every person convicted of a breach of this
"By-law shall be liable to the penalty specified in By-law No. 6; provided
"that nothing in this By-law shall be held to refer to the housing upon
"the property of any mining company of natives employed in the mining
"industry."

"(b) This Department's difficulties include the following:—

"1. The erroneous belief of the public generally that the Council has special powers in regard to the place of residence of all coloured people, whereas their powers are very strictly limited to those who are 'natives' within the meaning of the Johannesburg Municipal Ordinance of 1906.

"2. The fact that rooms rented by European employers for their natives are legally the premises of those European employers, and that natives can therefore live anywhere in town, provided it is on premises of which the rent is paid in the name of the European employer.

"3. The want of decent housing for natives and coloured people, which has been so accentuated that the Health Committee very properly directed that further prosecutions for harbouring be not undertaken until suitable housing provision for these people elsewhere has been made. As you are aware, the Council is doing this with considerable rapidity and success at the Western Native Township.

"(c) Any point which may be helpful to residents.

"In view of the fact that in a few months a considerable amount of accommodation will be vacant at the Western Native Township, householders may with advantage then notify the Chief Sanitary Inspector where they believe natives are living amongst them who are not legally entitled to do so. But in making such reports, white residents should make reasonably sure that

"(1) the coloured people objected to are 'natives' within the legal meaning of the term;

"(2) they are not living in rooms paid for by their employers, for, if they are, they cannot be shifted; and

"(3) they do not possess a permit in respect of the premises in which they live.

"You will see that the position is not entirely satisfactory, and I doubt whether it ever will be. I tried hard some years ago to get Section 41 (76) of the Private Ordinance so amended as to require all natives to live in locations who are not domestic or household servants residing at the dwelling of their European employer or who do not hold letters of exemption, but the Law Advisers in Pretoria declared this *ultra vires* the Provincial Council."

Housing of Natives in Locations.—The following appears in the Report of the Union Housing Committee of 1919:—

"67. The Malay Location, which is without doubt the largest collection of dilapidated dwellings in any of our towns, was established in 1893 as a location for Asiatics and other coloured persons. The area was divided by a series of narrow streets into stands 50 feet by 50 feet, and allottees held the land subject to payment of a monthly licence of seven shillings and sixpence.

"There has been in the past uncertainty as to the control exercisable in this location by the Municipal Council, and it was not until 1907 (some years after it had been reported as a grave danger to Johannesburg from the public health point of view) that the Transvaal Government issued to the Municipality a Crown grant of the freehold of that portion of the area known as the Malay Location proper, as distinct from another portion of the location, which remained the property of the Railway Administration.

"Conditions in that portion of the location granted to the Municipality were improved, in that streets were made and water and sewerage facilities were provided.

"The conditions in the Railway portion of the location remain bad, but the Council is now obtaining freehold title of that portion of the location, and will, subject to the condition that should the Council at any future time remove the occupants of the land to another locality, the land shall immediately be re-transferred to the Government at the expense of the Municipality, the Council to pay immediately transfer duty on the Municipal valuation of the land.

"68. We have referred at some length to the question of title to this land, because it appears to us that the dangerously insanitary conditions in the Malay Location have arisen in large measure from the insecurity of tenure given to the residents and from the withholding of title, and, consequently, of adequate powers of control from the local authority."

The history of the Malay Location from April, 1902, and the various reports and recommendations of the Medical Officer of Health in regard thereto, are summarised at pp. 38 to 40 of the Medical Officer of Health's Report, 1916-1919. Although this Location was primarily intended for Asiatics, at least half its population consists of natives and Eurafrians.

In 1919-1920 there was no material change in its condition, and from the Public Health point of view, it remains, largely owing to overcrowding, bad arrangements and structural defects, a festering menace to the community.

During the year under review, it was visited both by the Union Housing Committee, Committees of the Council and by the Asiatic Commission. For reasons for which the present Council is not to blame, namely, the absence of decent dwellings elsewhere, to which the natives who at present overcrowd it can be transferred, no attempt at improvement of its condition has been practicable. But, at the time of writing (May, 1921), the Council has sanctioned application for closing orders for twelve of the worst blocks of the property therein.

M.O.H. 1919-20.

Native
Housing.
Control of
Native
Influx.

The recent Asiatic Inquiry Commission, at p. 34 of their Report (1921), state:—

"123. But our worst experience by far was at Vrededorp We found as many Native and Cape coloured people as Indians in the Asiatic location. The members of the Commission were guided through the location by the Medical Officer of Health, and made a close and thorough inspection of its conditions, which were found to be appalling. It is difficult to conceive of a worse slum existing in any part of the world. We found the inhabitants crowded and huddled together in small hovels amidst indescribable filth, and leading a most insanitary mode of life. The majority of the inhabitants of this location appear to be Asiatics of a low and degraded type, though we met with a few of the superior class who strongly resented the miserable conditions under which they have to live. The outbreak of bubonic plague in 1904 had its origin in the Asiatic location; and, according to the Medical Officer of Health, the place continues to be a serious danger to the public health of Johannesburg. It is moreover said to be the favourite haunt of illicit liquor dealers and criminals of the worst character."

Klipspruit Location.—Full details as to this Location are recorded at pp. 36 to 40 of the Medical Officer of Health's Annual Report, 1914-15. In December, 1919, the Medical Officer of Health made a detailed personal inspection of this location, and found that, while its general cleanliness was, on the whole, good, and that regular nightsoil and refuse removal services were rendered, there was a distinct insufficiency of latrines; that nightsoil pails were not creosoted; public refuse receptacles were insufficient and unsatisfactory; river-water stand-pipes were not plainly marked "Not for drinking"; no provision was made for bath-houses, and, in the V-shaped huts and some of the tank-huts, lighting and ventilation were insufficient.

Representation in respect to these various deficiencies was duly made to the Parks and Estates Committee by the Medical Officer of Health, and, except in regard to V-shaped huts, they have been satisfactorily dealt with.

The Medical Officer of Health, on the occasion of his visit in December, 1919, invited the Native Advisory Committee to keep in touch with him in reference to the sanitary conditions of their location, and the result of this arrangement has been particularly satisfactory.

Western Native Township, Newlands.—The Medical Officer of Health, in his last Report (1916-19), recommended that provision be made on the available land at Newlands for accommodation of, say, 6,000 coloured people, with reasonable reservation for open spaces and recreation ground, and that the dwellings provided be of a plain, sanitary and not too costly type.

During 1919-20, the Parks and Estates Committee, in the exercise of its powers under the Local Government Act, 1912, Section 66, matured its proposals and plans for a native township, and before the end of the official year had completed the erection of 77 such dwellings.

The Medical Officer of Health is glad to say that since the end of 1919 there has been no relaxation of the Council's efforts, details of which will be recorded in due course.

Wemmer Compound.—A lease of this Compound, which is quite near the centre of the town, was secured by the Council, and in October, 1919, it was opened as a Municipal Location for the reception of up to 1,100 male natives, for which purpose it is exceptionally well situated. Unfortunately, the lease expires in July, 1922.

Salisbury and Jubilee Compound.—Some 1,100 natives are accommodated in this old mine compound, which is distinctly inferior in structural condition to the Wemmer Compound, but, such as it is, it is of great value for the purpose for which it is used. Unfortunately, however, its tenure by the Council is subject to very short notice.

Municipal Control of Native Influx.—Mr. Councillor Weir (Chairman of the Finance Committee) has recently directed attention to the imperative necessity of acquiring power for the Council to control the influx to Johannesburg of natives (other than those coming to definite employment on the mines or elsewhere) who are attracted by the better housing and other conditions which the Council is striving to provide for natives. The Medical Officer of Health ventures to record his entire sympathy with Mr. Weir's

M.O.H. 1919-20.

Building
By-laws.
Acquisition
of Land.

efforts in this direction, for, unless some such power of control is secured and exercised, Johannesburg's task—already great enough—of bearing other people's burdens throughout the Union will be never-ending. But, in effecting this reform, the financial adjustment should obviously be such that the Council will not be saddled with expenditure which should be borne by the Native Affairs Department.

ACQUISITION OF LAND FOR PUBLIC PURPOSES.

In concluding this section, the Medical Officer of Health desires to emphasise the great and marked difficulty that the Council, despite its best endeavours, has been, and is, faced with in securing much-needed sites for native locations, and, it may be added, for other necessary Municipal purposes also. The least suspicion that the Council may possibly require any site for public purposes means that its price "rockets" to a height beyond all reason.

This state of things is by no means confined to Johannesburg or South Africa, and has become in England such a serious menace to public welfare and progress that in July, 1917, the Minister of Reconstruction appointed a highly qualified legal and technical committee to report on the Law and Practice relating to Acquisition of Land for Public Purposes.

This Committee reported in 1918, and the Medical Officer of Health invites the attention of the Council to the following extract from paragraph 8 on page 8 of the Second Report:—

"It ought to be recognised, and we believe is to-day recognised, that the exclusive right to the enjoyment of land which is involved in private ownership, necessarily carries with it the duty of surrendering such land to the community when the needs of the community require it. In our opinion, no landowner can, having regard to the fact that he holds his property subject to the right of the State to expropriate his interest for public purposes, be entitled to a higher price when in the public interest such expropriation takes place than the fair market value, apart from compensation for injurious affection, etc."

The Committee's recommendations include the following (*vide* paragraph 61, page 23):—

"The standard of value to be paid to the owner should be the market value as between a willing buyer and a willing seller, in addition to fair compensation for consequential injury.

"No allowance for the compulsory acquisition of land should be added to the market value.

"The owner should not be entitled to any increased value for his land, which can only arise, or could only have arisen, by reason of the suitability of the land for a purpose to which it could only be applied under statutory powers.

"No enhancement of market value should be taken into account which arises from the use of the premises in question in a manner contrary to sanitary or other laws and regulations."

In New Zealand, this expropriation difficulty is met by statutory provision in a remarkable and particularly just and reasonable manner. The owner of land required for public purposes is offered the sum at which it is rated by the Valuer-General's Department, *plus* 10 to 20 per cent. for compulsory disturbance. If this tender be refused, the owner is required to specify, and in future to pay rates upon, his own valuation.

An amendment in this direction of the Housing Bill was moved by Mr. Gow, M.L.A., in the Legislative Assembly last Session, and supported by Mr. R. Feetham, M.L.A., and many others, but was unfortunately outvoted.

Until some such equitable and effective method of acquiring land for legitimate public purposes be devised, the welfare, progress and general amenities of the large and enterprising communities in South Africa will continue to be seriously impeded by blackmailing demands at every turn, and members of local authorities to be exposed to offensive imputations in regard to the terms of every necessary land deal which their Council effects.

REVISION OF BUILDING BY-LAWS.

This work was undertaken in 1919-20, and completed in September, 1920, by Mr. E. Waugh, Building Surveyor, and Mr. Dowsett (for the Town Engineer), in close conference with the Medical Officer of Health, who was assisted by Messrs. C. J. Crothall and A. C. Fraser. Many desirable amendments were agreed to at the Medical Officer of Health's suggestion, and notably a badly-wanted and most essential provision defining the permissible proportion (57 per cent.) of a residential building site which may be built upon. This will check the great existing tendency to "sweat the land" by that "crowding on site" which is the sure embryo of future slums.

It is hoped that these amendments will shortly be sanctioned and promulgated.

CLEANSING.

M.O.H. 1919-20.

This is entirely controlled by the Manager of the Scavenging Department.

The Medical Officer of Health has little to add to previous observations on this matter, except that he is strongly of opinion that services of this kind should, for general reasons of public health, be rendered with the highest degree of efficiency practicable, and at charges which, while fully covering outlay, do not become a source of considerable Municipal revenue.

Cleansing.
Street
Sweeping.
Refuse
Removal.
Carcass
Removal.
Destructors.
Night Soil
Removal.

STREET SWEEPING.

This is done in the night-time, except during the wet season, when it is postponed to the early morning, so as to get the mud off the streets just before day's traffic commences. An average of 21,440 mule loads were removed by 229 Scotch carts each month. The expenditure under this head for 1919-20 was £73,754, but, subject to financial considerations, this service might with great advantage be considerably increased.

HOUSE-REFUSE REMOVAL AND DISPOSAL.

House-refuse was removed in two-wheeled open tipping carts. At each of the upper corners of each cart is fixed a ring, and for each cart a waterproof tarpaulin is supplied, which is secured to the rings. The Medical Officer of Health again repeats his suggestion that dust-carts be fitted with light wire-mesh flap covers, to prevent the blowing about of rubbish.

An average of 822 Scotch cart-loads per day of house-refuse was collected; some of it was burnt at the destructors and some deposited at tips.

The use of Milner Park Tip was discontinued, except as a clinker tip, in September, 1914.

CARCASS REMOVAL.

793 horses, 178 mules, 92 donkeys, 39 foals, 1,743 dogs, 793 cattle, sheep, goats and pigs, and 2 other carcasses were removed, and either buried at the depositing site or burned at the destructor.

DESTRUCTORS.

These are three in number, comprising 26 cells in all, and are of the Meldrum type, but, in the case of Norwood and Newtown, with the back-feed, because, in the opinion of the Town Engineer, it is better suited to local conditions than the top-feed.

The Norwood destructor consists of 2 cells, and can deal with 30 tons of refuse per three shifts of eight hours each. The daily amount of refuse "destroyed" was approximately 10 tons.

The Natal Spruit destructor has 8 cells and "destroys" approximately 100 tons in three shifts of 8 hours each.

The Newtown destructor has 16 cells, works in three shifts, and can "destroy" 240 tons daily.

During the second half of the year 1919 the Natal Spruit and Newtown destructors were closed for much-needed overhauling and repair, but this only became practicable owing to the Medical Officer of Health being able to secure for the Health Committee, through the good offices of Captain Norman, D.S.O., Governor of H.M. Prison, the use, during the period of repair, of a large disused convict quarry near the Show Ground. This has now (May, 1921) been filled up.

REMOVAL OF NIGHT SOIL AND DISINFECTION OF PAILS.

The average number of pails removed per night for the year ending 30th June, 1920, has been 16,810. Every pail, before being sent out, is washed, tested for leakage, dipped in boiling creosote in steam-jacketed pans, and, after the surplus creosote has dripped off in such a way that it is collected and available for use again, is "nested" with other pails and placed in the carts for distribution.

M.O.H. 1919-20.

NIGHT SOIL AND SLOP-WATER INTAKES.

Scavenging.
Licensed
Places.

There are eight "intakes," at which night soil and slop-water are turned into the sewer. Their design is, in the opinion of the Medical Officer of Health, exceptionally good. Particulars are appended of the daily work done by each intake between 1st July, 1919, and 30th June, 1920:—

Intake at	Used since	Approx. Average Quantities Disposed of Daily.			
		Nightsoil.	Urine.	Slop-water.	Clean Water for Flushing purposes.
Vrededorp Compound	Nov. 14th, 1908 ...	7,145	1,785	13,655	11,192
Natal Spruit ...	Jan. 19th, 1909 ...	5,787	297	45,227	20,000
Springfield ...	May 25th, 1909 ...	5,558	1,080	5,844	10,000
Wolhuter ...	April 26th, 1909 ...	5,544	2,534	18,459	1,969
Shanks Street ...	August, 1907 ...	—	—	1,907	1,000
Gaol ...	Before the Boer War	—	—	53,220	1,800
Ophirton ...	May 18th, 1908 ...	—	—	—	—
Bezuidenhout Valley	October 6th, 1911 ...	117	—	25,935	1,200
Totals ...		24,151	5,696	165,247	47,161

Total Gallonage daily—all kinds—242,255.

COST OF SCAVENGING SERVICES.

Year ended 30th June	Service	Cost	Revenue	Surplus	Deficit
		£	£	£	£
1920	Night Soil Service ...	91,728	242,481	—	29,514
	Refuse ...	73,754			
	Slop and Bathwater ...	48,485			
	TOTAL ...	£213,967	£242,481	—	£29,514

LICENSED PLACES.

From 1st July, 1919, to 30th June, 1920, 4,734 applications for licences of various kinds have been dealt with, the premises in question being in all cases carefully examined as to sanitary requirements.

	1919-20.		
	Granted.	Refused or not taken out.	Total.
1. Tea Shops, Eating Houses, Restaurants, etc. ...	729	44	773
2. Dairies ...	331	63	394
3. Milkshops ...	100	14	114
4. Butchers' Shops ...	395	23	418
5. Private Cowkeepers ...	1,079	262	1,341
6. Bakers and Confectioners ...	66	8	74
7. Permits to introduce Milk ...	314	102	413
8. Kaffir and Asiatic Eating Houses ...	132	29	161
9. Nursing Homes ...	27	—	27
10. Laundries ...	77	6	83
11. Ice Creameries ...	523	8	531
12. Noxious or Offensive Trades ...	205	33	238
13. Aerated Water and Ice Factories ...	26	—	26
14. Hairdressers and Barbers ...	136	5	141
	4,137	597	4,734

It is somewhat anomalous that whilst any applicant can appeal against the Council's refusal to grant a licence, the Local Government Ordinance does not extend this right to neighbours prejudiced by the granting of any such licence.

M.O.H. 1919-20.

Licence
Appeals.
Prosecutions.
Expenditure.

PROSECUTIONS.

132 persons were prosecuted for various breaches of the Sanitary Regulations; 125 were convicted, and fines aggregating £529 were imposed. Particulars are appended:—

BY-LAWS INFRINGED.	Race of Accused.			Totals.
	Whites.	S.A. Coloured.	Asiatics.	
Prevention of Nuisances ...	56	1	7	64
Sale of Food and Drugs ...	38	—	—	38
Dairies and Milk Shops ...	26	—	—	26
Kaffir Eating House ...	2	—	—	2
Butchers ...	1	—	—	1
Early Notification of Births ...	1	—	—	1
TOTALS ...	124	1	7	132
RESULTS—				
Convicted and Fined ...	113	1	7	121
Convicted and Cautioned ...	4	—	—	4
Dismissed ...	5	—	—	5
Withdrawn ...	2	—	—	2
AMOUNT OF FINES ...	£177 0 0	£1 0 0	£51 0 0	£529 0 0

This work is supervised by the Medical Officer of Health, under whose directions proofs of evidence, summonses, subpoenas and charge-sheets are prepared and handed to the Deputy Town Clerk (Mr. Luther Davis). That official has, since August 1916, been responsible for the conduct of all Municipal prosecutions, and the Medical Officer of Health particularly desires again to acknowledge his indebtedness to Mr. Davis for his unfailing advice and assistance in this respect, and for his efficient and very successful presentation of prosecutions instituted by this Department.

EXPENDITURE OF MEDICAL OFFICER OF HEALTH'S DEPARTMENT.

	1917-18	1918-19	1919-20
	£	£	£
Salaries ...	16,811	19,490	20,840
Native Wages, Food and Passes ...	304	344	379
Locomotion ...	1,264	1,427	1,452
Miscellaneous Expenses ...	4,662	7,905	4,464
Cartage ...	* 3,039	784	2,168
Isolation Hospital ...	11,991	6,879	2,872
Disinfecting Station ...	734	710	971
Rents, Rates and Insurance ...	1,742	1,753	1,909
	£40,547	£39,292	£35,055

* Including price Motor Ambulance.

M.O.H. 1919-20.

STAFF: MEDICAL OFFICER OF HEALTH'S DEPARTMENT.

Staff.
Important
Matters.

In addition to the Medical Officer of Health and Assistant Medical Officer of Health, includes—

Office: Chief Clerk (1), Clerks (4).

Inspectorate: Chief (1), Infectious Disease (1), Mines Sanitation (3), Dairy (3), Food and Drugs (1), District (13), Disinfecting (3), Woman Inspector (1).

There are also 4 Health Visitors, 1 Disinfecting Engineer, 1 Woman Disinfecting Attendant and 2 Rat-catchers.

This Staff is adequate, and, speaking generally, exceptionally competent, reliable and conscientious. But some who have served well for many years, and are still doing well, are "not so young as they used to be!"

Recruitment of Inspectors: The Medical Officer of Health reluctantly feels it his duty to refer to this matter. The conditions of the Council's service are exceptionally good, and the Council is therefore entitled to the very best service-years of *young, active* men, who are well qualified by (1) good primary education, (2) good practical training in building construction (preferably as builders' foremen or as plumbers), and (3) possession of a certificate of competence, though, in the Medical Officer of Health's opinion, this certificate is of quite secondary importance compared to the practical training specified, *plus youth and energy*, and can easily be secured after appointment.

Since April, 1918, however, the Committee's freedom of choice has been limited by the rule that any Council employee possessing the necessary qualification is entitled to preferential consideration, *apparently independent of age*, for any promotion or appointment. Further, the legally necessary "qualifications" for Sanitary Inspectors is the certificate of the Royal Sanitary Institute, the practical value of which, as obtained at times in South Africa, may to some extent be indicated by the fact that a typiste engaged all day in one of the large stores in town secured it in a few months. As the Sanitary Inspector's emoluments are relatively high—though not too high for really good practical men—the tendency is for other employees (whether mechanics or not) to secure, with small difficulty, the paper qualification of "the certificate," and thereafter seek admission, even in middle age, to a technical staff the recruits of which should, as already stated, be young and active skilled mechanics only, or, in the case of Food Inspectors, persons with practical knowledge of butchery. The Medical Officer of Health submits that it is neither in the best interests of the Council, nor quite fair to the older members of the inspectorate who, after years of service, become entitled to some physical relief that recruits be more than 30 years of age at the outside. And the same recommendation applies with at least equal force to any addition to the number of Health Visitors.

Advisory Committee of Employees: This was formed in May, 1919, and is consulted about all appointments, promotions and dismissals, and is represented by two members at every meeting of the Health Committee. The Medical Officer of Health appreciates the representative advice of members of his own Staff, who know what their duties and physical and other qualifications are, and should be; but for this very reason considers that the necessity or even advisability of inclusion therein of the views of representatives of other Departments, *e.g.*, Scavenging and Abattoir, is very much less obvious.

IMPORTANT MATTERS REQUIRING SPECIAL ATTENTION.

In concluding this Report, the Medical Officer of Health begs to direct the Council's attention to the following important matters:—

1. The satisfactory Housing of Natives; and then, but not before,
2. The closing and demolition of Slum Property.
3. The necessity for just and up-to-date powers, on the New Zealand lines, for the Acquisition of Land, etc., required for approved Public Purposes; and for satisfactory powers to Control the Influx of Natives, other than those coming to engagements on the Mines or elsewhere.
4. The continued extension of the water-carriage system of Sewage Disposal, both in the Mining and Non-mining districts.

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30th June, 1921.

