

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

## **Contributors**

Johannesburg (South Africa)

## **Publication/Creation**

Johannesburg : [Municipal Printer], [1933]

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M.O.H. Report,  
1932—33.



# City of Johannesburg.



REPORT of the MEDICAL OFFICER OF  
HEALTH on the PUBLIC HEALTH  
and SANITARY CIRCUMSTANCES  
of JOHANNESBURG during the Year  
1st JULY, 1932—30th JUNE, 1933.

ARTHUR J. MILNE, M.B., Ch.B., D.P.H., D.T.M.

*Medical Officer of Health; Hon. Cons. Medical Officer of the Rand Water Board; Medical Officer under Native Labour Regulations, Johannesburg Mining District; Lieut.-Colonel (Specialist Hygiene Officer), Union Defence Force; President, South African Health Officials' Association.*

JOHANNESBURG,

NOVEMBER, 1933.




Johannesburg:

Printed by Radford, Adlington, Ltd., cor. Rissik and Marshall Streets

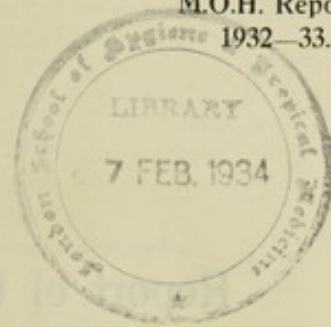
1933

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# City of Johannesburg.

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## REPORT of the MEDICAL OFFICER OF HEALTH on the PUBLIC HEALTH and SANITARY CIRCUMSTANCES of JOHANNESBURG during the Year 1st JULY, 1932—30th JUNE, 1933.

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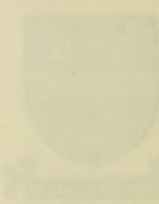
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1933



Report of the Medical Officer of Health,  
1932—1933.

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Public Health Department,  
City Hall,  
Johannesburg,

November, 1933.

TO HIS WORSHIP THE MAYOR (Mr. Councillor D. PENRY ROBERTS) and  
CITY COUNCILLORS OF THE CITY OF JOHANNESBURG.

GENTLEMEN,

I have the honour to present herewith my report of the health conditions of Johannesburg for the year 1932-33.

It is a pleasure to be able to record that the work of all members, professional, clerical and technical, of your Public Health Department has maintained the high level befitting the largest city in the Union of South Africa. Personally and officially I desire to acknowledge gratefully their valued assistance, often in difficult situations, and their loyalty both to the Council which they serve and to myself.

A detailed record for the year of inspections, etc., undertaken by the inspectorate staff is submitted on page 43.

I also desire to express my thanks in particular to the occupant of the Mayoral Chair during 1932-33 (Councillor B. C. Vickers, M.P.C., and to the Chairman (Mr. Councillor S. Hancock) and members of the Public Health Committee who extended to me much kindly assistance and courtesy, and to all other Heads and Sub-Heads of Departments for their willing co-operation and assistance.

I have the honour to be, Gentlemen,

Your obedient servant,

A. J. MILNE,

*Medical Officer of Health.*

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## CITY OF JOHANNESBURG.

### PUBLIC HEALTH COMMITTEE, 1932-1933.

Councillor S. Hancock (Chairman).  
 Councillor R. Thompson (Vice-Chairman).  
 Councillor G. Martin.  
 Councillor Alf. Law. Palmer.  
 Councillor Mrs. E. M. Pemberton.  
 Councillor W. H. Port.  
 Councillor D. Penry Roberts.  
 His Worship the Mayor (ex officio).

### PUBLIC HEALTH DEPARTMENT.

#### STAFF.

#### *Administrative and Office—*

- 1 Medical Officer of Health: Arthur J. Milne, M.B., B.Ch., D.P.H., D.T.M.
- 1 Assistant Medical Officer of Health: John Joseph Middleton, M.B., M.C.P.S. (Ontario), D.P.H.
- 1 Chief Clerk: F. Thompson, Cert. R.S.I. (S.A.).
- 1 Typist Correspondent: Miss E. Oliver.
- 1 Licensing Clerk and Typist: Miss O. V. Joel.
- 1 Assistant Licensing Clerk and Typist: Miss A. M. Stewart.
- 1 Junior Clerk: W. van Derau.
- 1 Messenger: J. Boshoff.

#### *Technical—*

- 1 Bio-chemist: Harold Wilson, B.Sc. (Lond.), A.M.C.I.
- 2 Assistant Chemists: J. A. McLachlan and K. A. Murray.

#### *Inspectorial Staff—*

- 1 Chief Sanitary Inspector: G. Bidwell, Cert. R.S.I. (Eng.).
- 1 Plans Inspector: C. J. Crothall, Cert. R.S.I. (Eng.).

#### 18 District Sanitary Inspectors:

A. Beale.	N. A. McIntjes.	M. A. Elyat.
A. C. Lumsden.	J. S. Russell.	E. M. Coetzee.
J. R. Sabiston.	E. C. Heather.	H. H. Alexander.
A. Patterson.	W. C. E. Lewis.	C. R. Morrison.
F. I. Hamilton.	H. Ballantyne.	J. S. Pitman.
E. A. Smorenburg.	D. Smith.	J. Smith.

All Certified Royal Sanitary Institute (S.A.).

#### 2 Probationary Sanitary Inspectors:

R. H. Pope.  
J. Wilson.

Both Certified Royal Sanitary Institute (S.A.).

- 1 Housing Inspector appointed to deal with Insanitary Properties under the Local Government Ordinance: P. Squires, Cert. R.S.I. (S.A.).

#### 2 Mines Sanitation Inspectors:

F. Smith, Cert. R.S.I. (S.A.).  
J. H. Haskins, Cert. R.S.I. (S.A.)

#### 2 Food and Drug Inspectors:

F. A. Wrighton, Cert. R.S.I. (S.A.) (deceased 24/10/32).  
S. G. Russell, Cert. R.S.I. (S.A.).  
J. S. Russell, Cert. R.S.I. (S.A.).

#### 5 Dairy Inspectors:

W. C. Watson, Cert. R.S.I. (S.A.).  
G. Christie, Cert. R.S.I. (S.A.).  
A. McIver, Cert. R.S.I. (S.A.) (deceased 1/7/33).  
J. W. Forrett, Cert. R.S.I. (S.A.).  
I. J. Distiller, Cert. R.S.I. (S.A.).



*Infectious Diseases and Disinfecting Station—*

- 1 Infectious Diseases Inspector: C. Wallace, Cert. R.S.I. (Eng.) (retired 25/1/33); A. C. Fraser, Cert. R.S.I. (S.A.).  
 2 Disinfecting Inspectors: H. J. Hancock and J. A. M. Bain.  
 1 Disinfecting Engineer: J. P. Jonas, six native assistants.

*Maternity and Child Welfare—*

- 1 Pediatric Officer:  
 B. G. v. B. Melle, M.B., B.Ch. (Oxford), F.R.C.S.E.
- 2 Obstetric and Ante-Natal Officers:  
 W. H. Maxwell, M.A., M.B., L.R.C.P., F.R.C.S.  
 F. K. Te Water, M.B., B.Ch., L.R.C.P., F.R.C.S.E.
- 1 Senior Health Visitor:  
 C. Morisse.
- 6 Health Visitors:  
 (1) M. G. Ferris.  
 (2) E. Ide.  
 (3) M. Craig.  
 (4) G. K. Jordan.  
 (5) H. M. Townshend  
 (resigned 30/9/32).  
 (6) T. G. White.  
 (7) E. Orn.
- 4 Ante-Natal Nurses:  
 (1) E. Orn (transferred to  
 H. Visitor 21/10/32).  
 (2) B. M. Innes.  
 (3) L. W. Godfrey.  
 (4) M. S. Wilson.  
 (5) R. E. Smith (from  
 1/6/33).
- 1 Supervisor, Nursery Health Class: Miss E. Brosius.

All Trained General Nurses and Midwives and all certificated Health Visitors and School Nurses, Royal Sanitary Institute.

S.H.V., Cert. R.S.I. (S.A.).

(2) Cert. R.S.I. (S.A.), Sanitary Inspector and Meat and Food Inspection.

All Trained General Nurses and Midwives.

(1) Cert. R.S.I. (S.A.), Health Visitor and School Nurse.

*Fever Hospital—*

- 1 Physician: H. A. Loefer, M.D.  
 1 Resident Medical Officer.

*Nursing Staff:*

Permanent: 1 Matron, 3 Sisters.

Temporary: 1 Staff Nurse, 8 Probationers.

*Administrative: 1 Clerk.*

1 Typist and Switchboard Attendant.

General: 23 Natives.

*Veneral Diseases Clinic—*

- 1 Director: H. Gluckman, M.R.C.S. (Eng.), L.R.C.P. (Lond.)  
 1 Clinic Orderly (Male).  
 2 Nursing Sisters.

*Plague Rat-catching Staff—*

- 1 Senior Rodent Inspector: R. J. Fox.  
 1 Junior Rodent Inspector: N. J. Smith.  
 8 Rat-catchers.  
 7 Rat-catching Youths.

## Report, 1st July, 1932—30th June, 1933.

### CLIMATE AND RATEABLE VALUE.

*Latitude.*—26 degrees 11 minutes 44 seconds South.

*Longitude.*—1 hour 52 minutes 10 seconds East.

*Mean Altitude.*—5,850 feet.

*Climate.*—The days are bright and warm, the nights cool, and in winter often very cold. The following averages of Johannesburg records for sixteen years are kindly supplied by R. T. A. Innes, Esq., until recently Union Astronomer: Temperature, average maximum, 69·6 degrees F., average 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 City 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 13 of 1928, 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 1932-33 £72,556,239.

The rate for 1932-33 was 5½d. in the £ on land. Rate produced £526,284 11s. 2d.; Special Road Rate, 1d. in the £ on land, producing £89,530 12s. 8d. Total, £615,815 3s. 10d.

In 1932-33 the valuation was: Land, £23,251,724; Improvements, £49,304,515.

### POPULATION.

	Census. 3rd May, 1931.	Estimated. 30th June, 1933.
Whites	199,203	213,230
Natives	...	154,600
Eurafricans	...	14,000
Asiatics	...	10,000
Total	...	391,830

### BIRTHS.

From 1st July, 1932, to 30th June, 1933, the number of white births registered was 4,510, as compared with 4,751 and 4,668 in 1930-31 and 1931-32 respectively.

The *white birth-rate* was 21·19 per 1,000 for 1932-33, the two previous years being 23·13 and 25·64.

For "The 107 Great Towns" of England and Wales in 1932 the birth-rate was 15·4, in Pretoria 22·58, in Capetown 17·81, and in Durban 18·06 for 1932-33.

*White Illegitimate Births.*—These numbered 144, and constituted 3·19 per cent. of all births, as against 4·4 in England and Wales in 1931, 4·40 in Capetown, 1·87 in Durban, and 3·94 in Pretoria in 1932-33.

The *natives and coloured births* registered during 1932-33 numbered 2,148, as against 2,063 and 1,873 in 1930-31 and 1931-32 respectively. But as the ratio of females to males in the native and coloured population is not known, no native census having been made since 1921, it would merely mislead to strike a birth-rate.

The numbers, however, indicate very clearly what continues to happen in Johannesburg, as elsewhere in urban areas in South Africa, which is that in spite of the Natives (Urban Areas) Act and its amendments, urban authorities are threatened with the complex problem of dealing with a large and increasing mass of detribalised natives, who are not only unnecessary for the city's domestic and industrial requirements, but whose presence in the city implies grave handicaps in respect of native housing and the clearance of slum properties. In this regard it is notable that the City Council is proceeding rapidly with the extension of "Orlando" Native Township, where ultimately housing accommodation will be available for some 40,000 natives. The lay-out of this township, selected after competition which was unusually keen, ensures not only a lack of drabness generally associated with native locations but very desirable amenities in the form of ample road space, liberal spaces for playing grounds and parks, and extensive plots for public buildings, churches, schools and the like. This township is developing into an almost ideal native town and one which the Council may take a very legitimate pride in. There will certainly not be anything of the kind in the Union, or indeed in Southern Africa, to compare with it, thanks to the long-sighted policy of the Council and its Native Affairs Committee. The completion of this township, together with existing native housing at Klipspruit Location, the Western and Eastern Native Townships, the Wemmer Barracks, and the single men's and single women's hostel at Wolhuter, besides providing the native races with healthy and congenial housing accommodation, will in large measure solve the slum problem in the City itself so far as native occupation is concerned, provided the influx of undesirable and unnecessary natives is suitably controlled by the Native Affairs Department of the Union Government. Lack of proper control would lead to a most undesirable state of affairs.

## DEATHS AND DEATH-RATES.

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:

## DEATHS.

Year	Whites	Natives	Eurafricans	Asiatics	All Persons
1923-24	1,562	2,314	321	143	4,340
1924-25	1,568	2,213	345	142	4,268
1925-26	1,600	2,238	309	114	4,261
1926-27	1,801	2,621	354	139	4,915
1927-28	1,858	2,696	440	137	5,131
1928-29	1,989	2,795	304	143	5,231
1929-30	1,942	3,115	339	172	5,568
1930-31	2,038	3,349	357	181	5,925
1931-32	2,070	3,309	356	183	5,918
1932-33	2,181	3,178	354	210	5,923

## DEATH-RATES.

DEATH-RATES (excluding non-residents)	White		Natives	Eur- africans	Asiatics	All Persons
	Gross	*Corrected for Age and Sex distrib.				
1923-24	9.76	—	19.06	29.43	20.70	14.61
1924-25	9.31	—	17.75	28.53	23.90	13.72
1925-26	9.50	—	17.95	25.56	19.19	13.70
1926-27	10.46	—	18.77	27.57	22.78	14.85
1927-28	10.50	—	18.52	31.16	21.39	14.96
1928-29	11.05	—	19.07	17.88	20.42	14.92
1929-30	10.67	—	21.62	18.83	22.93	15.72
1930-31	10.22	—	22.32	17.85	22.62	15.70
1931-32	10.01	—	21.84	17.45	22.60	15.35
1932-33	10.22	*10.83	20.55	25.28	21.00	15.11

\* Factor for correction 1.06.

## 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., Metro- politan and City Police Districts) ... ..			JOHANNESBURG—		
12.3 (1932)	Whites ... ..	10.22 (1932-33)	Natives ... ..	20.55	..
"Great Towns" of England and Wales ... ..	Eurafricans ... ..	25.28	Asiatics ... ..	21.00	..
12.2	All Persons ... ..	15.11	..	..	..
East London ... ..	8.6 (1932-33)	..	..	..	..
Durban ... ..	8.48	..	..	..	..
Bloemfontein ... ..	7.29	..	..	..	..
Capetown ... ..	11.43	..	..	..	..
Pretoria ... ..	9.64	..	..	..	..
Pietermaritzburg ... ..	8.65	..	..	..	..
Port Elizabeth ... ..	9.48	..	..	..	..

Except in regard to South African towns, these figures are taken from the Quarterly Return of the Registrar-General for England and Wales, 1932. The European Death-Rate is considerably lower than that of the great towns of England and Wales and compares favourably with the European rates in the last five years. It is of note that the combined rate is slightly lower than in the two preceding years in spite of several years of depression which *ipso facto* would determine a higher rate.

## 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," "Eurafricans" and "Asiatics" respectively. For reasons of economy, these voluminous tables have not, however, been printed, but are available for inspection.

## FACTORS OF MORTALITY, 1930-31, 1931-32 AND 1932-33.

DISEASE		1930-31		1931-32		1932-33		DISEASE		1930-31		1931-32		1932-33	
		Deaths	Rates	Deaths	Rates	Deaths	Rates			Deaths	Rates	Deaths	Rates	Deaths	Rates
Enteric Fever ...	W.	20	0.10	22	0.10	18	0.08	Diseases of the Heart ...	W.	323	1.62	329	1.60	342	1.13
	N.	123	0.86	74	0.48	84	0.54		N.	110	0.73	130	0.85	153	0.98
	E.	8	0.40	4	0.19	6	0.42		E.	26	1.30	26	1.27	31	2.21
	A.	3	0.37	1	0.12	2	0.20		A.	23	2.85	21	2.59	12	1.22
Measles ...	W.	5	0.02	3	0.01	14	0.06	Acute Bronchitis ...	W.	25	0.12	29	0.14	25	0.11
	N.	1	0.006	7	0.04	6	0.03		N.	108	0.72	163	1.04	166	1.07
	E.	—	—	3	0.14	3	0.21		E.	13	0.65	33	1.66	18	1.28
	A.	1	0.12	—	0.14	1	0.10		A.	4	0.50	13	1.60	16	1.60
Scarlet Fever ...	W.	2	0.01	6	0.02	2	0.009	Chronic Bronchitis ...	W.	49	0.24	65	0.34	55	0.25
	N.	—	—	—	—	—	N.		13	0.08	22	0.14	21	0.13	
	E.	—	—	—	—	—	E.		7	0.35	5	0.24	10	0.71	
	A.	—	—	—	—	—	A.		7	0.85	5	0.61	7	0.70	
Whooping Cough ...	W.	2	0.01	11	0.05	10	0.04	Pneumonia ...	W.	278	1.39	319	1.55	304	1.42
	N.	12	0.08	19	0.12	1	0.006		N.	1,057	7.03	1,085	7.16	968	6.26
	E.	3	0.15	2	0.09	—	—		E.	91	4.55	94	4.60	83	5.92
	A.	—	—	1	0.12	—	—		A.	46	5.75	50	6.17	62	6.20
Diphtheria and Croup ...	W.	6	0.03	16	0.07	10	0.04	Silicosis ...	W.	45	0.22	39	0.18	33	0.15
	N.	5	0.03	2	0.01	2	0.01		N.	6	0.04	5	0.03	14	0.09
	E.	—	—	—	0.05	1	0.07		E.	—	—	5	0.24	7	0.50
	A.	—	—	—	—	1	0.10		A.	—	—	—	—	—	—
Influenza ...	W.	32	0.16	52	0.25	60	0.28	Other Respiratory Diseases ...	W.	44	0.22	41	0.20	36	0.16
	N.	9	0.06	26	0.16	16	0.10		N.	37	0.23	38	0.25	42	0.27
	E.	1	0.05	—	0.05	1	0.07		E.	2	0.10	3	0.14	1	0.07
	A.	1	0.12	—	0.14	2	0.20		A.	1	0.12	2	0.24	2	0.20
Tuberculosis of Lungs ...	W.	69	0.34	64	0.31	51	0.23	Diarrhoea and Enteritis ...	W.	157	0.78	102	0.49	145	0.68
	N.	210	1.40	216	1.42	220	1.42		N.	615	4.10	489	3.22	524	3.39
	E.	23	1.15	17	0.83	20	1.42		E.	62	3.10	53	2.59	57	4.07
	A.	8	1.00	10	1.23	10	1.00		A.	31	3.87	26	3.20	31	3.10
Other Forms of Tuberculosis...	W.	6	0.03	7	0.03	7	0.03	Acute Nephritis and Bright's Disease ...	W.	95	0.47	93	0.45	109	0.51
	N.	51	0.34	40	0.26	29	0.18		N.	49	0.32	54	0.35	60	0.39
	E.	4	0.20	2	0.09	2	0.14		E.	13	0.65	5	0.24	5	0.35
	A.	—	—	—	—	—	—		A.	8	1.00	6	0.74	3	0.30
Cancer ...	W.	159	0.79	174	0.85	219	1.02	Congenital Malformation Premature & Early Infancy	W.	145	0.72	147	0.71	156	0.73
	N.	23	0.15	22	0.14	26	0.17		N.	219	1.46	223	1.46	213	1.37
	E.	7	0.35	9	0.44	10	0.71		E.	37	1.85	38	1.85	34	2.42
	A.	2	0.25	3	0.39	5	0.50		A.	11	1.37	22	2.71	19	1.90
Meningitis ...	W.	32	0.16	27	0.13	21	0.09	Violent Deaths	W.	131	0.65	131	0.64	150	0.70
	N.	63	0.42	45	0.29	39	0.25		N.	327	2.18	334	2.20	317	2.05
	E.	4	0.20	4	0.19	5	0.35		E.	21	1.05	19	0.93	19	1.36
	A.	1	0.12	2	0.24	3	0.30		A.	9	1.12	7	0.86	8	0.80
Cerebral Hæmorrhage and Softening	W.	48	0.24	58	0.28	54	0.25								
	N.	21	0.14	15	0.09	9	0.05								
	E.	5	0.25	4	0.19	6	0.42								
	A.	3	0.37	3	0.37	1	0.10								

The following observations are suggested by an inspection of this table:—

- (1) That during 1932-33 the chief factors of mortality were:—

(a) *For Whites*.—Heart diseases (342), pneumonia (304), cancer (219), congenital debility (156), violent deaths (150), diarrhoea and enteritis (145), acute nephritis and Bright's disease (109), influenza (60), chronic bronchitis (55), cerebral hæmorrhage (54), tuberculosis of lungs (51), other respiratory diseases (36), silicosis (33), acute bronchitis (25), meningitis (21), and enteric fever (18).

(b) *For Natives*.—Pneumonia (968), diarrhoea and enteritis (524), violent deaths (317), tuberculosis of lungs (220), congenital debility (213), acute bronchitis (166), heart diseases (153), enteric fever (84), acute nephritis and Bright's disease (60), other respiratory diseases (42), meningitis (39), other forms of tuberculosis (29), cancer (26), chronic bronchitis (21), influenza (16), silicosis (14), and cerebral hæmorrhage (9).

(c) *For Eurafrians*.—Pneumonia (83), diarrhoea and enteritis (57), congenital debility (34), heart diseases (31), tuberculosis of lungs (20), violent deaths (19), acute bronchitis (18), cancer (10), chronic bronchitis (10), silicosis (7), enteric fever (6), and cerebral hæmorrhage (6).

(d) *For Asiatics*.—Pneumonia (62), diarrhoea and enteritis (31), congenital debility (19), acute bronchitis (16), heart diseases (12), tuberculosis of lungs (10), violent deaths (8), chronic bronchitis (7), and acute nephritis (3).

(2) That the comparison with the two previous years is as follows:—

(a) *As regards Whites*, the principal increases are in respect of heart diseases, 342 as compared with 329 in 1931-32 and 323 in 1930-31; influenza, 60 as compared with 52 in 1931-32 and 32 in 1930-31; and cancer, 219 as compared with 174 in 1931-32 and 159 in 1930-31. The principal decrease is in respect of pneumonia, 304 as compared with 319 in 1931-32.

(b) *As regards Natives*, the principal increases are in respect of diarrhoeal diseases, 524 as compared with 489 in 1931-32 and 615 in 1930-31; enteric fever, 84 as compared with 74 in 1931-32 and 129 in 1930-31; and heart diseases, 153 as compared with 130 in 1931-32 and 110 in 1930-31. Pneumonia shows a decrease, the figure being 968 as compared with 1,085 in 1931-32 and 1,057 in 1930-31, whilst meningitis, with 39 deaths, compares very favourably with 45 in 1931-32 and 63 in 1930-31.

(c) *As regards Eurafrians* there is nothing worthy of comment except a slight decrease in respect of pneumonia and an increase in tuberculosis and diarrhoea and enteritis.

(d) *As regards Asiatics*, there is an increase in respect of pneumonia and diarrhoea and enteritis.

It is thought that the increased cancer rate is not on account of increased prevalence, though it may be so, but because of more reliable diagnosis. This rate, it is confidently expected, will become a decreasing rate in view of the publicity efforts of the National Cancer Association.

#### INFANTILE MORTALITY, MATERNAL MORTALITY AND MATERNITY AND CHILD WELFARE MEASURES.

*Infantile Mortality*, i.e., deaths of infants under one year per each 1,000 births registered, was: Whites 80·04, Eurafrians 188·32 and Asiatics 141·05.

The following table shows the white infantile mortality rate in recent years:—

1923-24	1924-25	1925-26	1926-27	1927-28	1928-29	1929-30	1930-31	1931-32	1932-33
81·2	78·55	74·01	83·29	83·39	72·77	78·62	79·08	76·61	80·04

The rate for Europeans is higher than it has been in the last five years. But the increase is not large. Had it not been for an exceptional period of drought (December, 1932, January and February, 1933), when mortality on account of Infantile Diarrhoeal Diseases was exceptionally high, the figure would have been at a normal level and possibly at a sub-normal figure.

## MATERNAL MORTALITY.

	Puerperal Sepsis per 1,000 Births		Other Causes per 1,000 Births		All Causes per 1,000 Births	
	Joh'burg	E. & W.	Joh'burg	E. & W.	Joh'burg	E. & W.
1923-24	1.49	1.30 (1923)	4.96	2.30	6.45	3.60
1924-25	1.26	1.39 (1924)	4.79	2.50	6.06	3.89
1925-26	1.50	1.56 (1925)	4.00	2.51	5.50	4.07
1926-27	1.72	1.59 (1926)	1.97	2.52	3.69	4.11
1927-28	3.33	1.56 (1927)	1.90	2.55	5.23	4.11
1928-29	1.49	1.79 (1928)	2.35	2.63	3.85	4.42
1929-30	1.07	1.80 (1929)	2.77	2.53	3.85	4.33
1930-31	1.42	1.92 (1930)	1.01	2.48	2.44	4.40
1931-32	1.05	1.66 (1931)	1.89	2.45	2.94	4.11
1932-33	1.55	1.61 (1932)	0.22	2.60	1.77	4.21

The above table shows the Maternal Mortality Rate from Puerperal Sepsis, Other Causes and All Causes. The rate from Puerperal Sepsis compares favourably with that of England and Wales and continues to reflect credit on the methods of the medical and nursing professions and the Council's Ante-natal activities. The rate of All Causes is simply amazing, because it is so amazingly low. One ventures to suggest that this low rate has seldom if ever been equalled in any country or city in the world. In any case, it is a rate which, though few communities attain, is worthy of emulation.

MATERNAL AND CHILD WELFARE MEASURES.

1.—GENERAL SUMMARY.

Year	Number of		Mothers referred to		Infants sent to Children's Hospital and O.P.D.	Infants Reported to Children's Aid Society		Mothers Attending		Cases Referred to Pediatric Officer	Ante-Natal Clinic	Assisted at Clinics
	First Visits	Re-visits	Maternity Hospital	Ante-Natal Nurse		Welfare Clinics	Health Visitors' Office					
1931-32 ...	2,227	9,101	236	269	448	6	41,914	396	1,086	1,726	2,262	
1932-33 ...	2,380	9,202	94	305	501	25	43,693	321	787	2,093	15,204	

2.—BIRTHS INVESTIGATED.

1931-32 ...	Legitimate : 2,201	Illegitimate : 34	...	Full Time : 2,180	...	Premature : 36	...	Stillborn : 19
1932-33 ...	" 2,350	" 36	...	" 2,334	...	" 52	...	" 20

Year	Attended by			Condition of Mother				Condition of Infant				Condition of Home					
	Doctor	Midwife Trained Untrained	Friends	Good	Fair	Poor	Sick	Good	Fair	Poor	Sick	Dead	Good	Fair	Bad	Clean	Dirty
1931-32 ...	*228	1,436	752	2,123	78	1	25 (Dead 3)	2,094	103	2	7	29	1,770	436	21	2,222	5
1932-33 ...	285	1,626	744	2,283	70	3	24	2,317	40	3	3	23	1,911	435	34	2,369	11

\* 2 Students.

Unattended 1.

3.—METHODS OF FEEDING.

Breast Milk	Cow's Milk	Tinned Milk	Breast and Complementary	Other Foods	Feeding Bottles				Comforter Used
					Pattern		Condition		
					Good	Bad	Good	Bad	
2,267	54	41	17	7	2	2	46	2	524

4.—NATIVE TOWNSHIPS.

First Visits	Re-visits	Welfare Clinics and Office Attendances		Comforter Used
		Breast	Other	
Health Visitors 795	Health Visitors 10,855 Native Nurses 7,449	7,309	16	212



The above table reveals the extension of the Child and Maternal Welfare work of the Department. Comparing the figures for 1931-32 with those for 1932-33 we find that in the latter year period there were 2,380 first visits as compared with 2,227 in 1931-32, there were 9,202 revisits as compared with 9,101, there were 305 cases referred to Ante-Natal Nurses as compared with 269 cases, there were 501 infants sent to the Children's Hospital and Out-Patient Department as compared with 448, there were 43,693 attendances at Clinics as compared with 41,914, and there were 2,093 attendances at Ante-Natal Clinics as compared with 1,726. In other words, Child and Maternal work in the Department is an ever and constantly increasing factor in the Department's activities. The figures demonstrate indisputably an increasingly greater demand for the services of your Maternal and Child Welfare staff and appreciation of the Clinic provisions afforded. That demand is not only a tribute to the services which the Council provides, but an appreciation of the services of the staff.

*Breast Feeding.*—In previous reports comment has been made in regard to the percentage of breast-fed infants. In 1931-32, the percentage was as high as 96 per cent. and in the year under review it is within a fraction of 96 per cent. This high percentage of breast-fed infants is to a considerable extent the result of persuasion by the staff and their persistence in advocating the breast feeding by all mothers of their infants. The effect of the provision of accessory foods for mothers at the Clinics has no doubt also been a factor in the maintenance of the percentage of breast-fed infants. Whatever the stimulus, the results are extremely satisfactory and gratifying.

#### STAFF AND CLINICS.

*Health Visitors.*—The Council employs one Senior Health Visitor and six Health Visitors, five of whom are entirely engaged on post-natal measures among the European population. All these Health Visitors are qualified general nurses and midwives, and in addition hold the certificate of the Royal Sanitary Institute for Health Visitors and School Nurses. Infant Clinics are held weekly at the Central Clinic (New Market Buildings), Florence Hall, Vrededorp, Masonic Hall, Jeppetown, Oddfellows' Hall, Turffontein, and Newlands Viljoen Saal. During the year the Senior Health Visitor, who had in 1929-30 established Native Clinics in the Council's Native Townships, received the assistance of an additional Health Visitor, devoting her whole time to native infant welfare. This native welfare work is progressing and these Clinics are now well established and promise to exert a very beneficial influence on the native infantile mortality. The attendances at all Clinics and the activities of all the Health Visitors are incorporated in the foregoing table. At all the European Clinics tea is provided for the attending mothers, principally through the good offices of the Women's National Service Fund, and nursing mothers are provided by the Council with foodstuffs and medical comforts when necessary. Very considerable amounts of such foodstuffs and medical comforts are provided. The Council also provides large quantities of pasteurised milk delivered at the home to poor mothers for consumption by infants who are not breast-fed or who have passed the breast-fed stage up to two years of age. The expenditure for pasteurised and acidophilus milk so supplied during the year was £1,854 12s. 6d. Standard layettes are also provided for destitute mothers at the Central Clinic, where the mothers are provided with the necessary material free, but are required to attend to make up the materials.

The Council's Pediatric Officer (Dr. B. G. v. B. Melle) attends all the Clinics and deals with all infants who require specialised dietetic and medical attention.

*Pre-School Children.*—A Nursery Health Class is conducted in the Florence Hall, Vrededorp, daily from 9 a.m. to 12 noon, and is supervised by Miss Brosius, who has had practical experience of this class of child welfare work, which is designed to secure better health conditions among pre-school children. The children (2-7 years) attending are given simple health exercises and instructed in such simple hygienic measures as head and body cleanliness, teeth cleaning, etc., etc., interspersed with games, physical exercises and general kindergarten. They receive a daily ration of one-third of a pint of pasteurised milk, and are weighed and have their body measurements taken regularly. The Council's Pediatric Officer examines them periodically to detect physical defects such as carious teeth, abnormal ear, eye, nose and throat conditions and malnutrition. Such children as exhibit defects are referred to the Out-patient Department of the Children's Hospital or the Dental Clinic for corrective treatment. The supervisor's time in the afternoons is occupied in home visiting, when she advises the mothers on such dietetic principles as will conduce to better nutrition and development. This work is showing good progress, and it is hoped in time to extend it to other poor class districts. The supervisor desires to extend her thanks to a number of voluntary assistants deputed to help her by the National Council of Women, and whose services are gratefully acknowledged. It is encouraging to learn from a number of principals of neighbouring schools that the physical and mental condi-

tions of children who have passed through the Nursery Health Class on admission to their schools is infinitely superior to those of entrants who have not had the opportunity of attendance at such a class. This branch of child welfare work is in process of considerable expansion and by the time this report is in print there will be three Nursery Health Classes in action. This advance is due to the provision of the Council of funds for this most necessary expansion of pre-school care.

*Ante-Natal Nurses.*—The Council employs four Ante-Natal Nurses, stationed at two Centres—Western and Central. These Ante-Natal Nurses are qualified general nurses and midwives. They extend ante-natal care to expectant mothers in the homes, shepherd these mothers to the Ante-Natal Clinics, arrange for their confinement in the Queen Victoria Maternity Hospital when desired, or themselves conduct the confinements in the homes. This branch of the work is extending rapidly, as will be seen by the comparative figures in the table, and is becoming a great boon to poor expectant mothers, who in the past have had to submit in their confinements to the tender mercies of the crude and unqualified midwife.

*Ante-Natal Clinics.*—Two Ante-Natal Clinics are conducted on Tuesday and Friday afternoons at the New Market Buildings. The attendance, shown in the General Summary above, continues to increase, and expectant mothers are now clamouring to avail themselves of this service, which is, of course, designed to ensure safe confinements. Two Specialist Obstetric Officers attend the Ante-Natal Clinics, and, besides carrying out the necessary procedure for the examination of expectant mothers attending the Clinics, render assistance, when necessary, at the confinements which the Ante-Natal Nurses conduct. During the year the Ante-Natal Nurses attended 314 confinements, paid 3,982 post-confinement visits, and made 2,384 visits to expectant mothers in their homes prior to their confinements. Students of the Witwatersrand University attend both the Ante-Natal Clinics and the confinements conducted in the homes by the Ante-Natal Nurses. Such attendance is an integral part of the medical curriculum, and affords facilities to medical students, which they are increasingly taking advantage of. These facilities are now extended to pupil midwives receiving their training at the Queen Victoria Hospital. Pupil midwives are availing themselves of the facilities afforded with enthusiasm.

Despite the success which has attended the Council's endeavours in regard to Maternal and Child Welfare, it is hoped that in the comparatively near future existing de-centralised arrangements which up to now were imperative, will be, if not entirely centralised, more centralised and complete by the establishment in the centre of the City of a well-equipped and structurally suitable Maternal and Child Welfare Centre. There is a distinct need for a measure of centralisation, which it is hoped the Council will accede to on lines to be formulated and submitted later to the Council by its Health Advisers.

#### HEALTH PROPAGANDA.

The Department's activities on propaganda lines were continued during the year. The principal propaganda measures were:—

- (a) Distribution of leaflets on health subjects.
- (b) Preparation of new original posters illustrating various health subjects.
- (c) Distribution of booklets on health matters. These publications include "Care of Mother and Child," "Your Health, Look into it" (a booklet dealing with every aspect of public health), "Prevention and Destruction of Rats and Mice," "The House or Typhoid Fly." It may be mentioned that by arrangement with the Registrar of Births and Deaths, a copy of the booklet "Care of Mother and Child," is handed to every person registering a birth.
- (d) Advertisements in the local papers at some cost, illustrating various public health matters. More especially was public attention called to clean milk production by means of illustrations, and the Press were good enough to elaborate by appropriate articles. Indeed, the Press have assisted greatly in this connection.

(1) One may remark apropos of this method of public instruction that the Secretary for Public Health has in his last report laid emphasis on the necessity of public health propaganda—health education—as distinct from rules, regulations, and by-laws.

(2) Your Medical Officer of Health has for quite a number of years devoted a considerable sum—from the Health Propaganda Vote—to the exploitation of health education, and is in entire sympathy with Sir Edward Thornton's proposals.

(3) It may be that your Health Department has anticipated the recommendations of the Secretary for Public Health. In fact it has.

## PNEUMONIA.

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

	Whites	Natives	Eurafricans	Asiatics	England and Wales
1923-24 ... ..	0.68	2.73	2.38	2.42	0.87 (1923)
1924-25 ... ..	0.71	2.82	2.31	2.86	1.00 (1924)
1925-26 ... ..	1.06	4.42	4.71	3.03	0.95 (1925)
1926-27 ... ..	1.13	4.68	6.07	5.73	0.82 (1926)
1927-28 ... ..	1.47	5.09	4.46	5.30	0.94 (1927)
1928-29 ... ..	1.50	5.48	3.29	7.00	0.78 (1928)
1929-30 ... ..	1.74	7.03	4.77	7.66	1.10 (1929)
1930-31 ... ..	1.39	7.03	4.55	5.75	0.69 (1930)
1931-32 ... ..	1.55	7.16	4.60	6.17	0.80 (1931)
1932-33 ... ..	1.42	6.26	5.92	6.20	—

The mortality rate for pneumonia and acute lung conditions is slightly lower than in the previous years, but is still a very large factor in the death-rate of the city. Climatic conditions probably contributed to the lower rate, which, if inappreciable, is welcome.

## MINERS' PHTHISIS, ROCK DRILL PNEUMONIA OR SILICOSIS.

54 deaths (31 Whites, 14 Natives and 7 Eurafricans) were registered during 1932-33, as compared with 51 (41 Whites, 5 Natives and 5 Eurafricans) and 51 (45 Whites and 5 Natives) in 1930-31 and 1931-32 respectively. The smaller white mortality, taking into account the larger numbers employed, is encouraging and is a tribute to the efficiency of mine preventive measures.

## ORGANIC DISEASES OF THE HEART.

These heart affections include pericarditis, endocarditis, angina pectoris, valvular disease and other diseases of the circulatory system. The deaths recorded during the year 1st July, 1932, to 30th June, 1933, were 342 for Whites, as compared with 329 and 323 for the two previous years. This figure represents a rate of 1.13 per 1,000 as against 3.138 for England and Wales in 1931. For Natives the rate was 0.98; for Eurafricans, 2.21; and for Asiatics, 1.22.

## DIARRHOEAL DISEASES.

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

	Whites	Natives	Eurafricans	Asiatics	Great Towns in England and Wales
1923-24 ... ..	0.68	2.09	6.09	3.92	0.21 (1923)
1924-25 ... ..	0.64	2.03	5.93	4.20	0.19 (1924)
1925-26 ... ..	0.59	2.30	5.54	2.69	0.21 (1925)
1926-27 ... ..	0.99	3.02	4.74	3.11	0.21 (1926)
1927-28 ... ..	0.59	2.32	4.67	2.96	0.15 (1927)
1928-29 ... ..	0.63	2.52	3.00	1.42	0.16 (1928)
1929-30 ... ..	0.65	3.33	2.72	2.53	0.17 (1929)
1930-31 ... ..	0.78	4.10	3.10	3.87	0.13 (1930)
1931-32 ... ..	0.49	3.22	2.59	3.20	0.13 (1931)
1932-33 ... ..	0.68	3.39	4.07	3.10	0.13 (1932)

There is a marked increase among all races and notably so among Europeans. The increase is without doubt due to depression and consequent unemployment, and is largely the result of prolonged drought with accompanying high temperature conditions in December, 1932 and January and February, 1933.

## MALIGNANT DISEASE OR CANCER.

During 1932-33 the deaths from cancer numbered 252 Whites (including 33 non-residents), 39 Natives (including 13 non-residents), 10 Eurafricans and 5 Asiatics, as compared with 252 Whites (including 31 non-residents), 39 Natives (including 13 non-residents), 12 Eurafricans (including 3 non-residents), and 3 Asiatics (including 1 non-resident) in 1931-32, and 197 Whites (including 38 non-residents), 31 Natives (including 4 non-residents), 8 Eurafricans (including 1 non-resident), and 3 Asiatics in 1930-31.

Of the 252 Whites, 133 were males and 119 females, and 244 were over the age of 35 years, the rates being 1·02, 0·85 and 0·79 for the three years respectively, as compared with 1·51 per 1,000 for England and Wales in 1932.

In the following table is set forth the part of the body affected:—

	Whites			Natives			Eurafricans			Asiatics		
	1930-31	1931-32	1932-33	1930-31	1931-32	1932-33	1930-31	1931-32	1932-33	1930-31	1931-32	1932-33
Stomach ... ..	87	98	114	4	13	11	2	3	1	2	3	3
Womb ... ..	27	24	48	5	3	5	1	5	4	—	—	—
Breast ... ..	20	23	27	2	2	2	2	1	1	—	—	—
Liver ... ..	11	9	5	16	13	17	—	3	—	—	—	2
Neck and Throat ...	6	8	13	1	2	2	—	—	—	—	—	—
Mouth ... ..	5	4	4	1	—	—	—	—	2	—	—	—
Tongue ... ..	4	4	1	—	1	—	—	—	—	—	—	—
Lung ... ..	3	5	7	—	1	—	—	—	1	—	—	—
Rectum ... ..	5	8	8	—	1	1	—	—	—	—	—	—
Prostate ... ..	7	1	3	—	3	—	1	—	—	—	—	—
Head and Face ... ..	1	2	—	—	—	1	—	—	—	—	—	—
Bladder ... ..	9	1	7	2	—	—	1	—	—	—	—	—
Bones ... ..	1	—	—	—	—	—	—	—	—	—	—	—
Colon ... ..	2	5	6	—	—	—	1	—	1	—	—	—
Spleen ... ..	—	1	—	—	—	—	—	—	—	—	—	—
Legs and Feet ...	2	—	—	—	—	—	—	—	—	—	—	—
Hand and Arm ...	—	—	—	—	—	—	—	—	—	—	—	—
Penis ... ..	—	1	1	—	—	—	—	—	—	—	—	—
Chest ... ..	—	—	1	—	—	—	—	—	—	—	—	—
Ear ... ..	1	—	—	—	—	—	—	—	—	—	—	—
Kidney ... ..	—	4	3	—	—	—	—	—	—	—	—	—
Glands ... ..	2	—	1	—	—	—	—	—	—	—	—	—
Brain ... ..	2	2	1	—	—	—	—	—	—	—	—	—
Spine ... ..	—	—	2	—	—	—	—	—	—	—	—	—
Unspecified ... ..	3	5	—	—	—	1	—	—	—	—	—	—
<b>Total ... ..</b>	<b>197</b>	<b>205</b>	<b>252</b>	<b>31</b>	<b>39</b>	<b>39</b>	<b>8</b>	<b>12</b>	<b>10</b>	<b>2</b>	<b>3</b>	<b>5</b>

Reference has already been made in regard to this increasing incidence and too much stress cannot be placed on the desirability of seeking early treatment for these conditions if treatment is to be successful.

## MEASLES.

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

	1928-29	1929-30	1930-31.	1931-32	1932-33.
Whites ... ..	0·02	0·005	0·02	0·01	0·06
Natives ... ..	0·04	0·02	0·006	0·04	0·03
Eurafricans ... ..	—	0·05	—	0·14	0·21
Asiatics ... ..	0·14	—	0·12	—	0·10

VENEREAL DISEASE.

154 White and 2,283 Coloured cases of Syphilis and other venereal diseases from Johannesburg were treated at Rietfontein Hospital during the year 1931-32.

It is noteworthy that in the period under review a Non-European Clinic for females and children only was continued at the Out-patient Department of the Non-European Hospital. Though the Union Health Department, on account of financial stringency, is unable to accede, for purposes of part refund under the Public Health Act, to the Council's request for approval of Non-European Clinics, the Council being so impressed with the necessity, decided to continue to forego the question of refunds and to maintain its Non-European Clinic for Native women and children entirely at its own expense. The scheme was made possible through the good offices of the Hospital Board, to whom the Council is very grateful and who agreed readily to set aside on two afternoons a week suitable accommodation in the Out-patient Department of the Non-European Hospital. The Clinic, opened in May, 1931, is functioning admirably under the supervision of the Director. Though the number of patients and attendances is not yet formidable, the Clinic has certainly justified its establishment and, as it becomes more widely known and appreciated, its usefulness will become more and more apparent. It is hoped that in the near future Government refunds will materialise for this Clinic, and also that the Council's scheme for establishing a Clinic or Clinics for male Natives in connection with the Central Pass Office, will also receive favourable consideration by the Government.

STATISTICAL REPORT OF DIRECTOR FOR PERIOD  
1st JULY, 1932, TO 30th JUNE, 1933.

Venereal Clinic (European).

1.—SUMMARY.

Out Patients		Specimens		Salvarsan	
No. of New Patients	Total Attendances	No. sent to Institute	No. Examined at Clinic	No. of Patients treated with 606 or Substitutes	No. of Doses Administered
1,492	11,650	842	755	1,202	4,537

2.—ATTENDANCES AND DISEASES.

Attendances of New Patients							Attendances of Old Patients								
Gonorrhœa		Syphilis		Soft Chancre		Not V.D.	Gonorrhœa		Syphilis		Soft Chancre		Not V.D.		
M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
900	126	272	175	4	1	10	4	3,425	653	3,717	2,284	40	5	24	10

3.—LABORATORY. NUMBER OF SPECIMENS EXAMINED AND RESULTS OF EXAMINATION.

Clinic						Institute										Total Number of Specimens Examined
Gonococci		Spirochaetes		Others		Gonococci		Spirochaetes		Wasserman Test						
+	-	+	-	+	-	+	-	+	-	+++	++	+	-	?		
266	370	—	—	42	77	31	40	—	—	286	98	55	328	4	1,597	

Venereal Clinic (Non-European: Females and Children Only).

1.—SUMMARY.

Out Patients		Specimens		Salvarsan	
No. of New Patients	Total Attendances	No. sent to Institute	No. Examined at Clinic	No. of Patients treated with 606 or Substitutes	No. of Doses Administered
171	915	247	7	245	930

## 2.—ATTENDANCES AND DISEASES.

Attendances of New Patients								Attendances of Old Patients							
Gonorrhœa		Syphilis		Soft Chancre		Not V.D.		Gonorrhœa		Syphilis		Soft Chancre		Not V.D.	
M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
—	27	—	121	—	—	—	23	—	67	—	677	—	—	—	—

## 3.—LABORATORY. NUMBER OF SPECIMENS EXAMINED AND RESULTS OF EXAMINATION.

Clinic.				Institute										Total Number of Specimens Examined.	
Gonococci		Others		Gonococci		Spirochaetes		Wasserman Test					Others		
+	-	+	-	+	-	+	-	+++	++	+	-	?	+		-
5	—	—	2	5	10	—	2	105	7	12	75	29	—	1	254

## REMARKS.

## 1. ATTENDANCES OF PATIENTS.

(a) *European Centre*.—The attendances of new patients at the "Special Treatment Centre" for the period under review exceeded the number for the previous year by 195. Of these 116 were new patients suffering from Gonorrhœa and 70 suffering from Syphilis.

The total attendances for the period exceeded those for the previous year by 247. The average attendance per patient, 7.8, is still unsatisfactory. It is regrettable that some individuals cease attending as soon as the more obvious manifestations of the disease disappear. This is so in spite of the stress which is constantly being laid, both at consultations and in the instruction cards, on the importance of regular and continued attendance.

(b) *Non-European Centre*.—As compared with the previous year there has been a drop of 115 in the number of new patients who presented themselves at this Centre. This is probably due to the fact that the facilities which exist at the Non-European Hospital for the treatment of Venereal Diseases amongst coloured females and children are not sufficiently well-known amongst Non-Europeans.

The number of Non-European females suffering from Gonorrhœa, who applied for treatment, was 27 as compared with 9 in the previous year. This increase may be partly due to the encouragement given to Casualty Medical Officers to refer such patients to this Centre instead of sending them direct to the Rietfontein Hospital. This point was referred to in my last annual report.

## 2. IN-PATIENT ARRANGEMENT FOR SELECTED CASES.

Generally speaking, the transfer of patients suffering from Venereal Diseases, who require in-patient treatment, to the Rietfontein Hospital, has worked satisfactorily in the past in the majority of cases. From time to time, however, cases are encountered who require specialised treatment or whose condition is so acute as to render their transfer to the Rietfontein Hospital a very unsatisfactory procedure. As an example of specialised treatment I might mention those suffering from Vesiculitis and its complications, and who require the operation of Vasostomy for their treatment. The patient who is being subjected to the tests of cure for Syphilis and who requires to be lumbar-punctured, is a further example of this group.

Children suffering from Gonorrhœal Vaginitis requiring a vaginoscopic examination under an anæsthetic and females suffering from Gonorrhœa requiring minor operative procedures are further examples.

The demands created by this group of patients would be adequately met if a number of beds and a suitably equipped operating theatre were available somewhere in the Johannesburg area for their admission and treatment.

## 3. GENERAL.

As in the past, courses of instruction have been given at your European Centre to the following groups:—

- (1) 5th and 6th year Medical and Dental students of the University of the Witwatersrand.
- (2) Members attending the Department of Public Health Course of the University.
- (3) The ladies who are taking the Health Visitors and School Nurses Course under the auspices of the Witwatersrand Technical College.

HENRY GLUCKMAN, M.R.C.S., L.R.C.P.,

Director, Johannesburg City Council's  
"Special Treatment Centres."

## OPHTHALMIA NEONATORUM.

## CASES NOTIFIED.

	1930-31	1931-32	1932-33
Ophthalmia Neonatorum—			
Whites ... ..	18	13	7
Natives ... ..	7	6	5
Eurafricans ... ..	1	1	2
Asiatics ... ..	—	1	—
	26	21	14
Gonorrhœal Ophthalmia—			
Whites ... ..	2	3	3
Natives ... ..	—	2	—
Eurafricans ... ..	—	—	—
Asiatics ... ..	—	—	—
	2	5	3
All Cases—			
Whites ... ..	20	16	10
Natives ... ..	7	8	5
Eurafricans ... ..	1	1	2
Asiatics ... ..	—	1	—
	28	26	17

The decrease in the number of cases notified is satisfactory.

## NOTIFIABLE INFECTIOUS DISEASES.

During the year under notice, 1,438 cases were notified, viz., 683 amongst Whites, 707 amongst Natives, 34 amongst Euraficans, and 14 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 recorded in previous years.

1,047 houses and 12,563 articles of clothing, bedding, etc., were disinfected.

## SMALL-POX.

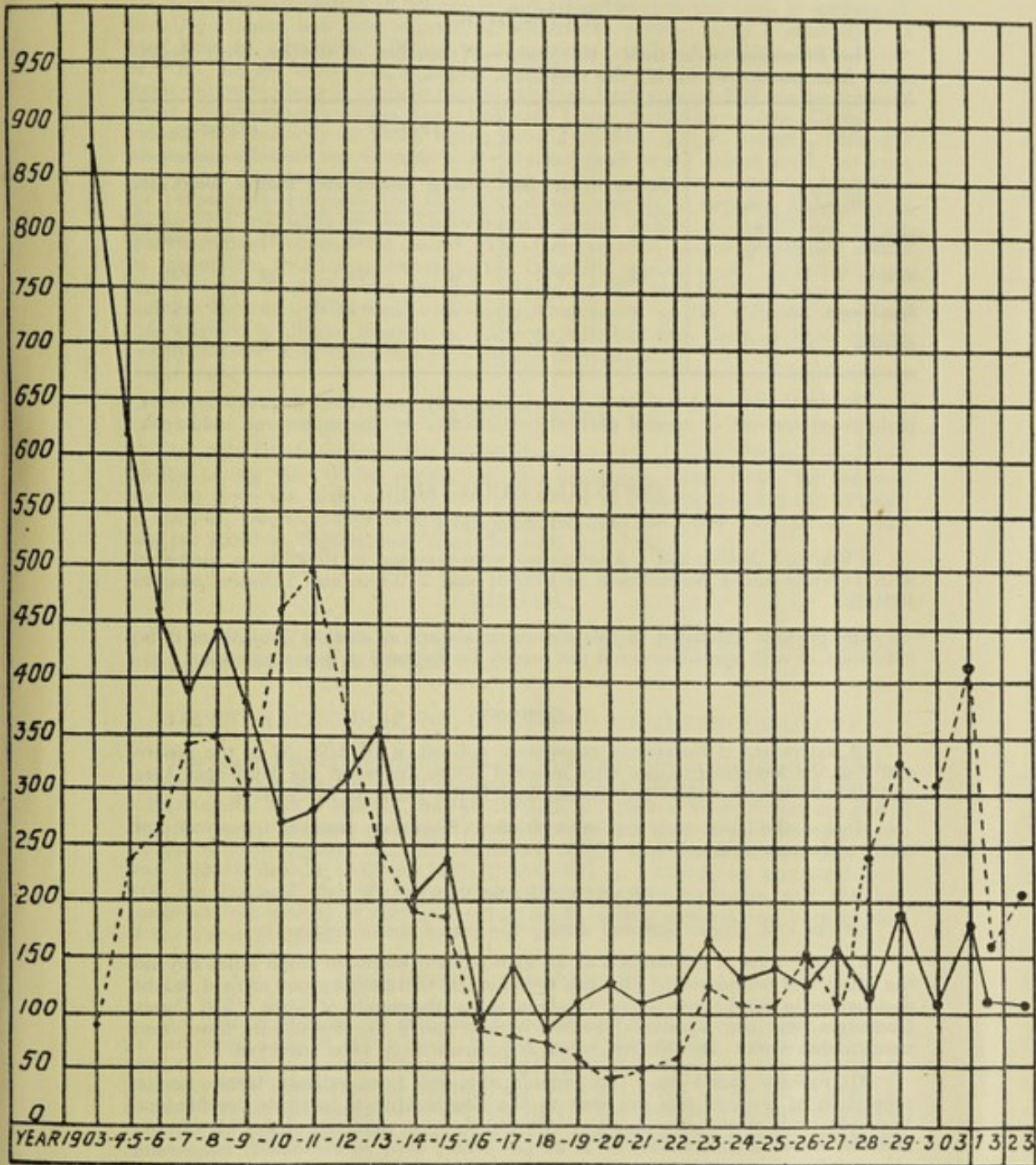
No case of this disease was reported during the year.

## ENTERICA.

In the following is set forth the number of cases, and deaths, together with the case-rate per cent. and the death-rate per 1,000, and the death-rate for England and Wales:—

	1930-31				1931-32				1932-33			
	Cases	Deaths	Case-rate %	Death-rate	Cases	Deaths	Case-rate %	Death-rate	Cases	Deaths	Case-rate %	Death-rate
Whites ... ..	174	20	11·49	0·10	111	22	19·81	0·10	102	18	17·64	0·08
Natives ... ..	411	129	31·38	0·86	156	74	49·43	0·48	202	84	41·58	0·54
Eurafricans ... ..	15	8	53·33	0·40	11	4	36·36	0·19	18	6	33·33	0·42
Asiatics ... ..	13	3	23·07	0·37	8	1	12·5	0·12	3	2	66·66	0·20
England and Wales ...				0·01 (1930)				0·006 (1931)				0·01 (1932)

YEARLY INCIDENCE OF ENTERIC FEVER IN THE 30 YEARS,  
1903-4 TO 1932-33.



Whites—Continuous Line.

Natives—Dotted Line.

The rising incidence of this group of Diseases (Enterica) gave rise to some uneasiness in the past five years, but the position now is good not only in respect of white cases, which are less this year than at any time during the last 12 years, but also in respect of native cases, which show no tendency to undue increase. This satisfactory state of affairs in my opinion is due to a considerable extent at least to the Council's wise policy of extending materially water-borne sewerage in the City in spite of the many and frequently unfounded protestations of a very small minority who imagine that their health is being affected by the comparative proximity of up-to-date sewage disposal works in different parts of the City.



## ERYSIPELAS.

60 White, 23 Native and 2 Asiatic cases of erysipelas were notified in 1932-33, as compared with 27 White, 14 Native, 1 European and 1 Asiatic in 1930-31 and 58 White and 14 Native in 1931-32.

## MENINGITIS.

The following table shows the registered number of deaths, with death-rates, from meningitis during the triennium 1930-33:—

	1930-31		1931-32		1932-33	
	Deaths	Death-rate	Deaths	Death-rate	Deaths	Death-rate
Whites ... ..	32	0·16	27	0·13	21	0·09
Natives ... ..	63	0·42	45	0·29	39	0·25
Eurafricans ... ..	4	0·20	4	0·19	5	0·35
Asiatics ... ..	1	0·12	2	0·24	3	0·30

The death rate and incidence is very distinctly lower than in previous years, perhaps on account of careful preventive measures by the mines and industries.

## INFANTILE PARALYSIS.

(Acute Poliomyelitis.)

4 White, 1 Native and 1 Asiatic case were reported in 1932-33, as compared with 1 White and 1 Native case in 1930-31 and 2 White and 1 Native case in 1931-32.

The possible extension of this disease is always an anxiety, but there is no indication of such spread as could not readily be disposed of departmentally.

## LEPROSY.

49 Native and 2 Eurafrikan cases were notified in 1932-33; 37 of the Native and 1 of the Eurafrikan cases were infected before arrival in the Municipal Area and all were transferred to the Government Leper Institute in Pretoria.

Most of the leper cases are importations. Secondary cases of leprosy do not occur in Johannesburg.

## PLAGUE PREVENTION.

No cases of plague occurred during the period under review.

A safety zone is maintained at an approximate radius of three miles beyond the Municipal boundaries. This has necessitated the carrying out of field rodent destruction in 32 distinct areas, totalling many thousands of acres. 256 Capex Cartridges, 227 lbs. Cyanogas, 50 lbs. Wheat and 8 oz. Strychnine have been used in this work. In addition, other large areas have been surveyed.

All rodents found dead, all rodents obtained from railway trucks and a proportion of trapped rats are sent to the South African Institute for Medical Research for bacterial examination. During the year 1932-33, of the 14,683 rats and 980 mice caught, 3,435, or 21·29 per cent., were so examined; none were plague infected. 1,205 veld rodents were also found dead.

## CITY RODENT WORK.

845 visits of inspection have been made by the City Rodent Staff; 164 premises, including bioscopes, theatres, grain stores, furniture stores, cafés, restaurants, refuse tips, and private houses were specially dealt with and advice given for the destroying of rodents and rendering premises rodent-proof. Eleven statutory notices have been served on owners of buildings to execute work for rodent eradication and prevention.

As a result of these measures, the owners of many large buildings now constantly employ rat-catchers.

Stocks in grain stores and the Municipal Market have been frequently "turned over," and numbers of rats have been destroyed by trained Municipal dogs.

3,575 Trucks conveying produce have been examined at the Kazerne and Newtown Railway Siding. Municipal dogs are employed in this work.

All hares coming into the Municipal Area have been seized and destroyed.

It is of some import that the City Council should be aware that so far as the possible introduction of plague infected rodents into the City is concerned, the Department has done everything possible to prevent such a calamity. It has done so advisedly. With large experience in plague-ridden lands, your M.O.H. has no hesitation in saying that the City of Johannesburg has taken more elaborate steps to exclude plague infection from surrounding plague infected areas (comparatively close) than has any Local Authority in the Union, or, indeed, the majority of cities which have a possible plague menace. For the protection afforded the Council is greatly indebted to its rodent staff, who not only know their business, but carry it out. In this connection one may say that for propaganda purposes the Department will exhibit a complete cine film of its anti-rat measures at the Department's health exhibit in April next at the Witwatersrand Agricultural Show. These remarks on plague prevention would be incomplete without reference to the Council's ratting dogs. It is true that they are well kennelled and well fed. They are also well bred and well trained, and in their activities and work—*unpaid servants of the Council*—they are indefatigable in plague prevention. Anyone who has seen them at work cannot but appreciate their contribution to plague prevention.

#### SCARLET FEVER.

In 1932-33 there were 323 White cases of this disease. There were two deaths among the White population, the death-rate being 0.09. In the two previous years the cases notified were 296 White in 1930-31, and 392 (all Whites) in 1931-32, the mortality rate being 0.02 and 0.01 per 1,000 respectively. The rate per 1,000 in England and Wales for 1932 was 0.01.

#### TYPHUS.

Five cases (3 imported) were reported in 1932-33, as against none in 1930-31 and 4 imported cases in 1931-32.

#### DIPHTHERITIC DISEASE, INCLUDING MEMBRANOUS CROUP.

The occurrence of diphtheritic disease in 1932-33 numbered 146 (135 Whites, 4 Natives, 4 Eurafricans and 3 Asiatics), in 1930-31 123 (112 Whites, 8 Natives, 2 Eurafricans and 1 Asiatic), and in 1931-32 217 (204 Whites, 5 Natives and 8 Eurafricans.). The case mortality for Whites being 9.52, 5.35 and 7.83 per cent. for the respective years in order mentioned above, and the death-rate per 1,000 was 0.03 in 1930-31, 0.07 in 1931-32 and 0.04 in 1932-33, as compared with 0.06 for England and Wales in 1932. The low case mortality and the low death-rate are worthy of note and reflect credit on the medical and nursing staff of the Fever Hospital.

#### PUERPERAL SEPTICÆMIA, ETC.

In 1932-33 53 cases (27 Whites, 23 Natives and 3 Eurafricans) were reported, as compared with 39 (19 Whites, 13 Natives, 4 Eurafricans and 4 Asiatics) in 1930-31 and 49 cases (31 Whites, 11 Natives, 3 Eurafricans and 4 Asiatics) in 1931-32. The death-rate for 1932-33 was 1.55 per 1,000 births for Whites, as against 1.61 in England and Wales for 1932. The incidence of this disease is referred to under Maternal Mortality. The low incidence is creditable to all concerned.

#### ANTHRAX.

One imported White case of this disease was notified in 1932-33.

#### INFLUENZA.

The number of registered deaths from influenza during the year was 60 Whites, 16 Natives, 1 Eurafrican and 2 Asiatics. These figures, as compared with most years, are insignificant.

## ENCEPHALITIS LETHARGICA.

One White case was notified in 1932-33 as against 1 White and 1 Native case in 1930-31, and none in 1931-32. Eight White deaths were registered. The attention of medical practitioners is again called to their failure to notify cases of this notifiable disease and the penalty for non-notification.

## TUBERCULOSIS.

Appended is a statistical summary of the mortality from tuberculosis in Johannesburg for the years 1930-31, 1931-32 and 1932-33:—

## DEATH-RATE PER 1,000.

	Pulmonary Phthisis			Other Forms of Tuberculosis		
	1930-31	1931-32	1932-33	1930-31	1931-32	1932-33
Johannesburg—						
Whites ... ..	0·34	0·31	0·33	0·03	0·03	0·03
Natives ... ..	1·40	1·42	1·42	0·34	0·26	0·18
Eurafricans ... ..	1·15	0·83	1·42	0·20	0·09	0·14
Asiatics ... ..	1·00	1·23	1·00	—	—	—
England and Wales ... ..						
	1930	1931	1932	1930	1931	1932
	0·739	0·742	0·687	0·159	0·154	0·150

Notification of Tuberculosis.—446 notifications were received during 1932-33, namely, in regard to 13 Whites, 425 Natives, 6 Euraficans and 2 Asiatics.

The incidence in Natives is practically confined to Natives employed on the Mines.

## BACTERIOLOGICAL DIAGNOSIS.

The following are particulars of the specimens examined under this heading for the City Council at the South African Institute for Medical Research during the year 1932-33:—

Disease.	Positive.	Negative.
Typhoid ... ..	163	1,592
Tuberculosis ... ..	534	14
Diphtheria ... ..	526	2,357
Haemolytic Streptococcus ... ..	190	702
Gonococcus ... ..	3	10
Malaria ... ..	—	1
Leprosy ... ..	4	27
Anthrax ... ..	—	5
	1,420	4,708

The figures do not include rats examined for suspected plague (vide p. 22).

## ISOLATION HOSPITALS.

Fever Hospital.—The number of White cases treated at the Fever Hospital in Johannesburg was 503 as compared with 423 in 1931-32, as follows: Diphtheria 121, scarlet fever 155, measles 138, mumps 1, chicken-pox 3, erysipelas 64, whooping cough 2, meningitis 7, German measles 4, enteric fever 4, septicaemia 1, tick bite fever 1, laryngitis 1, influenza 1.

The cost of the upkeep of the Fever Hospital for 1932-33 was £11,502 12s. 5d.

In connection with the number of cases treated at the Fever Hospital, it should be noted that there is a marked increase. To a considerable extent this increase is due to the utilisation of the new Observation Block, which now receives numbers of cases of the non-notifiable infectious diseases as well as cases of erysipelas, cerebro-spinal meningitis, enteric fever, etc., which hitherto were accommodated in the Johannesburg General Hospital.

During the year the Council voted the sum of £1,000 towards improvements to the grounds of the Hospital. On account of the nature of the soil and other circumstances, improvements in these grounds are not only difficult but expensive. The work was entrusted to the Parks and Estates Department under the supervision of the Director of Parks and Improvements. The scheme agreed on is nearly complete. Anyone who knew the Fever Hospital grounds in 1931, when contemplated beautification seemed to be almost impossible on account of soil conditions (the ground was hard shale and almost such that horticultural growth was impossible), would be amazed at the horticultural improvements achieved by Mr. Frith, an old horticultural personality, whose services the M.O.H. was fortunate in securing for the laying out of the Fever Hospital grounds and their maintenance. Mr. Frith has achieved—admittedly at some cost—the seemingly impossible. To-day to the delight of the convalescents at the "Fever" there are spacious lawns, some shady trees, flower beds which delight the eye and sense, and pleasant places instead of rocky prominences. The Council, the Health Department, and, above all, the convalescent children, are indebted to Mr. Frith for his endeavour.

Springkell Sanatorium.—12 non-miners suffering from tuberculosis were being treated at the Springkell Sanatorium on 1st July, 1932, and 14 fresh cases were sent there during 1932-33. Six patients died and 4 left. The cost of treatment of these cases was £2,221 11s. 6d.

Rietfontein Hospital.—7 White cases of venereal, 1 leper, 2 measles and 1 chicken-pox, and 109 Native cases of chicken-pox, 37 leprosy, 38 measles, 8 diphtheria, 8 mumps, 4 venereal disease, 9 whooping cough, 2 scarlet fever and 3 erysipelas were removed for treatment to the Rietfontein Hospital. Rietfontein Hospital was paid £460 2s. for these services, 50 per cent. being refunded by Government for the first six months, and 50 per cent., less 40 per cent., during the final six months.

Government refunds an amount of £10,000 per annum towards the cost of treatment of infectious diseases cases, including tuberculosis, and maintenance of special treatment centre.

#### AMBULANCE REMOVALS.

During the period under review, 11 White cases and 218 Coloured were removed to Rietfontein Hospital, 492 White cases to the Fever Hospital, and 50 White cases to the General Hospital. In addition, 21 White patients were removed to the Children's Hospital, 34 patients to the Non-European Hospital, 16 Whites to Springkell Sanatorium, and 31 Whites to Private Hospitals. Nine cases were also removed from outside districts at the request of, and on payment by, the local authorities concerned.

#### NURSING HOMES.

There are 37 nursing homes in Johannesburg, all of which are periodically inspected by District Inspectors or Health Visitors and the Technical Medical Staff.

#### LIVE STOCK MARKET AND PUBLIC ABATTOIR.

The following figures have kindly been supplied by the Director, Abattoir and Live Stock Market:—

During 1932-33 1,294,315 animals passed through the Live Stock and Quarantine Yards, and 105,880 cattle, 552,571 sheep, etc., 12,999 calves and 79,759 pigs, or a total of 751,209 animals, were slaughtered at the Abattoir; 1,790,831 lbs. imported meat was inspected, and 1,614,059 lbs. meat was condemned.

#### INSPECTION OF FOODSTUFFS.

The following goods were condemned by the Food and Drugs Inspectors:—Fish, 48,871 lbs.; smoked fish, 500 lbs.; tinned fish, 1,288 lbs.; kippers, 225 lbs.; cod fillets, 650 lbs.; meat, 400 lbs.; tinned peas, 168 lbs.; cheese, 2 cases; eggs, 32 cases; oats, 52 lbs.; ghee, 100 lbs.; food sample, 120 lbs.; chicory, 36,000 lbs.; poultry, 314. During the period under review they passed 607,495 lbs. of bacon, etc., 8,634,729 lbs. of fish, 42,332 lbs. game, 30,631 lbs. crayfish, oysters and roes, 20,775 lbs. dressed poultry and 71,837 lbs. biltong.

## ANALYSIS OF FOODS ETC.

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

	1930-31	1931-32	1932-33
Number of Samples taken ...	314	459	543
Number examined bacterially .	3	83	82
Number deficient Solids-not Fat	2	6	35
Number deficient Fat ... ..	3	8	5
Number of Prosecutions ...	4	13	15
Amount of Fines ... ..	£7	£20	£41

In addition to the 768 water examinations (see page 33) 614 articles of food, etc., were examined during 1932-33 at the Government Laboratories. Details are appended:—

Description.	Genuine or Pure.	Adulterated or Impure.
Milk ... ..	503	40
Aerated Drinks ... ..	14	—
Soap ... ..	14	—
Coffee ... ..	8	—
Chicory ... ..	1	1
Confectionery ... ..	13	—
Honey ... ..	6	3
Pepper ... ..	3	—
Baking Powder ... ..	3	—
Olive Oil ... ..	2	—
Orange Essences ... ..	2	—
Camphorated Oil ... ..	2	—
Aspirin ... ..	2	—

This is 2.87 samples per annum per 1,000 of the white population.

## FOOD AND DRUGS REPORT FOR YEAR ENDING 30TH JUNE, 1933.

Attached hereto is the summary for samples and foodstuffs over the above period and a commentary is herewith submitted.

*Milk.*

As indicated in the number of samples taken, a steady routine of sampling from various sources of supply, both primary and secondary, has been maintained, and with the formation of the new dairy section there has been a close co-operation with the two sections resulting in an improved and more systematic method of routine sampling which now embraces practically the whole of the City's supply.

Heavier fines have been the rule latterly in prosecutions for adulterated or sub-standard milk; but, apart from this, consistent sampling and surprise raids where complaints have been received must certainly maintain a good moral effect on potential delinquents whilst building up confidence in the public and milk dealers of repute.

*Bread.*

Two bakeries were reported as infected with rope and several visits were made, advice and instructions issued with good results, and no recurrence that we are aware of up to the present.

New amendments to the Food and Drugs Act regarding the labelling of mixed and rye bread necessitated many visits to bakers making this type of bread, and information was given regarding the requirements for compliance with the Act.

### *Meat and Fish.*

Observations have been and still are being made where it is alleged that unstamped meat is being introduced.

Flying visits have been made on reports of butchers being in possession of unstamped carcasses, but in no case, up to the present, was there good reason for action as most of the reports were based on assumption and personal or trade animus.

Fish control is maintained chiefly through the co-operation between this section and the large importers, and in the case of smaller quantities railed direct to market agents for disposal on the Municipal Market we are notified and our judgment accepted and surrender made where there is unfitness or doubt.

### *Market.*

A visit is made to the Municipal Market every morning, except when special early morning duties are in hand, and in conjunction with the Market Master a considerable quantity of fruit and vegetables is examined, and where doubtful or unfit, rejected.

An outstanding feature during the past few months is the tremendous increase in the sale by auction of dressed poultry on Saturday mornings, the numbers averaging from 300 to 500 birds each week, and a special scrutiny is essential as invariably, through delay or bad packing, 2 to 5 per cent. of the birds are unfit for sale.

### *Food, Drugs and Disinfectants Act.*

The enforcement of this Act is being continued and regular inspections are made to all producers or handlers of foods, drugs and other articles coming within the scope of the Act. A pleasing feature in this connection is that the majority of firms handling food, drugs, etc., are now more fully aware of our existence and are constantly availing themselves of our knowledge of the Act and Regulations, particularly with regard to labelling.

A survey on the house-to-house principle in the central area with the idea of ferreting out the smaller obscure producers or packers is partly completed, and up to now 52 warning letters have been served.

As indicated in the summary, a wide range of samples have been taken as a result of complaints, suspicion or, in some cases, on instructions from the Secretary for Public Health.

### *Swimming Baths.*

In conjunction with Mr. Wilson, the bio-chemist, all the swimming baths (10) were tested bacterially and chemically, with good results.

The proper use of the chlorimeter by each bath superintendent, as a control in the chlorination of the bath water, seems to be very satisfactory, as there have been no complaints that we are aware of about eye soreness, etc., due to over-chlorination.

### *Water.*

Periodic visits have been made to the various reservoirs.

Two complaints were received regarding the City's supply, one being due to a sack left in the supply tank of a block of flats, and the other being due to the taste and smell of the tar paint used where one of the Council's high service tanks had been enlarged and repainted.

Borehole and well samples have been taken on request or on instruction and where pollution was suspected.

In conclusion, we hope in the ensuing year to be able to improve, where possible, all or any of the particular phases of the work in this section.

S. G. RUSSELL,

JNO. S. RUSSELL,

Food and Drugs Inspectors.

## MILK SUPPLIES AND DAIRY INSPECTION.

Milk control is exercised by inspection of dairies inside the Municipal Area and inspection of dairies outside the Area.

## (a) INSPECTION OF DAIRIES INSIDE THE MUNICIPAL AREA.

Apart from routine inspection of dairies by District Health Inspectors within the Municipal Area, the Department is engaging on many other measures designed to ensure an adequate supply of purely produced milk to consumers in the City.

*Altered Conditions Regarding Supervision of Milk Supply.*

Prior to the commencement of November, 1932, the licensing and supervision of dairies and milkshops formed part of the duties of the District Health Inspectors, but since that date this work has been undertaken by a special staff of Dairy Inspectors, who are responsible for matters concerning the milk supply of the City.

Under this arrangement, the local and outside Dairy Inspectors, together with the Food and Drugs Inspectors, now occupy a suite of offices in Beckett's Buildings, consequently all sections concerned in the supervision, production, distribution and sampling of milk are in direct communication with each other.

*Local Milk Affairs.*

In presenting a review of the position of the dairy trade generally, it cannot be overlooked that a considerable amount of dissatisfaction exists, and the producer and distributor whose whole interest is concerned with dairying in its various branches feels that he is not obtaining a square deal.

Competition and cutting of prices by firms engaged in other lines of business, and who in most instances sell milk, mainly as a catch line to attract customers, has hit the legitimate dairyman very hard, and it is obvious that if these conditions remain, it means the end of several really good dairies.

It must here be mentioned that for several months prior to the commencement of this year the By-laws permitted the sale of milk in sealed and capped bottles from shops not necessarily fully licensed milkshops, provided such milk was sold with the bottle seal intact, and in the same manner as when it was delivered to the shop by the bottling firm, i.e., the licensed dairy firm. In the course of a few months this privilege made to the shopkeepers was so abused and the rights of the fully licensed dairyman so undermined that the Council decided on its withdrawal.

It was decided that from January, 1933, the production, handling, storage and distribution of milk and milk products would only be permitted from dairies and milkshops equipped and conducted to conform to the Council's Dairy By-laws.

It was evident that the average shopkeeper, i.e., the grocery, fruiterer and general trader, could not sell milk unless the premises he occupied were in accordance with the requirements laid down for milkshops, and very few of these places were so constructed. Nevertheless, it was the intention of many of these traders to meet the altered conditions which is borne out by the fact that no fewer than 105 plans were submitted for new or reconstructed milkshops, in addition to which 75 shopkeepers had their premises inspected for advice regarding alterations necessary.

Towards the end of January last an agitation was commenced by shopkeepers who previously were allowed to sell milk in sealed bottles and who could not obtain milkshop licences. An association was formed with the object of contesting the legality of the Council's Dairy By-laws in refusing to allow this class of trade to continue.

On the 16th of February of this year several shopkeepers were prosecuted for selling milk while not in possession of licences permitting them to do so. After representations had been made between the parties concerned and the Council's legal advisers, it was agreed to single out one charge and regard it as a "test case." On the 23rd March, 1933, the Magistrate who heard the case gave his decision against the Council, and the accused person was discharged.

Owing to circumstances which arose, the Council decided to proceed against another individual on a similar charge and both sides agreed that this should also be regarded as a "test case." Such case commenced on the 30th March last, and, after several remands, had not been concluded during the period under review, viz., 30th June, 1933.

During this time milk was being sold by almost every class of small trader in the City, an altogether most unsatisfactory state of affairs, and the disquieting

feature is that although many places have been fitted out in full accordance with the requirement of the milkshop by-laws, few of them have been opened as such, for no other reason than that to occupy a licensed milkshop places a licensee at a disadvantage in *trading hours* with other classes of trade. Had it not been for the circumstances described many first-class milkshops would have opened up throughout the City.

#### *Local Producing Dairies.*

The conditions generally at the local dairies remain satisfactory, but it is obvious that the next few years must see their number reduced. Public opinion is against the keeping of cows in rapidly-filling residential areas, and from the dairyman's standpoint his grazing has in many instances gone, which, in addition to economic factors, must eventually force him to the outer areas.

#### *Yearly Competitions for Gold Medal and Certificate of Merit Awards.*

These competitions are conducted in conjunction with the Council's system of scoring dairies, which takes place each quarter of the year. To become eligible to enter these competitions a dairyman must obtain a score over four quarters of the year averaging 90 per cent. and over. In addition, marks are awarded for bacterial purity and absence of visible dirt in samples of milk taken in course of delivery or sale under ordinary conditions. In each of the four sections of the competition a gold medal is awarded for "highest general efficiency," and a further gold medal is awarded to the competitor from whom a sample of milk has been obtained which shows the best result after bacteriological examination.

Certificates of merit are awarded to competitors whose average score in the competition is 80 per cent. and over.

#### *Awards to all Classes of Local Dairymen for the Year ended 30th June, 1933.*

Five gold medals, 44 certificates of merit.

Firms entitled to compete 30th June, 1933 ... ..	59
Firms entitled to compete 30th June, 1932 ... ..	42
	<hr/>
Increase ... ..	17
	<hr/>

#### *Awards to Outside Dairymen for the Year ended 30th June, 1933.*

Two gold medals, 15 certificates of merit.

Firms entitled to compete, 30th June, 1933 ... ..	28
Firms entitled to compete 30th June, 1932 ... ..	21
	<hr/>
Increase ... ..	7
	<hr/>

#### *Advisory Work.*

A large amount of time has been given in regard to advising and assisting dairymen contemplating improvements, etc.

#### *Propaganda Work.*

Quarterly returns showing the results of the quarterly inspections under the Council's system of scoring dairies, and at the investigation of the Department, attractive illustrations are inserted periodically in the Press inviting the public to watch the Council's scores regarding milk inspection. A "Pure Milk Campaign" was organised by a local daily newspaper working in conjunction with leading dairymen and this Department, and each fortnight for several months a full page was devoted to matters concerning milk. Many splendid articles were written on this subject, and credit is due to the editorial staff of the newspaper concerned who originated the campaign.

#### *Typhoid Carrier Tests.*

One hundred and fifty (150) dairy employees were subjected to the "Widal" test and two "reactors" were isolated. These persons, who were natives, were handed to the authorities of the Native Pass Office, and they were subsequently repatriated to their homes at the Council's expense. No infection of milk was traced to the dairies employing these natives, which is due to precautions having been taken to have the test applied before the natives were permitted to handle milk.



*Presence of Visible Dirt in Milk.*

Three hundred and eighty-two (382) tests were made of milk in the course of delivery or on offer for sale, which were classified as follows:—

Good 327. Fair or Poor 48. Bad 7.

The dairymen responsible for the bad samples were all prosecuted and convicted. Where poor samples were obtained warning notices were issued.

*Revised Dairy By-laws.*

In consequence of a decision given by the Court of Appeal in regard to the keeping of cows for private use it became necessary to revise the Council's By-laws. The departmental draft is at present receiving the attention of the Council's legal advisors.

## GENERAL.

*Milk Producing Dairies and Cowkeepers.*

Number of applications received or inspected for licences ... ..	157
Number of producing dairies scored ... ..	124
Number of persons keeping less than 5 cows not scored ... ..	21
Number of stockyards ... ..	3
Number of licences refused, suspended or lapsed ... ..	5
Number of licensed dairies not housing cows ... ..	3
Number of new licences applied for but not yet issued ... ..	1
	<u>157</u>

*Comparative Score Percentages—Producing Dairies.*

	Year ended 30th June, 1932.	30th June, 1933.
90 per cent. and over ... ..	26	32
80 per cent. and under 90 per cent. ... ..	40	48
70 per cent. and under 80 per cent. ... ..	40	35
60 per cent. and under 70 per cent. ... ..	19	9
50 per cent. and under 60 per cent. ... ..	2	—
	<u>127</u>	<u>124</u>

Average score return, year ended 30th June, 1932, 80 per cent.

Average score return, year ended 30th June, 1933, 82.5 per cent.

*Raw Milkshops and Pasteurising Depots.*

1. Number of milkshop licences applied for or dealt with ... ..	194
2. Number of milk depot licences applied for or dealt with ... ..	6
3. Number of licences for other trades on milkshop sites ... ..	77
	<u>277</u>

*Comparative Score Percentages—Milkshops.*

	Year ended 30th June, 1932.	30th June, 1933.
90 per cent. and over ... ..	25	39
80 per cent. and under 90 per cent. ... ..	8	15
70 per cent. and under 80 per cent. ... ..	17	20
60 per cent. and under 70 per cent. ... ..	7	6
50 per cent. and under 60 per cent. ... ..	1	—
	<u>58</u>	<u>80</u>

Average score year ended 30th June, 1932, 82.1 per cent.

Average score year ended 30th June, 1933, 84.2 per cent.

*Milk Pasteurising Depots.*

There are six firms specialising in the heat treatment of milk either by high or low temperature methods. An all-round improvement in this section of the milk trade is noted, and the average score of such plans now stands at 90.5 per cent.

*Sources of City Milk Supplies.*

- (1) Approximate gallonage of milk arriving by rail from outside farm dairies, 10,000.
- (2) Approximate gallonage of milk arriving by road from outside farm dairies, 7,000.
- (3) Approximate gallonage of milk produced locally, 6,000.

*Plans for New Dairy Premises.*

105 plans of new dairy premises were submitted to the Council for approval. These plans were scrutinised by the Departmental Plans Inspector, working in conjunction with the Dairy Staff, and many important improvements were made in connection with the lay out and equipment of such premises.

*Inspections, Court Attendances, etc.*

1. Number of inspections made ... ..	3,717
2. Attendances in Magistrates' Courts ... ..	50
3. Prosecutions for contraventions of by-laws: Persons convicted, 14; cases remanded, 9; discharged, 1 ...	24
4. Special reports furnished to M.O.H. ... ..	36
5. Number of attendances at Public Health Committee meetings ... ..	12

In conclusion, I wish to record with appreciation the willing co-operation in a common cause of all members of the Dairy and Food and Drugs Staff.

W. WATSON,  
Senior Dairy Inspector.

*(b) INSPECTION OF DAIRIES OUTSIDE THE MUNICIPAL AREA.*

Herewith we beg to submit a general report on the milk supply to Johannesburg as obtained from dairy farms situated outside the Municipal Area as from 1st July, 1932, to 30th June, 1933:—

*Number and Situation of Dairy Farms.*

The number of dairy farms supplying milk to Johannesburg during the year under review was 337.

These farms are situated in the districts of Standerton, Bethal, Ermelo, Heidelberg, Pretoria, Vereeniging, Witwatersrand, Krugersdorp, Rustenburg, Ventersdorp and Potchefstroom in the Transvaal, and in the northern parts of the Orange Free State.

*Applications by Dairy Farmers for Permits to Introduce Milk into Johannesburg.*

Applications received ... ..	364
Granted ... ..	337
Refused or withdrawn ... ..	27

*Applications by Dairy Farmers for Licences to Retail Milk in Johannesburg.*

Applications received ... ..	67
Granted ... ..	67

*Quantity of Milk Introduced per diem.*

Approximately 17,000 gallons of milk are introduced daily into Johannesburg. Of this quantity some 10,000 gallons arrive by rail and the balance by road. 13,500 gallons of milk are consigned or delivered to milk depots or milkshops, while 3,500 gallons are supplied direct to the consumer by licensed dairy farmers.

About two-thirds of the milk supply to Johannesburg is obtained from sources outside the Municipal Area. Motor transport has enabled dairy farmers to supply milk direct to the consumer from within a radius of 20 miles from the centre of the City.

#### *Inspection of Farm Dairies.*

Regular inspections have been carried out of all farm dairies from which milk is introduced into Johannesburg. The results of these inspections have been reported without delay and any infringement of the Dairy By-laws immediately dealt with. The total number of inspections made was 1,609, an increase of 31 over the preceding year.

#### *Control of Milk Supplies.*

Periodical inspections were made at all railway stations inside Johannesburg, and on the main roads leading to the City, of all supplies of milk arriving in or in transit to Johannesburg. Five supplies from unpermitted sources were discovered. Further supplies from these sources were prohibited.

#### *Score-card Inspection.*

Under this system 46 farm dairies licensed to sell milk in Johannesburg were scored quarterly.

The scores ranged from 81.5 to 94 per cent.

#### *Tests for Visible Dirt in Milk.*

This test, which is applied by passing a pint of milk through a cotton-wool pad of small area, thereby arresting and rendering visible all solid impurities, was applied to 663 supplies of milk at railway stations or on dairy farms. The results were: Good, 540; fair, 69; bad, 54. Dairy farmers supplying dirty milk were dealt with without delay.

#### *Widal Tests.*

Two hundred and fifty-five persons employed in the production or handling of milk submitted themselves to this test. Four natives were found to be carriers of enteric fever. These natives were removed from the dairy premises on which they were employed and taken to the nearest pass office, where they were left in the care of the officer in charge.

#### *Samples of Water for Analysis.*

Five samples of water (chemical and bacteriological) were obtained from three wells and two boreholes on dairy farms and submitted for analysis. In each case the well water was found to be unfit to be used for dairying purposes, and on these grounds applications for permits to introduce milk into Johannesburg were refused.

#### *Foot and Mouth Diseases in Cattle.*

During February, 1933, a serious outbreak of foot and mouth disease occurred on the farm Rooikraal No. 15, in Germiston district. Officials of the Government Veterinary Department immediately took charge of the district concerned and placed a large area under quarantine. Twenty-three dairy farmers, producing approximately 2,000 gallons of milk per day, were affected by the foot and mouth disease regulations, and prevented from sending their supplies of milk off their farms.

This curtailment was likely to create a milk famine in the City, but, within a very short time, dairy farmers, chiefly in Standerton district, were able to make good the deficiency, and therefore serious inconvenience was not experienced in Johannesburg.

G. CHRISTIE,

J. W. FORRETT,

Outside Dairy Inspectors.

## WATER SUPPLY.

Water is supplied in bulk by the Rand Water Board to the City Council. The Council controls the distribution of water throughout the city and owns the reticulation. The following table shows the quantity and percentage of water pumped from various sources by the Rand Water Board and is taken from the Twenty-eighth Annual Report of the Chief Engineer, Rand Water Board:—

Source	Total Quantity Pumped during Year ending 31st March, 1933	Percentages
	Gallons	
From Zwartkopjes ... ..	422,686,000	5·89
From Zuurbekom ... ..	2,153,701,000	30·02
From Vaal River ... ..	4,597,866,000	64·09
<b>Grand Total</b> ... ..	<b>7,174,253,000</b>	<b>100·00</b>

The length of mains within the Municipal Area is now 541·88 miles, 6·32 miles have been added during 1932-33, while during the same period 2,833,243,800, or 7,758,000 gallons of water per day, were supplied to consumers connected to same.

## CHEMICAL AND BACTERIOLOGICAL EXAMINATIONS.

Seven hundred and forty-eight samples of water were taken for examination during the year 1932-33, also 20 samples from private boreholes and wells and 20 from swimming baths.

It is desired to acknowledge the obligation of the City to the Officials of the Rand Water Board, who have at all times been assiduous in securing an adequate and pure supply of water to the City and in the area of their reticulation.

## SEWERAGE.

The City Engineer has kindly supplied the following information:—

On 30th June, 1933, there were 378·84 miles of sewers completed.

On the same date 35,456 premises had been connected.

The Council's Sewerage System now includes outfalls to the Council's Sewage Farm at Klipspruit, and to the new Sewage Disposal works at Antea (Langlaagte) for the Western Basin, Cydna (Melrose) for the North-Eastern Basin, and Bruma (South Kensington) for the Eastern Basin.

*Klipspruit Sewage Farm.*

At this sewage farm great progress has been made. The sedimentation processes have been so improved that the farm, instead of being hailed as a sink of iniquity, has become a pleasant place to passers-by on the Potcheiſtroom road. Besides, the installation of large acreages of filters at the North-Western and South-Eastern Boundaries of the farm ensures that the final farm effluent can be discharged with impunity into any stream. This effluent to-day is very well within the standards of sewage farm effluents laid down by the Royal Sewage Commission and indeed compares favourably with any effluent discharged from any sewage farm in Great Britain, America or the Continent of Europe.

*Sewage Disposal Works.*

Of these there are three—Antea, Cydna and Bruma. The working of the first two have led to no complaints. The working of Bruma has raised a storm of criticism in the Kensington South area. The Government has declined to intervene in this scheme. These Works are an example of up-to-date sewage disposal processes. They are Works which will unquestionably lead to that knowledge of proper and exact sewage disposal so desirable throughout South Africa, and in spite of trade-wastes difficulties are model sewage disposal works, which give the minimum aerial offence to immediate residents. In the solution of activated sludge methods as applicable to South African conditions these Works have been of great value.

The Bio-Chemist's staff has been increased and his routine work is functioning admirably. But it is not so much in the routine analysis that he is to be congratulated, but in the research work, especially in respect of activated

sludge processes, which will lay in time the foundations of complete and innocuous sewage disposal in South Africa, where this subject is but in its infancy.

Further details in this connection are embodied in the section of the Report contributed by the Bio-Chemist. His researches, with the careful technical engineering of the City Engineer, are resulting in the fulfilment of the Delta Works, which will serve the whole of the North-Western Basin, and which, when completed, will bear comparison with any sewage disposal works in Africa or elsewhere.

*It is desired to express apology and regret for the words in this section of the M.O.H.'s report for 1931-32 where the words, "the Government has declined to intervene in this scheme, which had its unqualified approval," occurred. The offending word is "unqualified," which is withdrawn with sincere regret and apology.*

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#### REPORT ON THE WORK OF THE BIO-CHEMICAL SERVICE FOR THE YEAR ENDED 30TH JUNE, 1933.

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This report contains chemical and biological matters of interest concerning sewage disposal, water supply and swimming baths, together with a short statement of general work.

The report must be read in conjunction with the operation reports of the Water Engineer and the joint report with the Superintendent of Sewage Disposal, which are incorporated in the City Engineer's annual report.

The small routine laboratory at the Bruma Works was ready for use early in November, 1933, and the temporary quarters in Mr. James Gray's laboratories were given up at the end of November.

Additional accommodation was provided in the Cement Testing Room on the roof of the Council's offices, into which room gas service was laid on.

Because of the inadequate accommodation, it was not possible to expand the chemical service, and during the year a number of requests from Municipal departments for chemical service had to be refused.

Plans for an adequate laboratory were approved at the end of the year, and a vote of £5,500 for its erection and equipment was granted by the City Council.

Although the development of general chemical service has been hindered owing to restricted laboratory accommodation, the following list of examinations indicate that the scope of work is extending:—

Heavy Lubricating Oil: Mechanical Branch, City Engineer's Department.

Soil: Parks and Estates Department.

Washings from Purifiers at Swimming Baths: Parks and Estates Department.

Building Limes: Architectural Department, City Engineer's Department.

Soft Soaps: Controller of Stores.

Lubricating and Fuel Oil: Tramways Department.

In June, 1933, the systematic laboratory study of Johannesburg refined tar for roads construction was commenced.

The bomb calorimeter for testing of calorific values of fuel has been set up in temporary quarters in a harness room at Bruma Works.

#### SEWAGE DISPOSAL.

Year ended 30th June, 1933.

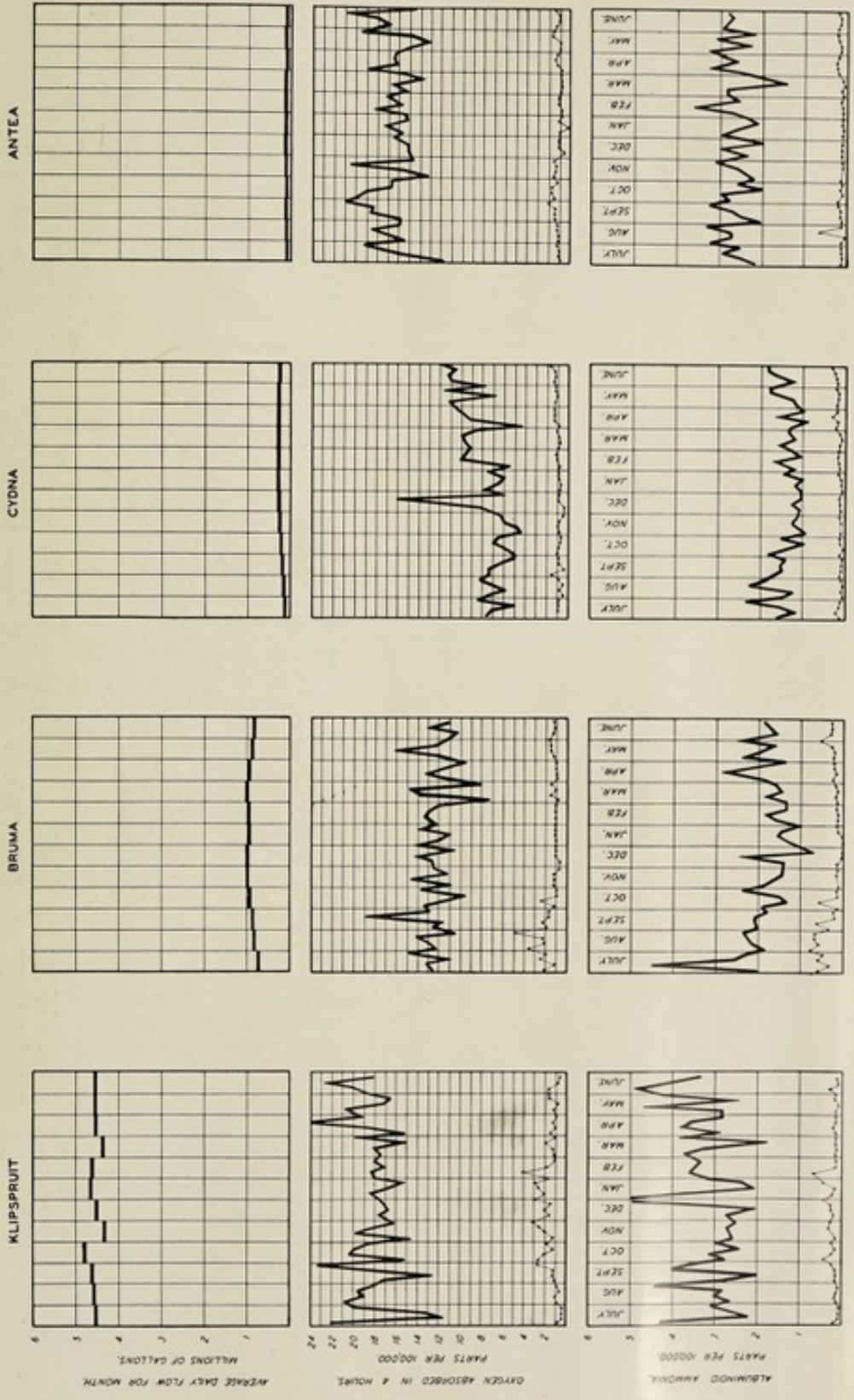
The most outstanding work of the year has been the development and partial completion of an organised scheme for odour elimination at the Bruma Sewage Works.

Enclosure and sealing of plant or channels from which odour might be given off to the air has certainly given control of odour.

Ventilation of the enclosures and the deodorisation of the fouled air has been achieved by passing the air via the compressors through the activated sludge plants, but, although effective as regards deodorisation, it is possible that the performance of the plants has been affected.

CITY OF JOHANNESBURG

GRAPHS SHOWING FLOWS AND ANALYSES AT THE VARIOUS SEWAGE DISPOSAL WORKS



KLIPSPRUIT

BRUMA

CYDNA

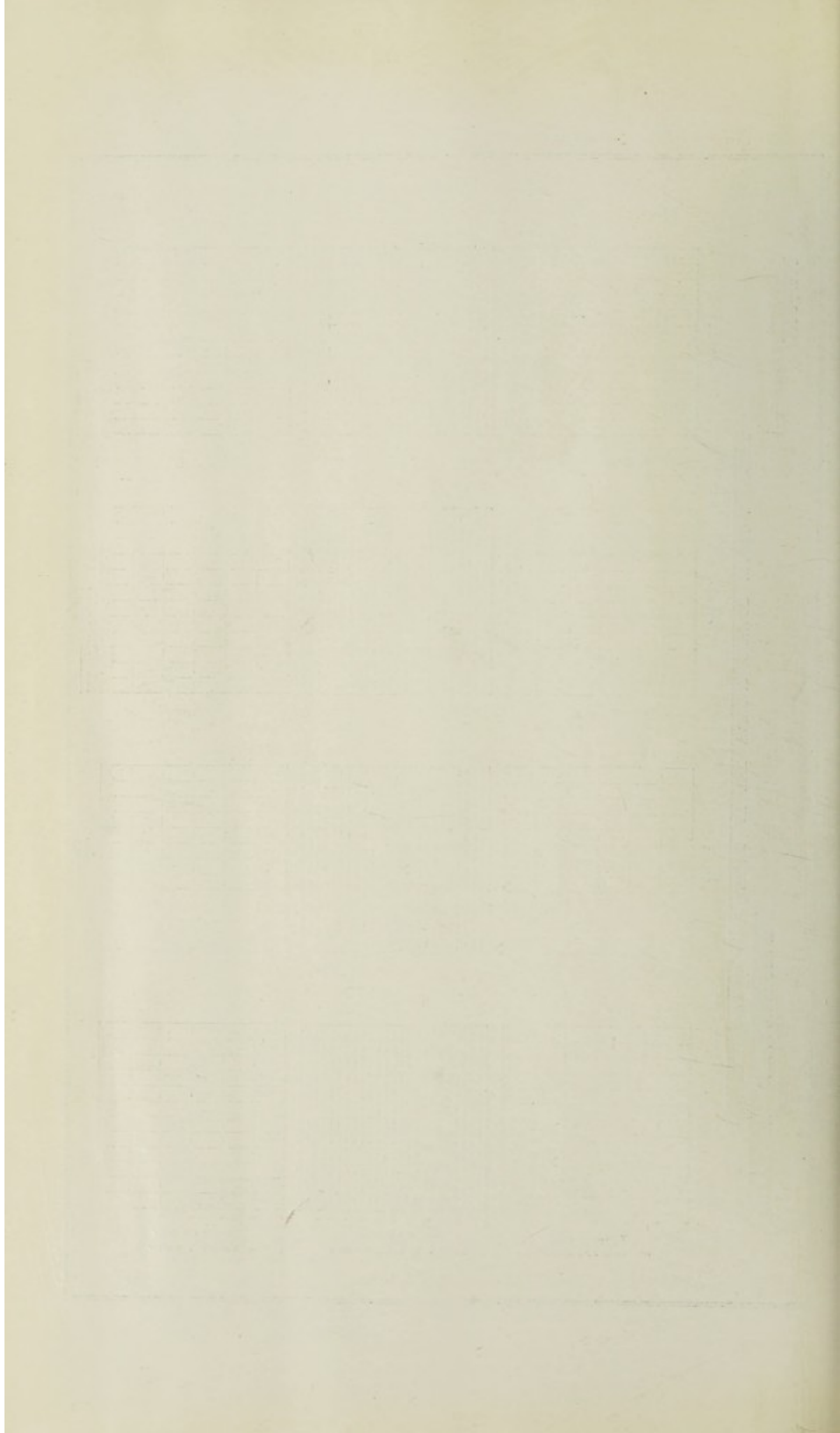
ANTEA

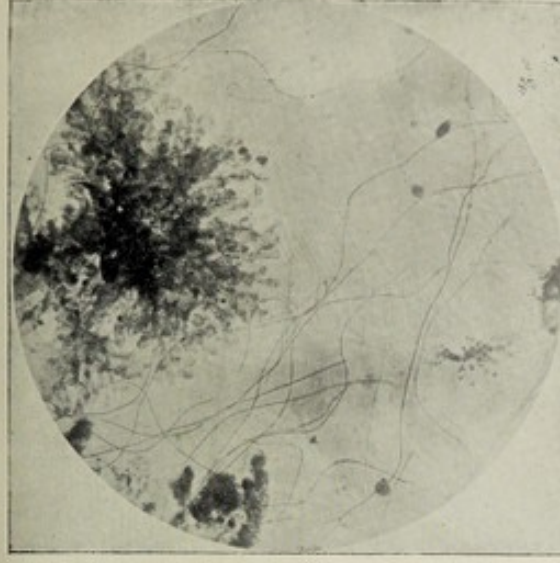
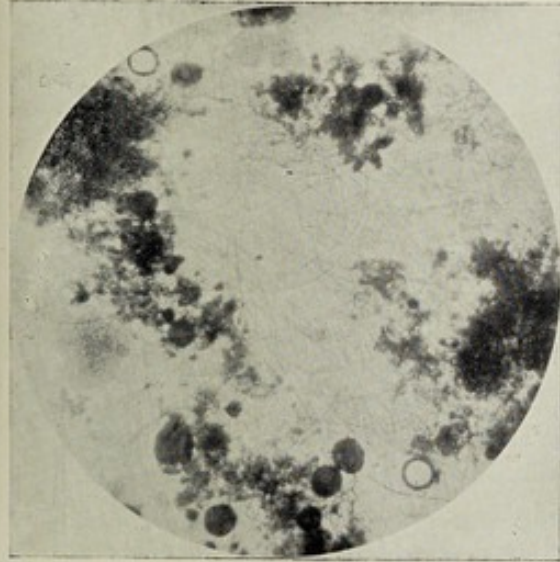
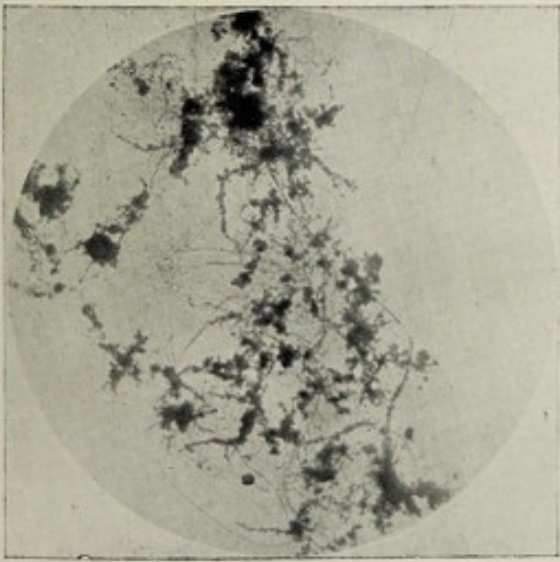
AVERAGE DAILY FLOW FOR MONTH  
MILLIONS OF GALLONS

OXYGEN ABSORBED IN 4 HOURS  
PARTS PER 100,000

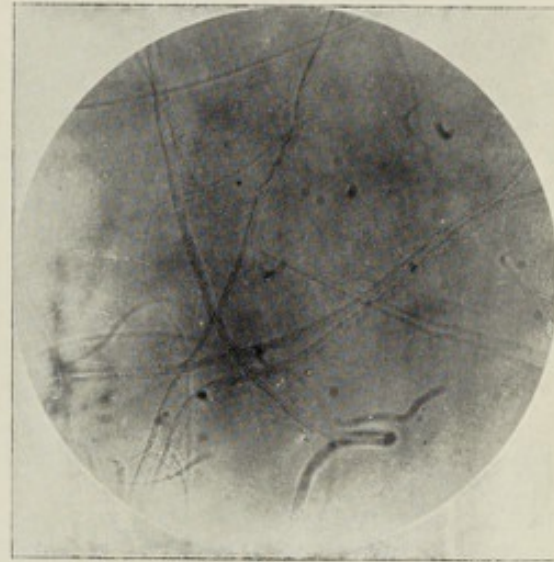
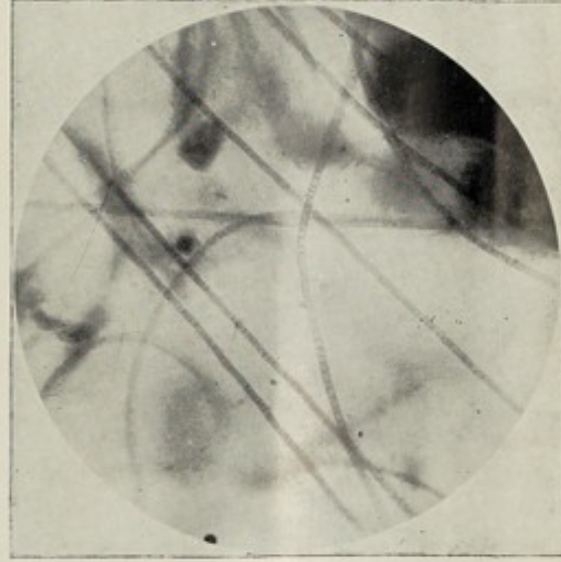
ALUMINOID AMOUNT  
PARTS PER 100,000

— SCREENED SEWAGE  
- - - - - FINAL EFFLUENT



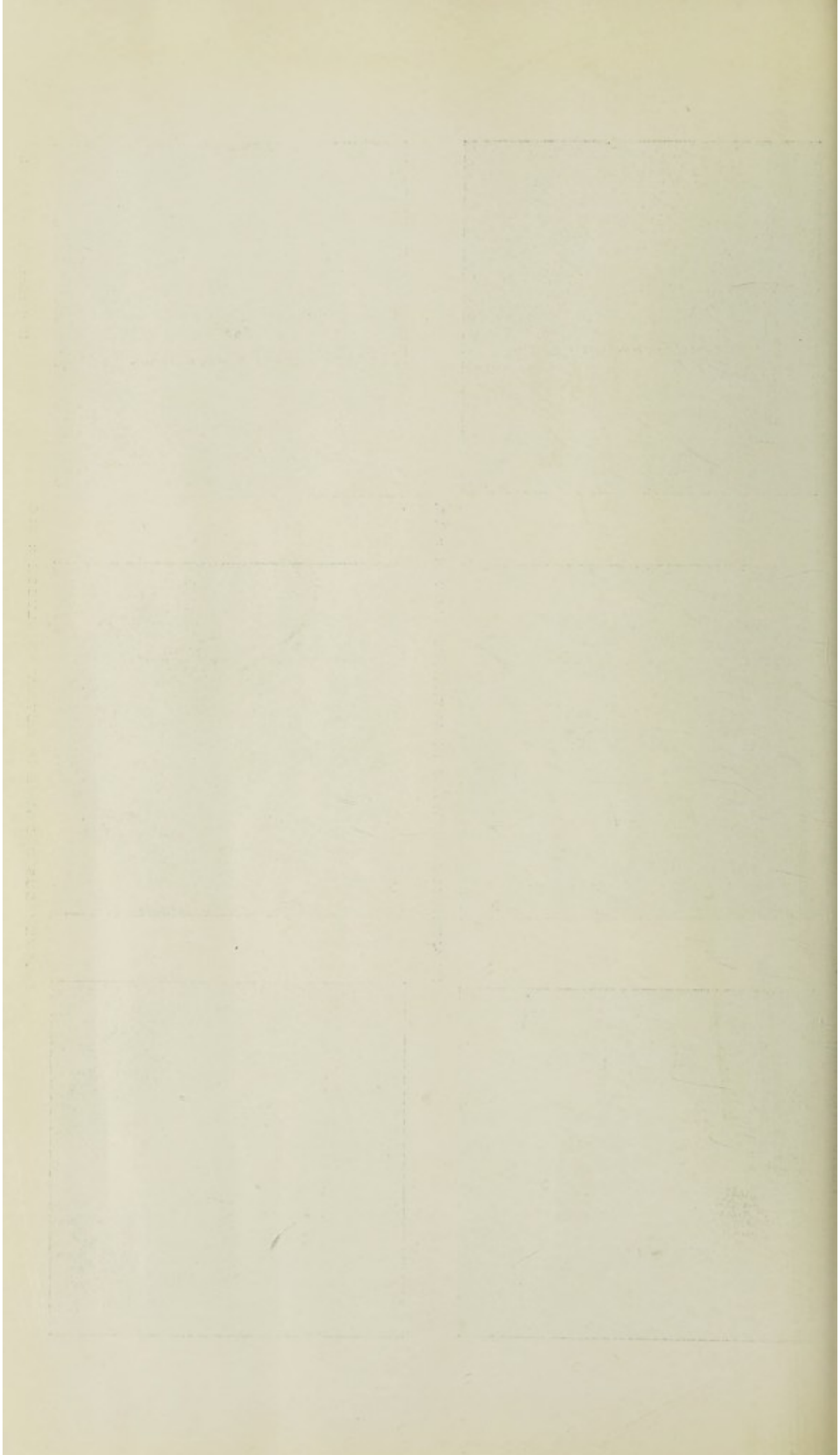


FILAMENTOUS GROWTHS IN ACTIVATED SLUDGE x 75.



FILAMENTOUS GROWTHS IN ACTIVATED SLUDGE x 700.





Other means of deodorisation have been investigated, and since scrubbing by activated carbon seems the most satisfactory method, supplies of activated carbon have been ordered overseas for large scale scrubbers.

Very interesting problems have arisen out of these deodorisation studies, but details will be reserved for a future special report.

#### *Primary Filter Beds.*

Alteration of the fan spray jets of the distributors at Bruma Works to solid swing-arm jets resulted in great diminution in the odour of filter beds.

At certain times when small spiders are least active, the psychoda filter fly is very prevalent. Weekly doses of bleaching powder are added to the tank effluent to keep down the numbers of this fly.

In June, 1933, an achorutes species was observed on the surface of one of the land effluent samples from the northern side of Klipspruit Farm. A search by the manager of Klipspruit Farm revealed ample supplies of achorutes at Klipspruit and at the same time the smell observer at Bruma, in his volunteer capacity of biologist, found a smaller and apparently different species on the Portuguese Gardens adjoining Bruma Works.

Achorutes from both these sources have been used to seed the percolating beds at Bruma and Cydna Works.

Curves showing the flows, the crude sewage and final effluent figures for each purification plant have been prepared by the Superintendent of Sewage Works; these, and tables of average figures, are included herewith.

#### *Digester Overflow Liquids.*

The overflow liquid from the Dorr digesters at Antea and Bruma Works has still continued to present a serious problem.

The discharge of the digester overflow into the raw sewage at both these works caused the whole of the sewage during sedimentation to become septic, with noticeable development of hydrogen sulphide which, when the tank effluent was distributed over the percolating beds, gave rise to aerial nuisance, and necessitated heavy dosage with chlorine.

At Antea Works, ash drainage beds have been constructed to filter the digester overflow, which contains some 20—50 per cent. by volume of solids settleable in one hour.

The filtrate is run into the tank effluent and then to the primary beds, whilst the retained solids are removed from the beds when sufficiently dry.

This can only be regarded as a temporary expedient, but it has relieved the situation at Antea.

At Bruma Works a small upward-flow conical settlement tank has been installed and it has been found that with continuous sludge removal such a tank is satisfactory for removing the solids from the digester overflow liquid.

The sludge is handled on ash drainage beds, whilst the settled liquid is temporarily being given filtration through ashes and irrigation over land.

The overflow from the Pruss digester at Cydna Works has by careful operation of the central settlement compartment and lessened stirring in the digester been kept fairly harmless, and has been returned to the screened sewage throughout the year.

#### *Use of Chlorine.*

The use of chlorine for the deodorisation of tank effluent prior to distribution on the percolating beds was studied at the Bruma and Cydna Works.

In the case of Cydna tank effluent, it was found that 30-40 parts of chlorine per million were required to produce any noticeable reduction in odour.

In the case of Bruma tank effluent, it was not possible, with the means available, to give a large enough dose for deodorisation. Small doses, about 10 parts per million, actually caused development of a more unpleasant odour; this intensified odour required 15 to 30 minutes to diminish its former intensity.

As no period of stay of 15 to 30 minutes between settlement tanks and percolating filter was possible, the use of chlorine was discontinued.

Chlorine of lime and lime are being used in the Bezuidenhout Valley sewer. This retards development of free hydrogen sulphide, and being added about 1½ miles above the sewage works, gives an efficient clotting action, especially with the soaps which are a predominant feature of Bruma sewage.

It is necessary to point out that no detectable hydrogen sulphide is now present in the tank effluents. Chlorine is known to be rapid and efficient in the destruction of hydrogen sulphide, and it was of service at Antea and Bruma Works during the time when hydrogen sulphide was noticeable in the sedimentation tank effluent. Real deodorisation of fresh sewage and tank effluent is an entirely different proposition, and so far as Johannesburg is concerned is too costly to contemplate.

Chlorine gas is being used at two key points on the sewerage system connected to the Cydna Works, with a view to preventing putrefaction in those sewers which are still working much under capacity.

The three small activated sludge plants were started up as follows:—

Disused Air Plant, 10th October; Hartley Spiroflow Plant, 20th October; Simplex Plant, 26th October.

Throughout the whole eight months of operation very great difficulty was encountered through bulking of the activated sludges owing to growth of filamentous bacteria.

Various concentrations of sludge were tried in the hope of avoiding the bulking, but, as is frequent in cases of serious bulking due to filamentous growths, running-away sludge only aggravated the trouble.

The density of the activated sludges, after one hour's settlement, was always very low, ranging from a maximum of 1.36 per cent. total solids to as low as 0.12 per cent. total solids; the density could seldom be maintained at 0.5 per cent. total solids.

It was very difficult, especially in the two mechanical agitation plants, to prevent the activated sludge from developing objectionable odour, and even in the diffused air plant freedom from odour was only secured by the use of 3 to 5 cubic feet of air per gallon of sewage treated.

Using this large amount of air the diffused air plant reached the expected output of 120,000 gallons per day from January to April, whilst the other two plants reached about half this figure.

Daily chemical analyses of tank effluent treated, and of the effluents obtained, were made; as well as daily microscopic examinations of the activated sludges.

Though sheer lack of oxygen is the root cause for the poor performance of these plants, a very careful study will have to be made to ascertain the immediate causes. Some contributing factors may be mentioned as follows:—

1. Low barometric pressure (62.5 cms. mercury average).
2. High temperature, 60.5° F. mean.
3. High sulphate content of water supply.
4. Laundry waste gives special character to sewage.

The filamentous growths responsible for the bulking have been recorded by various observers in England and America, but so little is known about the possible inter-relationship of the various forms that it is thought worth while to append six photo-micrographs to permit of comparison with other workers' observations.

Careful biological study of these filamentous growths is being undertaken with a view to finding preventives, whilst other lines of investigation, with a view to avoiding the growths, are being followed.

There is reasonable hope that much of the biological difficulty with the sludge will be overcome as a result of further study. Pending solution of the difficulty, however, one could contemplate large scale extension of the diffused air plant only, at the Bruma and other Johannesburg Works.

Comparative figures of the performances of these three activated sludge plants are not given in this report, because it is thought better to reserve them for a complete statement later, when more information as to difficulties is available.

TABLE OF CHEMICAL ANALYSES FOR YEAR 1st JULY, 1932, TO 30th JUNE, 1933.  
Average of Weekly Analyses—Parts per 100,000.

	Oxygen Absorbed in 3 Minutes.	Chlorine in Chlorides.	Oxygen Absorbed in 4 Hours.	Settleable Solids cc./Litre.	Nitrous N.	Nitric N.	Ammon. N.	Albd. N.	Percentage of Purification on Oxygen Absorbed in 4 Hours, Calculated on the Basis Raw Sewage Effluent.
<b>Antea Works.</b>									
Screened Sewage	6.18	17.8	16.65	29.4	—	—	11.82	2.67	—
Tank Effluent	3.63	18.4	8.94	0.3	—	—	12.24	1.55	—
Primary Effluent	0.89	17.9	2.27	1.3	0.3	4.9	2.09	0.475	—
Secondary Effluent	0.49	18.5	1.23	Humus	0.2	5.6	1.29	0.18	93.3
<b>Bruma Works.</b>									
Screened Sewage	4.31	24.9	12.37	12.3	—	—	8.14	1.885	—
Tank Effluent	3.45	24.0	8.95	2.4	—	—	8.52	1.43	—
Primary Effluent	1.89	24.4	4.56	Humus	0.3	1.6	3.21	0.935	—
Secondary Effluent	0.69	23.6	1.53	—	0.1	1.8	2.07	0.285	87.7
<b>Cydna Works.</b>									
Screened Sewage	2.77	11.1	7.95	7.5	—	—	5.52	1.40	—
Tank Effluent	1.99	11.9	5.25	0.4	—	—	5.92	1.01	—
Primary Effluent	0.59	12.9	1.47	0.9	0.2	4.6	1.53	0.26	—
Secondary Effluent	0.43	12.9	1.03	Humus	0.2	4.2	1.40	0.165	87.0
<b>Klipspruit Farm.</b>									
Screened Detritus Free Sewage	7.88	25.0	18.12	15.8	—	—	11.53	3.345	—
Primary Tank Effluent	6.47	25.5	13.91	3.4	—	—	11.71	2.28	—
Secondary Tank Effluent	6.32	25.6	12.99	2.3	—	—	12.70	1.64	—
Effluent from No. 1 Land Filter	2.91	24.8	6.30	—	—	—	10.40	0.78	—
Effluent from No. 2 Land Filter	3.51	23.7	7.82	—	—	—	12.61	1.01	—
Effluent to Homestead Farm	0.91	51.0	2.30	—	0.02	1.4	2.19	2.69	—
Influent to Filters, Sec. 1 A.	0.87	50.2	2.20	—	0.09	1.3	2.29	0.31	—
Effluent from Filters, Sec. 1 A.	0.68	48.9	1.66	—	0.1	1.4	1.92	0.20	90.8
Effluent to Herrington Spruit	0.61	60.4	1.54	—	0.05	1.0	1.39	0.19	91.5

N.B.—During the year only six samples from all the works of final effluent were unstable.

**SAMPLES OF WATER FROM SWIMMING BATHS DURING SEVENTH MONTH OF SEASON—CHEMICAL EXAMINATION  
BY GOVERNMENT LABORATORY.**

	1. Pioneer Park, March 2.	2. Turfontein, March 2.	3. Mayfair, March 2.	4. Milner Park, March 2.	5. Zoo Lake, March 2.	6. Malvern, March 7.	7. Rhodes Park, March 7.	8. Ellis Park, March 7.	9. Yeoville, March 7.	10. Paterson Park, March 7.
Total Solids ... ..	54.3	52.2	58.9	62.4	55.3	53.4	64.2	26.1	68.2	44.2
Chlorine ... ..	10.4	11.9	13.9	13.9	11.4	17.9	21.4	7.4	19.9	14.9
Sulphuric Oxide ... ..	5.1	5.5	3.2	5.4	3.4	4.8	5.4	3.4	11.8	6.0
Nitrogen as Nitrate ... ..	0.50	0.11	0.66	0.52	0.6	0.80	0.84	0.09	0.56	0.10
Nitrogen as Nitrite ... ..	0.25	Trace	Nil	Nil	Nil	Nil	0.83	Nil	Nil	Nil
Saline Ammonia ... ..	0.0285	0.030	0.006	0.003	0.0076	0.0015	0.007	0.0115	0.0205	0.0075
Albuminoid Ammonia ... ..	0.0430	0.0775	0.023	0.015	0.017	0.0265	0.012	0.019	0.0385	0.0325
Oxygen Absorbed (4 hours at 27° C.) ... ..	0.045	0.050	0.025	0.025	0.025	0.040	0.035	0.045	0.05	0.045
Total Hardness ... ..	24.0	25.0	39.0	40.0	29.0	38.0	45.5	21.0	59.0	34.0
Permanent Hardness ... ..	18.5	20.0	29.0	30.0	22.5	33.0	39.0	17.0	57.5	29.5
Alkalinity Expressed as Calcium Carbonate ... ..	5.5	5.0	10.0	10.0	6.5	5.0	6.5	4.0	1.5	4.5
Conductivity ... ..	450	430	550	550	460	580	680	250	660	460
Charring of Solids on Ignition ... ..	Yes	Yes	No	No	No	No	No	No	No	No

**BACTERIOLOGICAL EXAMINATION—S.A. INSTITUTE OF MEDICAL RESEARCH.**

Organisms per c.c. Growing at 37° C. ... ..	Innumerable	139	4	3	3	4	Innumerable	3	2	3
Bacillus Coli in 10 c.c. ... ..	Not isolated	Not isolated	Not isolated	Not isolated	Not isolated	Not isolated	Not isolated	Not isolated	Not isolated	Not isolated
Free Chlorine Determined at Once ... ..	Very faint trace	Very faint trace	0.2 p.p.m.	0.1 p.p.m.	0.3 p.p.m.	0.4 p.p.m.	Very faint trace	Decided trace	0.1 p.p.m.	Decided trace

N.B.—Ellis Park Bath has its own borehole supply, hence somewhat more lavish addition of fresh water; other Baths add make-up only from Rand Water Board supply.

*Swimming Baths.*

During the season 1932-33 periodic visits were made to the Municipal Baths when spot determinations of residual free chlorine were made and samples taken for analysis.

A special chemical and bacteriological sample was taken from each bath early in March, 1933, i.e., the seventh and last months of the season. The results are tabulated below.

As was shown last year, if a decided trace (i.e., less than 0.1 p.p.m.) of free residual chlorine is maintained at the outlet of the bath to the purification plant, this dosage in the Johannesburg conditions of bright sunlight is sufficient to maintain sterile bath contents.

## WATER SUPPLY—1932-1933.

## YEOVILLE RESERVOIRS.

Except for a short period after cleaning the old Yeoville Reservoir, a growth of the green unicellular Alga *Cosmarium* has been present.

As was the case last year, this alga is not affected by copper sulphate up to 0.5 parts per million, but as the growth was a mere slimy layer about half an inch thick on the top of the dividing wall and for about 5 or 6 feet on the vertical walls, it was ignored.

Rapid growth of the blue-green Alga *Phormidium* was observed in August, November and February, and in March the *Phormidium* was accompanied by a growth of the green Alga *Rhizoclonium*.

On these occasions the dosage of copper sulphate was increased to 0.4 or 0.5 parts per million for such periods (one to four days) as was necessary to kill the growths.

Dosage of 0.25 or 0.2 parts per million copper sulphate was necessary to check development of filamentous algal growth for the greater part of the year.

It was found possible to dispense with copper sulphate altogether during the following periods:—

August 6 to 15.

February 15 to 23.

May 31 to June 28.

As was the case in other years, no filamentous algal growths occurred in the New Reservoir except during the time when the Old Reservoir was empty.

A table showing the approximate daily dosage of copper sulphate is appended and also an analysis of the sludge from the Old Yeoville Reservoir.

This analysis is of interest in that it indicates an accumulation of manganese and copper in the deposit in the reservoir and that some of the copper at least does not reach the consumer.

## Record of Copper Sulphate Dosage in the Yeoville Reservoir.

1932.	Dosage of Copper Sulphate. Parts per Million.		Dose continued to—1932.	Filamentous Algae noted.
August	6	Nil	August 15	
"	15	0.40	" 16	Blue Green Alga Phormidium.
"	16	0.25	" 21	
"	21	0.20	" 31	
"	31	0.25	September 3	
September	3	0.20	November 13	
November	13	0.4	" 16	Rapid growth of Phormidium.
"	16	0.25	December 21	
December	21	0.2	1933. January 26	
1933. January	26	0.25	" 28	
"	28	0.325	" 29	
"	29	0.25	February 2	
February	2	0.40	" 3	Rapid growth of Phormidium.
"	3	0.25	" 9	
"	9	0.2	" 15	
"	15	Nil	" 23	
"	23	0.2	March 15	
March	15	0.45	" 16	Rapid growth of Phormidium with Green Alga Rhizoclonium.
"	16	0.25	" 25	
"	25	0.5	" 28	Rapid growth of Phormidium and Rhizoclonium.
"	28	0.25	" 30	
"	30	0.5	" 31	Rapid growth of Phormidium and Rhizoclonium.
"	31	0.25	April 1	
April	1	0.4	" 3	
"	3	0.25	" 28	
"	28	Nil	June 28	
June	28	0.2	" 30	

N.B.—Unicellular green Alga *Cosmarium* present practically the whole time.

**Analysis of Sludge from the Yeoville Old Reservoir taken on emptying,  
12th April, 1933.**

The Sludge had been accumulating for 14 months.  
(Dried Material)

Loss on Ignition ... ..	23.00 per cent.
Silica and insoluble matter ... ..	44.45 "
Oxides of Iron and Aluminium ... ..	19.24 "
Calcium Oxide ... ..	6.35 "
Magnesium Oxide ... ..	3.55 "
Manganese (calculated as Metal) ... ..	2.69 "
Copper (calculated as Metal) ... ..	0.70 "
	<hr/>
	99.98 per cent.

Attention is drawn to the Copper Content: this indicates that only part of the copper can reach the consumer.

HAROLD WILSON, B.Sc. (Lond.), A.M.C.I.,

Bio-Chemist.

## MINES SANITATION.

The usual procedure has been carried out in regard to systematic inspections of the mining properties in the Johannesburg area.

This work has included frequent inspections of all Native compounds, hospitals and locations, married and single White quarters, contractors' compounds, brickfields, dairies and cowsheds, Native eating houses, stone crushing works, mine boarding houses, railway stations and quarters, pumping and power stations, disposal of refuse, the sanitary arrangements at the various works and the supervision of the daily cleaning up and scavenging at all places and premises on the surface.

All plans submitted in regard to new, or additions and alterations to existing housing accommodation, drainage or other sanitary requirements have been examined by the Medical Officer of Health and amended when necessary.

All cases of infectious disease among White, Natives and Coloured persons have been visited, inquired into and reported on in the usual way.

## UNDERGROUND SANITATION.

Systematic inspections are made in regard to underground sanitation of all mining properties in the Johannesburg area. This supervision includes the inspection of all sanitary arrangements on all levels, working places, stations; the inspection of disused stopes, ladderways, etc., and the provision of suitable drinking water supplies on each level.

It is very satisfactory to be able to report that the work of supervising sanitary work and cleansing methods underground is carried out by white men, and there is no doubt that this accounts for the general high standard which has been maintained throughout the year.

It is desired to acknowledge the ready, reasonable and sympathetic attitude of Mine Managers in regard to requirements called for by the department.

The Government Mining Engineer and the Director of Native Labour have been kept in close touch with the general work of mine sanitation under the Department's direction.

## HOUSING AND INSANITARY PROPERTIES.

During the year under review the following is a summary of the work carried out:—

## CLOSING ORDERS.

The number of closing orders granted by the courts in respect of insanitary properties was 281.

The properties concerned were situated in the following districts: Malay Location, 78; Fordsburg, 46; Bertrams, 29; Burghersdorp, 26; Ferreiras, 22; Johannesburg, 19; Doornfontein, 11; Marshalls, 9; Newtown, 8; Ophirton, 7; Booyens, 6; New Doornfontein, 5; Judith Paarl, 4; Lake View, 4; Troyeville, 3; Booyens Reserve, 2; La Rochelle, 1; Kensington, 1.

It is pleasing to record the fact that in most cases the owners have readily carried out the Council's requirements in connection with the above properties, more particularly in regard to the reconstruction of properties in the Malay Location.

## DEMOLITION ORDERS.

Forty-seven Demolition Orders were obtained in respect of properties situated in the following Townships: Johannesburg (2), Farm Doornfontein (4), Doornfontein (7), New Doornfontein (3), Wolhuter (8), Spes Bona (5), Jeppes (13), Bertrams (4), Lorentzville (1).

There have also been during the past 12 months 103 properties reconstructed and for which certificates have been granted by the City Engineer, and the closing orders withdrawn by the Magistrate's Court. These properties were situated in the following districts: Malay Location, 40; Fordsburg, 14; Bertrams, 13; Jeppes, 9; Johannesburg, 4; Farm Doornfontein, 4; Wolhuter, 7; Doornfontein, 2; Spes Bona, 2; Lake View, 2; Booyens, 2; Ophirton, 2; Troyeville, 1; Ferreiras, 1.

Regarding the properties for which Demolition Orders were obtained, 17 were actually demolished; they were situated in the following districts: Malay Location, 7; Fordsburg, 6; Wolhuter, 2; Doornfontein, 1; Jeppes, 1.



The remainder were reconstructed and certified as in order by the City Engineer and were included in the list of withdrawals already mentioned.

It is pleasing to record that there has been a marked improvement in the living conditions in the districts dealt with, and particularly in regard to the Malay Location, Fordsburg and Bertrams.

The volume of work involved has been very large and the actual number of inspections, etc., runs into many thousands. The Special Inspectors have rendered the Council valued and strenuous service.

#### INSPECTION OF PLANS.

A system of close co-operation with the City Engineer is in vogue in regard to a systematic examination of all plans submitted to the Council for approval. In addition plans of Native Compounds, etc., submitted by the Mining Companies to the Government Native Affairs Department, are forwarded by that Department for examination and criticism to your Medical Officer, who is appointed Medical Officer to the Department under the Native Labour Regulations, Johannesburg Mining District.

This system has been working very harmoniously for some years between the officials of the City Engineer's Department and a specially trained Plans Inspector, who is a qualified Architect and Sanitary Engineer, and whose duty it is to check *all* plans, report in writing on all defects or breaches of by-laws disclosed by the drawings, re-inspect after amendment, and, when in order, to approve finally on behalf of your M.O.H., to whom all doubtful or special cases are referred.

Structural defects are dealt with by the City Engineer, but all matters bearing on public health, such as open spaces about dwellings and buildings, lighting, ventilation, including that of theatres, churches and places of amusement, facilities for storage and removal of refuse, plumbing and drainage, stables, all premises for which the Council issues licences, such as dairies, bakehouses and fishmongers' shops, etc., are carefully studied, with excellent results on the general hygienic welfare of the community.

A large percentage of plans are returned for amendment or improvement, and many Architects, Builders and owners avail themselves of the opportunities offered for consultation.

The arrangements in vogue are of especial value to the Department when dealing with sium properties, which involve partial demolition, re-building or extensive repairs to meet the requirements of Orders of Court.

The provisions of the Public Health, Building, Drainage and Plumbing By-laws, Factory Act (working in co-operation with the Government Factory Inspector), Government Regulations *re* Rat-proofing, and Native Labour Regulations, are all systematically checked and necessary action taken to ensure compliance before plans are approved.

The following figures are submitted for information:—

The number of plans approved for the year ended 30th June, 1933, was 5,863 and the estimated cost of erection £1,707,903.

In addition to the ground covered by the Special Inspectors, the District Inspectorate Staff have accomplished 162 inspections in connection with repairs to buildings, and 99 inspections in connection with unauthorised buildings. They have also in respect of insanitary properties, where necessary alterations were of a minor character, served 30 notices, paid 2,003 visits of inspection and secured the demolition of 26 and the vacation of 7 properties (*vide* following schedule):—

ANNUAL RECORD OF DUTIES PERFORMED BY DISTRICT INSPECTORS ONLY.

From 1st July, 1932, to 30th June, 1933.

INSPECTIONS.	
<b>BUILDINGS—</b>	<b>CYANIDE FUMIGATIONS—</b>
Repairs to ... ..	Supervised ... ..
162	3,683
Unauthorised ... ..	<b>INFECTIOUS DISEASES—</b>
99	Cases Investigated ... ..
<b>CLOSETS AND URINALS—</b>	222
Inspected ... ..	Contacts ... ..
9,307	55
Additional Provided ... ..	Vaccination ... ..
64	1
French Drains ... ..	Licensing Court ... ..
414	134
<b>HOUSES—</b>	<b>LICENSED PREMISES—</b>
Dwellings ... ..	Aerated Water and Ice
12,784	Factories ... ..
<b>INSANITARY DWELLINGS—</b>	364
Notices ... ..	Asiatic Eating Houses ...
30	112
Visits ... ..	Bakeries ... ..
476	1,327
Demolished ... ..	Barbers' Shops ... ..
26	1,296
Vacated ... ..	Bioscopes ... ..
7	219
<b>INTERVIEWS—</b>	Boarding Houses ... ..
Owners, Agents, etc. ... ..	352
2,268	Butchers' Shops ... ..
Native Housing ... ..	3,256
794	Cowsheds ... ..
<b>NUISANCES—</b>	419
Animals ... ..	Dairies ... ..
594	316
Drainage ... ..	General Dealers ... ..
876	9,649
Fly ... ..	Hotel Dining Rooms ... ..
468	379
Manure ... ..	Ice Creameries ... ..
1,007	274
Mosquito ... ..	Kaffir Eating Houses ... ..
265	1,976
Rats ... ..	Laundries ... ..
453	741
Refuse ... ..	Lodging Houses ... ..
1,704	223
Slopwater ... ..	Milk Shops ... ..
521	1,004
Smoke ... ..	Noxious Trades ... ..
119	2,158
Stables ... ..	Nursing Homes ... ..
1,568	276
Stormwater ... ..	Private Cows ... ..
92	129
Unspecified ... ..	Restaurants ... ..
2,233	1,013
<b>SAMPLES TAKEN—</b>	Tea Rooms ... ..
Food and Milk ... ..	2,049
21	<b>NOTICES SERVED—</b>
Water ... ..	Statutory ... ..
2	1,645
Service Complaints ... ..	Others ... ..
279	672
Slum Properties ... ..	Prosecutions ... ..
1,527	64
Wells and Boreholes ... ..	Attendance at Court ... ..
212	59
	Special Duty ... ..
	83

## LICENSED PLACES.

From 1st July, 1932, to 30th June, 1933, 5,197 applications for licences of various kinds have been dealt with, the premises in question being in all cases carefully examined as to sanitary requirements.

	1932-33		
	Granted	Refused or not taken out	Total
1. Tea Shops, Eating Houses, Restaurants, etc.	954	125	1,079
2. Dairies ... ..	304	64	368
3. Milk Shops ... ..	513	143	656
4. Butchers' Shops ... ..	735	140	875
5. Bakers and Confectioners ... ..	132	13	145
6. Permits to introduce Milk ... ..	381	50	431
7. Kaffir and Asiatic Eating Houses ... ..	220	75	295
8. Nursing Homes ... ..	37	2	39
9. Laundries ... ..	66	4	70
10. Ice Creameries ... ..	375	6	381
11. Noxious or Offensive Trades ... ..	342	53	395
12. Aerated Water and Ice Factories ... ..	28	—	28
13. Hairdressers and Barbers ... ..	392	37	429
14. Lodging House ... ..	3	3	6
	4,482	715	5,197

## PROSECUTIONS.

One hundred and two persons were prosecuted for various breaches of the Public Health Act and By-laws, 91 were convicted, and fines aggregating £141 15s. were imposed. Particulars are appended:—

By-laws Infringed.	Race of Accused.			Totals.
	Whites.	S.A. Coloured	Asiatic.	
Prevention of Nuisances ...	19	—	—	19
Sale of Food and Drugs ...	18	—	1	19
Clean Milk ... ..	25	—	1	26
Dairies and Milk Shops ...	18	2	—	20
Butchers ... ..	8	—	—	8
Bakery ... ..	5	—	—	5
Restaurant and Tea Room	1	—	1	2
Kaffir Eating House ...	1	—	—	1
Closing Order ... ..	1	—	—	1
Fumigation ... ..	1	—	—	1
Totals ...	97	2	3	102
<b>RESULTS—</b>				
Convicted and Fined ...	83	2	2	87
Convicted and Cautioned	3	—	1	4
Dismissed ... ..	8	—	—	8
Withdrawn ... ..	3	—	—	3
Prohibition Order Granted	6	—	—	6
AMOUNT OF FINES ...	£136 10 0	£3 10 0	£1 15 0	£141 15 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 Council's Solicitors.



