



1946.

QUEENSLAND.



ANNUAL REPORT

ON THE

HEALTH AND MEDICAL SERVICES

OF THE

STATE OF QUEENSLAND

FOR THE

YEAR 1945-46.

PRESENTED TO PARLIAMENT BY COMMAND.

BRISBANE :

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**ANNUAL REPORT OF THE DIRECTOR-GENERAL OF
HEALTH AND MEDICAL SERVICES,
1945-46.**

The Honourable the Minister for Health and Home Affairs.

SIR.—I have the honour to submit for the Minister's information my annual report of the activities of the Health and Medical Services Branch of the Department of Health and Home Affairs (Queensland) during the fiscal year ended 30th June, 1946.

The officers in immediate control of the services of the Department are the following:—

Central Office of the Department of Health (Sir Raphael Cilento, Kt., M.D., B.S. (Adel.), D.T.M. and H. (Eng.), F.R. San.I. (Lond.), Director-General of Health and Medical Services—presently on special leave, and engaged in duties for the United Nations Relief and Rehabilitation Administration).

Section of Public Health Supervision (John Coffey, F.R.C.S. (Edin.), L.R.C.P., D.P.H., L.M. (Rot.), F.R. San.I. (Lond.), Deputy Director-General of Health and Medical Services; Abraham Fryberg, M.B., B.S., D.P.H., D.T.M., Health Officer; W. McNeil, Chief Sanitary Inspector; C. M. Cato, Chief Inspector of Food and Drugs; T. O'Shea, M.R. San.I. (Lond.), Clerical and Statistical Branches; Mrs. V. Wills, Welfare Officer).

Section of Microbiology and Pathology (E. H. Derrick, M.D. (Melb.), Director; D. W. Johnson, M.B., B.S., Bacteriologist-in-charge Mobile Unit; H. E. Brown, Bacteriologist).

Section of Maternal and Child Welfare (Thomas Henry Reeve Mathewson, M.B., Ch.B. (Edin.), Director; Doris Bardsley, A.T.N.A., Superintendent.)

Section of School Health Services (Leslie St. Vincent Welsh, M.C.R.S. (Eng.), L.R.C.P. (Lond.), Chief Medical Officer; E. W. Haenke, L.D.Q., Chief Inspector, School Dental Services).

Section of Industrial Hygiene (vacant).

Section of Enthetic Diseases (Geoffrey Hayes, M.B., Ch.M. (Syd.), Medical Officer in Charge; Beatrice Warner, M.B., B.S. (Melb.), Medical Officer (Female); Lorna Archibald, M.B., B.S. (Qld.), Medical Officer).

Section of Mental Hygiene (B. F. R. Stafford, M.B., B.S. (Melb.), Director of Mental Hygiene and Medical Superintendent, Brisbane Mental Hospital; Dr. C. R. Boyce, M.B. (Syd.), Medical superintendent, Toowoomba Mental Hospital; W. P. H. Parker, L.R.C.P. and S. (Irel.), Medical Superintendent, Ipswich Mental Hospital).

Government Chemical Laboratory (L. A. Meston, F.I.C.A., Government Analyst and Chief Inspector of Explosives; S. B. Watkins, A.A.C.I., Deputy Government Analyst).

The following vital statistical information was prepared by the Government Statistician, who reports that in supplying Table IV hereof—figures relating to expectation of life at certain specified ages—he considers that this information provides a more useful comparison than crude death rates, the levels of which are affected by differences in the age and sex constitution of the population. Dates shown are the most recent available for each country.

The estimated population of Queensland as at 1st January, 1946, was 1,040,536 and of Brisbane 353,590.

TABLE I.
CRUDE BIRTH RATE (PER 1,000 POPULATION).

	1939.	1940.	1941.	1942.	1943.	1944.	1945.
Commonwealth of Australia ..	17.6	18.0	18.9	19.1	20.6	21.0	21.8
Queensland	20.1	19.9	20.7	20.4	22.1	23.0	24.8
New South Wales	17.5	17.8	18.5	18.7	20.2	20.8	21.3
Victoria	16.2	16.8	17.8	18.3	19.7	19.7	20.5
South Australia	16.1	16.7	18.2	18.5	21.4	21.4	22.3
Western Australia	19.4	19.4	21.3	20.7	21.8	22.4	21.8
Tasmania	21.0	20.8	21.7	22.0	23.1	21.2	23.3
New Zealand	18.7	21.2	22.8	21.7	19.7	21.6	23.3
England and Wales	14.9	14.6	14.2	15.8	16.5	18.0	*
Scotland	17.4	17.1	17.5	17.6	18.4	*	*
Eire	19.1	19.1	19.0	22.3	22.3	*	*
North Ireland	19.5	19.6	20.8	22.8	24.2	*	*
Canada	20.3	21.4	22.3	23.4	24.0	23.8	*

* Not available.

TABLE II.
CRUDE DEATH RATE (PER 1,000 POPULATION).

	1939.	1940.	1941.	1942.	1943.	1944.	1945.
Commonwealth of Australia ..	9.9	9.7	10.0	10.5	10.3	9.5	9.5
Queensland	9.4	9.0	9.2	9.3	10.1	8.8	8.8
New South Wales	9.8	9.4	9.8	10.4	10.2	9.3	9.3
Victoria	10.7	10.7	10.6	11.2	10.8	10.3	10.2
South Australia	9.6	9.5	10.4	11.0	10.5	9.6	9.6
Western Australia	9.3	9.5	10.1	10.6	9.6	9.2	9.6
Tasmania	10.2	9.9	10.7	10.1	10.4	10.2	9.7
New Zealand	9.2	9.2	9.8	10.6	10.0	9.9	10.1
England and Wales	12.1	14.3	12.9	11.6	12.1	11.9	*
Scotland	12.9	14.9	14.7	13.3	14.0	*	*
Eire	14.2	14.2	14.6	14.0	14.7	*	*
North Ireland	13.5	14.6	15.2	13.3	13.4	*	*
Canada	9.6	9.7	10.0	9.7	10.1	9.7	*

* Not available.

TABLE III.
INFANT MORTALITY RATE (DEATHS UNDER 1 YEAR PER 1,000 BIRTHS).

	1939.	1940.	1941.	1942.	1943.	1944.	1945.
Commonwealth of Australia ..	38.2	38.4	39.7	39.5	36.3	31.3	29.4
Queensland	35.5	35.3	39.1	34.8	37.8	31.3	29.8
New South Wales	41.0	39.0	43.8	40.2	36.2	30.7	30.6
Victoria	35.6	39.4	36.2	41.7	35.8	33.0	28.0
South Australia	34.9	35.5	32.5	39.7	36.7	28.8	28.1
Western Australia	40.8	44.2	35.3	36.9	32.6	32.7	29.5
Tasmania	40.6	35.2	49.0	42.4	40.6	38.3	27.5
New Zealand	31.1	30.2	29.8	28.7	31.4	30.1	28.0
England and Wales	50.0	55.0	58.0	49.0	49.0	*	*
Scotland	68.5	78.3	82.7	69.3	65.2	*	*
Eire	66.0	66.0	73.0	68.0	80.0	*	*
North Ireland	70.0	86.0	77.0	76.0	78.0	*	*
Canada	61.0	56.0	60.0	54.0	54.0	55.0	*

* Not available.

TABLE IV.
EXPECTATION OF LIFE AT VARIOUS AGES IN YEARS (AVERAGE OF MALE AND FEMALE EXPECTATIONS).

Country.	Period on which Data Calculated.	Expectation of Life, in Years, at Age.							
		0	1	10	20	30	40	50	60
Commonwealth of Australia..	1932-34	65.3	67.1	59.5	50.2	41.3	32.6	24.2	16.7
Queensland	1932-34	64.9	66.8	59.3	50.0	41.3	32.7	24.4	16.9
New Zealand	1934-38	67.0	68.2	60.3	51.0	42.0	33.0	24.6	16.8
England and Wales	1937	62.3	65.1	57.9	48.8	40.0	31.2	22.8	15.4
Scotland	1930-32	57.8	61.9	56.1	47.2	38.6	30.3	22.3	15.0
Canada	1940-42	59.8	67.4	59.9	50.6	41.8	32.9	24.5	16.8
Ireland	1935-37	58.9	62.4	55.9	47.0	38.9	30.7	22.8	15.8

TABLE V.

COMMUNICABLE DISEASES (EXCLUSIVE OF VENEREAL DISEASES) 1ST JULY, 1945, TO 30TH JUNE, 1946.
METROPOLITAN AREA (POPULATION AT 31ST DECEMBER, 1945—353,590).

Diseases.	Months.												Totals 1945- 1946.
	1945.						1946.						
	July.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	
Anchylostomiasis ..	..	2	2	4	..	..	..	1	..	2	..	1	12
Anthrax .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bilharziasis .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cholera .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coastal Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diphtheria	14	10	6	8	9	22	12	6	7	6	11	15	126
Dysentery, Amoebic ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dysentery, Bacillary ..	..	1	..	2	..	..	..	..	..	..	..	..	3
Encephalitis Lethargica .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Filariasis .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Lead Poisoning	1	..	..	1	..	..	1	1	..	..	1	..	5
Leprosy .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Leptospirosis (Weil's Disease, Paraweil's Disease, Seven-day Fever) .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Malaria	5	2	13	20	40	19	83	75	68	121	154	48	648
Meningitis, Cerebrospinal	4	5	1	1	1	2	2	..	2	1	..	1	20
Mossman Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Plague, Bubonic or Oriental .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Poliomyelitis, Acute Anterior	1	3	10	11	28	29	12	7	2	..	1	1	105
Puerperal Fever .. ..	..	..	..	1	..	..	2	..	..	..	..	..	3
Puerperal Pyrexia	1	6	4	3	5	1	..	1	..	..	..	10	31
Relapsing Fever .. ..	..	..	..	..	..	..	..	..	..	1	..	..	1
Sarina Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scarlet Fever or Scarlatina	24	24	25	26	27	18	19	15	19	20	23	24	264
Smallpox (including Amaas or Alastrim) .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tuberculosis (all forms)	43	11	23	22	21	10	15	23	11	8	18	14	219
Tetanus .. ..	..	..	3	1	..	..	3	2	3	..	1	1	14
Typhoid Fever (including Paratyphoid Fevers)	1	3	3	6	5	2	..	1	1	..	..	..	22
Typhus Fever (including Rural and Urban forms and Japanese River Fever)	1	2	..	..	1	2	7	6	4	3	6	1	33
Undulant (Malta) Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Yellow Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals	95	69	90	106	137	105	156	138	117	162	215	116	1,506

TABLE VI.

COMMUNICABLE DISEASES (EXCLUSIVE OF VENEREAL DISEASES) 1ST JULY, 1945, TO 30TH JUNE, 1946.
EXTRA-METROPOLITAN AREA (POPULATION AT 31ST DECEMBER, 1945—692,729).

Diseases.	Months.												Totals 1945- 1946.
	1945.						1946.						
	July.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	
Anchylostomiasis ..	..	..	2	..	..	1	..	..	..	..	1	3	7
Anthrax .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bilharziasis .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cholera .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coastal Fever ..	..	..	..	..	..	..	..	..	4	2	..	..	6
Diphtheria	39	30	37	30	37	37	29	19	18	26	41	108	451
Dysentery, Amoebic	..	..	..	..	..	..	..	..	..	..	..	..	..
Dysentery, Bacillary	11	..	2	..	..	..	..	..	..	..	..	..	13
Encephalitis Lethargica .. ..	..	..	1	..	1	..	..	..	..	..	..	..	2
Filariasis .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Lead Poisoning ..	..	..	..	..	..	..	..	..	1	..	..	..	1
Leprosy	1	1	..	..	..	..	..	..	..	..	..	4	6
Leptospirosis (Weil's Disease, Paraweil's Disease, Seven-day Fever)	1	1	..	..	..	..	..	..	..	..	..	..	2
Malaria	28	10	16	6	21	31	33	44	71	62	123	79	524
Meningitis, Cerebro-spinal	2	4	2	2	6	1	4	3	2	1	1	4	32
Mossman Fever ..	..	..	..	..	..	..	..	..	..	2	..	..	2
Plague, Bubonic or Oriental .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Poliomyelitis, Acute Anterior	4	8	15	32	72	77	34	34	20	9	12	7	324
Puerperal Fever ..	2	..	1	1	..	1	..	..	..	1	1	1	8
Puerperal Pyrexia ..	3	3	5	3	3	1	3	2	2	4	1	..	30
Relapsing Fever ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sarina Fever ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scarlet Fever or Scarlatina ..	21	17	16	13	28	31	19	6	21	22	29	22	245
Smallpox (including Amaas or Alastrim)	..	..	..	..	..	..	..	..	..	..	..	..	..
Tuberculosis (all forms)	11	18	21	30	14	11	14	17	14	15	12	8	185
Tetanus	3	1	3	1	5	..	2	2	3	..	2	2	24
Typhoid Fever (including Paratyphoid Fevers) .. ..	..	..	..	2	..	2	1	..	2	1	..	..	8
Typhus Fever (including Rural and Urban Forms and Japanese River Fever)	3	2	1	2	1	7	4	6	4	2	1	3	36
Undulant (Malta) Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Yellow Fever ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals ..	129	94	122	123	188	200	143	133	162	147	224	241	1,906

TABLE VII.

NOTIFIED INCIDENCE OF COMMUNICABLE DISEASES IN QUEENSLAND (EXCLUSIVE OF VENEREAL DISEASE),
SECTION 29 OF "THE HEALTH ACTS, 1937-1945," DURING THE CALENDAR YEAR 1945.

Disease.	Cases Reported on Prescribed Form.			
	Metropolis.	Outside Areas.	Total Whole State, 1945.	Total Whole State, 1944.
Anchylostomiasis	11	4	15	25
Anthrax .. .. .	..	..	..	..
Bilharziasis .. .. .	..	..	..	..
Cholera .. .. .	..	..	..	..
Coastal Fever .. .. .	..	..	..	..
Diphtheria	163	336	499	510
Dysentery, Amoebic .. .. .	..	..	..	3
Dysentery, Bacillary	9	17	26	103
Encephalitis Lethargica	1	2	3	2
Filariasis .. .. .	..	1	1	1
Lead Poisoning	4	1	5	24
Leprosy	1	4	5	13
Leptospirosis (including Weil's Disease, Paraweil's Disease, Seven-day Fever)	2	4	6	7
Malaria	134	262	396	696
Meningitis, Cerebrospinal	21	33	54	105
Mossman Fever .. .. .	..	..	..	..
Plague, Bubonic or Oriental .. .. .	..	..	..	..
Poliomyelitis, Acute Anterior	86	213	299	7
Puerperal Fever	2	8	10	11
Puerperal Pyrexia	60	30	90	125
Relapsing Fever .. .. .	..	..	..	..
Sarina Fever .. .. .	..	..	..	..
Scarlet Fever or Scarletina	305	300	605	616
Smallpox (including Amaas or Alastrim) .. .. .	..	..	..	..
Tetanus	14	24	38	16
Tuberculosis (all forms)	250	174	424	415
Typhoid Fever (including Paratyphoid Fevers)	29	8	37	41
Typhus Fever (including Rural and Urban Forms, and Japanese River Fever)	45	53	98	97
Undulant (Malta) Fever .. .. .	..	..	..	2
Yellow Fever .. .. .	..	..	..	..
Totals	1,137	1,474	2,611	2,819

COMMUNICABLE DISEASES (EXCLUSIVE OF VENEREAL DISEASES)
METROPOLITAN AREA (POPULATION AT 1ST JANUARY, 1941—335,520).

	1940.						1941.						Total.
	July.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	
Anchylostomiasis ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Anthrax .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bilharziasis .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cholera .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coastal Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diphtheria	24	22	28	18	38	21	12	11	16	27	24	41	282
Dysentery, Amoebic ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dysentery, Bacillary ..	..	..	2	..	2	3	..	3	5	..	..	..	15
Encephalitis Lethargica .. ..	..	..	1	..	..	..	..	..	..	..	..	..	1
Filariasis .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Lead Poisoning .. ..	..	..	..	4	1	..	..	..	2	2	2	..	11
Leprosy .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Leptospirosis (Weil's Disease, Paraweil's Disease, Seven-day Fever)	2	..	..	..	..	1	..	2	3	1	1	1	11
Malaria	2	2	1	..	1	1	..	..	3	..	1	..	11
Meningitis, Cerebro-spinal .. ..	..	..	1	..	1	1	1	..	..	..	1	..	5
Mossman Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Plague, Bubonic or Oriental .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Poliomyelitis, Acute Anterior .. ..	..	..	..	..	..	19	12	6	2	3	..	1	43
Puerperal Fever	4	2	..	..	..	10	4	4	5	7	10	1	47
Puerperal Pyrexia	6	7	13	8	10	2	14	14	11	13	5	11	114
Relapsing Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sarina Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scarlet Fever or Scarlatina	14	13	10	14	15	11	9	12	12	15	22	23	170
Smallpox (including Smaas or Alastrim) .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tuberculosis (all forms)	22	33	43	29	32	29	30	40	40	31	35	31	395
Typhoid Fever (including Paratyphoid Fevers)	4	..	1	..	1	3	3	3	2	2	..	..	19
Typhus Fever (including Rural and Urban Forms, and Japanese River Fever) .. ..	..	..	..	1	..	3	1	3	3	..	..	1	12
Undulant (Malta) Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Yellow Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals	78	79	100	74	101	104	86	98	104	101	101	110	1,136

VIII.

NOTIFIED IN QUEENSLAND—1ST JULY, 1940, TO 30TH JUNE, 1941.

EXTRA-METROPOLITAN AREA (POPULATION AT 1ST JANUARY, 1941—694,093).

—	1940.						1941.						Total.
	July.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	
Anchylostomiasis ..	..	1	2	7	2	5	1	2	2	1	..	2	25
Anthrax .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bilharziasis .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cholera .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coastal Fever ..	3	1	2	1	..	4	..	..	2	8	2	2	25
Diphtheria	48	23	22	22	20	21	14	14	30	33	54	67	368
Dysentery, Amoebic	..	..	..	..	..	..	..	..	..	..	..	..	..
Dysentery, Bacillary	..	..	..	..	1	..	..	..	..	..	..	1	2
Encephalitis Lethargica .. ..	..	..	1	..	..	..	..	1	..	..	..	1	3
Filariasis .. ..	..	..	..	..	..	..	..	..	..	..	1	..	1
Lead Poisoning ..	..	..	..	..	1	..	..	..	..	..	..	1	2
Leprosy .. ..	..	2	..	..	..	19*	..	..	..	..	..	..	21
Leptospirosis (Weil's Disease, Paraweil's Disease, Seven-day Fever)	1	4	3	..	..	32†	1	2	2	4	3	3	55
Malaria .. ..	..	..	..	..	1	..	1	..	..	..	1	2	5
Meningitis, Cerebro-spinal .. ..	..	1	..	1	1	..	..	..	1	2	3	..	9
Mossman Fever ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Plague, Bubonic or Oriental .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Poliomyelitis, Acute Anterior	5	1	1	..	11	8	22	16	11	5	6	2	88
Puerperal Fever ..	..	..	..	..	..	..	2	1	..	..	..	1	4
Puerperal Pyrexia ..	1	..	..	..	..	1	5	1	..	1	..	1	10
Relapsing Fever ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sarina Fever ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scarlet Fever or Scarlatina	20	4	7	2	12	23	8	11	13	17	26	22	165
Smallpox (including Amaas or Alastrim)	..	..	..	..	..	..	..	..	..	..	..	..	..
Tuberculosis (all forms)	18	12	25	21	18	..	37	14	23	11	17	20	216
Typhoid Fever (including Paratyphoid Fevers)	1	..	1	..	2	..	8	4	5	1	1	4	27
Typhus Fever (including Rural and Urban Forms, and Japanese River Fever) ..	2	..	1	..	..	..	1	8	2	5	3	1	23
Undulant (Malta) Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Yellow Fever ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals	99	49	65	54	69	113	100	74	91	88	117	130	1,049

* Includes notifications of aboriginal cases from a native settlement in North Queensland, already in the Lazaret, but not previously notified.

† Includes notifications from a centre in South Queensland extending back to July, 1939, but not previously notified.

TABLE

COMMUNICABLE DISEASES (EXCLUSIVE OF VENEREAL
METROPOLITAN AREA (POPULATION AT 1ST JANUARY, 1942—340,230).

	1941.						1942.						Total.
	July.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	
Anchylostomiasis ..	..	1	..	..	1	..	..	..	1	..	2	1	6
Anthrax .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bilharziasis .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cholera .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coastal Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diphtheria	29	8	7	13	9	9	9	9	4	4	10	5	116
Dysentery, Amoebic ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dysentery, Bacillary ..	..	1	1	1	5	6	2	..	..	..	1	2	19
Encephalitis Lethargica .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Filariasis .. ..	..	..	..	..	..	..	1	..	..	..	..	..	1
Lead Poisoning	1	2	..	..	..	..	..	..	..	..	..	..	3
Leprosy .. ..	..	..	1	..	..	..	..	..	..	..	..	..	1
Leptospirosis (Weil's Disease, Paraweil's Disease, Seven-day Fever) .. ..	..	..	..	..	..	..	..	..	..	..	..	1	1
Malaria	1	2	..	..	..	..	7	1	4	3	3	2	23
Meningitis, Cerebro-spinal	1	7	12	10	3	2	2	2	2	4	5	10	60
Mossman Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Plague, Bubonic or Oriental .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Poliomyelitis, Acute Anterior .. ..	..	1	1	..	..	..	..	..	..	..	..	..	2
Puerperal Fever	4	3	4	1	2	1	1	..	1	..	..	..	17
Puerperal Pyrexia	8	2	14	8	5	10	6	4	16	6	3	11	93
Relapsing Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sarina Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scarlet Fever or Scarlatina	43	37	51	42	28	27	16	14	16	16	10	16	316
Smallpox (including Amaas or Alastrim) .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tuberculosis (all forms)	33	36	33	34	24	17	31	32	27	34	12	27	340
Typhoid Fever (including Paratyphoid Fevers)	1	..	1	1	2	2	1	4	19	3	1	6	41
Typhus Fever (including Rural and Urban Forms, and Japanese River Fever)	1	1	..	..	1	4	1	..	1	2	3	1	15
Undulant (Malta) Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Yellow Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals	122	101	125	110	80	78	77	66	91	72	50	82	1,054

IX.

DISEASES)—1ST JULY, 1941, TO 30TH JUNE, 1942.

EXTRA-METROPOLITAN AREA (POPULATION AT 1ST JANUARY, 1942—696,600).

	1941.						1942.						Total.
	July.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	
Anchylostomiasis ..	..	2	1	..	..	1	..	1	..	..	1	..	6
Anthrax .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bilharziasis .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cholera .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coastal Fever ..	2	3	2	2	..	..	3	..	..	..	..	1	13
Diphtheria	73	41	21	26	18	26	24	13	29	38	37	66	412
Dysentery, Amoebic	..	..	..	..	..	..	..	..	..	..	..	..	..
Dysentery, Bacillary	..	..	..	..	..	..	1	..	3	..	..	..	4
Encephalitis Lethargica .. ..	..	1	..	..	..	..	1	1	..	..	..	..	3
Filariasis .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Lead Poisoning ..	..	1	..	..	..	..	..	..	..	..	..	..	1
Leprosy .. ..	..	1	..	1	..	..	..	..	..	..	..	..	2
Leptospirosis (Weil's Disease, Paraweil's Disease, Seven-day Fever)	2	..	3	1	2	..	..	..	4	..	..	2	14
Malaria	2	9	9	1	..	..	..	2	1	2	42	96	164
Meningitis, Cerebro-spinal .. ..	..	5	10	9	8	3	3	1	1	9	4	20	73
Mossman Fever ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Plague, Bubonic or Oriental .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Poliomyelitis, Acute Anterior	2	1	..	5	..	1	1	1	..	..	..	..	11
Puerperal Fever ..	..	..	..	1	1	..	..	..	..	..	1	..	3
Puerperal Pyrexia ..	1	..	1	4	..	2	1	..	5	2	..	3	19
Relapsing Fever ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sarina Fever ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scarlet Fever or Scarletina	34	19	13	19	20	28	35	17	30	37	27	25	304
Smallpox (including Amaas or Alastrim)	..	..	..	..	..	..	..	..	..	..	..	..	..
Tuberculosis (all forms)	26	20	19	13	19	21	20	21	16	13	11	10	209
Typhoid Fever (including Paratyphoid Fevers)	1	1	1	3	1	5	..	7	1	..	2	4	26
Typhus Fever (including Rural and Urban Forms and Japanese River Fever) ..	1	1	2	..	1	3	1	3	4	..	2	1	19
Undulant (Malta) Fever .. ..	..	..	..	1	..	..	..	..	..	..	..	..	1
Yellow Fever ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals	146	105	82	86	70	90	88	67	94	101	127	228	1,284

TABLE

COMMUNICABLE DISEASES (EXCLUSIVE OF VENEREAL
METROPOLITAN AREA (POPULATION AT 1ST JANUARY, 1943—353,590).

	1942.						1943.						Total.
	July.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	
Anchylostomiasis ..	2	1	..	..	..	..	..	..	..	..	7	32	42
Anthrax .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bilharziasis .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cholera .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coastal Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diphtheria	14	9	6	6	9	8	20	19	14	24	24	26	179
Dysentery, Amoebic ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dysentery, Bacillary ..	1	..	..	..	..	1	2	3	3	2	..	..	12
Encephalitis Lethargica .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Filariasis .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Lead Poisoning .. ..	..	1	..	..	..	..	..	..	..	..	3	..	4
Leprosy	1	..	..	..	..	..	..	..	..	..	..	1	2
Leptospirosis (Weil's Disease, Paraweil's Disease, Seven-day Fever)	1	..	..	..	..	..	..	..	..	..	..	..	1
Malaria	4	2	..	1	3	4	3	4	6	4	3	4	38
Meningitis, Cerebro-spinal	11	19	17	11	8	7	8	4	3	3	4	10	105
Mossman Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Plague, Bubonic or Oriental .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Poliomyelitis, Acute Anterior	1	..	..	..	1	1	..	..	..	..	..	..	3
Puerperal Fever .. ..	..	2	..	..	..	..	2	2	1	..	..	..	7
Puerperal Pyrexia	15	9	12	7	12	3	14	13	12	10	5	8	120
Relapsing Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sarina Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scarlet Fever or Scarletina	13	20	30	25	54	29	22	18	27	27	29	23	317
Smallpox (including Amaas or Alastrim) .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tuberculosis (all forms)	28	28	22	27	12	11	23	39	24	25	12	16	267
Typhoid Fever (including Paratyphoid Fevers) .. ..	..	5	4	3	8	1	2	5	11	23	16	3	81
Typhus Fever (including Rural and Urban Forms, and Japanese River Fever) .. ..	..	..	..	..	..	1	1	3	1	1	..	1	8
Undulant (Malta) Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Yellow Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals	91	96	91	80	107	66	97	110	102	119	103	124	1,186

X.

DISEASES)—1ST JULY, 1942, to 30TH JUNE, 1943.

EXTRA-METROPOLITAN AREA (POPULATION AT 1ST JANUARY, 1943—686,946).

	1942.						1943.						Total.
	July.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	
Anchylostomiasis ..	..	..	..	1	..	1	..	..	1	1	..	1	5
Anthrax .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bilharziasis .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cholera .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coastal Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diphtheria	34	25	19	29	49	32	30	34	48	33	44	57	434
Dysentery, Amoebic .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dysentery, Bacillary .. ..	..	..	1	2	5	10	12	7	5	3	5	2	52
Encephalitis Lethargica .. ..	..	..	..	..	..	..	..	1	3	..	..	..	4
Filariasis .. ..	..	..	..	..	..	..	..	..	1	..	..	..	1
Lead Poisoning .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Leprosy	1	..	..	1	..	..	1	..	..	..	1	..	4
Leptospirosis (Weil's Disease, Parawell's Disease, Seven-day Fever) .. ..	..	2	..	1	..	..	6	..	..	..	..	..	9
Malaria	127	185	28	16	12	21	14	35	44	30	121	28	661
Meningitis, Cerebro-spinal	14	19	9	6	14	6	7	4	9	7	6	4	105
Mossman Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Plague, Bubonic or Oriental .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Poliomyelitis, Acute Anterior .. ..	..	1	..	..	..	1	1	1	2	..	1	..	7
Puerperal Fever .. ..	..	..	1	..	4	..	..	..	..	1	3	..	9
Puerperal Pyrexia	3	1	1	1	4	5	2	2	3	2	3	4	31
Relapsing Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sarina Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scarlet Fever or Scarlatina	34	34	27	25	25	28	28	33	31	16	21	15	317
Smallpox (including Amaas or Alastrim) .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tuberculosis (all forms)	13	17	5	10	17	20	11	18	17	13	15	21	177
Typhoid Fever (including Paratyphoid Fevers) .. ..	..	..	..	..	2	3	6	2	4	1	..	..	18
Typhus Fever (including Rural and Urban Forms, and Japanese River Fever)	9	1	1	..	1	4	2	5	4	2	..	8	37
Undulant (Malta) Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Yellow Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals	235	285	92	92	133	131	120	142	172	109	220	140	1,871

TABLE

COMMUNICABLE DISEASES (EXCLUSIVE OF VENEREAL
METROPOLITAN AREA (POPULATION AS AT 31ST DECEMBER, 1943—370,460).

	1943.						1944.						Total.
	July.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	
Anchylostomiasis ..	61	..	1	..	..	..	2	4	..	..	6	..	74
Anthrax .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bilharziasis .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cholera .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coastal Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diphtheria	14	20	36	16	19	10	21	29	28	20	21	15	249
Dysentery, Amoebic ..	..	..	..	..	..	..	..	..	..	..	1	..	1
Dysentery, Bacillary ..	1	..	11	4	12	20	8	11	4	1	2	1	75
Encephalitis Leth- argica	1	..	1	..	1	..	1	..	..	..	..	..	4
Filariasis .. ..	..	..	..	..	1	17	..	..	..	..	..	..	18
Lead Poisoning .. ..	..	1	..	..	..	..	..	..	2	1	1	3	8
Leprosy .. ..	..	2	..	..	1	..	..	..	3	..	1	..	7
Leptospirosis (Weil's Disease, Parawell's Disease, Seven-day Fever)	1	..	..	..	..	..	..	..	..	..	..	..	1
Malaria	2	2	1	3	1	3	9	6	6	3	10	7	53
Meningitis, Cerebro- spinal	18	14	14	6	3	4	..	3	2	3	3	2	72
Mossman Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Plague, Bubonic or Oriental .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Poliomyelitis, Acute Anterior .. ..	..	..	..	..	..	..	..	1	..	1	..	..	2
Puerperal Fever	1	..	..	..	..	..	..	..	..	..	..	..	1
Puerperal Pyrexia	5	10	8	8	7	16	11	6	16	15	12	10	124
Relapsing Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sarina Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scarlet Fever or Scarlatina	36	75	137	90	69	36	14	15	24	24	20	26	566
Smallpox (including Amaas or Alastrim)	..	..	..	..	..	..	..	..	..	..	..	..	..
Tuberculosis (all forms)	16	28	40	23	44	34	17	29	22	17	10	22	302
Typhoid Fever (in- cluding Paratyphoid Fever)	3	..	..	..	1	1	..	4	2	1	1	..	13
Typhus Fever (includ- ing Rural and Urban Forms and Japanese River Fever) .. ..	..	..	..	1	3	2	1	3	8	6	4	6	34
Undulant (Malta) Fever .. ..	..	..	..	..	..	..	..	..	..	..	1	..	1
Yellow Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals	159	152	249	151	162	143	84	111	117	92	93	92	1,605

XI.

DISEASE)—1ST, JULY, 1943, TO 30TH JUNE, 1944.

EXTRA-METROPOLITAN AREA (POPULATION AS AT 31ST DECEMBER, 1944—678,440).

	1943.						1944.						Total.
	July.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	
Anchylostomiasis ..	..	..	..	1	..	1	..	..	..	..	1	..	3
Anthrax .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bilharziasis .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cholera .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coastal Fever .. ..	..	1	..	..	..	..	..	..	..	..	..	..	1
Diphtheria	47	25	32	32	28	29	20	28	37	42	33	29	382
Dysentery, Amoebic ..	..	4	..	1	..	..	..	..	1	..	1	..	7
Dysentery, Bacillary ..	1	1	2	9	14	4	5	3	5	2	18	4	68
Encephalitis Leth- argica .. ..	..	..	..	..	..	1	..	..	..	..	..	..	1
Filariasis	1	..	..	..	..	..	..	..	..	..	1	..	2
Lead Poisoning .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Leprosy .. ..	..	1	..	..	..	2	1	1	1	..	..	2	8
Leptospirosis (Weil's Disease, Paraweil's Disease, Seven-day Fever)	1	1	..	..	1	..	2	1	1	1	..	..	8
Malaria	35	18	14	32	24	20	11	35	43	52	25	67	376
Meningitis, Cerebro- spinal	12	19	10	9	6	2	23	5	5	5	2	2	100
Mossman Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Plague, Bubonic or Oriental .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Poliomyelitis, Acute Anterior	1	..	..	2	..	..	..	1	1	..	..	2	7
Puerperal Fever	1	..	1	1	1	2	..	2	..	..	..	1	9
Puerperal Pyrexia	1	2	2	2	..	4	1	..	1	1	4	..	18
Relapsing Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sarina Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scarlet Fever or Scarlatina	21	17	28	41	39	46	27	17	24	26	28	27	341
Smallpox (including Amaas or Alastrim)	..	..	..	..	..	..	..	..	..	..	..	..	..
Tuberculosis (all forms)	11	11	9	19	15	14	17	20	13	4	22	13	168
Typhoid Fever, in- cluding Paratyphoid Fever .. ..	..	5	1	2	1	..	5	6	6	3	3	1	33
Typhus Fever (includ- ing Rural and Urban Forms and Japanese River Fever) .. ..	..	7	2	1	2	..	2	1	3	13	11	11	53
Undulant (Malta) Fever .. ..	..	..	..	..	..	..	1	..	..	..	..	..	1
Yellow Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals	132	112	101	152	131	125	115	120	141	149	149	159	1,586

Typhoid fever and paratyphoid fevers.—The notified incidence under these headings was: Brisbane 22, outside areas 8, total 30, which can be accepted as very satisfactory, though an increase of 8 cases on the previous fiscal year; in 1943-44 the figures were metropolitan 13, outside areas 33 (total 46).

Strict supervision of the conduct of sanitary depots and refuse tips and adherence to the provisions of "The Sanitary Conveniences and Nightsoil Disposal Regulations" should keep the disease in check.

Scarlet fever and scarlatina.—The total number of patients reported under these headings in the period under review was 509—namely, 264 in Brisbane and 245 in other areas of the State. The figures for 1944-45 were 349 and 341 respectively (total 690), and in the previous fiscal year (1943-44) the Brisbane total was 566 and the extra-metropolitan 331 (897).

Meningitis, cerebrospinal.—Notifications of this disease totalled 52, of whom 20 were notified from Brisbane. In 1944-45 there were 26 from Brisbane in a total of 73, and in 1943-44 the Brisbane figures were 72, rest of the State 100 (172).

Dysentery, bacillary.—Only 16 cases were notified during the year, 3 of whom were from Brisbane. In 1943-44 the figures were 75 (Brisbane) and 68 (rest of State), and in 1944-45 24 (Brisbane) and 25 (rest of State).

Malaria.—The demobilisation of members of the Armed Forces has accounted for the great majority of the 1172 cases of this disease notified during 1945-46. In Brisbane, where 648 patients were reported, only 3 were locally acquired.

The State Health Officer visited Ogmoo, in Central Queensland, following receipt of four notifications of locally acquired infections. A report by Miss Elizabeth N. Marks, M.Sc., on "An Anopheline Survey of Lucinda Point, Queensland, with Notes on the breeding places of Anopheline Mosquitoes in the Ingham District" is appended to this report, her visit being occasioned by an outbreak of the disease in that area—10 cases being notified.

In the Chief Sanitary Inspector's section are details of the Government subsidy of 50/50 claimed by many local authorities during the year for approved drainage and other works undertaken with a view to mosquito eradication, and Cabinet has decided that similar assistance will be granted to Councils during 1946-47.

Poliomyelitis (acute anterior).—As is disclosed in Table V and VI, 429 cases of this disease were notified in 1945-46. The previous highest total notified since the disease was first declared notifiable in 1909 was 332 in 1914-15.

Reports have been sought on each individual case, and received with the exception of 24 outstanding advices. They disclose that of the total 27 died and 237 recovered.

Tuberculosis.—As disclosed in the above tables, 404 cases of this disease were reported as against 398 in 1944-45 and 470 in the previous fiscal year.

Plans for the development of schemes for the diagnosis and treatment of patients are proceeding, but it has been considered inadvisable to carry out a diagnostic campaign which would involve mass radiography until sanatoria facilities are available, and due principally to the lack of manpower and materials the building at Chermside, referred to in my last annual report, is not yet available.

Plague, Smallpox, Cholera and Yellow Fever.—Again it is pleasing to report that no cases of these diseases have been notified.

Diphtheria.—The notified incidence of this disease during the period was: Metropolis 126, outside areas 452, grand total for the State 578.

The Brisbane figures continue to disclose satisfactory evidence of the value of a continued immunisation campaign. In 1943-44 249 cases were reported; in 1944-45 the incidence was 164; and, as mentioned above, in the present year 126.

For the rest of the State the incidence in the respective periods was 1943-44, 382; 1944-45, 246; and 1945-46, 452. During June of this period, however, 108 cases or suspected cases of diphtheria were reported, of whom 75 were notified from the Cloncurry area in the north-western portion of the State. The outbreak commenced with the admission of 10 patients to hospital on 26th May. All cases and suspected cases had been discharged from hospital before the end of June, and reports received indicate that in most instances the complaint was of a mild form and no case proved fatal.

Public immunisation campaigns are conducted by all local authorities throughout the State with the exception of a few in the extreme northern and western portions of the State, where there are large areas very sparsely populated. For the most part these immunisation services are free. It is estimated that 80 per cent. of the children in Brisbane between the ages of 1 and 12 years have been immunised against the disease.

An interesting table prepared by the Chief Health Inspector of the City of Townsville on immunisation discloses that approximately 75 per cent. of the children in that city are immunised against diphtheria, and the average annual number over a period of ten years is 723. During 1945-46 scholars enrolled in 18 local schools and convents totalled 4,322, of whom 3,710 were immunised.

Because of National Security Regulations, statistical tables of notifiable diseases reported could not be included in our annual reports from 1939-40 until 1944-45. Tables VIII, IX, X, and XI, covering the fiscal years 1940-41 to 1943-44 inclusive, are included, therefore, for purposes of reference.

Comments on Tables 1, 2, and 3 are included in pages of Appendix "E."

SECTION OF ENTHETIC DISEASES.

During the year 986 persons were notified (anonymously) as suffering from venereal disease, as compared with 858 for the previous year. Of these 406 were females and 580 were males, as compared with 533 and 325 respectively in the previous year. Of the 986 persons some 17 had double infections (two types of venereal disease at the same time) and so really represented 1,003 actual cases of venereal dis-

ease. Of these 746 were gonorrhoeal cases and 240 were syphilitic cases.

The incidence of early (infectious) syphilis was 114 cases, as compared with 61 cases in the previous year, but some of this apparent increase can be explained by demobilised personnel coming under treatment by civilian centres.

The following table summarises the notifications received by the Department:—

INCIDENCE OF NOTIFIED VENEREAL DISEASE, 1945-46.

	Metropolitan		Outside Centres.		Total (Whole State.)		
	Males.	Females.	Males.	Females.	Males.	Females.	Males and Females.
Gonorrhoea—							
Unspecified	13	7	15	3	28	10	38
Acute	297	94	65	10	362	104	466
Sub-acute	3	81	11	8	14	89	103
Chronic	10	92	4	5	14	97	111
Vulvo-vaginitis .. .. .	..	3	..	2	..	5	5
					418	305	723
Syphilis—							
Unspecified	1	2	3	1	4	3	7
Primary	37	9	14	11	51	20	71
Secondary	16	11	9	7	25	18	43
Tertiary.. .. .	8	2	13	4	21	6	27
Latent	24	29	3	2	27	31	58
Heredo	6	4	1	2	7	6	13
Neuro	1	1	3	..	4	1	5
					139	85	224
Syphilis and Gonorrhoea	5	8	2	1	7	9	16
Soft Sore	6	2	2	..	8	2	10
Venereal Warts	3	1	..	..	3	1	4
Gonorrhoeal Ophthalmia	3	3	..	..	3	3	6
Ulcerative Granuloma	2	..	..	..	2	..	2
Gonorrhoea and Venereal Warts..	..	..	..	1	..	1	1
					23	16	39
	435	349	145	57	580	406	986

The outstanding feature of the incidence of venereal disease during the past year is the rapid trend for total and relative figures (males and females) to return to a pre-war basis.

The following table shows the total incidence of venereal disease treated or occurring in Queensland during the last nine years. It is based on civilian notifications received by, and military questionnaires submitted to, the Department, and well illustrates the influence of war and military occupation upon the incidence and distribution of this pre-eminent of social diseases.

Year.	Civilian.			Armed Forces.	Grand Total of V.D. in Queens- land.
	Males.	Females.	Totals.		
1937-38	899	357	1,256	..	1,256
1938-39	834	313	1,147	..	1,147
1939-40	794	297	1,091	..	1,091
1940-41	916	365	1,281	47	1,328
1941-42	673	220	893	314	1,207
1942-43	448	1,117	1,565	1,536	3,101
1943-44	488	746	1,234	1,484	2,718
1944-45	325	533	858	1,533	2,391
1945-46	580	406	986	323	1,309

AGE INCIDENCE.

As will be seen from the following table, the 20-25 age group shows the greatest incidence.

Age Group.	Males.	Females.	Total.
Unknown	22	11	33
Under 1 year	5	5	10
1- 5 years	1	3	4
6-10 years	3	2	5
11-15 years	3	3	6
16-20 years	49	84	133
21-25 years	145	146	291
26-30 years	111	61	172
31-35 years	71	37	108
36-40 years	77	27	104
41-45 years	41	15	56
46-50 years	22	10	32
51-55 years	15	1	16
56-60 years	7	..	7
61-65 years	3	1	4
Over 65 years	5	..	5
	580	406	986

SOURCES OF INFECTION.

Unfortunately too few of the notifications state the source of infection, so that the respective parts played by the professional and amateur prostitute cannot be accurately estimated; either patients are very casual in their sexual contacts or will not divulge the information. The following table is given for what it is worth:—

Unknown or unstated	737
Amateurs	131
Occupational (prostitutes) ..	68
Husbands	14
Parents	10
Wives	6
Black gins	5
Unknown prostitutes	12
Prostitutes in known houses ..	3
	986

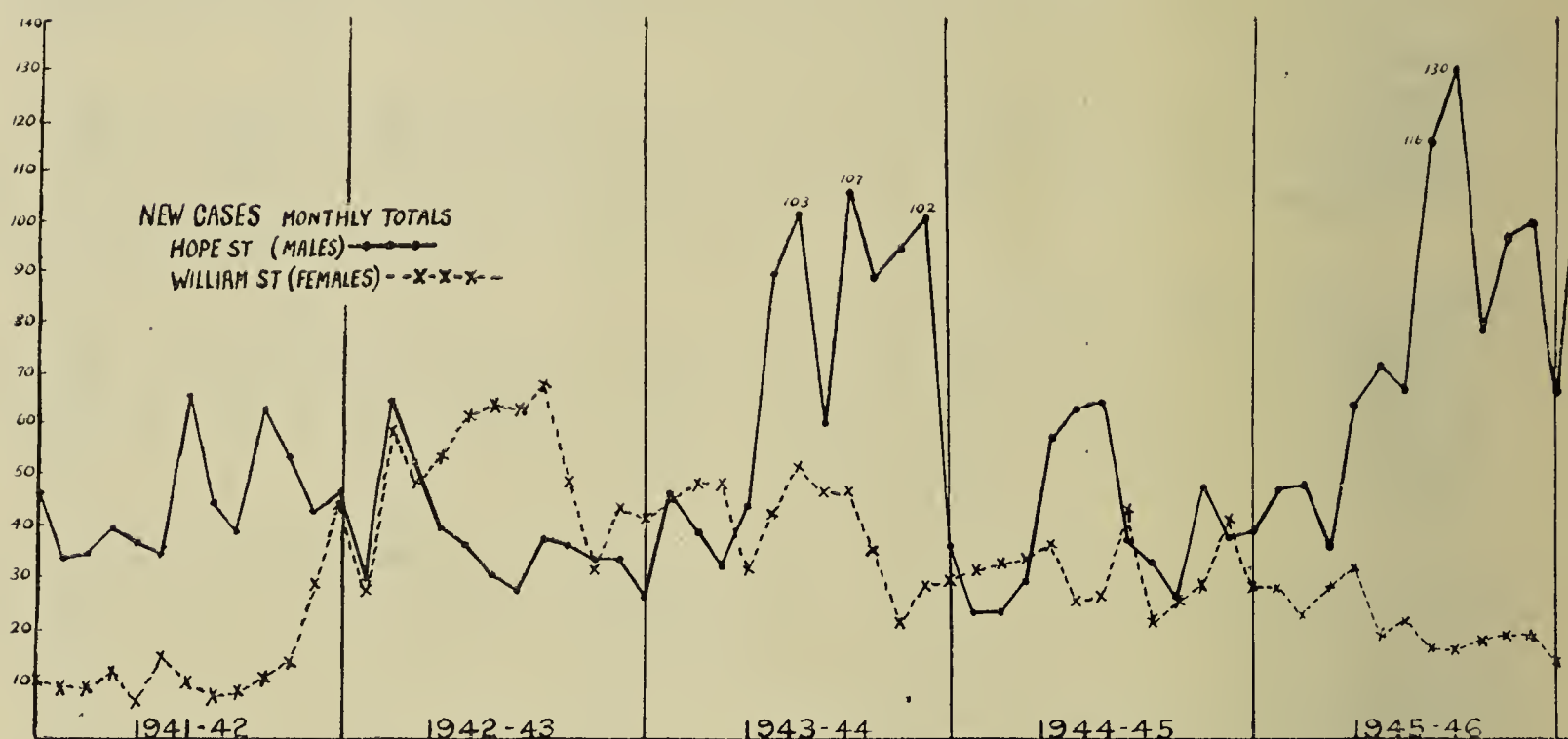
MARITAL STATUS.

A rather disquieting state of affairs is shown by the following table, in which married patients run a very close second to single patients. No doubt the war and its aftermath account for a good deal of this apparent marital infidelity, or is it one of the new freedoms?

Marital Status.	Males.	Females.	Total.
Married	174	130	304
Single	382	201	583
Separated	4	18	22
Widowed	3	21	24
Divorced	1	33	34
Unknown	16	3	19
	580	406	986

V.D. CLINICS.

A graph of attendance of new cases attending the two clinics in Brisbane during the last five years is shown—



The 1942-43 period shows a large increase in females, due to the presence of large numbers of armed forces in the State, and a corresponding drop in males consequent upon military enlistments and call-ups.

The increase in males in 1943-44 was due largely to the presence of refugees (mostly Orientals) and to merchant navy personnel.

The last twelve months show figures for female attendance down again to a pre-war level and figures for males greatly increased. Some of this increase in males is due to demobilised patients continuing treatment as civilians and also to an apparent increase in the non-notifiable genito-infectious conditions. Also, a continuous all-day session is now conducted at Hope Street in place of the previous midday and evening sessions.

Some statistics for the two centres are given in the table—

	Hope Street. (Males).	William Street. (Females).
New cases	938	279
Notified cases	377	230
Total visits	6,614	5,294
Arsenic injections	1,551	760
Bismuth injections	1,208	675
Penicillin injections	1,815	591

EXAMINATION OF PROSTITUTES.

Examination of prostitutes during the year totalled 2,246 (2,471 in the previous year). These examinations, which were carried out at the examination rooms in Brisbane, resulted in the detention of 88 cases (172 cases in the previous year)—a 50 per cent. drop in the infection rate.

THE VENEREAL ISOLATION HOSPITAL.

This institution, which was greatly enlarged during the war and served a useful purpose, has now reached the stage where the staff (the minimum required for maintenance) sometimes outnumber the patients, who are almost at a pre-war minimum.

Formerly a hospital solely for the treatment of professional prostitutes, the patients now mostly consist of careless or incorrigible vagrants as in-patients and certain inmates of the nearby Brisbane Prison as out-patients. The professional prostitute has not been slow to realise that in penicillin she can make a good business investment. Infections attributed to the professional prostitute are remarkably few, and as pointed out elsewhere the infection rate amongst these women has fallen at least 50 per cent. over the last twelve months.

Of the six wards constructed, one has been removed to the Brisbane Women's Prison, and four have been closed. The remaining ward, containing 20 beds, has for some months now been only half full or less.

The following graph shows the fluctuations in the Venereal Isolation Hospital bed state over the last four years:—



The first rise in 1942 was in the pre-sulpha drug and pre-penicillin days. The availability of sulphathiazole in 1943 and of penicillin in 1944 and the thinning-out of troops from 1944 onwards is reflected in the graph.

VENEREAL DISEASE IN ABORIGINES.

Pressure of work in Brisbane has prevented a repetition of the survey made of the three main aboriginal settlements a little over eighteen months ago. New medical officers have been appointed to the Palm Island and to the Cherbourg Settlements. The scheme whereby the various settlements would look after and treat their own cases is apparently going to be satisfactory. In the case of Cherbourg some of their cases have had to be transferred to Brisbane owing to the lack of a suitable treatment building to house the patients, but plans are now in hand for the construction of such a place, which should be completed within the next six months. Treatment is now such a simple matter and so relatively short that it is no longer a problem even for a person with little experience. The main requirement is a periodic check up of all inhabitants by modern diagnostic methods to detect the less obvious cases and carriers in the communities.

IN RETROSPECT.

At this stage it may be pardonable to mention and claim our due meed of credit for some of our accomplishments during the past difficult years.

In the 1944-45 report the improvement and enlargement of the clinics (with pictures) in spite of our wartime scarcities was mentioned.

In the field of diagnosis and therapy also much was accomplished. In the early war years the massive dose arsenotherapy of syphilis was carried out on a number of selected patients, with excellent results in the majority, the treatment periods being reduced from eighteen months to as little as five days in many cases.

The various sulpha drugs were secured and used routinely as soon as they were available—even as far back as 1937 with the first appearance of the "prontosils."

The establishment of American Army and Navy hospitals here in 1942-43 gave us an opportunity of studying the much more rational and sensible approach to venereal disease treatment problems employed by them. Opportunities were generously offered and eagerly availed of to study their methods, with the result that the culture method of diagnosing and testing were perfected in our laboratory and have been of great value, particularly in female cases.

Also due to the generosity and co-operative spirit of the U.S. Army (no longer a military secret, I hope), penicillin was available to us

and used in the Venereal Isolation Hospital many months before it was available from the Commonwealth Laboratories, and enabled us to work out a routine of treatment much sooner than would have been possible otherwise.

The treatment of gonorrhoea by the single injection method, and of syphilis by the five and ten day routine with penicillin, has been thoroughly tried during the past year, with complete success in many cases.

The impression gained that penicillin needed to be given in larger doses than those originally advised has been confirmed by recent work overseas showing that very large doses of penicillin do give increased blood levels and that some batches of penicillin may vary in strength to as low as 20 per cent. of the rated dose units.

Also, we would like to congratulate the Laboratory Section for heeding our disaffection with the older methods of serology and introducing the Eagle method of complement fixation. This test has many times proved its value in the doubtful cases and where the precipitation and older complement fixation tests were at variance.

Mention was made last year of the use of podophyllin in the treatment of granuloma. This treatment has been another milestone in progress in recent years, controlling in a matter of days the discomfort and pain and deformity which formerly continued for months in these unfortunates (mostly half-castes and aborigines).

The appointment this year of a part-time lecturer in genito-infectious diseases to deliver six lectures on this subject in addition to the two given by a specialist lecturer in venereal diseases should make for a more thorough understanding of these conditions by our future medicos, and might even in time soften the pharisaical opposition of some of those controlling the only teaching hospital for students in medicine to improving the in-patient facilities for the treatment of these diseases.

THE FUTURE PROBLEM OF VENEREAL DISEASE.

It is most unlikely that venereal disease will in the future present a serious problem in public health. The complications which in the past made it so are rarely seen today.

However, it will always be with us and it will always be necessary to have suitable staff and facilities for its control. With modern facilities it is no longer necessary, nor indeed desirable, for an expert in treatment to devote his full time to treatment of the narrowed field of notifiable venereal disease alone.

There are, however, a large number of genito-infectious diseases which in the past have received scant attention, and which now figure very prominently amongst those seeking advice not only at the *ad hoc* venereal disease clinics but also at the various genito-urinary, urological and gynaecological departments.

The venereal disease clinic is not usually fitted up to investigate these cases adequately, and the other departments are more concerned with the more orthodox and obvious genito-urinary and gynaecological conditions, and so the result is that these patients are getting a very poor spin.

As already stated, it will always be necessary to have clinicians with a specialised knowledge of venereal diseases but if there is not sufficient work of a clinical nature to keep them from becoming mentally stagnant then the future outlook is poor.

The solution, both for the venereologist and for the non-venereal genito-infectious case, is for a liaison to be set up whereby those treating venereal disease in women should do a certain amount of work in a gynaecological centre and those treatment men should be similarly engaged in a genito-urinary or urological centre.

STATEMENT OF THE NOTIFIED INCIDENCE OF VENEREAL DISEASE AMONGST THE CIVILIAN POPULATION OF QUEENSLAND, FROM THE ENTRY OF JAPAN INTO THE WAR.

(Australia declared war on Japan on December, 8th, 1941, so that the figures below are stated as from 1st January, 1942, in monthly sequence).

Month.	Brisbane.			Outside Brisbane.			Total for Whole State.			
	Males.	Females.	Females Detained.	Males.	Females.	Females Detained.	Males.	Females.	Total.	Females Detained.
1942—										
January	30	11	3	9	3	2	39	14	53	5
February	5	26	7	13	1	1	18	27	45	8
March	24	15	8	20	9	Nil	44	24	68	8
April	6	28	12	11	1	Nil	17	29	46	12
May	24	33	11	7	8	Nil	31	41	72	11
June	32	74	30	8	7	2	40	81	121	32
July	34	55	21	9	5	1	43	60	103	22
August	39	82	49	6	13	8	45	95	140	57
September .. .	42	91	43	16	17	3	58	108	166	46
October	15	46	20	11	14	8	26	60	86	28
November	11	143	55	16	27	4	27	170	197	59
December	70	109	53	9	14	3	79	123	202	56
1943—										
January	20	106	31	11	12	1	31	118	149	32
February	14	57	23	13	24	11	27	81	108	34
March	14	52	25	18	29	27	32	81	113	52
April	16	43	26	12	31	10	28	74	102	36
May	17	41	24	12	18	11	29	59	88	35
June	11	67	32	12	21	9	23	88	111	41
July	17	45	30	12	12	6	29	57	86	36
August	29	45	42	9	23	10	38	68	106	52
September .. .	13	64	34	9	12	3	22	76	98	37
October	18	60	43	15	13	4	33	73	106	47
November	56	50	28	11	17	12	67	67	134	40
December	65	69	43	12	17	4	77	86	163	47
1944—										
January	18	46	35	12	12	3	30	58	88	38
February	61	38	34	17	13	8	78	51	129*	42
March	10	40	32	11	18	7	21	58	79	39
April	22	20	18	18	22	9	40	42	82	27
May	16	30	23	11	8	5	27	38	65	28
June	17	58	32	9	14	8	26	72	98	40
July	24	32	25	9	10	3	33	42	75	28
August	13	31	20	6	6	1	19	37	56	21
September .. .	19	36	28	10	3	1	29	39	68	29
October	27	37	34	5	14	1	32	51	83	35
November	20	32	37	10	10	1	30	42	72	38
December	9	35	26	10	5	..	19	40	59	26
1945—										
January	24	48	34	9	4	2	33	52	85	36
February	15	34	28	8	7	1	23	41	64	29
March	13	33	29	9	11	3	22	44	66	32
April	18	37	29	7	7	3	25	44	69	32
May	23	37	40	8	4	3	31	41	72	43
June	22	47	38	7	13	4	29	60	89	42
July	29	35	43	5	1	..	34	36	70	43
August	28	35	23	13	3	1	41	38	79	24
September .. .	27	33	29	8	8	..	35	41	76	29
October	24	39	25	7	5	1	31	44	75	26
November	32	30	26	11	5	1	43	35	78	27
December	21	33	20	11	7	..	32	40	72	20
1946—										
January	28	41	31	10	2	..	38	43	81	31
February	80	32	23	23	8	1	103	40	143	24
March	33	20	17	13	4	2	46	24	70	19
April	49	20	19	12	4	3	61	24	85	22
May	49	16	14	16	6	1	65	22	87	15
June	35	15	16	16	4	..	51	19	70	16

* 67 of the 129 were old syphilitic cases (52 Orientals).

In the above statement, the column "Females detained" signify the number of women against whom a detention order was issued during the respective months, and not the total number actually in detention in that month.

LABORATORY OF MICRO-BIOLOGY AND PATHOLOGY.

I have the honour to present the report of the Laboratory of Micro-biology and Pathology for the year 1945-46 under the following headings:

Staff.
 Statistical Summary.
 Typing of *Corynebacterium Diphtheriae*.
 The Isolation of *Leptospira Mitis* from Pigs at the Brisbane Abattoir.
 Q. Fever.
 Tick Typhus in North Queensland.
 Examination of Tale for *Clostridium Tetani*.
 Complement Fixation Tests for Syphilis.
 Publications.

STAFF.

It has been a pleasure to welcome back from the services Mr. Smith (7th January, 1946),

Mr. Wannan (11th June, 1946), and Mr. Blanchard (17th September, 1945). Mr. Greaves, on his discharge from the R.A.N., resigned from the Department to begin a medical course at the Sydney University. His resignation was accepted with regret.

Mrs. Greenup and Mrs. Armitstead also resigned during the year, as from 22nd March, 1946, and 15th February, 1946, respectively, on the occasion of their husbands' return from overseas service. The laboratory is greatly indebted to them for their assistance during the difficult war years.

Messrs. Morrissy, Smith and Wannan were promoted to Bacteriologist (Division II.) as from 1st July, 1945.

Yours faithfully,

E. H. DERRICK, Director.

STATISTICAL SUMMARY.

No. 1.—EXAMINATION OF MATERIAL FOR INFECTIOUS DISEASES.

		Specs. Recd.	Pos.			Specs. Recd.	Pos.
Diphtheria ..	Cultures	4,737	914		Brought forward ..	55,486	4,499
	Virulence tests ..	125	39				
Gonorrhœa ..	Smears	23,053	640	Vincent's	Smears	26	7
	Blood complement deviation	2,253	204	Angina			
	Cultures	9,684	726	Hæmolytic	Cultures	33	3
	Urine	1	..	Streptococci			
Syphilis ..	Blood—			Ulcus Molle ..	Cultures	29	2
	Wassermann test (B.M.R.C.) ..	4,423	455		Smears	18	1
	Wassermann test (Eagle)	3,124	361	Granuloma Venereum	Smears	36	3
	Wassermann test (Quantitative) ..	25	25	Lymphogranuloma Inguinale	Complement fixation test	6	1
	Kline test	3,742	349	Malaria ..	Blood	1,011	615
	Cerebrospinal fluid—				Spleen smears	2	..
	Wassermann test (B.M.R.C.) ..	77	10	Dysentery, Amœbic	Fæces	2	..
	Wassermann test (Eagle)	11	..	Dysentery, Bacillary	Fæces	1	..
	Sorum — <i>Treponema pallidum</i>	97	27	Trichomonas Vaginalis	Pus	55	37
Loprosy ..	Smears (human) ..	2,842	681	Various Fungous Infections	Smear	8	..
	Rat	1	1		Hair	1	..
Tuberculosis ..	Sputum	288	28		Skin scrapings	2	..
	Fluid	5	1		Sputum	1	1
	Urine	3	..				
	Guinea-pig inoculation	8	..	Filariasis ..	Blood	1	..
Typhoid and Paratyphoid	Blood (agglutination)	189	4	Clostridium Tetani	Tissue	6	..
	Blood (culture) ..	1	..		Catgut	2	..
	Urine	120	..		Smear	1	..
	Fæces	129	1		Tale powder	18	..
	Water	6	..		Jute bag	1	..
	Oysters	9	..		Fibre	1	..
Murine Typhus	Blood (agglutination)	104	11	Organisms ..	Flock	1	..
Scrub Typhus	Blood (agglutination)	101	1		Fæces	11	..
Undulant Fever	Blood agglutination)	96	1		Urine	53	..
Leptospirosis	Blood (agglutination)	90	3		Cerebrospinal fluid ..	26	..
	Blood (culture) ..	9	..		Smears	83	..
	Urine (dark-ground examination) ..	1	..		Cultures	23	..
Q. Fever ..	Blood (agglutination)	114	17		Sputum	2	..
	Blood (guinea-pig inoculation) ..	15	..		Pus	11	..
	Urine (guinea-pig inoculation) ..	3	..		Pleural fluid	10	..
					Blood cultures	5	..
					Spleen	1	..
					Pericardial fluid ..	1	..
					Blood	1	..
					Fluid	4	..
Carried forward ..		55,486	4,499			56,979	5,169

No. 2.—PATHOLOGICAL EXAMINATION.

		Specs. Recd.	Pos.
Blood	Full count	205	..
	Differential count -	75	..
	Red cell count ..	334	..
	White cell count ..	24	..
	Reticulocyte count..	9	..
	Hæmoglobin	349	..
	Urea estimation ..	184	..
	Basophilia	67	..
	Grouping	15	..
	Sedimentation rate..	8	..
	Fouchet test	1	..
	Blood sugar	20	..
	Glucose tolerance test	18	..
	Coagulation time ..	1	..
	Bleeding time	1	..
	Urine	Microscopical examination	238
Chemical examination		241	..
Urea estimation		288	..
Specific gravity		103	..
Glucose tolerance test		18	..
Porphyrins		4	..
Ketone bodies		2	..
Pigments		1	..
Bile		2	..
Intestinal worms ..		489	96
Fæces	Occult blood	18	2

Cerebrospinal Fluid	Globulin	71	..
	Cells	73	..
	Glucose	70	..
	Chlorides	39	..
	Colloidal gold	68	6
Seminal Fluid	Presence of Spermatozoa	1	..
Stomach Contents	Test meal	18	..
Kittens	Examination	2	..
Insect	Identification	1	..
Worms	Identification	8	..
Arthropods	Identification	3	..
Larvæ	Identification	1	..
Fungus	Identification	1	..
Tissue	Section	281	..
	Section (Post-mortem)	225	..
		3,577	104

No. 3.—FOODS, WATERS, &C.

Water—			
Bacterial count .. ..	..	..	439
Colon bacilli .. ..	..	..	439
Organisms .. ..	..	..	1
Rope .. ..	..	..	1
Milk—			
Bacterial count .. ..	..	..	179
Colon bacilli .. ..	..	..	175
Organisms .. ..	..	..	7
Reductase test .. ..	..	..	11
Guinea-pig inoculation .. ..	..	..	102
(All negative for <i>M. tuberculosis</i>)			
(Four positive for <i>Brucella abortus</i>)			
Bread—Rope .. ..	..	..	22
Flour—Rope .. ..	..	..	16
Yeast—Rope .. ..	..	..	13
Dripping—Rope .. ..	..	..	4
Pastry—Rope .. ..	..	..	1
Salt—Rope .. ..	..	..	1
Oil—Rope .. ..	..	..	1
Caramel—Rope .. ..	..	..	1
Pickles—Organisms .. ..	..	..	1
			1,414

No. 4.—VARIOUS MATERIALS.

Disinfectant—Co-efficient .. ..	..	..	..	22
Soap—Organisms .. ..	..	..	..	2
Flock—Organisms .. ..	..	..	..	7
Cotton—Organisms .. ..	..	..	..	6
Kapok—Organisms .. ..	..	..	..	1
Wool Filling—Organisms .. ..	..	..	..	2
Fibre—Organisms .. ..	..	..	..	6
Mattress Filling—Organisms .. ..	..	..	..	1
Union Filling—Organisms .. ..	..	..	..	1
Straw—Lice, mites .. ..	..	..	..	1
Bottles—Sterility .. ..	..	..	..	66
				115

No. 5.—SPECIAL INVESTIGATIONS.

Guinea-pig—Inoculations .. ..	..	..	..	206
Guinea-pig—Post-mortems .. ..	..	..	..	93
Mouse—Inoculations .. ..	..	..	..	81
Rabbit—Inoculations .. ..	..	..	..	4
Animal tissue for section .. ..	..	..	..	11
Animal sera for <i>Brucella abortus</i> .. ..	..	..	..	4
Fowl examined for <i>Salmonella</i> .. ..	..	..	..	1
Pig kidneys for leptospiral .. ..	..	..	..	139
				539

No. 6.—MEDICO-LEGAL.

Post-mortem Examinations .. ..	..	..	..	351
Clothing—				
Blood .. ..	..	..	..	112
Spermatozoa .. ..	..	..	..	94
Various Articles—				
Blood .. ..	..	..	..	43
Spermatozoa .. ..	..	..	..	8
Smears—				
Gonorrhœa .. ..	..	..	..	7
Spermatozoa .. ..	..	..	..	3
Hair—Identification .. ..	..	..	..	1
Bones—Identification .. ..	..	..	..	4
Tissue—Section .. ..	..	..	..	1
Fetus .. ..	..	..	..	1
Skull—Identification .. ..	..	..	..	1
				626

Attendances at Courts—

Supreme Court .. ..	..	..	..	37
Police Court .. ..	..	..	..	25
Coroner's Court .. ..	..	..	..	16
Other Courts .. ..	..	..	..	3

No. 7.—VACCINES PREPARED.

A. Typhoid-Paratyphoid Vaccine—3,905 c.c.s. of T.A.B. vaccine were prepared.

B. Autogenous vaccines were prepared as follows :—

From—				
Sputum .. ..	..	..	..	2
Pus .. ..	..	..	..	5
Cultures .. ..	..	..	..	2

9

No. 8.—EXAMINATION OF RODENTS.

Rodents received for examination from Brisbane City Council:—

Classification—

<i>Rattus norvegicus</i>	22,448
<i>Rattus rattus</i>	1,296
Unclassified	7,777
<i>Mus musculus</i>	48
	<hr/> 31,569

Special Examinations for Plague—

Rats fully dissected	5,682
Spleen smears examined	5,682

Rat smears received from other centres—

Mackay	1,062
Bundaberg	812
Maryborough	578
Gympie	73
Ipswich	1,000
Sandgate	653
Wynnum	764
Meatworks (Brisbane Area)	863
	<hr/> 5,805

No rat was found infected with *Pasteurella pestis*.

Grand Total of Examinations for Year 1945-46 100,633

MATERIAL SUPPLIED.

Two hundred and fifty-one (251) requisitions were supplied during the year to hospitals, private practitioners and local authorities consisting of 12,019 Swabs, 11,983 Cultures, 1,210 Wright's Capsules, 24 Blood Bottles, 462 Faeces Tins, 24 Glass Slides, 124 Urine Bottles, 30 Agar Slopes, and 2 ampoules of Positive Kline Serum.

CULTURE MEDIA PREPARED.

Number of Tubes.

Serum Cultures—Inspissated Serum slopes	13,000
Nutrient Broth Cultures—	
Tubes for disinfectant examination	2,000
Large tubes	84
Nutrient Agar Cultures—	
Vaccine slopes	700
Small slopes	450
Sugars—	
Lactose	500
Glucose	120
Inosite	120
Xylose	40
Adonite	80
Dulcitate	40
Saccharose	40
Miscellaneous Tubes and Plates—	
Schüffner's medium for <i>Leptospira</i>	800
Fletcher's medium	200
Sterile distilled water	1,500
McConkey's medium (plates)	150
Endo's medium (plates)	300
Treble lactose	300
Methyl red medium	200
Sodium citrate	80
Vosges-Proskauer	160
Cooked meat medium	200
Lactose (20 per cent.)	80
Normal saline	400
Maltose agar	72
Staroh medium	120
Glucose broth	100
	<hr/> 21,836

Material in bulk—

Litres.

Normal saline solution	142
Miscellaneous reagents	115
Miscellaneous stains	40
Sterile distilled water	40
Milk medium	5
Gonococcus medium	68
Count Agar	12
Nutrient Agar	30
Wright's Agar	2
Kaiserling solution I. and II.	22

TYPING OF CORYNEBACTERIUM DIPHTHERIAE.

During the period February to September, 1941, all swabs received at the laboratory found positive for *C. diphtheriae* were thoroughly investigated to determine the types prevalent in S. Queensland.

The swabs were inoculated on to tellurite blood agar (method—V. Glass J. Path. Bact. Jan., 1937, p. 235) and after 24 hours' incubation, colonies of *C. diphtheriae* were picked off and grown in pure culture on inspissated serum slopes. The pure cultures were then transferred to sugars (glucose, saccharose, starch), nutrient broth and 10 per cent. guinea-pig blood agar (method—Wilson and Goldsworthy J. Path. Bact. Jan., 1939, p. 125) to determine whether of *Gravis*, *Mitis* or *Intermedius* types. A series of 51 swabs from cases of diphtheria at Brisbane General Hospital were included in this survey (per courtesy of Mr. Henry). Altogether 140 cultures came from clinical cases of diphtheria and 60 from carriers, representing 198 persons.

The accompanying tables show the number of positive cultures obtained each month, the number and percentage of types among these, and the distribution throughout S. Queensland. The relation of type to virulence was studied with 45 cultures.

Standard types—*Gravis*, *Mitis*, and *Intermedius*—were kindly supplied by Dr. Sawers, School of Public Health and Tropical Medicine, Sydney, for comparison. It is interesting to note that no *C. diphtheriae* type *Intermedius* was encountered. Taking the series as a whole *Gravis* predominated slightly over *Mitis*, and this held also for the Brisbane area. At Ipswich there was a marked predominance of *Gravis* and at Bundaberg of *Mitis*. One *Gravis* type (atypical) was met. Its growth on guinea-pig blood agar was smooth and shiny (*Mitis*-like) but all other characteristics were of *Gravis* type. In two instances, both *Gravis* and *Mitis* types were isolated, one from a clinical case and one from a carrier. An attempt was made to prepare antisera against strains of the type *Gravis*, to determine whether, as in England, most of the *Gravis* types might belong to one or two particular strains (method—Robinson and Peeney, J. Path. Bact. 1936, 43, 403). Three such antisera were made but time did not permit further work along these lines.

TABLE MONTHLY INCIDENCE OF TYPES OF *C. diphtheriae*.

Month.	Cases.			Carriers			Total Cultures.
	<i>Gravis</i> .	<i>Intermedius</i> .	<i>Mitis</i> .	<i>Gravis</i> .	<i>Intermedius</i> .	<i>Mitis</i> .	
February ..	2	..	2	3	..	2	9
March ..	3	..	4	4	..	1	12
April ..	7	..	3	7	..	6	23
May ..	17	..	12	6	..	5	40
June ..	21	..	22	13	..	1	57
July ..	14	..	18	4	..	5	41
August ..	5	..	4	..	..	3	12
September ..	3	..	3	..	..	..	6
	72	Nil	68	37	Nil	23	200
	(or 51% of cases)		(or 49% of cases)	(or 61% of carriers)		(or 39% of carriers)	

TABLE RELATION OF VIRULENCE TO TYPE.

Source.	Gravis.	Inter-medius.	Mitis.	Total.
Clinical Cases, Organisms Virulent	11	..	9	20
Carriers, Organisms Virulent ..	9	..	9	18
Carriers, Organisms Avirulent ..	5	..	2	7
	..	..	..	45

TABLE GEOGRAPHICAL INCIDENCE OF TYPES OF *C. diphtheriae*.

Locality.	Gravis.	Inter-medius.	Mitis.	Total.
Brisbane General Hospital	27	..	24	51
Brisbane (City Council and Others)	24	..	20	44
Nambour	1	..	2	3
Gympie	3	..	7	10
Beaudesert	5	..	5	10
Maryborough	2	..	3	5
Cooroy	1	..	..	1
Kingaroy .. .. .	..	..	1	1
Ipswich	30	..	6	36
Charleville	8	..	1	9
Bundaberg	3	..	13	16
Esk .. .. .	..	..	4	4
Boonah	1	..	1	2
Kilcoy .. .. .	..	..	3	3
Scarness	1	..	..	1
Southport .. .. .	..	..	1	1
Beenleigh	2	..	..	2
Pomona	1	..	..	1
	109	Nil	91	200
	(or 54.5% of all types)		(or 45.5% of all types)	

THE ISOLATION OF *Leptospira mitis* FROM PIGS AT THE BRISBANE ABATTOIR.

During January, 1946, an attempt was made to recover a strain of *Leptospira pomona* from pigs, for use in the performance of diagnostic tests in the laboratory, the original strain having been lost. Five visits were made to the Brisbane Abattoir and 139 pigs were tested.

A leptospiral strain was isolated, by guinea-pig inoculation, from a batch of 25 pooled kidneys collected on 22nd January. Seventy-five kidneys, including the abovementioned 25, were examined, using the dark-field, for leptospirae. However none were seen.

Tests carried out in the laboratory indicated that the "pig" strain corresponded with the serological type *L. mitis* (Johnson: Med. J. Austral. 1942, i., 431), which agglutination tests have shown to be endemic in cattle, and whose occurrence in pigs has been suspected.

The search for *L. pomona* had to be abandoned when the abattoir closed as a result of the meat strike. It will be continued when conditions are again favourable.

Q FEVER.

Isolation of Two Strains of R. burneti.—During October, 1945, two strains of *Rickettsia burneti* were isolated from Brisbane Abattoir workers. One of these (Trout) has been main-

tained by guinea-pig passage as our stock laboratory strain, replacing the J. strain which was lost.

Preparation of Rickettsial Antigens.—In order to continue routine agglutination tests, and perhaps introduce the complement fixation technique used in overseas laboratories for the diagnosis of rickettsial infections, attempts have been made to produce a suitable antigen.

Preparations made from infected mouse tissue have been disappointing. However, rickettsial suspensions, using infected ticks as the medium of culture, are now in course of preparation. This method was previously used in the laboratory and found satisfactory, although long and tedious in operation. There are no facilities for adopting the standard egg-culture technique, which is widely used elsewhere.

TICK TYPHUS IN NORTH QUEENSLAND.

In August, 1945, an interesting serum was received from Dr. J. Brody, of Gordonvale, North Queensland. His patient was a female aged 50, who was admitted to Gordonvale Hospital with fever, headache, and a widespread papular rash on trunk and extremities. All regional lymphglands were enlarged, but no eschar was found. Serological tests at the Commonwealth Laboratory, Cairns, had shown agglutination with Proteus OX2 and OX19, and this was confirmed in this laboratory.

The case was diagnosed as tick typhus, following the work of Col. Andrew and his colleagues, who had discovered this disease on the nearby Atherton Tableland. Although Brody's patient gave no history of tick bite, she lived in an area of secondary scrub into which she had gone to collect wood seven days before her admission to hospital. Brody reported the case in the Medical Journal of Australia, 1946, i., 511.

EXAMINATION OF TALC FOR *Clostridium tetani*.

Following the reported isolation of *Clostridium tetani* spores from talcum powder in New Zealand, representative samples of the many brands of talc on the retail market were examined for tetanus spores. Bulk supplies were also tested. In no instance could the presence of tetanus spores be demonstrated.

COMPLEMENT FIXATION TESTS FOR SYPHILIS.

During the year the Eagle technique, as well as the McIntosh and Fildes method, has been performed on all blood specimens received from the Female and Male Clinics and will be performed on as many blood specimens as possible during the coming year.

PUBLICATIONS.

Morrissey, G. C., and Derrick, E. H.: "A Case of Q Fever in North Queensland," Med. J. Australia, 1945, ii., 214.

Saxton, W. J., Hatcher, F., and Derrick, E. H.: "Chromoblastomycosis, with Reports of Two Cases Occurring in Queensland," Med. J. Australia, 1946, i., 695. (This paper was written during the previous year on the discovery of one case of the disease. Difficulty in procuring art paper delayed its publication, and in the meantime material from a second case came to the laboratory and was included in the report. Still a third case has since arrived.)

LEPROSY.

(A) LEPROSY AMONG WHITES.

(a) *Peel Island.*

The environmental conditions at Peel Island have continued to improve, thanks to the untiring work of the superintendent and the staff, and to the Public Works Department. The importance of good environment for treatment of a disease requiring long hospitalisation cannot be over-emphasised. There still remain grounds for improvements which are necessary to assist the treatment. Food must be not only good but acceptably presented to people who must eat well and yet are not capable of strenuous physical exercise to stimulate their appetite. Unless the patient eats well, all other treatment is handicapped. The staff do the best they can under the conditions at present obtaining, but we are looking forward to the building of the approved new kitchen-dining room block.

On the whole, more time has been given to Peel Island than in the previous year, and demonstrations have been given on several occasions to medical officers and students. Specialist consultation at Wattlebrae Hospital has been used as far as restricted space and the facilities at Wattlebrae have allowed. During the year trial was made of 3 per cent. alepol by intramuscular and intradermal injections in about 25 cases for nearly nine months. The results were not up to expectations and its use was abandoned. The use of iodised moogrol was also abandoned, as it is no longer being manufactured, and the standard treatment at present is moogrol with creosote. The results with this so far are promising. It is hoped during the next year to run an experimental series on penicillin, though no specific result is expected and it will be largely an observation of its effect on secondary infections. It is hoped also that new drugs of the sulphonamide series and also streptomycin will shortly become available for clinical trial in the treatment of leprosy. More work has been put into the treatment of complications such as tropic ulcers, with quite promising results in some cases, and special boots have been supplied where necessary to cases of foot deformity.

There are at present 46 patients on the island, and Table I. shows the number of cases there on first admission and those on relapse. Of these 46, 34 are males and 12 females.

TABLE I.

—	First Admission.	Relapsed.	Totals.
Males ..	20	14	34
Females ..	8	4	12
Total ..	28	18	46

Table II. shows the admissions for the last three years, and it will be seen that the total number of patients has increased by 11 over the period.

TABLE II.

—	1943-44.			1944-45.			1945-46.			Total for 3 Years.
	M.	F.	T.	M.	F.	T.	M.	F.	T.	
Admitted	11	5	16	8	3	11	4	3	7	34
Discharged	3	1	4	2	2	4	4	2	6	14
Died ..	3	0	3	2	1	3	1	2	3	9
Increase for year	5	4	9	4	0	4	..	..	..	} 11
Decrease for year	..	..	..	..	..	..	1	1	2	

NOTE.—Discharged males, 1943-44, includes one absconded.

Table III. shows the number of patients at 30th June, 1946, as compared with the number at the beginning of the financial year.

TABLE III.

—	Males.	Females.	Totals.
As at 1-7-45 ..	35	13	48
Admitted ..	4	3	7
Discharged ..	4	2	6
Died ..	1	2	3
As at 30-6-46 ..	34	12	46

I wish to express my appreciation of the continued co-operation of the staff in the work at Peel Island and of the patients in research and treatment.

(b) *Epidemiology.*

Cases continued to be segregated, and the four males segregated during the year were all new cases and have probably been infectious for some time. Of the three females admitted, one was a new case in an early stage of the disease, and two were re-admissions of paroled patients out of touch with the Department.

Examination of past and present records reveals a high familial incidence of the disease and the importance of close contact, in the majority of cases, in transmission of the disease. Those cases not accounted for by known close contact may well be due to undetected contact.

(B) LEPROSY AMONG ABORIGINALS.

(a) *Fantome Island.*

Fantome Island was visited by me in November, 1945, during the course of a survey of Palm Island, to obtain contact data and to observe the conditions there. These conditions will be made the subject of a separate report, which it is hoped to complete early in the next financial year. The present facilities at Fantome were found to be inadequate, an extensive rebuilding programme is urgently necessary, and more medical attention is required.

The following table shows the number of patients at Fantome Island Lazaret at the 30th June, 1946, as compared with the number at 1st July, 1945:—

	Males.	Females.	Totals.
As at 1-7-45 ..	38	35	73
Admitted	3	5	8
Discharged	2	1	3
Died	3	5	8
As at 30-6-46 ..	36	34	70

(b) *Epidemiology.*

During the year surveys were made of the following settlements:—

Cherbourg and Woorabinda, July, 1945.

Palm Island, Yarrabah and Monamona, November-December, 1945.

As a result of the first survey, one case was transferred from Woorabinda to Fantome Island, and lists were made of clinical cases. An attempt was made to have the clinical cases treated on the settlement, but this was impracticable due to lack of nursing staff. As a result of the later survey, two cases were transferred from Monamona and two from Palm Island to Fantome Island. A number of clinical cases was found at both Monamona and Palm Island, and the leprosy rate at Monamona was found to be approximately ten times as great as for other places so far surveyed. A report on this matter is in the process of compilation.

(C) GENERAL REMARKS.

The division made above into separate reports on leprosy among white people and among natives is an artificial one, and though it may be applicable in certain instances, such as native settlements and missions and certain areas of Cape York Peninsula, and in cities of entirely white population, it does not apply in rural areas, particularly where native labour is employed in and around the house. This aspect has not been covered by any of the surveys mentioned above.

The general impression gained during the year is that leprosy is as prevalent as ever, and that this prevalence is due to the following causes:—

- (1) Failure to recognise early cases and treat them before the infectious stage is reached. This may be due to—
 - (a) Lack of familiarity with the disease by both medical practitioner and general public.
 - (b) Misleading evidence which may be given by the patient.
 - (c) Failure of the patient to seek advice in the early stages.
- (2) Fear of segregation. This is a very real fear on the part of those suspecting they have the disease and of those who are out on parole. For them segregation means the severing of family and business ties for an indefinite period—in the imagination of the public, generally for life. This is not lessened by the horrid tales which

circulate among the public, many of whom believe that leprosy is a disease which cannot be alleviated and in which disfigurement is worse than in any other disease, and many persons seriously believe that people with leprosy are cast on to Peel Island to fend for themselves.

Public Health Reports received indicated that "Promin" was a most promising drug for leprosy, and consequently in March an order was placed with the Queensland representative of the firm who market this product, for approximately one year's requirements of the drug for research into and treatment of leprosy in Queensland by the Department. We are awaiting receipt of it, and hope to have satisfactory results which will be tabulated in the next report.

Efforts have continued to interest patients in various projects, partly to induce mental improvement and partly for their physical benefit. Varied success has been met with, and gardening seems to be one aspect gaining favour.

Radio reception is the principal recreation, particularly of those physically unable to get far afield.

A motor vehicle for their own use has been provided, and is presently in the Government garage having certain additions made for the comfort and convenience of the persons using it.

The opening of the recreation hall was responsible for indoor recreation to a larger extent than usual, patients gathering for community singing, dancing, and table tennis. This hall was opened on 3rd November, 1945, on which occasion the Salvation Army with a full band entertained the inmates and their relatives. Other visits were made during the year by the band, and the patients were very appreciative of such services.

New works completed at Peel Island in the year were the recreation hall, extensions to the hospital, a new bathroom in the male section, and the building of a power-house. Electric lighting and power, though not yet installed, are under review, and new male patients' houses are being constructed and others repaired.

Extensive painting has been carried out by the Department of Public Works, and under a financial agreement with the Department two of the inmates have undertaken to paint the houses occupied by the patients.

Projected works include the erection of a new kitchen-dining room block and the provision of a cinematograph for movie shows. Tenders have been called for this, and one accepted. Provision was made in the recreation hall for the installation of this equipment, and matters will be put in hand as early as possible.

It is felt that the Department of Public Works have assisted greatly, particularly in view of the shortage of labour and essential materials, and the services of the manager of the State Stores Board and his staff are also appreciated.

An innovation during the year, very welcomed by the inmates, was the provision of the services of a correspondent for persons unable, because of their disabilities, to write to their friends. A lady visits the island every second Sunday, and her services are much sought after.

SANITATION SECTION.

The return to duty of members of the inspectorial staff discharged from the various branches of the Defence Forces eliminated the staff shortage experienced during the war period. Only three members remain undischarged.

The activities of this section, especially in the latter half of the year, increased proportionally as members resumed duty, and many of them which lay dormant during the staff shortage are now on the active list.

An acute shortage of galvanised iron and other materials essential to the efficient execution of sanitary services and other preventive health measures was experienced during the second half of the year. Urgent requests for assistance in procuring materials were received from 30 local authorities. The shortage affected local authorities throughout the State, and prevented the renewing of old and worn-out plant rendered unserviceable by the excess service during the shortages of the war period.

Terne iron as a substitute material for sanitary pans and refuse bins proved entirely unsuitable, and unable to stand up to the hard tear and wear contingent to these services.

Reports from State health inspectors indicate that many councils are giving more serious consideration to the sanitation of their areas than has been done in the past; and this is evidenced by the number of "clean up" campaigns carried out by the following councils during the year—viz., Allora, Cairns, Gayndah, Isisford, Tambo, Blackall, Cambooya, Longreach, Livingstone, and Laidley. It is anticipated that health administration will make a rapid forward move in the near future.

Sanitation must be placed high up on the priority list of plans for the future development of the State if a correct balance is to be maintained. Our scientific and technical knowledge must be applied to the ordinary everyday business of hygiene and sanitation in a common-sense and practical way; improved highways are commendable, but neglect to clean and purify the by-ways is a serious breach of sanitary practice.

If our health administration is to be kept abreast of the times the field work must receive more sincere consideration, and for the practical administration of our health laws an increased and highly trained service is essential, and with this object in view the Department has prepared a plan for increased and more effective inspection and supervision in local authority areas throughout the State. The plan is now in operation, and a number of large joint health areas have been divided up, and smaller and more easily controlled areas formed.

The Department's ultimate object is for each local authority to appoint its own health inspector; as the local authority does for its other officers, but in many areas it is not practicable at the present time to insist on such appointments. Action, however, will be taken as necessity arises, or opportunity presents itself.

WATER RETICULATION SCHEMES.

Reticulated water supply schemes are reported to be under investigation for the following areas:—Biggenden, Childers, Chinchilla, Degilbo, Longreach, Monto, Miles, Nebo, Pittsworth, Proston, St. George, Wondai.

Charters Towers is installing filters at a cost of £5,000.

Droughts have delivered many grave warnings on the effect of inadequate water supplies for the communities in which a very large part of our population live. From a public health point of view, a reticulated pure and wholesome supply is an absolute necessity. The dependence on stored rain water is a short-sighted policy, because it is limited and intermittent, and its replenishment may be long delayed, then other sources have to be found, and the carting of water resorted to from bores (a large number of which cannot be accepted as a satisfactory domestic supply), or from wells, rivers, creeks, lagoons, and ponds, which must be regarded as suspicious waters, and in many instances dangerous sources, thereby creating a risk to public health.

SEWERAGE SCHEMES.

For cities, towns, and the larger townships the pan system of nightsoil removal and disposal is primitive and obsolete. This fact is now being realised by many local authorities. Plans for sewerage schemes are under consideration by—

Aramac Shire Council	..	for Aramac
Balonne Shire Council	..	„ St. George, Dirranbandi, Bollon
Blackall Shire Council	..	„ Blackall
Bundaberg City Council	..	„ Extensions to Existing Scheme
Nerang Shire Council	..	„ Burleigh Heads
Bowen Town Council	..	„ Bowen
Barcaldino Shire Council	..	„ Barcaldino
Cairns City Council	..	„ Cairns
Charleville Town Council	..	„ Charleville
Dalby Town Council	..	„ Dalby
Gladstone Town Council	..	„ Gladstone
Gympie City Council	..	„ Gympie
Hinchinbrook Shire Council	..	„ Ingham
Isisford Shire Council	..	„ Isisford
Johnstone Shire Council	..	„ Innisfail
Longreach Shire Council	..	„ Longreach
Mackay City Council	..	„ Extensions to Existing Scheme
Murweh Shire Council	..	„ Augathella and Morven
Rockhampton City Council	..	„ Extensions to Existing Scheme
Sarina Shire Council	..	„ Sarina
Townsville City Council	..	„ Extensions, and North Ward Scheme
Tambo Shire Council	..	„ Tambo

Sewerage schemes are in operation at Brisbane, Bundaberg, Charleville, Cunnamulla, Goondiwindi, Mackay, Maryborough, Quilpie, Rockhampton, Townsville, Toowoomba, and Warwick.

The anticipated rapid development in the construction of sewerage schemes for the cities and

towns named above, and for others contemplated, calls for standard regulations or by-laws governing domestic sewerage work.

It would be an ill-advised and short-sighted policy if different standards for different cities and towns are permitted to eventuate.

The standards for all materials, fixtures, and fittings for plumbing and other work should be of equal quality for all house sewerage work for all cities and towns with sewerage.

A standard set of regulations or by-laws is an urgent necessity and should be available to local authorities prior to the commencement of such schemes.

The standard of workmanship also calls for serious consideration. Plumbing and draining work is a highly technical trade, and in the interests of public health must be carried out by well-trained, efficient, and intelligent craftsmen, who have gained their licences by examination. At the present time the granting of plumbers' and drainers' licences is chaotic and in need of drastic changes. A local authority can issue a license to a person with little or no knowledge of the trade, or to any tinsmith who may display the sign "Plumber" over the door of his workshop.

Licences now issued are not reciprocal, which means, for instance, that those granted in Townsville, Rockhampton, Mackay, Toowoomba, and other cities are not acceptable by each other or by the Brisbane City Council, and rightly so. This unsatisfactory state of affairs points to the necessity for a State Board of Examiners for the control of examinations and issue of licences so that tradesmen may practise in any part of the State without further examination or test.

DRAINAGE SCHEMES.

Murweh Shire Council.—Construction of storm water drainage for Morven and Augathella in conjunction with the proposed sewerage.

Gladstone Town Council.—Construction of kerbing and street channelling.

Mareeba.—Street channelling and footpath, estimated at £800 approximately.

Rockhampton City Council.—Construction of 7.79 miles of kerbing and street channelling at an estimated cost of £17,000.

Charleville Town Council is proceeding with the drainage of Bradley's Gully by day labour under Government loan and subsidy.

Johnstone Shire.—3,000 feet kerbing and street channelling at Innisfail.

Other local authorities are executing drainage works under the 50/50 mosquito eradication subsidy scheme and by loan.

LOANS.

The local authorities named have been granted loans for the purposes stated—

Local Authority.	Loan.	—
Beenleigh Shire ..	Treasury, £628	Drainage
Barcaldine Shire ..	Treasury, £300	Sanitary Truck
Cairns City ..	Debenture, £6,575	Refuse Incinerator
Gladstone Town ..	Treasury, £650	Refuse Truck
Kolan Shire ..	Treasury ..	Kerbing and Channelling
Livingstone Shire ..	Debenture and Subsidy, £2,400	Public Conveni- ences, Seaside Resorts
Longreach Shire ..	Treasury, £800	Sanitary Truck
Nerang Shire ..	Treasury, £9,000 and 10 per cent. Subsidy	Drainage
Warroo Shire ..	Treasury, £300	Water Supply at Sanitary Depot

NIGHTSOIL REMOVAL SERVICES.

Particulars of nightsoil services in operation within the State—

Areas.	Number of Daylight Services.	Number of Night Services.	Number by Contract.	Number by Day Labour.	Transport.			Disposal.		
					Motor.	Horse.	Both.	Burial.	Incineration.	Sewerage Works.
22 Cities and Towns ..	21	1	14	8	16	3	3	20	1	1
317 Townships ..	*312	5	218	*99	287	30	..	317	..	..
339 Totals ..	333	6	232	107	303	33	3	337	1	1

*Includes 1 private contract and 1 service carried out by a committee in a small mining centre (Thursday Island excluded).

Ayr Shire Council provided a removal service at the seaside resort of Alva.

Inglewood Shire Council opened a new sanitary depot at Texas.

Coolangatta is now operating at their new sanitary depot, Bilinga.

Normanby Shire Council extended the Harrisville sanitary service to include Warril View.

Maroochy Shire Council has been advised that the sanitary depot serving Maroochydore is unsatisfactory and was instructed to select another site.

Mulgrave Shire Council extended its sanitary service to include Macham's Beach.

Tambo Shire Council selected a new burial site adjacent to the existing depot, the plant on which will remain in use.

Warroo Shire Council is providing a permanent water supply for its depot at Surat.

The number of townships throughout the State without nightsoil or refuse removal services is—

50 Premises and Over.		Between 20 and 50 Premises.	
Nightsoil.	Refuse.	Nightsoil.	Refuse.
17	31	54	77

These figures reveal a very satisfactory state in view of the adverse circumstances which have existed for the last six years.

The Department's aim is to have these services operating in all communities with fifty premises and over, and action will be taken in this regard as soon as circumstances and opportunity permit.

All sanitary depots within the metropolitan area were inspected regularly (37 inspections) at Luggage Point, Darra, Sandgate, and Wynnum, as well as the depots at thirty-two towns visited during the year.

SANITARY CONTRACTS.

Twenty-two draft sanitary contracts submitted by the undermentioned 19 local authorities for approval covered 41 townships:—

Atherton Shire	for Atherton and Tolga
Burke Shire ..	.. Burketown
Balonne Shire ..	.. St. George
Bendemere Shire ..	.. Wallumbilla and Yeulba
Boonah Shire ..	.. Boonah
Brisbane City ..	.. Brisbane, Mount Crosby, and Holt's Hill
Glengallan Shire ..	.. Killarney, Tannymorel, Yangan, Mount Colliery, Emu Vale
Gooburrum Shire ..	.. Ryan's Estate and South Kolan
Kingaroy Shire ..	.. Kingaroy
Murilla Shire ..	.. Dulacca
Nerang Shire ..	.. Nerang and Mudgeeraba
Normanby Shire ..	.. Harrisville
Redcliffe Town ..	.. Redcliffe
Rosewood Shire ..	.. Rosewood, Marburg, Walloon, Thangoona, Grandchester, Calvert, Lanefield
Taroom Shire ..	.. Taroom
Thuringowa Shire ..	.. Giru
Tiaro Shire ..	.. Tiaro
Woongarra Shire ..	.. Bargara, Burnett Heads, Kalki, Qunaba, Innes Park, and Elliot Heads
Woocoo Shire ..	.. Brooweena, Aramara

REFUSE REMOVAL SERVICES.

While reports from departmental officers indicate that an improvement in the sanitary disposal of refuse was noted during the year, nevertheless a full appreciation of the complete and sanitary disposal by "controlled" tips has not yet been realised. The disposal of refuse at tips should be carried out in a planned and systematic manner, with a plentiful supply of clean covering material, so that all exposed faces are covered over to a sufficient depth after the completion of tipping whether done daily or weekly. Reliable employees should be in charge, and the success of this method of disposal depends on the training and experience of the charge hand.

The use of a town's refuse can be turned into a valuable asset by the economic reclamation of low-lying, swampy, and other valueless lands, and their conversion into public parks, playgrounds, recreation grounds, &c. Much useless land has been reclaimed by this means in a number of cities and towns.

The following tips within the metropolitan area have been kept under supervision:—Bulimba, Chelmer, Coorparoo, Crosby Park, Coronation Drive, Dutton Park (now closed), Ekibin, Fairfield, Gould Road, Granville Street, Hamilton Road, Junction Road, Rome Street, Moorooka, Newmarket Road, Shaws Road, St.

Lueia, Stones Road, Spencer Park, Toombul, Victoria Park, also at Lota, Sandgate and Wynnum (360 inspections).

Refuse tips at the 32 towns visited outside the metropolis were also inspected.

Particulars of refuse removal services in operation within the State—

Areas.	No. by Contract.	No. by Day Labour.	Disposal.		
			Tips.	Incineration.	Both.
22 Cities and Towns	14	8	18	3	1
246 Townships ..	*171	*75	246	..	..
268—Totals ..	185	83	264	3	1

* Includes 1 private contract and 1 service carried out by a committee in a small mining centre (Thursday Island excluded).

PLAGUE PRECAUTIONS.

Information obtained from reports received by the Department and outlined as under gives an approximate indication of the extent of rat infestation throughout the State:—

No. of Local Authorities reported Infestation as			
Nil	Light.	Heavy.	No Information.
50	60	14	*19
143			

* Local authorities situated in far North and West. The heavy infestations are confined to the coastal cities and towns (Thursday Island excluded).

In the Brisbane area 4 surveys and 94 inspections were made of the river frontages during the period under review.

The river retaining walls and embankments are in the same condition as reported last year, and still form extensive rat harbourages.

The Department of Harbours and Marine have commenced improvements in the construction of a retaining wall at Lytton, and it is proposed to construct a similar wall at Kinellan Point, New Farm.

Harbourages formed by trade wastes and materials as well as by dense growth of vegetation on lands adjoining these walls and embankments were noted during the inspections. The Brisbane City Council was requested to take the necessary action for the cleaning up of these lands.

Rat destruction work carried out by the Brisbane City Council on the river fronts consisted of—

Place.	No. of poison baits laid.		Rats caught.	
	1945-46	1944-45	1945-46.	1944-45.
River fronts	243,870	224,900	..	..
Wharves ..	185,855	156,610	593	574
Totals ..	429,725	381,510	593	574

The table shows an increase of 48,215 baits laid and 19 rats caught over the previous year.

The Brisbane City Council employs 50 men and 31 dogs for rat destruction work within the city area. The Government subsidises this work (including Government premises) to the extent of £3,000 per year.

The dispositions of the 50 men as at 30th June, 1946, were—

Hunting—

City Proper	1 gang of 4 men
Northern Suburbs ..	{ 1 gang of 4 men 2 gangs of 3 men 1 gang of 2 men
Southern Suburbs ..	{ 2 gangs of 3 men 1 gang of 2 men
Wynnum	1 gang of 2 men
Sandgate	1 gang of 2 men
Meatworks	1 man

Trapping and Baiting—

City and South Brisbane,
Government buildings,
river frontages, and wharves 13 men

Complaints—

Metropolitan area	4 men, 2 motor cycles
Preparing baits	2 men
Overseer and Assistant	2 men

The cities of Cairns, Townsville, and Rockhampton, and the respective Harbour Boards delivered their rat catches to the Commonwealth Health Laboratory in each city for examination—

City.	No. Examined.	
	1945-46.	1944-45.
Cairns	1,746	1,579
Townsville	595	854
Rockhampton	2,775	3,738
Totals.. .. .	5,116	6,171

Twenty-three leprous rats were reported from Rockhampton and one from Brisbane, and in each case the usual routine action of rat extermination in the areas affected was taken by the council concerned.

Rat smears were submitted to the Departmental Laboratory, Brisbane, from—

Place.	No. of Smears Submitted.	
	1945-46.	1944-45.
Gympie	73	103
Mackay	1,062	1,730
Bundaberg	812	950
Ipswich	1,000	1,175
Maryborough	578	687
Wynnum	764	759
Sandgate	653	850
Meatworks.. .. .	863	766
Totals.. .. .	5,805	7,020

RAT POISON EXPERIMENT.

The Commonwealth Health Department forwarded to this Department a quarter lb. sample of rat poison 1080 (sodium fluoacetate) which was portion of a sample received from the Scientific Liaison Officer, Washington, U.S.A., for experimental purposes under Australian conditions.

Experiments were carried out by departmental officers at Brisbane, Cairns, Innisfail (sugarcane fields), Townsville, and Toowoomba. Reports from these officers agreed with the extensive experiments carried out by Mr. G. Wilson, B.Sc., South Johnstone Sugar Mill, who finished his report with the following conclusions:—

“ 1080 is a deadly poison for rats which is readily taken when mixed with a suitable medium.

“ 1080 could take the place of, and would probably be an improvement on the poisons so far used in the sugar industry when preparing packeted wheat baits, since its M.L.D. is much lower than either strychnine, thallium, or zinc phosphide, and is readily taken.

“ As a substitute for phosphorus in syrup it is apparently less efficient because, although bread has a good initial attraction for rats, the actual amount eaten is not generally great, so that the intake of poison would be low unless the tests extended towards increasing the concentration of poison in the syrup and/or increasing the palatability of the medium by which the poison was attached to the bread, such as the use of dripping which has been found very attractive, and selectively eaten off the bread when used for live trapping.

“ The action of 1080 is relatively rapid and this is a good point for poisoning work because the rats have generally been found in accessible positions near the bait where the carcasses could be found and cleared away.

“ For Pest Board use, and other rat poisoning ventures where the bait is prepared ready for the user, 1080 is a valuable addition to our list of rat poisons. Under such circumstances the high toxicity is not a relatively great communal danger because the pure chemical is not available to the inexperienced user.”

Unlike R 109 (Alpha-naphthyl-thiourea), which was found to be successful against *R. Norvegicus* only, “1080” is effective against all species of rats. It is also very toxic to cats, dogs, farm stock, and to humans. There is no known antidote. “1080” is not yet on the Australian market, but when introduced it will come under the provisions of “The Poisons Regulations” and therefore under strict control.

RAT RETURN.

	Monthly Figures and Totals.												Yearly Totals—Eight Year Period.																	
	1945.						1946.						1940-1.		1941-2.		1942-3.		1943-4.		1944-5.		1945-6.		1946-7.		1947-8.		1948-9.	
	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	1945-6.	1944-5.	1943-4.	1942-3.	1941-2.	1940-1.	1939-40.	1938-9.										
Brisbane ..	4,384	4,050	4,079	5,454	5,551	3,677	4,102	4,328	4,466	4,347	5,039	4,277	53,754	48,956	37,633	33,860	28,939	34,014	36,917	35,858										
Townsville ..	74	63	20	87	29	9	..	51	40	28	34	34	469	835	1,294	756	905	989	987	771										
Rockhampton ..	285	206	218	287	185	133	99	237	187	197	238	153	2,425	3,798	4,520	2,251	3,214	3,797	4,265	3,806										
Ipswich ..	204	200	161	173	297	131	209	188	232	190	263	151	2,399	2,606	2,381	3,297	2,260	3,606	3,548	4,986										
Cairns ..	64	116	79	191	169	131	90	97	77	85	84	75	1,258	1,305	948	1,228	443	537	527	560										
Maryborough ..	100	..	129	135	138	79	146	103	140	126	140	123	1,359	1,707	1,412	2,091	1,258	1,509	1,509	1,872										
Mackay ..	23	30	31	54	88	86	131	39	112	62	83	38	777	1,080	976	987	836	691	556	969										
Bundaberg ..	84	65	76	104	57	54	61	30	90	39	79	63	802	991	941	1,103	1,374	1,410	1,197	1,173										
Gympie ..	5	4	7	3	3	3	3	10	7	8	13	3	69	101	176	218	171	141	106	104										
Totals ..	5,223	4,734	4,800	6,488	6,517	4,303	4,841	5,083	5,351	5,082	5,973	4,917	63,312	61,379	50,281	45,791	39,400	46,997	49,612	50,099										

MICE RETURN.

Brisbane ..	379	291	212	234	266	235	311	255	297	270	218	234	3,202	1,796	1,510	2,680	2,629	3,025	1,610	2,290
Townsville ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Rockhampton ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ipswich ..	87	93	3	1	77	22	28	2	3	..	..	..	316	307	332	535	2,674	5,669	5,841	13,811
Cairns ..	..	53	30	45	72	68	36	37	49	38	35	27	490	294	201	160	87	101	277	154
Maryborough ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	20	338	64	21	8	47
Mackay ..	87	37	56	20	42	13	57	47	47	47	65	54	572	674	628	964	713	628	674	537
Bundaberg ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gympie ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals ..	553	474	301	300	457	338	432	341	396	355	318	315	4,580	3,071	2,691	4,677	6,167	9,444	8,410	16,839

MOSQUITO PREVENTION AND DESTRUCTION.

The following information obtained from reports received at this office gives an approximate estimate of mosquito infestation throughout the State:—

Infestation Reported as—				No. Information
Nil.	Light.	Heavy.	Very Heavy.	
13	87	21	1	*21
143				

*Local authorities situated in the far North and West (excluding Thursday Island).

A keener appreciation of the dangers from mosquito infestation, not only from the menace from known disease carriers but of the unknown potentialities of the many species not yet

declared a danger to public health, is being displayed by many local authorities, and the vast amount of field and educational work being carried out by health inspectors augurs well for an expansion of eradication schemes in the future.

To encourage local authorities to take eradication measures the Government has given practical financial assistance by granting a 50/50 subsidy on all approved works and a 25 per cent. subsidy on kerbing and street channelling drainage schemes.

The scheme commenced in February, 1943, and has been continued by the Government since that date. The following list shows the number of local authorities who have applied for and received the benefit of the grant since the start of the scheme:—

Local Authority.	Purpose.	Estimated Cost.			Subsidy Granted.			Total Subsidies.			Remarks.	
		£	s.	d.	£	s.	d.	£	s.	d.		
Brisbane City	3 Inspectors	440	0	0	220	0	0	100,304	0	0	25 per cent.	
	5 Inspectors	570	0	0	285	0	0					
	3 Inspectors	850	0	0	425	0	0					
	3 Inspectors	840	0	0	420	0	0					
	3 Inspectors	840	0	0	420	0	0					
	Drainage	25,000	0	0	12,500	0	0					
	Drainage	9,600	0	0	4,800	0	0					
	Drainage	5,362	0	0	2,681	0	0					
	Drainage	21,333	0	0	10,666	10	0					
	Drainage	106,100	0	0	53,050	0	0					
	Drainage	19,332	0	0	9,666	0	0					
	Drainage	600	0	0	300	0	0					
	Drainage	760	0	0	380	0	0					
	Drainage	1,050	0	0	525	0	0					
	Drainage	2,320	0	0	1,160	0	0					
Kerbing and Channelling	3,062	0	0	765	10	0	..					
Drainage	2,222	0	0	1,111	0	0	..					
Inspectorial Work ..	1,858	0	0	929	0	0	..					
Townsville City	Drainage	1,073	0	0	536	10	0	536	10	0		
Rockhampton City	Drainage	6,250	0	0	3,125	0	0	10,959	0	0		
	Drainage	2,668	0	0	1,334	0	0					
	Drainage	13,000	0	0	6,500	0	0					
Gympie City	Drainage	2,053	0	0	1,026	10	0	1,404	10	0		
	Drainage	756	0	0	378	0	0					
Ipswich City	Drainage	1,550	0	0	775	0	0	775	0	0		
	Maryborough City	Drainage	3,306	13	0	1,653	6				6	
Bundaberg City	Reclaiming Swamp ..	750	0	0	375	0	0	4,528	6	6		
	Drainage	5,000	0	0	2,500	0	0					
	4 Patrol men, &c. ..	700	0	0	350	0	0					
Charters Towers City	2 Patrol men, &c. ..	350	0	0	175	0	0	1,916	5	0	Not used	
	3 Patrol men, &c. ..	600	0	0	300	0	0					
	Kerbing and Channelling	4,365	0	0	1,091	5	0					
	Drainage	3,955	0	0	1,977	10	0					
Charleville Town	Drainage	4,000	0	0	2,000	0	0	2,000	0	0		
Roma Town	Drainage	1,012	0	0	506	0	0	693	0	0		
	Drainage	224	0	0	112	0	0					
	Spraying, Oiling, &c. ..	150	0	0	75	0	0					
Redcliffe Town	Patrolman Spraying, &c. ..	431	4	0	215	12	0	215	12	0		
Dalby Town	Drainage, &c.	120	0	0	60	0	0	2,042	5	0	25 per cent.	
	Drainage, &c.	1,070	0	0	535	0	0					
	Drainage, &c.	2,053	0	0	1,026	10	0					
	Kerbing and Channelling	1,683	0	0	420	15	0					
Aramac Shire	Drainage, &c.	54	0	0	27	0	0	27	0	0		
Barcaldine Shire	Drainage, &c.	670	0	0	335	0	0	335	0	0		
Blackall Shire	Drainage	60	5	0	30	2	6	30	2	6		
Boonah Shire	Drainage	1,002	10	0	501	5	0	788	15	0		
	Drainage	575	0	0	287	10	0					
Esk Shire	Drainage	307	0	0	153	10	0	153	10	0		
Hinchinbrook Shire	Drainage	136	0	0	68	0	0	68	0	0	Not used	
Jondaryan Shire	Spraying, &c.	23	0	0	11	10	0	11	10	0		
Kingaroy Shire	Drainage, &c.	47	15	0	23	17	6	298	17	6		
	Drainage, &c.	550	0	0	275	0	0					
Livingstone Shire	Drainage	107	5	0	53	12	6	53	12	6		
Longreach Shire	Spraying, Oiling	90	15	0	45	7	6	194	5	0		
	Spraying, Oiling	237	15	0	118	17	6					
	Patrolman	60	0	0	30	0	0					
Marani Shire	Drainage	115	16	4	57	18	2	856	15	1		
	Drainage	552	13	10	276	6	11					
	Drainage	1,045	0	0	522	10	0					
Monto Shire	Drainage	222	8	3	111	4	0	111	4	0		
Southport Town	Reclamation	700	0	0	350	0	0	350	0	0		
Woothakata Shire	Drainage	215	12	10	107	16	5	107	16	5		
Warwick City	Drainage	5,200	0	0	2,600	0	0	2,600	0	0		
Total Subsidies Granted			£ 133,338			6	6

The undermentioned local authorities have applied to the Co-ordinator-General's Department for the 50/50 subsidy on post-war works for the eradication of mosquitoes. Applications

were forwarded to this Department for approval. The separate items are for different schemes—

Local Authority.	Purpose.	Estimated Cost.			Remarks.
		£	s.	d.	
Brisbane	Drainage	1,229	0	0	Recommended
	Drainage	712	0	0	Recommended
	Drainage	28,024	0	0	Recommended
Beaudesert Shire	Drainage	6,000	0	0	Recommended
	Drainage	5,000	0	0	Recommended
Boonah Shire	Drainage	1,500	0	0	Recommended
Blackall Shire	Drainage	73	2	1	Recommended
	Drainage	105	0	0	Recommended
Douglas Shire	Drainage	400	0	0	Recommended
	Drainage	6,350	0	0	Recommended
Dalby Town	Kerbing and Channelling ..	1,683	0	0	25 per cent recommended
Gladstone Town	Drainage	4,200	0	0	Recommended
Hinchinbrook Shire	Drainage	6,276	0	0	Recommended
Isis Shire	Drainage	2,000	0	0	Recommended
Ipswich City	Drainage	10,000	0	0	Recommended
	Drainage	10,000	0	0	Recommended
	Drainage	25,000	0	0	Recommended
Landsborough Shire	Street Channelling	3,000	0	0	Recommended
	Drainage	3,000	0	0	Recommended
Livingstone Shire	Drainage	4,000	0	0	Recommended
	Drainage	1,000	0	0	Recommended
Mulgrave Shire	Drainage	19,000	0	0	Recommended
Mackay City	Drainage	32,350	0	0	Recommended
	Drainage	4,500	0	0	Recommended
Pioneer Shire	Drainage	8,000	0	0	Recommended
Rosewood Shire	Drainage	5,000	0	0	Recommended
Townsville City	Drainage	29,237	0	0	Recommended
	Street Channelling	12,875	0	0	Recommended
	Spraying and Oiling	2,116	0	0	Recommended
Cairns City	Anti-malarial	6,500	0	0	Recommended

Inspections in connection with granting of the mosquito subsidy were made as under: Brisbane 351, Beaudesert 9, Ipswich 14, Landsborough 8, Mackay 6, Southport 12, Rosewood 4.

INSPECTIONS.

The following table gives an analysis of the inspections carried out by the headquarters sanitation staff—

Area.	First Inspections.	Re-Inspections.	Official Calls.	No. of Reports.	No. of Towns Visited.
Metropolitan..	3,451	239	281	1,678	..
Outside Metropolitan ..	298	..	17	32	32
Totals ..	3,749	239	298	1,710	32
Grand Total ..	4,286				

First inspections included:—Barbers' shops (648), common yards and laneways (88), drainage nuisances (75), earth closets (97), flies (28), flats (19), markets (67), mosquitoes (351), public sanitary accommodation (182), rat infestation (47), refuse removal and accumulations (60), refuse tips (360), sanitary depots (37), sewerage (36), wharves (94), and a varied number of miscellaneous complaints and nuisances.

The centres visited outside the metropolitan area were—Ayr (1), Beaudesert (4), Bowen (1), Bundaberg (1), Beechmere (4), Biggenden and Coolangatta (6), Caloundra (3), Cleveland (7), Deception Bay (4), Eidsvold, Goodna (2), Gayndah, Giru (1), Home Hill (1), Ipswich (4), Maryborough, Mackay (1), Monto, Mooloolaba, Mundubbera (1), Nerang (1), Redcliffe (8), Rosewood (2), Russell Island

(1), Redland Bay (9), Southport (3), Sarina (1), Townsville (1), Thornside (2), Victoria Point (4), Wellington Point (6),

An inspection of the northern areas from Bowen to Townsville affected by the floods was made in March. A report, with recommendations, was submitted. All the local authorities in the areas concerned lost no time in cleaning up, and a particularly quick and good job was done.

An inspection was made of the Australian National Alcohol Factory at Sarina in connection with recommendations made after a previous visit in regard to the disposal of the factory effluent. It was found that the company had carried out a great many improvements, including the construction of a million-gallon earth dam for impounding the effluent, and treating it with D.D.T. solution for the control of fly breeding. The present methods are only temporary and not a final solution for this complex problem. The company is carrying out scientific experiments, and for this purpose a pilot plant is under construction and research by a specially appointed chemist is under way in an endeavour to find a suitable treatment for the discharge of a stable effluent.

Inspections were carried out at Mackay in regard to sewage disposal, swamp reclamation, and mosquito eradication works.

Visits to Ipswich, Coolangatta, and Mooloolaba were made in connection with the disposal of hotel sewage and the planning of schemes to eliminate active nuisances.

At Bundaberg an inspection of the site and plans for pensioners' homes under the Government subsidy scheme was carried out and a report with recommendations submitted, and

plans and specifications for similar schemes at Toowoomba, Paroo, and Quilpie were subject to comment.

The site for the T.B. hospital at Chermside was inspected and reported on, and recommendations made regarding disposal of sewage.

Samples of sewage effluent from Kenmore Sanatorium and Archerfield aerodrome were taken at the request of the Commonwealth Department of Works for examination and analysis in connection with creek pollution.

Inspections were made of the sites for War Service and State Advances Corporation homes at Chermside and Stafford, in regard to sewerage schemes to service these areas.

Investigations were carried out regarding the dust nuisance from the Brisbane City Council's depot, Leichhardt Street, City.

At Redcliffe the disposal of sewage from cafes by the carting away by council's plant from covered places and disposal at the sanitary depot was investigated.

The pollution of Sandy Creek, Wacol, from an adjacent military camp, was inquired into and arrangements made for the abatement of the nuisance.

The methods adopted for the disinfection of a large quantity of second-hand military boots for the prevention of tinea were, after inspection, approved as satisfactory.

Sixty-six trips by ambulance were made in the conveyance of lepers on their way to the lazaret.

THE BARBERS' SHOPS REGULATIONS, 1940.

Six hundred and forty-eight inspections were carried out in Brisbane, Ipswich, Wynnum, Manly, Redcliffe, and Sandgate. Twelve notices were served for minor breaches of the regulations.

LICENSED PREMISES.

One hundred and ninety-six inspections of hotels were made, and 158 reports submitted to the Licensing Commission. Due to the prevailing adverse circumstances, only urgent matters were brought under notice for action. Rebuilding, reconstruction, and alterations must of necessity be kept in abeyance until building materials are available, when a forward move in this direction can be expected.

PUBLIC SANITARY ACCOMMODATION.

One hundred and eighty-two inspections of public sanitary accommodation for both sexes within the metropolitan area were made during the year. Council's attention was directed to many necessary repairs and insanitary conditions. The maintenance of these conveniences leaves much to be desired.

The accommodation provided for the patrons of 10 city retail stores was visited regularly during the year, and found on each occasion in a clean and satisfactory condition.

The demand for public accommodation is now being recognised by a number of local authorities, for example—

Pittsworth Shire Council has made application for a loan for accommodation at Pittsworth.

Miriam Vale Shire Council has called tenders for accommodation at Miriam Vale and Bororen.

Isis Shire Council has lodged an application for a loan for accommodation at Childers.

Johnstone Shire Council is making provision for Innisfail.

Millmerran Shire Council has budgeted for accommodation at Millmerran.

Livingstone Shire Council has applied for a loan for conveniences at the seaside resorts of Keppel Sands, Emu Park, and Yeppoon.

Coolangatta Town Council has applied for a loan for additional conveniences for the accommodation of the public and campers.

THEATRES.

Eighty-five inspections and reinspections were made of the sanitary accommodation for both sexes and of the sanitary conditions prevailing in the theatres. Of the 40 city and suburban picture theatres visited, only in 8 instances were unsatisfactory conditions found. The Brisbane City Council was notified, and on reinspection 4 had complied with the requirements and the other 4 were prepared to commence the necessary alterations as soon as materials and labour were available.

All theatres are sprayed regularly with an insecticide, the majority with a D.D.T. solution.

14 theatres disinfect daily		
3	..	4 times weekly
10	..	3 times weekly
*9	..	twice weekly
*3	..	once weekly
*1	..	once monthly

* Small suburban theatres.

RACECOURSES.

On the resumption of midweek and Saturday race meetings at country racecourses local authorities were requested to have inspections made of the sanitary accommodation provided, submit reports to the Department, and to take any action found necessary to bring such accommodation up to the standard requirements. The following courses were listed for attention:—Beaudesert, Bundaberg, Eumundi, Gatton, Imbil, Laidley, Linville, Oxenford, Southport, Wallaville.

Action was taken by the respective local authorities to have improvements done or new accommodation provided where such was found necessary.

WATER SAMPLES.

Water sampling outfits were despatched, collected, and delivered to the Government Analyst and the Director of the Laboratory for analysis and examination as shown hereunder:—

Despatched to	Chemical.	Bacteriological.
Local Authorities ..	57	73
Others	34	44
Totals.. .. .	91	117

The results of the chemical analysis and bacteriological examination were forwarded to the authorities and persons concerned.

SEASIDE AND HOLIDAY RESORTS.

The sanitary, bathing, and other accommodation provided by local authorities at holiday resorts was subject to inspection at Beechmere, Caloundra, Cleveland, Coolangatta, Deception Bay, Lota, Redcliffe, Southport, Sandgate, Thornside, Victoria Point, Wynnum, and Wellington Point. Eighty-eight inspections were made. Local authorities were notified of any improvements required.

The demand for additional and modern accommodation by the holidaying, picnicking, and camping public is very obvious, and calls for immediate action by the councils to provide for the comfort and welfare of the visitors and tourists.

SWIMMING POOLS.

Samples of water from the municipal and State school swimming pools were obtained at regular weekly intervals during the swimming season.

The routine practice is to take two samples for bacteriological examination and one sample for chlorine test from each pool. One sample is taken at the deep end and one at the shallow end midway from the centre line, and for the chlorine test at the outlet end.

A high standard of purity was maintained throughout the season at all pools, as is shown in the following tables. It should be noted, however, that where samples are shown as unsatisfactory the water was not unfit for swimming. B. Coli was absent from all samples. One hundred and thirty inspections were made of the municipal and school pools in the city area.

Name.	Bacteriological.			Chlorine.	
	No. of Samples	No. of Tests.	No. Satisfactory.	No. of Tests.	No. Satisfactory.

Municipal Pools.

Booroodabin ..	18	9	9	8	8
Davies Park ..	12	6	5	6	5
Ithaca ..	16	8	8	8	8
Spring Hill ..	14	7	7	7	7
Toowong ..	10	5	5	5	5
	70	35	34	34	33

State Schools Metropolitan Area.

Ascot ..	22	11	11	11	11
Blind, Deaf, and Dumb ..	4	2	1	2	1
Buranda ..	18	9	9	9	9
Cannon Hill ..	18	9	9	9	9
Coorparoo ..	24	12	12	12	12
*Greenlanes ..	16	8	6	8	6
Greenslopes ..	22	11	7	10	6
Junction Park ..	20	10	8	10	8
Milton ..	24	12	11	12	11
Wilston ..	18	9	8	9	8
Windsor ..	22	11	9	11	7
Wooloowin ..	20	10	9	10	8
Totals ..	228	114	100	113	96

State Schools (outside Metropolitan Area).

Allenstown, Rockhampton	22	11	11	11	11
Bundaberg West ..	6	3	2	3	..
Home Hill Rural ..	8	4	4	..	..
Rockhampton Central	26	13	2	13	3
Ipswich, Silkstone ..	16	8	6	8	6
	78	39	25	35	20

* Private swimming pool used by several schools.

BEDDING AND UPHOLSTERY REGULATIONS, 1943.

A sampling survey of the condition of materials used in the manufacture or renovation of such articles as mattresses, beds, pillows, cushions and upholstery was carried out in order to obtain information as to the sanitary condition of such materials, and as a result the following particulars are submitted:—

Manufacturers.

Manufacturer.		Bacteriological Pathogenic Organisms.	Chemical Chlorine Parts per 100,000.
Factory A.	1	Intermediate Type and A. Aerogenes	100
	2	<i>E. Coli</i> present ..	54
	3	<i>E. Coli</i> present ..	50
	4	Intermediate Type and A. Aerogenes	86
Factory B.	1	No. <i>E. Coli</i> present ..	80
	2	Intermediate Type ..	56
Factory C.	1	Intermediate Type, and A. Aerogenes	80
	2	Intermediate Type ..	76

As a result of a limited supply of material available in Queensland for manufacture into flock, samples of filling materials from outside sources were also obtained, as follows:—

No. of Sample.	Material.	Bacteriological.	Chlorine. Parts per 100,000.
1	Cotton (America)	Intermediate Type	134
2	Cotton (Victoria)	ditto	104
3	Cotton (Queensland)	No Coliform Bacilli	148
4	ditto ..	ditto	46
5	ditto ..	Intermediate Type	100
6	Cotton (N.S.W.)	No Coliform Bacilli	40
7	Fibre, Indian imported to Queensland	ditto	62
8	ditto ..	ditto	106
9	ditto ..	ditto	144
10	Fibre, Indian, imported to N.S.W.	Intermediate Type and A. Aerogenes	102
11	Fibre, Indian, imported to Queensland	No Coliform Bacilli	92
12	ditto ..	Intermediate Type and A. Aerogenes	102
13	Kapok, Indian, imported to Queensland	No Coliform Bacilli	40
14	Flock (mattress filling), Victoria	A. Aerogenes ..	4
15	Flock (union filling) N.S.W.	Intermediate Type	120
16	Wool, Victoria ..	No Coliform Bacilli	6

The regulations lay down the following standard:—

“No person shall use for sale any material which is not clean, free from pathogenic organisms or vermin, and which contains more than 30 parts of chlorine in every 100,000 parts by weight.”

All samples except two obtained for examination were clean, free from vermin and pathogenic organisms, but on chemical examination two, and two on the border line, all failed in the chlorine test. In view of the fact, however, that each of the samples passed the other tests, and that the majority of the samples were from new materials, it is concluded that the chlorine results are probably due to manufacturing processes, and not by contamination from insanitary conditions.

COMPLAINTS.

Eighty-one written and 36 verbal complaints received at this office were forwarded to the Brisbane City Council for action. Local authorities and the School Health Services advised this office of the following complaints regarding Government premises:—Schools 172, Police 4, Railways 8, Commonwealth 3, others 13. The Departments concerned were notified.

CAIRNS SUB-OFFICE, 1945-46.

SANITATION.

LOCAL AUTHORITY SUPERVISION.

Area.	First Inspections.	Re-inspections.	Official Calls.	Reports.	Towns Visited.
Headquarters ..	430	12	153	29	..
Country ..	675	16	80	95	42 (112 visits)
Totals ..	1,105	28	233	124	42 (112 visits)
Grand Total ..	1,366				

The above inspections included the following:—Anti-malaria drainage 29, barbers 7, chemists 21, drainage 20, fly infestation 5, food factories 135, food premises 603, hospitals 5, incinerator 1, milk premises 62, mosquito infestation 9, premises generally 1, rat infestation 27, rubbish dumps 35, sanitary conveniences 107, sanitary depots 13, warehouses 18, water supplies 4, and wharves 3.

LICENSED PREMISES.

Area.	First Inspections.	Re-inspections.	Reports.	Plans Examined.
Headquarters ..	4	1	..	1
Country ..	16	..	16	2
Total ..	20	1	16	3
Grand Total	21			

Another year, fortunately less trying than previous years, has passed and, although matters are not yet back to normal, a decided improvement has been apparent. However, there are still difficulties to face. Despite trouble in obtaining supplies of galvanised iron for sanitary purposes, strenuous efforts by the local authorities in these areas have helped in the maintaining of sanitary services at a reasonably high level, without any major breakdowns. With a freer supply of iron, these difficulties will be erased.

However, there is one matter of serious concern to local authorities in the Far North, especially on the coastal areas, and that is the matter of malaria. The return of soldiers, previously affected with malaria in service areas, has, with the possible recurrences to which the victims are subject, created in these areas a reservoir of possible infection. Every effort is

needed to control the vector and it is pleasing, in this regard, to note that this matter is receiving the notice of local authorities. Control by spraying is all right as an emergent temporary measure but the desideratum is effective drainage and reclamation works to eliminate entirely all breeding places of the vector.

Cairns City.—One bright spot in the year's work by this local authority was the conducting of a rat eradication campaign. Inspections were made by a competent staff of the major part of the city and these inspections were followed by a capable staff engaged in rat destruction. Harbourages were eliminated and rubbish, &c., removed and effectively disposed. The local authority provided labour and transport in this regard and altogether, a first-class job was done—a job which has made the work of the regular staff easier and more effective.

A.N.T.U. has been used with good effect.

It is pleasing to note that the Cairns Harbour Board has had a man on full-time work on rat eradication, whilst the Railway Department has now started a man full-time on similar work on its premises. Hence, there should be an effective check on two possible sources of introduction of rats to this city.

Another matter of real import has been the assumption of the malaria control scheme by the local authority. A competent staff is available for vector detection and consequent spraying with D.D.T., whilst labour is provided for drain clearing, &c. This is valuable anti-mosquito work.

Plans have been made and a loan granted for the construction of a modern refuse incinerator and when this utility is completed the city will be in an admirable position in regard to the effective disposal of all refuse.

During the year some finality was reached on the Behana Creek water scheme, and, with its completion in the projected time of three years, the water supply of the city will be well assured.

A loan has been obtained for the completion of plans in connection with the installation of a sewerage scheme for Cairns, and, with a plentiful supply of water assured by the Behana Creek scheme, it is to be hoped that the sewerage scheme will be proceeded with as soon as possible.

Mulgrave Shire.—Essential services have been maintained by this local authority during the year, minor difficulties having been ironed out as they arose. Every endeavour has been made by this local authority to maintain its health functions.

A survey is at present being made of low-lying and swampy land at Babinda with a view to its effective permanent draining and consequent elimination of mosquito breeding-grounds and this is a commendable step.

During the year attention was given to mosquito breeding-grounds at Yorkie's Knob and control was effected. However, this is considered an area for permanent control by means of drainage and reclamation and would be recommended for subsidy.

Beach resorts received considerable attention during the year and improved sanitation was effected. The inauguration of a sanitary removal service at Machan's Beach afforded a definite

SANITATION GENERALLY.

step forward, especially in an area where most water supplies are obtained from wells. At other beach resorts, sanitary conveniences were improved and additional accommodation provided.

One serious question faces the local authority at these areas and that is the question of campers. The local authority should give urgent consideration to the provision of defined camping areas with the requisite sanitary and water facilities. Revenue to meet the capital cost should be obtained from the collection of camping fees.

The completion of the Behana water scheme, sponsored by this local authority and to be worked in conjunction with the Cairns City Council, will result in adequate supplies of good water for the Gordonvale, Aloomba, and Edmonton areas.

Johnstone Shire.—As usual, the essential services of sanitary and refuse removal and disposal have been found to be conducted along excellent lines. This has been a feature of this local authority's work for a number of years.

It is pleasing to note that this local authority is at present conducting an anti-tetanus immunisation campaign.

Cardwell Shire.—Sanitary matters were found in this area to be well under control, the essential services functioning well, whilst immunisation campaigns against various infectious diseases are carried out.

Woothakata Shire.—During the past year an earnest desire on the part of the local authority to improve health matters in the area was noted.

Trouble was found with the water supply at Mareeba during the year, but it is understood that the local authority is seeking ways and means for an amelioration of this supply.

Douglas Shire.—Matters were found to be reasonably fair in this area and it is anticipated that further improvement will be made after the appointment of an inspector.

Atherton Shire.—Essential services were found to be functioning well and no major problem was encountered during the year under review.

Eacham Shire.—This shire was also found to be in reasonable order, all essential services functioning satisfactorily.

TOWNSVILLE SUB-OFFICE, 1945-46.

SANITATION.

Detailed Summary of Inspections Made.

Area.	Number of Inspections.	Number of Re-inspections.	Official Calls.	Number of Reports.	Number of Towns.
Headquarters	1,137	90	305	79	..
Country ..	203	4	24	31	12
Totals ..	1,340	94	329	110	12
Grand Total	1,763				

The general sanitation of the city of Townsville has received attention during the year and it is pleasing to report that such matters can be regarded as satisfactory in most instances. Upon the cessation of military hostilities the local authority immediately endeavoured to continue on with projects which had to be postponed at the outbreak of war. These included sewerage, drainage, water supply, &c., all of which continue to proceed as manpower and material become available. A further 200 sewerage connections have been installed within the city during the past year.

Unfortunately, in March last, Townsville suffered considerable damage as a result of one of the highest floods in its history; lives were lost, houses and property were submerged and damaged, whilst numerous animals, birds and poultry were drowned. The cleaning up and removal of carcasses and debris, the supervision, inspection and all other duties appertaining to public health under such circumstances entailed much additional work, but owing to the co-operation of all interested parties the work was carried out with the utmost speed and effectiveness.

During the height of the flood fear was expressed for the safety of the Ross River weirs holding the town water supply, the powerhouse and the sewerage system. However, beyond some scouring around the higher levels of the weirs and temporary sewerage blockages in some low-lying areas all three plants stood the test and all services were maintained.

Mention was made previously regarding the provision of sewerage facilities for the new Townsville General Hospital, now under construction, and it can now be noted that such work has been commenced and provided everything proceeds according to plan should be completed in time to receive all fittings from the new institution.

Post-war Projects.—The City Council made two applications to the Department of the Co-ordinator-General of Public Works during the year for large loans on the 50/50 subsidy basis in connection with mosquito eradication. In both instances favourable consideration was given and approval was granted subject to certain modifications.

Mosquitoes.—A total of five men are employed by the local authority permanently on mosquito control. Four of these are labourers, whose duty it is to maintain street channels free from stagnant water and undergrowth. Their duties also include spraying street gully traps, open drains and sewers where necessary.

Rat Control.—The Council rat gang has recently been increased and now stands at three men and five dogs. One man is engaged attending to traps, of which there are about 40 in the city area, investigates complaints, manufactures baits and distributes baits along river walls and wharves. The two other men and dogs are occupied going from house to house in search of rats and harbourages.

Country.—Towns visited during the year included Ayr, Bowen (2), Brandon, Charters Towers (6), Giru, Home Hill, Hughenden, Ingham (5), Lucinda Point, Merinda, Palm Island (2) and Winton.

An outbreak of malaria fever necessitated a special visit to Lucinda Point, where a mosquito survey was carried out and a report with recommendations submitted to headquarters.

Miss M. Marks, B.Sc., Queensland University, and Inspector W. D. Pryor, of this department, Brisbane, also proceeded to Lucinda Point, where they made further surveys and investigations in respect to the outbreak, and submitted their findings to headquarters.

TOTAL NUMBER OF MILES TRAVELLED :—

Car	..	..	..	2,938 (Country only)
Train	..	..	..	1,078
Boat	..	..	..	160
Total	..	..	..	4,176 Miles.

ROCKHAMPTON SUB-OFFICE, 1945-46.

SANITATION.

General.—Night soil removal services from portions of the city to which the sewerage system has not yet been extended were performed efficiently. No complaints regarding the conduct of same reached this Department. The two nightsoil disposal depots were operated in a satisfactory manner.

Refuse removal services were well maintained. Additional vehicles were used chiefly to remove accumulations from individual premises as they were reported. An increased percentage of food wastes was collected and disposed of by the Local Authority. In this matter the council came to the assistance of restaurants, fish shops, &c., which were unable to rely on the usual pig-man for regular service.

The lack of proper garbage containers on premises remained acute due to the continued shortage of iron.

An improvement was effected in disposal of refuse at North Rockhampton. The old tip was graded and covered. A new tip, with a shorter and more easily controlled face, was put into operation.

The rat destruction gang continued operations throughout the year, the methods adopted consisting of systematic visitations to premises with a team of dogs, poisoning, and trapping.

Whilst it may be claimed that the gang has done good work, real progress towards substantially reducing rat prevalence will only be made when many old buildings are replaced with new rat-proof structures, or repaired and at the same time rendered rat proof. A number of these was listed for action several years ago. Unfortunately outbreak of the war intervened to delay the move just when a drive was prepared.

During the year inspection was made of premises on which any number of rats had been captured at the one time or diseased rats had been taken, in company with the city inspector, who subsequently served notices on owners to take measures found necessary to eradicate the rats and prevent any further harbouring. Conditions are still such as to preclude any major work being accomplished within a short time, but as circumstances improve operations will be speeded up.

No major extension of the sewerage scheme was undertaken during the year. Premises newly connected numbered 92. Some extension is being made in South Rockhampton, and the Park Avenue area is under consideration. The latter area is much in need of storm water drainage. At certain city buildings open drains to which numbers of hand basins and sinks discharge should be eliminated and proper connections to the sewer made.

Mosquitoes were not unduly prevalent during the year due partly to the absence of protracted rainy periods. Four men continuously engaged on mosquito prevention work have kept street gullies and collections of surface water sprayed. After rain a fifth man was put on. *C. Fatigans* has been far less prevalent since the sewerage system came into operation in the city proper.

Progress in mosquito prevention of domestic character was again greatly retarded by the difficulty in obtaining the services of plumbers for this class of work. In addition supplies of galvanised iron came to hand in insufficient quantities and only at irregular intervals.

In last year's report it was mentioned that a period of heavy rainfall might prove the necessity of some further work in connection with the Government-subsidised mosquito eradication scheme (parish of Archer) as completed. This was subsequently found to be the case as reported to Head Office. To date the City Council has not effected such improvements.

A second major Government-subsidised mosquito eradication scheme was commenced by the council. This takes in drainage of Jardine Lagoon—a large mosquito breeding area—and reclaiming the ground for useful purposes.

A matter which gave rise to complaints from time to time was the annoyance caused by racing stables in residential localities, with potential danger to health from fly prevalence. Inspections were made following complaints which reached the sub-office and at times Head Office also. As the result it was suggested that the City Council might make a by-law precluding stables from residential areas. No action along these lines has been reported to date.

State School Swimming Pools.—Throughout the summer months samples of water were taken from these pools each week and submitted to bacteriological examination at the Commonwealth Health Laboratory, Rockhampton. A chlorine test was made on each occasion at the time of sampling.

The results of the examinations and tests were all reported, along with informative data, to Head Office. The condition of the water in the pools generally proved to be satisfactory.

Work in connection with hotel licensing was confined to urgently necessary repairs and completion of details outstanding after installation of sewerage. A great deal will require to be done to bring the majority of city hotels up to satisfactory standards. Complete inspection will be of little value until availability of materials makes the necessary drive possible.

COUNTRY CENTRES.

Distances travelled by car and train in making inspection visits to country centres totalled 9,064 miles. Townships included were: Alpha, Anakie, Banana, Baralaba, Biloela, Blackall,

Blackwater, Bluff, Callide, Capella, Clermont, Comet, Cracow, Dingo, Duaringa, Dululu, Emerald, Emu Park, Gladstone, Goovigen, Isisford, Jambin, Keppel Sands, Kokotungo, Longreach, Mackay, Marlborough, Mt. Larcom, Mt. Morgan, Moura, Ogmoo, Proserpine, Rannes, Rolleston, Rubyvale, Springsure, St. Lawrence, Tambo, Thangool, Theodore, Westwood, Wowan, Yarwun, and Yeppoon.

Banana Shire.

Baralaba.—Trenches in use for the disposal of nightsoil were found to be much too large, with too heavy deposits of nightsoil and resultant fly-breeding. Disposal of refuse by trenching was resorted to for a time, but discontinued on account of the cost. Tipping in the long narrow gully was reverted to. Covering of previous years' deposits will prove simple when modern earth-moving plant is available.

Biloela.—The refuse disposal ramp required some attention due to subsidence.

At most of the nightsoil disposal depots throughout the Banana area additional plant was necessary in order to properly disinfect nightsoil pans after preliminary cleansing.

Matters requiring attention were brought under the notice of the local authority.

Bauhinia Shire.

Springsure Township.—Disposal of nightsoil was found to be unsatisfactory, and flies were breeding in consequence. Insufficient sawdust for use in pans was being issued to householders.

Covering of the refuse tip with earth was required.

These matters were brought under the notice of the local authority with a suggestion that disciplinary action be taken against the contractor in the event of any further breaches of his contract.

Belyando Shire.

Clermont Township.—A plague of flies at the nightsoil depot was due to unsatisfactory disposal methods. Disciplinary action against the contractor was suggested in any subsequent departure from prescribed methods. The council was requested to comply with the provisions of "The Plague Prevention Regulations" in the matter of supplying garbage containers to householders.

Complaints regarding defective drainage and excessive mosquito infestation at the local hospital were investigated. Necessary action was recommended in a report to Head Office.

Blair Athol Township.—It was recommended that a new site for nightsoil disposal be secured, and that a properly equipped depot be established thereon.

An improved method of garbage disposal was called for. The council was requested to provide garbage containers on all premises in the township.

Blackall Shire.

Blackall Township.—A general improvement in sanitation was noted here. This was due in a large measure to a drive during which all refuse from premises was removed free of cost to occupiers and disposed of at the tip.

Mosquito-breeding had been reduced by judicious alterations to earth drains.

Certain action was recommended to be taken in regard to unsatisfactory sanitary conveniences provided at the local racecourse.

Broadsound Shire.

St. Lawrence Township.—Circumstances surrounding the methods adopted in the township for the disposal of nightsoil were inquired into during a brief visit. The matter will be more fully investigated early in the coming year, when recommendations deemed expedient will be made.

Duaringa Shire.

Duaringa Township.—Matters to which the local authority was requested to give attention following a visitation were: Improved method of nightsoil disposal, and prevention of fly-breeding; provision of additional pan cleansing equipment; elimination of an unsuitable type of nightsoil pan in use; new site for disposal of town refuse; repairs to sanitary conveniences; action to prevent mosquito-breeding.

Bluff Township.—Conditions were similar to those obtaining at Duaringa, with like action necessary.

Emerald Shire.

Emerald Township.—Following an inspection visit, the local authority was called upon to provide a covered body on the nightsoil collection vehicle.

A new tip had been adopted for refuse disposal. This was being conducted in a much better manner than the former tip.

Other Townships.—At small townships in this area inspected the chief requirement was for improvement in the standard of sanitary conveniences.

Fitzroy Shire.

This area was without the services of a health inspector during the year. Improvement in sanitation was therefore retarded. An appointee is expected to take up duty early in September of the present year.

Gladstone Town.

Visits were paid to this town as the result of complaints alleging bad sanitation.

One complaint was in connection with the town refuse tip, another regarding insanitary open drains and street channels.

The refuse tip was found to be open for tipping throughout a face approximately 200 yards in length. It was quite impossible to control the tip effectively under such conditions. Recommended that the tipping area in use at any one time be restricted to the shortest possible face, with earth covering, and that the remainder of the face not in use be kept covered with earth. The local authority promised to give this attention.

Street water channels conveying waste waters from cafes and other business premises, and in some instances septic tank effluents, were found to be in an insanitary state as alleged, as were other open drains. The trouble was due in part to the bad state of repair of street water channels. Prolific mosquito breeding occurred

in polluted stagnant pools of water. In consequence of the report made thereon the following recommendations were forwarded to the Town Council:—

1. That the Council relay the street channels.
2. That street channels and other open drains be attended to daily.
3. That the Happy Valley drainage scheme be proceeded with as an urgent measure.
4. That anti-mosquito spraying of collections of stagnant water throughout the town be carried out regularly.
5. That provision of a complete sewerage scheme for the town be expedited.

A reply received from the Council indicated that action was being taken along these lines.

Some progress was made in establishing the new nightsoil disposal depot. The method adopted for the trenching of nightsoil called for improvement, particularly to prevent fly-breeding. Failure to date to secure an adequate supply of water on the new site necessitated the continued cleansing of nightsoil pans at the former depot.

This local authority experienced more than its share of difficulties in obtaining suitable labour for carrying out the cleansing services.

Late in the year the council applied for and was granted a Treasury loan for securing a much needed new garbage collection vehicle.

Isisford Shire.

Isisford Township.—After completion of a sanitary survey of this township the following comments were included in a report to Head Office: "It was pleasing to note the improved general cleanliness of the town following the organised removal free of charge of accumulations of rubbish from individual premises.

"Regarding nightsoil disposal, the population of the town is adequate to support the pan system of removal, which is to be preferred. Many closet structures have become dilapidated through the years, accentuated by removal from site to site. The present time is therefore an opportune one for the change over, as many of the conveniences will require repair or reconstruction in any case. (Cesspit system in operation here)."

On receipt of a recommendation to this effect the local authority gave the pleasing reply that the provision of a sewerage system for the township was being investigated.

Jericho Shire.

Alpha Township.—Following a visit to Alpha it was reported that nightsoil was insufficiently covered in the trenches at the disposal depot, with the result that flies were breeding there; more earth covering on the refuse tip was necessary; the abandoned former refuse tip was left in an unsatisfactory condition due to failure to cover same.

Head Office accordingly communicated with the local authority, which subsequently advised that the matters had been attended to.

Livingstone Shire.

Seaside Resorts (Yeppoon, Emu Park, Keppel Sands), and Holiday Camping Beaches.—On the whole improved sanitation was maintained during the summer and Easter holiday seasons. Complaints were fewer than formerly. Even better conditions would have been obtained had not the council's inspector been required to collect camping fees, which duty took up an undue amount of his time. Beach sanitary conveniences were put in a state of repair except at Keppel Sands prior to the Christmas vacation period. Some garbage containers distributed early were stolen. These were replaced with pans without lids. Two popular camping sites between resorts are confined to stretches of land between the main road and the respective beaches. Good sanitary conveniences of brick construction are provided but the unduly long distances between them results in many campers using the scrub land on the opposite side of the road. The position was relieved somewhat by obtaining the loan of a number of portable earth closets.

It will however be necessary to increase the numbers of permanent conveniences.

The council has made arrangements, aided by Government subsidy, to replace old wooden sanitary conveniences at Yeppoon, Emu Park, and Keppel Sands with new modern structures.

Yeppoon.—The proposal to provide a sewer for carriage of foul waste waters at present conveyed by an open storm water drain has not yet materialised. The project was placed in the hands of an engineer for report. It is hoped that the work will be undertaken and completed before the summer months arrive.

Ogmore.—An outbreak of malaria occurred amongst local residents at this coal-mining township, the first cases being reported during the month of April, 1946. A visit to the area was made in pursuance of instructions from Head Office in order to investigate the position as regards mosquito breeding, and also to ascertain the general state of sanitation.

The nature of the country here is that known as "melon-hole" country, the whole area being pocked with countless natural depressions of varying sizes. After rain these afford ideal breeding grounds for mosquitoes. Little had been done to carry out recommendations made on previous occasions for control of breeding.

It was learned that a month or two earlier a species of *anopheline* mosquito had been extremely prevalent. Adult *anophelines* were not found at the time of the inspection. Very little surface water remained. After a thorough search *anopheline* larvæ were detected in only one pool. Adults bred out from some of these proved to be *annulipes*, usually an incompetent vector of malaria. As no better vector is found as far south in this State *annulipes* were undoubtedly the vector in this instance. Returned servicemen who had suffered from malarial attacks since returning to or taking up residence in the locality provided the reservoir for infection of townspeople.

On return to headquarters a full report of the conditions and circumstances was prepared, together with recommendations, and handed to the Minister who passed through on his way to Ogmore to obtain first-hand information.

Immediate action to prevent any further breeding of *anophelines* was taken. The State Health Officer, Dr. A. Fryberg, visited the township, and used the local theatre to screen educational films and address the local people on mosquito and malaria control. This visit did much to dispel the state of alarm which had arisen, and at the same time ensured the people's co-operation in control measures which followed.

The area continues to be kept under strict surveillance. Permanent mosquito eradication work, mainly at the expense of the Government, will commence shortly, so that a further outbreak is considered improbable.

Longreach Shire.

Longreach Town.—A complete sanitary survey of the town was made. There was an obvious advancement generally in sanitation since the previous visit. An organised drive, during which all premises had been cleared of rubbish, lumber and junk, had left the town in a much cleaner and tidier state.

Faulty plumbing work of past years had been eliminated and replaced with first-class materials and workmanship.

The refuse tip was better controlled, but tipping required to be restricted to a shorter face. On some of the business premises old tanks or other large receptacles had been provided ostensibly for the purpose of incinerating wastepaper and other packing materials. These were generally becoming depositories for putrescible and incombustible refuse. Their replacement with sufficient numbers of standard size containers which would be emptied regularly by the council's cleansing service was recommended.

These matters were brought under the notice of the local authority which undertook to give effect to the recommendations made.

Since this visit a new, up-to-date, covered motor vehicle was put into operation for the town cleansing service.

Detailed plans for a complete sewerage scheme have been prepared and an early start on this project is expected. A water filtration plant will also be installed.

This council and its inspector are to be congratulated on the continued advancement made in sanitation to the general welfare of the public.

Mackay City.

When visited this city presented its usual clean and tidy appearance.

Removal of nightsoil from premises not yet connected to sewerage and disposal at the depot were performed efficiently.

When inspected during January, 1946, the refuse tip was found to be in a very unsatisfactory condition. The man in charge of the tip was instructed in the proper methods to be adopted. In March a good deal of improvement was noted, but insufficient earth covering was being placed on the tip.

In a report to Head Office it was stated that many garbage containers were becoming defective and would have to be replaced with new ones as iron became available.

A proposal put forward by the council to drain effectively an extensive mosquito breeding area on railway property was investigated and reported on to Head Office.

Mt. Morgan Shire.

This area was without the services of a qualified health inspector throughout the year. A backward trend in sanitation was therefore to be expected. A new appointee is expected to take up duty early in September of the present year.

When last inspected the town refuse tip was found to be somewhat out of control.

Rat infestation in the town was noted to be increasing.

A proper system of garbage removal for the whole town is badly needed, as has been consistently reported in previous years.

The new inspector will have much work to accomplish before a reasonable state of sanitation is attained.

Peak Downs Shire.

Capella Township.—Sanitation was found to be very fair. Prevention of breeding of domestic species of mosquitoes was retarded due to the lack of plumbers.

Proserpine Shire.

Proserpine Township.—Inspection of the nightsoil disposal depot showed that operations there called for improvement. Flies were breeding in large numbers due to unsatisfactory trenching of nightsoil.

Better control of the town's refuse tip was necessary.

Many premises were without proper or sufficient garbage containers. Matters requiring attention were brought under the notice of the local authority.

Tambo Shire.

Tambo Township.—This was another township in which a drive had been organised by the local authority inspector to collect free of charge accumulations of refuse and useless material from all premises and dispose of same at the refuse tip. In consequence of the large quantity collected covering at the tip was somewhat behind schedule, but arrangements had been made to have this attended to.

It has always been a pleasure to note the efficiency with which the nightsoil disposal depot is operated here. The buildings, plant, and vehicles have always been found scrupulously clean and well cared for. The nature of the ground on which the depot is established is unfortunately of a very heavy nature and thus unfavourable for rapid humification of nightsoil. On this account it was recommended that an area of land be secured for disposal of nightsoil in the vicinity of the refuse tip, where the soil is of a loamy nature. The council subsequently acted on the recommendation.

THEODORE IRRIGATION AREA.

Conditions at the nightsoil disposal depot and refuse tip when inspected were very unsatisfactory. Fly breeding was heavy. There was also room for improvement in general sanitation in the township.

Arrangements were in hand for securing the services of the Banana local authority's inspector for portion of his time.

The arrangements have since been completed and better sanitation should result in the near future.

Local Authority Supervision.

Area.	First Inspections.	Re-inspections.	Official Calls.	Number Reports Submitted.	Number of Towns Visited.
Headquarters	551	153	313	49	..
Country ..	2,034	..	53	48	44 (85 visits)
Totals ..	2,585	153	366	97	44
Grand Total	3,104				

The above inspections included: Barbers' shops 15, camps 36, drainage 112, hotels 115, mosquitoes 333, nightsoil disposal depots 42, rats 178, refuse removals 643, refuse tips 50, saleyards 2, sanitary conveniences 954, sewerage 25, slaughter-yards 1, stables 26, swimming pools 12, wells, &c., 5, wharves (re shipping) 189.

Licensed Premises.

Area.	First Inspections.	Re-inspections.	Number of Reports Submitted.	Number of Plans Examined.
Headquarters ..	11	79	2	1
Country ..	19	6	5	4
Totals ..	30	85	7	5
Grand Total..	115			

Legal proceedings were instituted against the licensee of one country hotel, two charges being preferred; firstly in connection with the insanitary conditions under which food was stored, prepared and handled, and exposed to contamination by flies and cockroaches with which the premises were infested; secondly for failing to maintain beds and bedding free from vermin. The complaints were taken out under Regulation 92 (2) of "The Food and Drug Regulations, 1939," and Regulation 33 (1) (k) of "The Liquor Regulations of 1936." Defendant was convicted and fined £20 and ordered to pay 6s. costs of court on each of the two charges. Total of fines and costs: £40 12s.

TOOWOOMBA SUB-OFFICE.

SANITATION.

SUMMARY OF INSPECTIONS :

Area.	First Inspections.	Re-inspections.	Official Calls.	Hotels.	Reports.	Towns.
Headquarters	692	26	125	52	49	..
Country ..	687	..	47	101	52	67
Totals ..	1,379	26	172	153	101	67
Grand Total	1,730					

The inspections, excluding those made at licensed premises, comprised the following:— Aged people's home 2, aerated water factory 9, animals 2, bakehouse 78, barbers 45, buildings 2, building site 1, cafes and stores 650, drainage 34, dwelling 1, factory 6, flies 2, flour mill 4, guest house 1, incinerator 10, laneway 5, mosquitoes 32, poultry 2, piggery 1, premises 4, public sanitary conveniences 41, rats 13, refuse tip 41, saleyards 1, sanitary conveniences 183, sanitary depot 21, sanitary plant 1, sawmill 3, school 5, septic tank 2, sewerage treatment works 3, showground inspections 60, swimming pool 2, vacant land 2, watercourse 2, and water supply 6.

COUNTRY TOWNS VISITED.

In addition to the work at headquarters, visits of inspection were made to the following country places:—

Acland, Allora, Amiens, Ballandean, Bell, Boney Mountain, Bowenville, Brookstead, Cabarlah, Cambooya, Cecil Plains, Clifton, Cooyar, Cottonvale, Dalby, Dalveen, Dareel, Dirranbandi, Drayton, Emu Vale, East Greenmount, Glen Aplin, Goombungee, Goondiwindi, Gowrie Junction, Greenmount, Haden, Hampton, Inglewood, Jondaryan, Karara, Killarney, Kingsthorpe, Kogan, Kulpi, Leyburn, MacLagan, Meringandan, Miles, Millmerran, Mungindi, Nindi Gully, Nobby, Oakey, Pechey, Peranga, Plain Land, Pittsworth, Quinalow, Southbrook, Stanthorpe, St. George, Talwood, Tannymorel, Thallon, The Summit, Thulimbah, Texas, Toobeah, Wallangarra, Warra, Warwick, Withcott, Wutul, Wyreema, Yangan, and Yelarbon.

The number of miles travelled on these country inspections totalled 5,279.

LICENSED PREMISES.

As in the past few years, no general inspections of licensed premises have been made. However, attention has been given to sanitary and bathing facilities, drainage, &c., to ensure that no major inconvenience or nuisances arose. Where necessary, recommendations have been made, and these have been incorporated in orders served by the Licensing Commission. The work done has shown an increase over the war years, and among the major items recommended were:—

- (1) The installation of a septic system and hot water system at a Stanthorpe hotel.
- (2) The installation of a septic system at a hotel at Inglewood.
- (3) The modernisation of bathrooms and sanitary accommodation at a Toowoomba hotel.
- (4) The extension of running water to bedrooms, and the alteration of bathroom and sanitary blocks at a Goondiwindi hotel.
- (5) New drainage disposal system at a Clifton hotel.

Numerous other small matters, including the improvement of facilities for the washing of glassware in bars, were attended to, and these, with the above major items, were considered urgently necessary, and were treated as such,

but they represent only a small fraction of the work necessary to bring hotels back at least to the pre-war standard of comfort for the travelling public. Even pre-war standards, however, in many cases failed to achieve a reasonable degree of comfort, and it is plain that much activity in this direction is essential when immediate housing needs have been met. Such features as water-borne sewerage, hot water systems, modern bathrooms, &c., are practical possibilities in most places, and these must be considered if the standard of country hotels is to advance with the times.

BARBERS' SHOPS.

The usual supervision was given to barbers' shops throughout the district, and, while the general standard falls short of the requirements of the Regulations in various matters, barbers are doing their best in the face of shortages of equipment and essential products. Notices have been served in cases where no effort has been made to comply, and, in the case of ex-service-men engaging in the profession, the Regulations have been fully explained and copies left for perusal.

NIGHTSOIL AND REFUSE REMOVAL.

Inspections at all centres in the district showed that these essential services were being carried out effectively without nuisance, and the position calls for no special comment. Some minor recommendations for the improvement of individual depots and tips were made, and these were readily adopted by the councils concerned. The periodical shortage of material for the manufacture of sanitary pans and refuse bins has caused some inconvenience, but the position with regard to the replacement of motor vehicles and the engaging of labour have improved considerably on the war years.

In Toowoomba the task of supplying a new refuse bin to every premises, commenced in the previous year, has continued during the current year, and it is hoped to complete the distribution in the near future.

The extension of the Toowoomba sanitary area to embrace the Rangeville district has not yet become operative. This extension, which is well-warranted on a population basis, has been approved by the council for a considerable time, and the delay in commencing the service is now the subject of a conference between the City council and its contractor.

SEWERAGE.

Sewerage systems are in operation in Toowoomba, Warwick, and Goondiwindi, and the various plants appear to be functioning satisfactorily. Trouble was experienced at Warwick during the year through the introduction into the system of whey and separated milk from the local butter factory. This had the effect of lowering considerably the Ph value of the bulk sewage, and upset the digester to such an extent that sludge would not form. Conditions were somewhat chaotic at the treatment works for a short period, but an early diversion of the butter factory wastes soon eliminated the trouble, and a return to normal working resulted.

During the war years, when post-war planning was in favour, quite a number of councils expressed themselves as willing and anxious to introduce water-borne sewerage systems, and it will be interesting to observe whether or not they have retained their enthusiasm sufficiently to embark on preliminary surveys in readiness to commence operations when conditions become normal.

A difficult position arises in regard to sewerage reticulation in small centres of population. In several instances, in this district, progressive councils have expressed a desire to complete the sewerage of small towns, but estimates have proved the cost to be prohibitive, and out of all proportion to the number of premises benefited. In this regard, the proposal of the Inglewood Shire Council to equip each premises with a septic installation in the town of Inglewood is an innovation worthy of consideration. The town is small, and probably will not grow to any extent over a considerable period. It has a water supply, and the soil is suitable for the disposal of tank effluent, and the contention of the council that the residents are entitled to the benefits of water-borne sewerage installations now rather than in fifty years time shows a progressive outlook.

MOSQUITOES.

Careful supervision has been exercised over the work of mosquito eradication throughout the district, and, while the results have not been spectacular, some progress has been achieved during the year.

In Toowoomba, while general incidence is not marked, the comparative immunity of pre-war years has been lost. While this can be attributed partly to the heritage of Army occupation, lack of plumbers and materials have also played their part. It has been estimated that, in the city area, some three thousand rain water tanks are defective and require replacing, while the position regarding the supply of galvanised iron for tank construction is probably worse at present, due to industrial upheavals, than at any time during the war years.

A startling development in Toowoomba during the summer just ended was the discovery of extensive breeding of *Culex Fatigans* in holes in shade trees—principally in the Plane trees, which are numerous in the city streets. Constant pruning and removal of surplus branches has caused many holes to form in the trunks and branch junctions of these trees, and some hundreds had to be treated to remove the breeding places. Now that they have lost their leaves for the winter, a re-inspection will be made, and any further filling and sealing necessary will be attended to by the Council.

Extensive breeding of *Culex Fatigans* was also discovered in polluted reaches of the Condamine River at Warwick. The flow of the stream was blocked by fallen timber, and the introduction of butter factory wastes to the water formed an admirable breeding place. Spraying was resorted to in order to control the pest, and the source of pollution was traced and remedied. Flood waters finally scoured the river of polluted water.

Work in other centres has been carried out with varying degrees of success, and there is nothing of importance to report.

RATS.

Apart from the few large towns rats are not prevalent in the district, and most of the remote places have no infestation. In Toowoomba, Warwick, and Dalby constant measures are taken to control rats, and their numbers appear to have been kept in check. In the smaller centres, the local authority inspectors distribute baits where necessary. Mice are not uncommon, but this is to be expected in an area devoted to the production of wheat and other grains.

FLIES.

Throughout the whole of the district, the summer incidence of flies is heavy. Whilst some of these are of the domestic variety, the bulk appear to originate in the open country, and their breeding places and habits do not appear to be well known. Some research into this subject is indicated if the fly nuisance on the Downs and in the sheep and cattle country is to be minimised.

MILES WATER SCHEME.

In connection with the proposed water scheme for Miles a preliminary survey was carried out in co-operation with the consulting engineer to ascertain the extent of potential pollution in the catchment area, and a report containing recommendations was submitted.

INSPECTION OF SCHOOL.

An inspection of a boarding school at Warwick was made with the Chief Medical Officer, School Health Services, following an outbreak of Poliomyelitis, and a report on general sanitation submitted.

WATER SUPPLY.

Reticulated systems are in operation in Toowoomba, Warwick, Dalby, Goondiwindi, Texas, Inglewood, Talwood, and St. George (hot). Systems are contemplated for Miles, Millmeran, Pittsworth, and Dirranbandi.

In those systems not originating from the artesian basin, the chief lack is the absence of filtration plants. Toowoomba, Warwick, and Goondiwindi plan an early construction of these necessities to a potable water.

SHOWGROUND INSPECTIONS.

With the return of more or less normal conditions, the holding of agricultural shows in country centres has been resumed. During the

year shows were held at Toowoomba and Warwick, among other places, and general supervision of sanitation was exercised at both these functions. The Toowoomba Show attracted record crowds, and, although rain and mud hampered the arrangements made, no major nuisances were observed over the three-day period. At Warwick conditions were satisfactory considering the short time available for planning following the return of the showgrounds by the Army. It is anticipated that, before the next show is staged at Warwick, the various facilities will be connected to the city sewerage system, with a consequent big improvement in conditions.

TERNE IRON.

In the latter part of the year, the sale by the Commonwealth Disposals Commission of surplus army buildings roofed with terne iron was investigated. Due to the shortage of galvanised iron, this unsuitable material was much sought after for building purposes, and it was considered important that those buying it should be made aware of the limitations attached to its domestic use. While this was done, and those attending the sale were acquainted with the nature of the material, it is reasonable to assume that, in the course of time, others who are unaware of its high lead content will obtain possession and use it as they consider fit. There must be a considerable quantity of this iron in circulation in various parts of the State and, in country districts, where every roof is used to collect rain water, its release for civilian use is a potential menace to health.

BY-LAWS.

In Toowoomba the majority of the City's by-laws relating to health matters are considerably out of date and not suitable for modern application. The effective supervision of boarding houses, flats, &c., is hindered by the antiquity of the by-laws, and an early review to meet the altered conditions and advances in sanitation would appear to be an urgent necessity.

GENERAL.

General conditions throughout the district are quite satisfactory, and the improvement in standards of sanitation noticed last year has been maintained. The year has been a busy one, and the provision of motor transport has facilitated inspections at remote centres not served by railways. The various local authorities, and their officers, have co-operated willingly in health matters, and, while the year just ended has been one of readjustment more than of marked progress, it is confidently expected that the coming year will develop many advances in sanitation.

FOOD AND DRUGS.

During the period under review (1945-46) the Division of Food and Drugs has continued its operations under the Food and Drug Sections of the Health Acts, the Health (Food Supply) Regulations, the Food and Drug Regulations, the Milksellers' Regulations, Insecticide Regulations, Footwear Regulations, and the Poisons Regulations.

In addition to work carried out in the Brisbane metropolitan area, visits were made by the headquarter's staff to the following country centres:—Amity Point, Biggenden, Burleigh, Caboolture, Cleveland, Caloundra, Coolangatta, Currumbin, Eidsvold, Gayndah, Gympie, Ipswich, Landsborough, Maroochydore, Maryborough, Monto, Mooloolaba, Mundubbera, Nambour, Palm Beach, Pialba, Pomona, Redcliffe, Redland Bay, Roma, Scarness, Southport, Torquay, Urangan, and Wellington Point.

FISH SUPPLY.

Supervision over the fish supply of the metropolitan area has been exercised throughout the entire year by two officers of the headquarters staff. These two officers have inspected all fish coming into the Brisbane Fish Market, and have examined fish in cold stores, fish depots, and retail shops.

As a result of these inspections, these officers have condemned and destroyed as unfit for human consumption a total quantity of 28 tons 2 cwt. 1 qr. 4 lb. of assorted fish, 8 cwt. 1 qr. 26 lb. of prawns, 645 crabs, and 40 bottles of oysters.

A detailed list of fish condemned and destroyed at the Brisbane Fish Market is as follows:—

FISH CONDEMNED AND DESTROYED AT THE FISH BOARD MARKETS, SOUTH BRISBANE.

Class of Fish.	Weight.			
	T.	C.	Q.	L.
Barr	0	0	0	4
Bream	6	13	1	10
Catfish	0	0	3	21
Chinaman	0	0	0	8
Cod	0	0	1	20
Darts	0	0	2	22
Eels	0	0	3	15
Flathead	0	2	3	14
Gar Fish	0	14	2	3
Herrings	0	0	0	2
Jew	0	0	2	8
John Dory	0	2	2	23
Long Toms	0	1	3	23
Mackerel	1	0	3	18
Mixed Fish	1	3	0	9
Mowong	0	0	0	2
Mullet	14	19	3	5
Parrot	0	0	1	8
Perch	0	1	0	5
Pike	0	1	3	26
Red Emperor	0	0	0	12
Salmon	0	0	0	11
Saw Fish	0	0	0	10
Schnapper	0	6	3	6
Shark	0	0	2	21
Squid	0	0	2	12
Squire	0	1	0	5
Stingray	0	18	0	17
Sun Fish	0	0	1	20
Sweetlip	0	2	2	23
Tailor	0	2	2	6
Travalli	0	0	3	8
Trout	0	0	0	3
Turum	0	1	3	15
Whiting	1	2	1	6
Yellow Tail	0	0	1	3
	28	4	3	4

CAFES.

Many cafes have sprung up in Brisbane in premises which have been in no way designed for the conduct of such businesses. As material and labour become available steps are being taken to correct structural defects, but owing to the present building disabilities progress in this direction is slow.

Drastic steps were taken during the year in a number of instances in connection with dirty and insanitary conditions prevailing at certain cafe premises, when substantial penalties were imposed by Stipendiary Magistrates in the Summons Court.

A number of cafe proprietors were served with statutory orders under the hand of the Deputy Director-General directing extensive improvements as an alternative to a closure of the business. In a number of instances restaurants were closed for a few days to permit a necessary clean up.

PROSECUTION OF CAFE PROPRIETORS.
(CITY OF BRISBANE).

Date.	Basis of Prosecution.	Fines.			Costs.		
		£	s.	d.	£	s.	d.
1946—							
30th May	Dirty Café Premises	10	0	0	0	6	0
30th May	Dirty Café Table-ware	10	0	0	0	6	0
30th May	Rats in Café Premises	1	0	0	0	6	0
30th May	Vermin in Café Premises	5	0	0	0	12	0
30th May	Dirty Café Premises	5	0	0	0	12	0
30th May	Unenclosed Café Premises	5	0	0	0	12	0
13th June	Dirty Café Premises	12	10	0	2	8	0
13th June	Rats in Café Premises	7	10	0	2	8	0
	Total ..	56	0	0	7	10	0

BREAD.

The quality of bread and bakehouse conditions have been objects for special attention during the period under review. Samples of bread were submitted for analysis and these were found in the main to reasonably conform to the respective types of bread.

A sharp outbreak of "rope" (*Bacillus mesentericus*) was experienced in many bakehouses in the metropolitan area which was brought under control by special treatment of doughs and methods of baking. An extensive survey of the materials used in bakeries revealed the fact that certain brands of dripping and "compressed" yeast were heavily contaminated with the "rope" bacillus. Upon the elimination of these materials and a general clean-up of the bakehouses no further trouble has been experienced.

From time to time foreign matters have been found in bread, and disciplinary action has been taken against the offending baker in each instance.

A loaf of bread containing a mouse embedded in its crust is at present the subject of legal proceedings for a breach of the Health Acts.

Meat pie bakeries have been visited and correction of defects at these establishments secured. One pie maker was prosecuted for the

offence of selling a meat pie which contained rodent droppings, in which case the Stipendiary Magistrate imposed a fine of £5 with costs of court amounting to £2 8s.

SPIRITUOUS LIQUORS.

The work of liquor inspection has been given attention as circumstances permitted, but the trading conditions together with staff limitations have curtailed these activities to almost a comparatively minimum effort. Prosecutions

have, however, been launched in a number of cases and convictions obtained with penalties as set out in accompanying table.

In each prosecution the hotel premises were placarded with particulars of the conviction and the proprietor's license was endorsed.

Special attention was paid to the cleansing of drinking glasses at hotel premises, and as a result it is hoped to have each bar fitted with mechanical washers and provided with hot water.

PROSECUTIONS FOR SALE OF SPIRITUOUS LIQUORS (ADULTERATED AND FALSELY DESCRIBED) FOR THE YEAR ENDING 30TH JUNE, 1946—HEADQUARTERS STAFF.

Date.	Place.	Basis of Prosecution.	Fines.	Costs.
1945			£ s. d.	£ s. d.
8th August	D'Aguilar	Gin, adulterated (excess water 40.3 per cent.)	6 0 0	1 7 0
8th August	D'Aguilar	Whisky, adulterated (excess water 33.9 per cent.)	6 0 0	1 7 0
8th August	D'Aguilar	Rum, adulterated (excess water 30.7 per cent.)	6 0 0	1 7 0
8th August	D'Aguilar	Rum, falsely described (not "true to label")	6 0 0	1 7 0
9th May	Biggenden	Rum, adulterated (excess water 5.6 per cent.)	5 0 0	0 6 0
4th June	Eidsvold	Rum, adulterated (excess water 15.7 per cent.)	5 0 0	1 7 0
		£	34 0 0	7 1 0

MILK.

(Brisbane Metropolitan Area.)

As in former years the control of the quality of the public milk supply has been taken as a matter of paramount importance in the duties assigned to the Food and Drugs Section of the Department. In the execution of this work prosecutions for milk adulteration with added water have resulted in the imposition of fines totalling £167 2s., together with costs amounting to £29 3s. 4d.

A comparison with returns made for earlier years indicates that the incidence of milk adulteration is on the decline, and this is particularly the case in the person of the actual retail vendor who may, upon his second conviction, forfeit his milk seller's license. As a result of the unremitting vigilance of our inspectors it has been demonstrated in the work of checking on the producer-suppliers that in the majority of milk adulteration cases the guilt can be fixed on the latter.

During the war years the conditions of milk distribution have left a great deal to be desired. The vexed question of milk dumps at the roadside in residential localities has been under observation and it is expected that a marked improvement in this direction will be realised in the very near future. The position is expected to be relieved as soon as the larger milk companies are able to construct branch depots in selected areas.

In the metropolis the sale of pasteurised milk in bottles is quickly ousting the raw milk vendor, and in this regard it is estimated that the con-

sumption of pasteurised milk has increased 100 per cent. during the last seven years, and that the weekly output is now in the vicinity of 1,000,000 bottles.

Complaints of unsatisfactory milk bottle cleansing have been received during the year. These have been carefully investigated, and it was revealed that in the majority of cases the defect was attributable to the negligence of the milk factory staff. This fact is perhaps readily appreciated when it is known that the labour assigned to employers for this type of work has been of an inexperienced class, which proved most unsatisfactory. The factories have now installed modern bottle-washing and sterilisation plants, and the cleanliness of bottles will continue to receive close attention by the Department.

Regulations which prescribe methods for the pasteurisation of milk were amended during the year to provide for the high temperature short time system in which the milk is heated at a temperature of 162 degrees F. for 15 seconds. The method, which permits large quantities of milk to be treated in a short space of time, has received statutory approval in Great Britain. This State has now adopted the phosphatase test by which means it is possible to determine that milk has or has not been pasteurised.

Vehicles used in the retail distribution of milk have deteriorated considerably owing to war-time exigencies, but with a return to normal circumstances it is confidently anticipated that the desired improvement will materialise during the coming year.

PROSECUTIONS FOR MILK ADULTERATION (ADDED WATER) FOR THE YEAR ENDING 30TH JUNE, 1946.
(HEADQUARTERS).

Date.	Place.	Percentage of Added Water.	Fines.	Costs.
1945—				
		Per cent.	£ s. d.	£ s. d.
8th August	Pomona	19.9	19 0 0	3 3 0
8th August	Pomona	17.9	17 0 0	3 3 0
23rd August	Nambour	10.4	10 0 0	1 7 0
18th September	Brisbane	13.3	13 0 0	3 9 0
12th September	Nambour	8.0	8 0 0	1 7 0
12th September	Nambour	9.9	10 0 0	1 7 0
12th September	Nambour	6.4	7 0 0	1 7 0
1946—				
17th April	Brisbane	6.5	6 10 0	1 7 0
14th May.. .. .	Monto	11.6	11 0 0	1 7 0
14th May.. .. .	Monto	13.4	13 0 0	1 7 0
24th May.. .. .	Coolangatta	5.0	5 0 0	1 7 0
23rd June	Coolangatta	6.1	6 2 0	1 7 0
23rd June	Coolangatta	12.6	12 12 0	1 7 0
27th June	Southport	14.6	14 12 0	2 5 8
27th June	Southport	5.1	5 2 0	2 5 8
27th June	Southport	9.2	9 4 0	1 7 0
Total			£167 2 0	£29 3 4

PROSECUTIONS FOR MILK ADULTERATION (FAT DEFICIENCY).

Date.	Place.	% Def. Milk Fat.	£ s. d.	£ s. d.
1945—				
1st November	Brisbane	36.3	2 0 0	3 9 0
1946—				
28th February	Brisbane	54.5	5 0 0	1 7 0
9th May.. .. .	Brisbane	63.6	3 0 0	1 7 0
20th May.. .. .	Ipswich	45.0	1 0 0	3 9 0
Total			£11 0 0	£9 12 0

MISCELLANEOUS MILK PROSECUTIONS.

Date.	Place.	Description.	£ s. d.	£ s. d.
1946—				
7th March	Brisbane	Name not on vehicle	0 10 0	0 6 0
7th March	Brisbane	Water on milk cart	1 0 0	0 6 0
7th March	Brisbane	Water on milk cart	1 0 0	0 6 0
13th June	Brisbane	Not licensed	2 0 0	2 8 0
Total			£4 10 0	£3 6 0

GENERAL INSPECTIONS.

Visits by the headquarters officers have been made to the various food factories and warehouses in addition to retail stores and shops. Food offered for sale in auction rooms from time to time has been inspected, and as a result considerable quantities of unsound foodstuffs were withheld from human consumption. Stocks salvaged from fires are supervised before their sale is permitted.

Large stocks of foods released from the Services food supplies for the civilian market have been inspected during the period under review, and as the outcome of departmental collaboration large stocks of such foods have been diverted from the local retail market.

Attention has been given to the sale of "candle" nuts and several consignments of these nuts were seized and destroyed. It was established that the "candle" nut, which is produced in the vicinity of Brisbane, is potentially poisonous to man with acute symptoms. Owing to dearth of edible nuts at the present time a ready market was found for the "candle" nut, the growers of which have now been advised that whilst the oil of the nut may be of commercial value the Department would not approve of its sale for human consumption.

A shipment of dates, the first for some years, arrived from overseas in a very damaged condition. The condition of the fruit was attributed

to a number of transshipments and deterioration. It was found necessary to cause the destruction of a considerable quantity as unfit for food.

UN SOUND AND DETERIORATED FOODS.

Inspection resulted in the removal from sale and the destruction of some 18 tons 17 cwt. 1 qr. 17 lb. of unsound and deteriorated foods and drugs. Details of these articles are given in the following table:—

UN SOUND FOODS DESTROYED, HEADQUARTERS STAFF,
FOR THE YEAR ENDING 30TH JUNE, 1946.

Article.	Packages.	Weight.			
		T.	C.	Q.	L.
Candle Nuts	5 parcels	0	1	2	0
Cereals	22 packets	0	0	0	16
Confectionery	44 packets	0	1	1	26
Cigarettes	37,140				
Cigars	268				
Fish canned	41 cans	0	0	1	12
Fruit Dried	3½	0	2	1	11
Dates	41 cases	1	5	2	14
Food colouring	1 parcel	0	0	0	24
Grapes	60 cases	0	15	0	0
Headache Powders	593 packets				
Pears	31 cases	0	15	1	0
Rabbits .. .. .	..	6	19	1	26
Spirits	25 bottles				
Pickles	13 bottles				
Walnuts	169 bags	8	16	0	0
Jelly Crystals	66 packets				
		18	17	1	17

The total of 18 tons 17 cwt. 1 qr. 17 lb. represents unsonnd food stocks certified to and destroyed. In addition to this, considerable stocks of damaged foods from fire salvage were inspected and rejected by the Department's officers. Large stocks of canned foods offered for sale by tender through the Commonwealth Foods Disposal Commission have been supervised by our inspectors.

Sampling.—A total of 3,535 samples of foods and drugs and other articles was obtained by our officers and submitted to the Government Chemical Laboratory for examination. These

samples include:—Beverages, bread, cereals, condiments, cordials, eustard or cake powders, disinfectants, drugs, essenees, fruit, fruit juice, jau, jelly, meat, medicines, milk, milk products, paint, soap, tobacco, toys, and vegetables.

Bacteriological sampling.—Six hundred and twenty-four specimens, including the following articles, were collected and submitted by headquarters inspectors to the Director of the Laboratory of Microbiology and Pathology for examination, viz.:—Broad, bottles (sterility), caramel, disinfectants, dripping, flour, milk, oil, pastry, pickles, salt, soap, and yeast.

PROSECUTIONS FOR MISCELLANEOUS ADULTERATIONS FOR THE YEAR ENDING 30TH JUNE, 1946.
(HEADQUARTERS STAFF).

Date.	Place.	Basis of Prosecution.	Fines.	Costs.
1945—				
8th August	D'Aguilar	Adulterated gin (excess water 40·3 per cent.)	£ s. d. 6 0 0	£ s. d. 1 7 0
8th August	D'Aguilar	Adulterated whisky (excess water 33·9 per cent.)	6 0 0	1 7 0
8th August	D'Aguilar	Adulterated rum (excess water 30·7 per cent.)	6 0 0	1 7 0
8th August	D'Aguilar	Rum falsely described (excess water 36·0 per cent.)	6 0 0	1 7 0
18th December	Brisbane	Essence pineapple falsely described	5 0 0	1 7 0
1946—				
8th March	Brisbane	Tapioca dessert falsely described	4 0 0	1 10 0
9th May	Biggenden	Adulterated rum (excess water 5·6 per cent.)	5 0 0	0 6 0
4th June	Eidsvold	Adulterated rum (excess water 15·7 per cent.)	5 0 0	1 7 0
1945—				
24th August	Brisbane	Meat pies contaminated with rat excreta	5 0 0	2 8 0
13th September	Brisbane	Ice cream adulteration (fat deficiency 33·0 per cent.)	10 0 0	1 7 0
1946—				
14th March	Brisbane	Minced meat adulteration (preservative present)	2 2 0	1 7 0
Total .. ..	.. ..	.. ..	£60 2 0	£15 0 0

PAINT.

Samples of paint removed from a number of residences and fences in the metropolitan area were found to contain more than five per cent. soluble lead in contravention of the Health Acts, and as a result owners of the premises were required to remove the offending paint. A professional painter was required to remove from a fence lead paint he had previously applied.

An investigation into the paeking of paint was conducted during the year, and where any package did not bear a label setting out the names of the ingredients in the paint and the percentage proportions in which they were present the manufacturer was called on to immediately remedy the defect.

TOYS.

Stocks of toys have been checked from time to time, and all such articles composed of lead or which were coloured with a lead paint were withdrawn from sale. A retailer in Toowoomba who continued to sell lead toys after being warned by our officer was subsequently prosecuted for a breach of the Health Acts.

POISONS AND DANGEROUS DRUGS.

The control of the sale of poisons and dangerous drugs necessitated the inspection of stocks in warehouses, retail stores and chemists' shops.

It was found necessary by the headquarters staff to institute legal proceedings in one case only for a breach of "The Poisons Regulations of 1940." The defaulter in this instance was a

pharmaceutical chemist who failed to keep a satisfactory record of his dealings in dangerous drugs. The result of the prosecution is shown below:—

PROSECUTIONS UNDER "POISONS REGULATIONS, 1940."

Date.	Basis of Prosecution.	Fine.	Cost.
1945—			
11th July	Pomona—Failed to keep drugs book	£ s. d. 10 0 0	£ s. d. 0 6 0

TOOWOOMBA SUB-OFFICE.

Summary of work.—The year under review has been a busy one, and is notable for the great increase in the amount of country work undertaken. This was made possible by the provision of motor transport which, besides facilitating inspections at many small centres previously visited only on rare occasions, greatly lessened the amount of time normally spent away from headquarters. This increased mobility is reflected in the number of places visited (67) and the number of prosecutions launched.

Inspections under the Health Acts and the various Regulations were carried out at all the country centres visited, and at frequent intervals during the year at Toowoomba. They comprised visits to all premises where food for sale was prepared, handled, or sold, milk sampling, liquor testing, bread weighing, inspections under the Poisons Regulations, and various miscellaneous activities.

Places visited.—In addition to the work at headquarters, inspections were carried out at 67 country centres as follows.—Acland; Allora; Amiens; Ballandean; Bell; Boney Mountain; Bowenville; Brookstead; Cabarlah; Cambooya; Cecil Plains; Clifton; Cooyar; Cottonvale; Dalby (2); Dalveen; Dareel; Dirranbandi; Drayton; Emu Vale; East Greenmount; Glen Aplin; Goombungee; Goondiwindi; Gowrie Junction; Greenmount; Haden; Hampton; Inglewood; Jondaryan; Karara; Killarney; Kingsthorpe; Kogan; Kulpi; Leyburn (2); MacLagan; Meringandan; Miles; Millmerran (2); Mungundi; Nindi Gully; Nobby; Oakey (2); Pechey; Peranga; Plainland; Pittsworth; Quinalow; Southbrook; Stanthorpe (3); St. George; Talwood; Tannymorel; Thallon; The Summit; Thulimbah; Texas; Toobeah; Wallangarra; Warra; Warwick (8); Withcott; Wutul; Wyreema; Yangan; and Yelarbon.

The number of miles travelled outside Toowoomba on these inspections and in attending court for the hearing of cases totalled 6,119.

Food Premises Generally.—Apart from structural requirements, the general standard maintained in food premises throughout the district was quite satisfactory, and calls for no special comment. The position with regard to structural alterations and repairs, however, is still unchanged for the most part, and a considerable amount of work is necessary in this direction. A number of notices has been served, but, while some minor items have been attended to, there seems little prospect of an early compliance on the part of most parties concerned. It is most unfortunate that at a time when most business people are willing, and anxious, to improve their premises, and much permanent advantage could be achieved, shortage of materials and labour should hamper the opportunity.

One prosecution was launched in Toowoomba in connection with dirty food premises—a confectionery factory, the proprietor of which had been warned on several occasions previously without any consistent improvement being effected. The premises were in such a condition that an order was obtained from the Deputy Director-General requiring them to be closed until such time as they had been thoroughly cleansed and other conditions complied with. Fine and costs totalling £7 8s. were imposed.

Condemned Foods.—The following foods were certified as unfit for human consumption during the year, and were destroyed by mutual consent:—

	cwt.	qr.	lb.
Dates	1	1	0
Jam	10	2	7
Tinned Vegetables	0	1	27
Tinned Sausages	0	0	1
Tinned Soup	0	0	1
Breakfast Foods	1	3	20
Total	14	1	0

In addition to the above, 2½ gallons of draught whisky were also found to be contaminated and unfit for human consumption, and were destroyed by mutual consent.

Liquor Testing and Hotels.—The new law introduced early in the year requiring licensed premises to keep their doors open during business hours rendered the testing of liquors more practicable, and considerable work was done in this direction. From the results it would seem that a number of licensees were taking advantage of the comparative security from detection under the old conditions. In all, 12 samples of spirits were seized through failure to comply with the prescribed standards, and proceedings were instituted against the licensees of 7 hotels. Convictions were obtained in all cases, and fines and costs totalling £101 8s. were imposed. Included in this amount is a fine of £40 imposed on a licensee who was convicted for the third time of having had adulterated spirits in his possession for sale. In addition to the fine and the usual placarding of the premises, the magistrate ordered that an advertisement drawing attention to the offence be published on four occasions in the local newspaper at the licensee's expense, and that 13 bottles of spirits under seal were to be forfeited to the Crown.

In the course of inspections of hotels particular attention was paid to the washing of drinking glasses in bars. In a number of instances improved facilities for this purpose—running water, drainage facilities, &c., were recommended, and orders were subsequently issued by the Licensing Commission requiring the necessary work to be executed. The majority of hotels in the district are now well served in this direction, but only constant supervision will ensure that the facilities provided are properly used to their fullest extent.

Following a complaint from a Toowoomba hotelkeeper concerning the quality of whisky purchased from a doubtful source during a period of shortage, a sample was submitted for analysis, and the sale of the article deferred. Results of analysis showed that the whisky was contaminated with a substance resembling pyrethrum insecticide, and unfit for human consumption. On receipt of this certificate, the whisky was jettisoned by the owner, who now realises that the purchase of such lines from persons other than the recognised purveyors is fraught with grave risks.

Bread Weighing and Bakehouses.—The weighing of bread at bakehouses under section 118 of the Health Acts was carried out, wherever practicable, at all centres in the district. As a result of these activities, 3 bakers were proceeded against for having had in their possession for sale bread which was not of due weight. One of these defended the action on the grounds that the quality of wartime flour had deteriorated to such an extent that it was impossible to maintain the due weight of bread for any length of time after baking. Convictions were obtained in all three cases, and fines and costs totalling £21 18s. 6d. were imposed.

Bakehouses generally were conducted in a satisfactory manner, but a number of structural alterations have been allowed to stand over until such time as the building position improves.

Milk Supply.—(a) *Sampling.*—Constant supervision has been exercised over the Toowoomba milk supply, both warm and pasteurised, and check surveys made in the larger

centres visited. A total of 143 official samples of milk were submitted for chemical analysis during the year, made up as follows:—

Toowoomba	..	..	..	105
Warwick	..	..	..	13
Goondiwindi	..	..	..	10
Dalby	..	..	..	9
Stanthorpe	..	..	..	4
Oakey	..	..	..	2

Greater activity in this phase of the work was restricted by the shortage of suitable bottles.

Of the samples submitted, 10, representing two suppliers, were found to contain added water, and 24 failed to comply with the standard because of deficiencies in butter fat or solids. Proceedings were taken against the two suppliers of the samples adulterated with added water, and against three suppliers of samples greatly deficient in butter fat. Fines and costs totalling £30 17s. were imposed.

During the year a survey was made, in co-operation with the Department of Agriculture and Stock Research Laboratory, of the quality of milk being supplied to the public in Warwick. This survey followed a campaign of dairy inspection in the district, and the bacteriological results obtained were, with one or two exceptions, very satisfactory, and compared favourably with the warm milk supplies of other centres.

(b) *Pasteurised Milk*.—Constant supervision was maintained over the production of pasteurised and processed milk at the Toowoomba factory, and results from bacteriological samples examined on behalf of the U.S. Army and Navy showed that the usual high standard had been maintained. It is interesting to note that, apart from a most efficient filter, and a new bottle-washer recently installed, the treatment plant is by no means an ideal one, and the low bacterial counts achieved owe much to strict factory hygiene and the practice of submitting individual supplies to laboratory pasteurisation tests—those not pasteurising down below 10,000 being excluded from the supplies to be drawn upon, and relegated to cheese manufacture. In regard to factory hygiene, the presence of a U.S. technician had much to do with the standard achieved. This man has now been withdrawn, and, while the operatives are continuing the measures he introduced, it remains to be seen whether or not they will be so rigorously or consistently applied in the future without the influence of his presence.

During last winter a distinct flavour, resembling a cardboard taint, became noticeable in the Toowoomba bottled milk supply, and persisted, with varying intensity, despite efforts to eliminate it. The flavour was not very prominent in freshly bottled milk, but gained in intensity with time, until after 24 hours it was most pronounced, even in boiled milk or foods prepared with the milk. It was at first thought that the cardboard odour was brought about by the high chlorine content of the water used for bottle washing and for flushing pipe lines, &c. Tests were taken of this water, and it proved to be somewhat stronger than the recognised solution. Accordingly, the chlorine content was reduced to that normally employed,

but the odour persisted. As an experiment, no chlorine was used in the washing of equipment for several days, but the odour persisted in the milk bottled on these occasions, thus ruling out chlorine as a causing factor. After pursuing several leads without results, the cause of the taint was finally traced to the pipes used in the factory milk line. From constant scouring and brushing the tinning had been worn off these lines in many places leaving copper exposed, and the milk, in its passage through them under pressure, evidently took on minute traces of copper, thus acquiring an oxidised flavour. As a result, the dairy association immediately ordered a complete new pipe line of nickel alloy, and this is at present on hand awaiting rigging, &c.

Plans are now being prepared for the erection of a modern pasteurising plant at Warwick to serve that city and adjoining territory.

Pasteurised milk from Toowoomba is now on sale in Oakey, Helidon, Grantham, and Gatton, while approved plants for the bottling of processed milk for sale as "Pure Milk" are operating at Stanthorpe and Dalby.

(c) *Vehicles*.—The various vehicles used in the delivery of milk for sale have been inspected regularly, and their condition throughout has been very satisfactory in most cases. A number require repainting, &c., but the standard of cleanliness maintained has been good, and there has already been an improvement on wartime conditions.

Lead Toys.—During the year lead toys made their reappearance in stores at Dalby, Warwick, Stanthorpe, Dirranbandi, and Toowoomba. This type of toy, formerly procured almost exclusively from Japan, is now manufactured in large quantities in the Southern States, where, apparently, there are no restrictions on its sale, and, while the line is not stocked by Queensland warehouses, to my knowledge, quantities can be purchased freely in the South by buyers from this State. In each instance the toys on sale had been procured by the vendors either while on buying trips to the South or ordered through the post following advertisements in trade journals.

In all cases instructions were issued that the toys be withdrawn from sale immediately, and either returned to the manufacturers or destroyed. The various business people concerned were, in the main, most co-operative when they learned of the embargo operating in this State and of the dangers associated with their sale, but it was found necessary to take legal action against a Toowoomba firm which persisted in selling the toys after being warned not to do so. A fine and costs totalling £4 18s. were imposed, and a quantity of toys under seal forfeited to the Crown.

Description of Confectionery.—Action was taken at a local chain store concerning the description of confectionery as "Rum and Milk Toffee." The line was manufactured locally, and, when the provisions of the Food and Drug Regulations concerning confectionery were explained the description was dropped in favour of another name. The flavour did not resemble that of rum. No further breaches of this nature were observed.

Unofficial Samples.—During the year unofficial samples of flour (22), whisky (1), beer (3), lead toy (1), and rat bait (1) were submitted for unofficial analysis in the course of inspections.

Showgrounds.—The sale of foodstuffs in booths at the Toowoomba and Warwick Shows was effectively policed. In the case of a confectioner who travels the show circuits with his headquarters at Brisbane, recommendations were made to Head Office with a view to improving his somewhat crude methods of display and handling of unwrapped confectionery.

Poisons and Dangerous Drugs.—The usual inspections were made at chemists' shops and poisons dealers throughout the area. Several warnings were issued to chemists and others concerning the keeping of proper records, but no prosecutions were launched under this heading. Labelling faults were reported for correction where necessary. Several investigations

concerning dangerous drugs were undertaken. These comprised enquiries into the obtaining of morphine sulphate by an unauthorised person, and the failure to cancel, or cancel properly, prescriptions for dangerous drugs. Satisfactory explanations were forthcoming in all instances, and no action was recommended.

Miscellaneous.—A visit was made to a boarding school at Warwick with the Chief Medical Officer, School Health Services.

A number of ex-servicemen about to commence in business sought advice on various matters, and every effort was made to ensure that they had a fair start in civilian life. Activities in this direction included the inspection of food stocks in stores prior to the purchase of businesses; inspection of proposed food premises; the procuring of suitable and reliable wholesale milk suppliers for new vendors; and advice concerning the setting up and conduct of the various types of food businesses.

SUMMARY OF PROSECUTIONS.

Date.	Place.	Charge.	Fines.	Costs.	Analyst Fee.
			£ s. d.	£ s. d.	£ s. d.
1945—					
17th August ..	Toowoomba ..	Adulterated rum, 27.7 per cent. ..	7 10 0	0 6 0	1 1 0
22nd August ..	Greenmount ..	Adulterated brandy, 20 per cent. ...	5 0 0	0 6 0	1 1 0
12th September ..	Toowoomba ..	Adulterated rum 5.4 per cent. ..	10 0 0	0 6 0	1 1 0
12th September ..	Toowoomba ..	Adulterated rum 11.9 per cent. ..	10 0 0	0 6 0	1 1 0
12th September ..	Toowoomba ..	Adulterated rum 10.1 per cent. ..	10 0 0	0 6 0	1 1 0
25th October ..	Toowoomba ..	Adulterated milk (B.F.) 60.6 per cent. deficient	3 0 0	0 6 0	1 1 0
25th October ..	Toowoomba ..	Adulterated milk (B.F.) 75.7 per cent. deficient	3 0 0	0 6 0	1 1 0
29th November ..	Toowoomba ..	Shortweight bread 138½ oz. ..	7 0 0	2 8 0	..
19th December ..	Oakey ..	Adulterated gin 10.7 per cent. ..	7 0 0	0 6 0	1 1 0
1946—					
14th January ..	Toowoomba ..	Dirty premises (confectionery factory)	5 0 0	2 8 0	..
22nd January ..	Stanthorpe ..	Shortweight bread 87½ oz. ..	8 14 6	0 6 0	..
19th February ..	Dalby ..	Adulterated rum 35.1 per cent. ..	40 0 0	2 8 0	1 1 0
19th February ..	Dalby ..	Shortweight bread ..	3 4 0	0 6 0	..
15th March ..	Toowoomba ..	Adulterated milk (B.F.) ..	1 0 0	0 6 0	1 1 0
7th May ..	Toowoomba ..	Sale of lead toys ..	2 10 0	2 8 0	1 1 0
20th May ..	Toowoomba ..	Adulterated milk 7.3 per cent. ..	8 0 0	2 8 0	1 1 0
7th June ..	Goondiwindi ..	Adulterated milk 6.5 per cent. ..	7 0 0	0 6 0	1 1 0
		Total	£137 18 6	£15 12 0	£13 13 0
		Total Fines and costs	£167 3 6		

ROCKHAMPTON SUB-OFFICE.

A busy time was experienced throughout the year as the Mackay area continued to be under the supervision of the Rockhampton Sub-office.

The inspector has numerous duties to perform under different regulations, and specific instructions issued from time to time, so that only part of his time can be devoted to pure food supervision. No effort was spared, however, during the year to accomplish as much as possible.

Townships beyond headquarters visited during the year for inspection purposes were:—Alpha, Anakie, Banana, Baralaba, Biloela, Blackall, Blackwater, Bluff, Callide, Capella, Clermont, Comet, Cracow, Dingo, Duinga, Dululu, Emerald, Emu Park, Gladstone, Goovigen, Isisford, Keppel Sands, Kokotungo, Longreach, Mackay, Marlborough, Mt. Larcom, Mt. Morgan, Moura, Ogmore, Jambin, Proserpine, Rannes, Rolleston, Ruby Vale, Springsure, St. Lawrence, Tambo, Thangool, Theodore, Westwood, Wowan, Yarwun, and Yeppoon. Total distance travelled by car and train in making these visits was 9,064 miles.

Milk Supply.—Two hundred and seven official samples of milk purchased or removed under the provisions of the Health Acts and submitted to chemical analysis were obtained from the following centres:—Rockhampton 115, Alpha 1, Biloela 2, Blackall 4, Clermont 3, Emerald 3, Gladstone 11, Longreach 9, Mackay 13, Mt. Morgan 13, Proserpine 6, Yeppoon 27.

Five official samples of pasteurised milk were secured and submitted to the departmental laboratory for examination. In addition 59 unofficial samples of pasteurised milk were submitted to the Commonwealth Health Laboratory, Rockhampton.

Legal proceedings instituted against offenders during the year resulted in conviction in each instance. They were as follows:—Milk, adulterated with added water, 5; water carried on milk delivery vehicle, 2; defective milk delivery vehicle, 1; milk delivery vehicle not kept clean, 1; milk measures not fitted with close-fitting lids, 3; obstruction of officer, 1; sale of milk without license, 1.

The sample most heavily adulterated contained 44.1 per cent. of added water. The heaviest fine

imposed for a similar offence was £60, plus £1 7s. costs, the offender having had three previous convictions recorded against him. Fines and costs imposed totalled £185 11s.

Increased numbers of milk delivery vehicles were brought into conformity with the specifications prescribed in the Milk Sellers Regulations. Legal proceedings are being taken against a few vendors who failed to heed warnings to provide proper vehicles.

The large milk pasteurising concern in the city area has now become firmly established, and the public demand for pasteurised milk delivered in sealed bottles is growing.

In the early part of the year the proprietors found it difficult to maintain the product within the bacterial standards prescribed in the Food and Drug Regulations, both as regards total count and coli count. The Department insisted that such standards be complied with, following which careful checking of all phases of the process was carried out. Improved results were obtained but these were not always consistently satisfactory, necessitating further careful checking from time to time. The milk pasteurising plant is set up within a large butter factory, a factory which is not conducive to the best possible results. The extent of the expansion of the business is regarded as sufficient to warrant separate premises for treating milk.

Bread.—An unprecedented number of bakehouses was affected by *Bacillus mesentericus* ("rope"). Several bakehouses were affected at the one time, coinciding with a similar outbreak in the metropolis. Although careful investigation was made in every case no common factor emerged to define the origin of the trouble. Bakers blamed flour or yeast, but enquiries showed that different brands of both flour and yeast were used. In some cases the wholemeal bread was affected, in other cases the white bread, whilst at some bakehouses all classes of bread produced were affected. Hot, humid weather prevailed at the time, suggesting that this was the chief factor in the development of the bacillus in the bread. Rigorous methods and precautions were taken at each bakehouse, and the trouble disappeared within reasonable time.

Some particular attention was paid to bakehouses which had fallen into a condition of disrepair during the war years. Notices ordering reconstruction or repairs were served on the owners. Improvements are resulting in consequence.

Cafes, Milk Bars, Restaurants, &c.—Many inspections of this class of business were carried out, resulting in improvements being effected to premises, and correction of methods of handling of food intended for sale to the public.

At one country township conditions connected with the storage and handling of food to be served to the public at the local hotel were found to be shocking in the extreme. A prosecution was taken against the proprietor, who was convicted, fined £20, and ordered to pay 6s. costs of court.

Alcoholic Liquors.—Only one prosecution for the sale of adulterated spirits was launched during the year. This was in respect to a sample of whisky obtained from a hotel at Clermont, and found to contain 25.9 per cent. of added water.

This offender when brought before the court was convicted, fined £5, and ordered to pay costs amounting to £1 7s.

Samples of rum which gave unsatisfactory hydrometer readings were seized from two hotels at different townships. Analysis proved the faults to be due to the liberal addition of wine and/or caramel to the rum. The respective proprietors were accordingly warned.

Fish.—Shops open for the sale of fish cooked or uncooked were inspected from time to time. No fault could be found with the quality of fish offered for sale in these shops. Some warnings were necessary in regard to the methods of handling fish, and also in respect to the storage and disposal of fish offal.

A branch of the Fish Board was set up in the city area to receive and distribute supplies of fish. It is the practice of the Board to call for an inspection by a departmental officer when the soundness of fish to hand is in doubt. As the result of such inspections made fish totalling 7 cwt. 2 qr. 13 lb. was found unsound and destruction ordered.

Improvements were effected to several fish premises and others will be dealt with as time permits.

Fruit and Vegetables.—The quality of fruit and vegetables offered for sale by retail in the city area was uniformly good in so far as it was not necessary to condemn any as being unfit for human consumption.

Warnings given to shopkeepers who exposed for sale fruit and vegetables within reach of dogs, &c., were quickly heeded. However, frequent inspections proved necessary to prevent fruit being unduly exposed to contamination.

Wholesale Merchants.—New brands of foods, poisons, insecticides, paints, &c., which come on the market demanded most attention. This was more generally the case with lines packed in other States, and not composed, packed or labelled in accordance with the Queensland laws. In every instance adjustments made to comply with this State's regulations were in the nature of improvements and in the public interest.

Unsound Food.—Food inspected, condemned as unfit for human consumption, and subsequently destroyed totalled 1 ton 13 cwt. 1 qr. 4 lb. 3 oz., made up as follows:—Canned meats 24 lb., canned soups 2 qr. 8 lb., canned vegetables 1 qr. 21 lb., chutney 1 cwt. 0 qr. 4 lb., dried fruits 23 lb. 7 oz., flavouring essence 12 oz., fish 7 cwt. 2 qr. 13 lb., flour 8 cwt. 1 qr. 1 lb., jams and preserves 14 cwt. 1 qr. 15 lb., processed cheese 1 qr. 2 lb., smoked fish 1 qr. 2 lb., syrup 2 lb.

Paints.—In numerous instances inspections of retail stores revealed paints packed for sale in containers not labelled in accordance with the provisions of the Act. The respective wholesale distributors were instructed to obtain the requisite labels from manufacturers, and retail sellers were in turn instructed to obtain these labels from the distributors. The Department also took the matter up with manufacturers of the paints.

Poisons, Insecticides.—Inspections under the Regulations were made at all country centres visited, and in the city area as opportunity occurred. Faults detected were mainly in connection with the packing of poisons and insecticides in unsuitable containers, together with improper labelling. In this regard much time was taken up concerning DDT.

With stocks of some lines again becoming readily available in quantities, and new people taking up business, the practice of repacking poisonous substances from bulk purchases into

food containers for retail sale became more prevalent. Apart from the danger attached to this practice, the retailer finds, when informed of the requirements of the Regulations, that it is not profitable to provide special containers and labels. From experience it would appear that no harm but much good would be done if retailers were permitted to dispose of poisons and insecticides only in the original containers.

Prosecutions conducted under the Acts and Regulations are set forth in detail in the following list:—

PROSECUTIONS UNDER "THE HEALTH ACTS, 1937 TO 1945," ROCKHAMPTON CENTRE, YEAR 1945-1946.

Date.	Place.	Nature of Offence.	Fine.	Costs.
			£ s. d.	£ s. d.
1945—				
13th August	Rockhampton	Milk, adulterated	60 0 0	1 7 0
13th August	Rockhampton	Milk, utensil without lid	3 0 0	0 6 0
13th August	Rockhampton	Milk, adulterated	18 0 0	1 7 0
22nd August	Rockhampton	Milk, water carried on vehicle	10 0 0	0 6 0
18th September	Rockhampton	Milk, adulterated	20 0 0	1 7 0
18th September	Rockhampton	Milk, utensil without lid	3 0 0	0 6 0
18th September	Rockhampton	Milk, vehicle without enclosed compartment	3 0 0	1 7 0
18th September	Rockhampton	Milk, vehicle not kept clean	3 0 0	1 7 0
19th September	Rockhampton	Milk, water carried on vehicle	10 0 0	0 6 0
19th September	Rockhampton	Obstruction of officer	10 0 0	0 6 0
19th September	Rockhampton	Milk, utensil without lid	3 0 0	0 6 0
16th November	Rockhampton	Milk, adulterated	20 0 0	1 7 0
16th November	Rockhampton	Milk, sold without licence	5 0 0	0 6 0
21st November	Clermont ..	Whisky, adulterated	5 0 0	1 7 0
1946—				
28th March	Proserpine ..	Milk, adulterated	6 0 0	1 7 0
28th May	Baralaba ..	Food, exposed	20 0 0	0 6 0
28th May	Baralaba ..	Hotel, vermin in beds	20 0 0	0 6 0
5th June	Mount Morgan	Poison, incorrectly labelled	3 0 0	0 6 0
5th June	Mount Morgan	Poisons, not kept in locked cupboard	3 0 0	0 6 0
5th June	Mount Morgan	Poison, Licensed Dealer sign not displayed	3 0 0	0 6 0
5th June	Mount Morgan	Poison, packed in food container	3 0 0	0 6 0
		Totals	£231 0 0	£15 4 0
		Grand Total	£246 4 0	

TOWNSVILLE.

Milk Samples.—A total of twenty-nine official samples of milk was submitted to the Government Analyst from this city during the year. These were obtained from wholesalers, retailers and milk bars. It is pleasing to report that all samples were reported free of adulteration by means of added water, but six were deficient in total solids and fat, four deficient in total solids and fat and solids not fat and one deficient in fat.

Regarding the four cases mentioned in the previous report, which had not come before the court at the close of that year, I have to advise that each defendant was subsequently convicted and the following fines and costs were inflicted: £12 18s. with £1 1s. analyst's fee and 6s. costs of court; £5 10s. with £1 1s. and 6s.; £5 10s. with £1 1s. and 6s.; and £8 with £1 1s. and 6s.

Bottled milk is in great demand, and practically the whole of the city area is now being provided with a door-to-door delivery.

Hotels.—With general conditions reverting to normal, a gradual improvement is being noticed in the cleanliness, service, equipment and appearance of hotels. Staff problems also have become easier, which, combined with a more regular trading period, have assisted in bringing about the above changes.

Periodical inspections of hotel bars have been made and liquors tested have been found to conform to their respective standards. Draught whisky has not yet made its reappearance in hotels to any great extent, but draught rum is again being handled by several licensees.

Coldrooms and refrigeration have done much to minimise the use of beer pipes and brewer's hose.

Cafes.—Constant supervision has been exercised over cafes, milk bars and other eating houses and with few exceptions these were being conducted in a satisfactory manner. Where defects or neglect existed appropriate action was taken.

As modern material and equipment become available further improvement can be expected as proprietors appear to be anxious to replace their wartime articles.

Bake-houses.—Periodical inspections and bread weighings have also received attention during the year. The general condition of bake-houses may be regarded as reasonably fair; this applies to structural conditions particularly. Renovations were ordered and carried out in respect to one bakery since the previous report was submitted.

Warehouses.—Regular visits have been made to warehouses, where owing to wartime conditions stocks have been rather limited. Examinations of stocks revealed that they were in sound condition in most instances.

Unsound Foods.—The following is a list of unsound foods which were withdrawn from sale and destroyed on account of being unfit for human consumption:—

28 cases each 4 doz. 12-oz. jars tomato soup
 76 cartons each 3 doz. 1½-lb. tins sweet orange
 12 pats each 1 lb. butter
 1 bag 20 lb. pork
 3 cases each 10 lb. poultry
 2 sacks each 56 lb. icing mixture
 96 bags each 5 lb. self-raising flour
 87 bags each 2 lb. self-raising flour
 84 cases each 1 doz. 8-oz. packets processed cheese
 833 packets each 12 oz. pastry mixture

In addition, 2 tons 19 cwt. 3 qr. 13 lb. of fish was condemned and destroyed by Acting Inspector Price at the Townsville Fish Depot as unfit for human consumption.

Samples.—Several samples of toys, including such articles as pistol, iron, iron stand, aeroplane, aircraft carrier, flat iron, ship, and soldier, were submitted to the Government Analyst for examination. Four of the articles were reported to be composed of 100 per cent. lead, one of 88 per cent. lead and 12 per cent. antimony, whilst the remainder were reported free of lead.

Two samples of paint were also submitted—one being reported free of lead and the second as containing 4.5 per cent. soluble lead.

General.—In addition to the foregoing details general inspections and supervisions were exercised over all classes of premises used in the handling or other dealings in connection with the sale of food. Conditions generally were found satisfactory in most instances and where defects were observed the proprietors were found to be co-operative regarding advice and instructions.

COUNTRY.

Towns visited during the year included Ayr, Bowen (2), Brandon, Charters Towers (6), Giru, Home Hill, Hughenden, Ingham (5), Lucinda Point, Merinda, Palm Island (2), and Winton.

Ayr.—General inspections were carried out in this town and in addition five samples of milk were submitted for analysis, one of which was reported to have been adulterated with added water. Legal proceedings had commenced but not completed before the submission of this report.

Bowen.—A visit was made to this town for the same purpose and reports were furnished to headquarters.

Milk samples were also forwarded to the Government Analyst (8 in all), two of which were found to contain 12.9 per cent. and 5.4 per cent. of added water. Legal proceedings followed and each defendant was convicted and fined £12 with £1 7s. costs and £5 with £1 7s. costs respectively. The former defendant was a street retail vendor whilst the latter was a milk bar proprietress.

Charters Towers.—Six visits were paid to this town, mostly in connection with matters of special interest.

Opportunity was also taken to check up on the milk supply on two occasions when nine official samples were obtained on each visit. On the first batch three samples were reported by the analyst to contain added water to the extent of 6.7 per cent., 7.6 per cent., and 9.4 per cent. Legal proceedings were instituted against each defendant, all of whom were street retail vendors, and a conviction obtained. Fines imposed were £6 14s. and £1 7s. costs of court, £7 12s. and £1 7s. costs of court, and £9 8s. and £3 9s. costs respectively.

In addition to the above a fourth defendant was proceeded against for "refusing to sell a sample of milk." The case was defended, and the magistrate, after convicting the defendant, imposed a fine of £3 with £3 9s. costs.

On the second visit all nine samples were reported as being in conformity with the prescribed standard.

Home Hill.—As a result of a visit of inspection of this town a baker was found to be selling bread which was deficient in the due weight prescribed by law. Legal proceedings in this case are pending.

CAIRNS.

The passing year has been a difficult one of transition from war conditions to those of peace. Though normal conditions have not yet fully returned, some improvement in supplies, labour and material has been noticed. My efforts have been directed towards maintaining as high a standard as possible under the circumstances, and it is pleasing to report some measure of success.

The introduction of legislation controlling the high temperature short time method of milk processing during the year has now enabled a decided improvement to be effected in the quality of milk supplies in the Far North. Two approved factories are now operating, whilst a third is under construction at Innisfail. Bottled pasteurised milk of high standard is available at every town on the coast from Cardwell to Mossman, whilst the Tableland areas have not been neglected. Processed milk is also freely available for bulk use by cafes, hotels and other large establishments. The competition thus offered has caused an improvement in warm milk supplies, quite a few of the producers of which are now voluntarily submitting their herds for testing against tuberculosis and contagious abortion.

During the year a combined effort with the various local dairy officers resulted in vehicles being brought into full conformity with the relevant regulations, and a good type of vehicle is now completely in use in all larger areas of distribution.

Generally speaking, the milk supply for the Far North is in a very happy condition and will compare more than favourably with those in other parts of the State.

All avenues of food production, handling and distribution were covered during the year under review, and this has meant a constant round of visits to food manufacturers, such as bakers, confectioners, ice cream makers, &c., food transports and distributing centres such as cafes, stores, &c. Itinerant street vendors were not neglected and received the necessary attention.

Any increase in staff to enable more frequent visits of inspection would assuredly result in the attaining of a higher standard.

Prosecutions launched during the year included two for adulterated milk, one offender being fined £4 14s. and ordered to pay £1 6s. costs, whilst action is pending against the other offender. A prosecution for dirty food premises was also successfully launched, the offender being fined £3 and ordered to pay 6s. costs of court.

During the year 23 legal samples and 11 unofficial samples of various foods were submitted for analysis, the appropriate action being taken on receipt of the results.

Foodstuffs destroyed by mutual consent during the year totalled 2 tons 16 cwt. 1 qr. and 11 lb., whilst the Health Inspector also supervised the destruction of 7 tons 6 cwt. 1 qr. of defective tomato products at the request of the manufacturer and his agent.

Visits of inspection, embracing the travelling of 5,065 miles, were paid to the following towns, the numbers in brackets indicating the number of visits:—Atherton (5), Babinda (3), Barron Waters (1), Cardwell (3), Currajah (1), Dimbulah (1), Double Island (4), Edmonton (1),

El Arish (3), Euramo (2), Feluga (3), Fishery Falls (1), Garradunga (4), Gordonvale (3), Green Island (1), Innisfail (9), Kairi (1), Kennedy (1), Kulara (1), Kuranda (1), Lower Tully (2), Machan's Beach (4), Malanda (5), Mareeba (4), Mena Creek (1), Millaa Millaa (3), Moresby (3), Mossman (5), Mourilyan (5), Mt. Mulligan (1), Palm Beach (1), Port Douglas (1), Ravenshoe (2), Redlynch (1), San Remo (1), Silkwood (3), Silky Oak (2), Stratford (5), South Johnstone (2), Tully (5), Yorkey's Knob (4), and Yungaburra (3).

Poisons Report.

As much time as possible has been afforded this important phase of the departmental work and there would appear to have been a desire on the part of the handlers of poisons to adhere to the regulations generally. This attitude has, to some extent, apparently counter-balanced the infrequency of my visits, as I am able to report that no serious breaches of the regulations have been detected during the period under review.

Attention has been paid to storage, labelling, packing and recording of sales of scheduled poisons, whilst close attention has been paid to the control of dangerous and restricted drugs.

NUTRITION.

The Department was fortunate in obtaining the services of a qualified nutrition adviser, and Miss Jean McNae, B.Sc. (University of Queensland), after a successful course of tuition in dietetics with the Australian Institute of Anatomy, commenced duty on 7th May, 1946.

It is intended that included in her duties will be the instruction of members of the School Health Services nursing staff in the principles of diet and nutrition of school children, with special regard to the establishment of school canteens at a future date, and that a Bureau of Health Information will be established available to the public and controlling a scheme whereby health films and other means of educating children on the value of suitable foods could be on loan to teachers in Queensland. To date there are no large-scale surveys of the nutritional

state of the Queensland population available, though a section of school children in the western areas of the State was examined by Dr. Clements for the Advisory Council on Nutrition, and of these he considers 18.8 per cent. were suffering from unsatisfactory nutrition. The results of the survey are reported in the Final Report of the Advisory Council on Nutrition.

From the commencement of duties until the date of this report (30th June) the nutrition adviser has visited and submitted a report on a survey of the food of the staff and patients of the Brisbane Hospital, which included the Brisbane General, Brisbane Women's, Brisbane Children's, the South Brisbane Auxiliary Hospital, and the Metropolitan Hospital for Infectious Diseases (Wattlebrae).

SECTION OF SOCIAL SERVICES.

The Welfare Officer (Mrs. V. Wills) reports having interviewed 174 inmates detained in the Venereal Isolation Hospital regarding positions and finding suitable accommodation for those who required it on discharge, whilst attending also to private business for them such as the paying of rents and accounts. She continues to obtain layettes in certain instances, and financial assistance through the State Children Department and the Social Service League for women whose husbands were in military detention or had deserted them.

She visited the homes of sick and aged people; inspected ladies' retiring rooms in shops, picture theatres, and public conveniences

throughout the city from time to time; arranged admission of aged to Dunwich and private convalescent homes; inspected private hospitals as required; attended to invalid, old age, and widows' pension forms and applications for State aid; and investigated the homes of children for the School Health Services branch of the Department, certain instances of neglected children found being brought to the notice of the Director of State Children.

The "fan mail" received by Mrs. Wills personally and by the Department officially is a tribute to the work of this particular phase of the Department's activities, and to the interest displayed by the Welfare Officer.

LEGISLATION.

“The Health (Insecticides) Regulations, 1946,” were published in the *Government Gazette* of 2nd April, 1946. They provide in general that every package containing an insecticide for sale shall bear a label in which shall be printed the name, trade name, or description of the contents, the name and business address of the manufacturer or importer, or vendor or packer (not being a post office address), the net weight or volume as the case may require, and the name of every active ingredient therein and the percentage proportion.

Should the insecticide contain dichlorodiphenyl-trichloroethane (D.D.T.) or gamma-hexachlorocyclohexane (666) a caution must appear on the label to ensure that it is kept away from cooking and eating utensils and contact with foodstuffs.

An amendment to Regulation 29 of the “Food and Drug Regulations, 1939,” appeared in the *Government Gazette* of 20th April, 1946, defining the terms “pasteurised” and “processed milk.”

“The Venereal Diseases Regulations of 1945” were gazetted on 19th July, of that year, and followed the lines of the 1939 Regulations.

Penicillin was added to the drugs and medicines to be sold or supplied only by medical practitioners or persons acting under the direct and written instructions of a medical practitioner for the purpose of curing, alleviating or treating of venereal disease in the male or female, or whether the person is in fact suffering from such disease or not.

Amendments were made to the standards for the issue of a certificate of apparent freedom from venereal disease.

On the same date an Order in Council was gazetted, incorporating the main provisions of “The National Security (Venereal Diseases and Contraceptives) Regulations,” the effect being to permit the Director-General to authorise the issue of a warrant by the Commissioner of Police in instances where persons failed to comply with official notices served on them (as suspected infected persons) and for their detention when apprehended until the time appointed for examination. Prior to such gazettal the only action that could be taken when a person ordered up for medical examination as a venereal disease suspect failed to report himself or herself was to institute legal proceedings.

STAFF.

Thanks are due to the members of the departmental staffs, the local authorities and the various Government Departments, Commonwealth and State.

The Director-General of Health and Medical Services (Sir Raphael Cilento) is still absent overseas with the United Nations Relief and Rehabilitation Administration.

JOHN COFFEY,

Deputy Director-General of Health and Medical Services.

30th June, 1946.

Appendix A.

WEIL'S DISEASE CAMPAIGN.

Inspector in charge: J. M. KENNEDY.

General.—Throughout the year the usual field operations extended over the following mill areas: Goondi, Mourilyan, South Johnstone, Babinda, Mulgrave, Hambleton, Tully, Victoria, Macknade, and Mossman.

Very extensive burning of cane before harvesting was adopted by millers and growers in every area. The policy, dictated by continued shortage of efficient labour in field and factory, enabled the wartime staff of four officers to function efficiently throughout the crushing period. As a rule two mill shifts only were worked, and naturally this was reflected in an extension of the crushing period at each mill.

A high degree of co-operation was received from mill staffs, growers, growers' executives, and A.W.U. officers, and while calls from gangs were fairly numerous, in no instance was any delay in harvesting occasioned or loss by growers incurred.

Harvesting conditions were good throughout except towards the end of crushing operations, when every mill had intensified labour difficulties to overcome.

Very dry weather during the last quarter of 1945 permitted extensive burning of rat harbourage on farms and roads.

Farm Inspection.—Farm inspections were maintained throughout the slack season except during that period when weather conditions with heavy flooding made such work impossible. Early in the present year near record floods with cyclonic disturbance caused substantial damage to certain individual farms. Had they occurred later in the year when cane growth was more advanced serious widespread damage would have resulted.

The effect of flooding even thus early in the season is now plainly evident in many sections.

A long unusually dry period has now prevailed for many weeks throughout the northern cane areas resulting in downward revision of the sugar crop estimates in every section.

Rainfall for the first half of the year is generally well below average.

Farmers generally are still handicapped by difficulties arising from shortage of labour and lack of fencing and other material which have a direct bearing on clean farming methods. Thus in many instances farm cleaning results were not up to normal standards.

Despite this, recent field inspections do not disclose abnormal infestation by rodents, the long dry spell now being experienced serving to offset lack of effective field control measures.

Rodent Control.—Flooding of cane during the early months of 1945 caused lodgment of cane on low-lying sections, resulting in fairly

heavy rat infestation and damage in the latter weeks of last crushing. The necessary action was taken to ensure increased distribution of rat poison during this period, and most Pest Boards arranged for blanket campaigns towards the end of the harvesting period, when good results are always manifest.

Very little efficient stand-over cane was left on completion of cutting last year, apart from the small areas left by growers to provide plants for a new crop. There is a marked tendency to neglect stand-over plots, which undoubtedly provide the nucleus from which heavy infestation may later spread if unattended.

Special attention, therefore, was centred on all stand-over cane, for here serious economic and indirect loss can be averted at small cost.

The various Pest Boards functioned fairly well during the year, but practically all reported difficulty in obtaining necessary poison supplies in good time or in ample quantity.

Zinc phosphide treated wheat evolved as a substitute for thallium sulphate, which is still unobtainable, is considered an effective bait in the canefields, and in fact has been the only bait received by Pest Boards which was ready for immediate distribution.

Mourilyan and Babinda mills continue to use phosphorus on bread exclusively and consider it both efficient and relatively inexpensive.

The labour involved in the preparation of bread baits militates against their use by most boards in these abnormal times.

All Pest Boards and their officers are keenly interested in the new poison, 1080 sodium acetate, and it is hoped that supplies will be available in the near future.

The various local authorities have distributed rat baits as required within their areas and special attention has been directed to likely breeding places. Efforts have been made to have harbourage destroyed or removed and owners and occupiers have been encouraged and required to protect their premises from rodents.

Table 3 to this Appendix discloses the number and type of baits distributed in each mill area during the period under review.

In every area one or more blanket campaigns were carried through with reported good results.

It is satisfactory to note, as per Table 4, that only two cases of Leptospirosis were notified from the northern cane areas during the twelve months. This is the smallest number so far recorded for any one year.

Continued effort will be directed during the ensuing period to keeping Weil's disease at a minimum and maintaining satisfactory field conditions.

TABLE 1.

Mill Area.	Area Harvested.		Crushed.		Area Burned.		Burned.		Burned under Health Regulations.	
	Acres.	Tons.	Acres.	Tons.	Acres.	Tons.	Tons.	Acres.		
Johnstone	10,320	213,861	9,820	202,601	4,604	222				
Goondi	7,071	158,171	6,632	148,262	11,082	428				
Mourilyan	8,119	137,836	7,980	135,611	3,332	196				
Mulgrave	10,641	221,020	10,040	209,377	90,070	6,122	most under 10 tons per acre.			
Babinda	9,783	179,844	9,011	162,202	16,255	1,016				
Tully	11,464	207,891	11,050	200,050	8,850	489				
Victoria	12,635	284,846	11,596	263,064	11,720	1,129				
Macknade	10,956	271,513	9,878	248,239	9,862	705				
Hambledon	7,748	149,876	6,810	122,445	8,720	1,212				
Totals	88,757	1,824,858	82,817	1,691,851	164,495	11,519				

TABLE 2.

Mill Area.	No. of Cutters (Average).	No. of Gangs.	Area of S.O. Cane.		Duration of Crushing.
			Acres.	Weeks.	
Johnstone	223	52	56	27½	
Goondi	256	33	Nil	28½	
Mourilyan	230	46	Nil	26	
Mulgrave	295	78	Nil	25½	
Babinda	220	65	30	25	
Tully	340	60	18.7	27½	
Victoria	313	60	Nil	31½	
Macknade	326	53	Nil	31½	
Hambledon	240	42	Nil	25½	
Totals	2,443	489	104.7	..	

TABLE 3.

Mill Area.	Thallium S. (Wheat).	Zinc Phosphide (Wheat).	Phosphorus (Bread).	Strychnine (Wheat).	Other.
Goondi .. ..	..	467,870	..	..	..
Mourilyan .. ..	..	..	10,080,000	..	15,000
Johnstone .. ..	..	Trial Supply only.	150,000	264,000	..
Tully	546,800	..	..	..	..
Babinda .. ..	..	..	1,562,240	..	..
Mulgrave	56,000	..	2,140,000	..	..
Hambledon .. ..	..	1,061,888	..	..	..
Victoria .. ..	..	1,240,000	..	..	..
Macknade .. ..	..	1,595,648	..	..	..
Mossman .. ..	..	862,000	..	..	..
Totals	602,800	5,227,406	13,932,240	264,000	15,000

TABLE 4.

LEPTOSPIROSIS CASES NOTIFIED.

District.	Canecutters.	Others.	British.	Maltese.	Others.
Innisfail .. ..	..	..	..	..	..
Tully .. ..	..	..	..	..	..
Ingham .. ..	..	..	..	..	..
Babinda	1	..	..	1	..
Gordonvale	1	..	1	..	..
Cairns .. ..	..	..	..	..	..
Totals	2	..	1	1	..

Appendix B.

HOOKWORM CAMPAIGN.

Microscopist in charge: S. THOMPSON.

General.—The staff on field hookworm control at the beginning of July, 1945, comprised a microscopist in charge and one residential sister at Cairns, and one field inspector at Ingham.

During the period under review the microscopist visited Palm Island and carried out examinations for hookworm disease of the white staff and all aborigines.

Before leaving Palm Island, arrangements were made for the matron at the hospital to give treatment to all positive hookworm hosts found.

Reports on the hookworm and other parasitic worms found, together with the sanitary conditions on the island, were forwarded to Brisbane.

The resident sister at Cairns visited schools and carried out hookworm survey together with general school medical work.

The field inspector completed the school survey in the Hinchinbrook Shire during May and commenced the house to house survey of the Halifax sub-area in the Ingham area in June.

From all areas, 3,540 specimens were examined, 456 of these being positive hookworm, and of the positives found 269 were coloured people.

Also, 822 specimens examined showed different types of other parasitic worms, namely, *Oxyuris vermicularis*, *Trichuris trichiura*, *Hymenolepis nana*, *Taenia saginata* and *Trichostrongylus orientalis*.

A fair number of specimens have been received for examination from the Mossman, Babinda and Tully Hospitals.

It was necessary to place 15 heavily infested hookworm hosts into different hospitals for treatment and to be kept under observation. Of the 161 hookworm hosts re-examined after treatment, 82 showed that they had been treated to a cure.

Two coloured families in the Cairns area are continuously being re-infested with hookworms. There are seven in one family and seven in the other infested, and the youngest in one family is only 1 year of age and the other 2 years.

They keep on shifting about from one place to another and the young ones of the families keep polluting the soil which the parents don't

seem to be able to stop. At different times they have all been examined and mass treated.

One family has moved off to the Mossman area and arrangements have been made for them all to be treated in hospital there. The other family will be mass treated again at an early date and the smaller ones put into hospital for treatment.

The microscopist will visit these homes in the near future and spread lime where any likely places in the yard have been polluted.

Several returned soldiers from the islands have called into the Cairns Hookworm Laboratory for examination and most of them were found to be harbouring hookworms.

Lists of all sanitary inspections made by the field inspector were forwarded to Brisbane at the end of each month.

It is worthy of note that since the campaign has commenced operations in the Ingham area the field inspector, with the co-operation of the local shire inspector, has accounted for a large number of new cabinets to be put in.

Arrangements were made with a local carpenter to build a number of cabinets each week, so that the privies at the homes of all hookworm hosts would be made safe, thus preventing soil pollution.

The sanitary survey to date shows that 22 places visited have no privy: this matter is being attended to by the field inspector.

In this respect, the provision of motor transport for the field inspector has enabled his work to be done expeditiously and efficiently.

A close watch is being kept on the sanitation at the homes of positive hookworm hosts in all areas so as to prevent the spreading of hookworm disease.

The resident sister prepared all treatments, notices and assisted with the preparation of specimens for examination; also, during the absence of the microscopist at Palm Island carried out all duties in the office and laboratory.

Medical practitioners, school teachers, and the local health inspectors have co-operated wholeheartedly and have given every assistance to the campaign in its important work.

HOOKWORM CAMPAIGN.

ENDEMIC AREA UNDER RESIDENTIAL CONTROL.

Name.	Census.	Specimens.					Treatments.			
		Received.	Examined.	Re-examined.	Positive.		Notices.	Delivered.	Posted.	Cured.
					H.W.	Others.				
<i>Cairns Area—</i>										
Schools	104	107	104	3	2	10	10	2	..	3
<i>Innisfail Area—</i>										
Schools .. ..	..	2	..	2	..	..	..	..	..	2
<i>Tully Area—</i>										
Schools .. ..	..	18	..	18	11	..	..	1	9	7
<i>Ingham Area—</i>										
Schools	789	833	763	70	73	85	85	45	24	36
School Total ..	893	960	867	93	86	95	95	48	33	48
<i>Ingham Area—</i>										
<i>Intensive Survey—</i>										
Halifax Sub-area	532	503	503	..	15	26	26	15	..	..
<i>Other Hosts—</i>										
Cairns Area ..	..	8	..	8	1	1	1	1	..	7
Innisfail Area ..	..	6	..	6	1	..	..	..	1	5
Tully Area .. ..	..	1	..	1	1	..	..	..	1	..
Ingham Area .. ..	..	36	..	36	18	..	..	16	..	18
Other Hosts Total	..	51	..	51	21	1	1	17	2	30
<i>Aborigines—</i>										
Cairns Area ..	38	35	33	2	21	16	..	3	..	..
Innisfail Area ..	6	15	6	9	9	..	..	2	..	2
Tully Area	3	6	3	3	4	1	1	..	4	..
Ingham Area	54	50	47	3	21	13	13	4	..	2
Palm Island	1,102	1,102	1,102	..	214	623	..	..	..	..
Aborigines Total	1,203	1,208	1,191	17	269	653	14	9	4	4
<i>Miscellaneous—</i>										
Cairns Area ..	231	231	231	..	13	17	17	12	1	..
Mossman Area ..	46	46	46	..	8	4	4	8	..	..
Innisfail Area ..	79	79	79	..	12	7	7	7	5	..
Tully Area	27	27	37	..	2	2	2	..	2	..
Ingham Area	447	435	435	..	30	17	17	23	6	..
Miscellaneous Total	830	818	818	..	65	47	47	50	14	..
<i>All Areas—</i>										
Cairns Area ..	373	381	368	13	37	44	28	18	1	10
Mossman Area ..	46	46	46	..	8	4	4	8	..	..
Innisfail Area ..	85	102	85	17	22	7	7	9	6	9
Tully Area	30	52	30	22	18	3	3	1	16	7
Ingham Area	1,822	1,857	1,748	109	157	141	141	103	30	56
Palm Island	1,102	1,102	1,102	..	214	623	..	..	..	..
Grand Total ..	3,458	3,540	3,379	161	456	822	183	139	53	82

Treated in Hospital—Cairns 1, Mossman 7, Babinda 6, Ingham 1, Bowen 1.

SANITATION.

Hinchinbrook Shire.

	Ingham Area.
Number of places visited	998
Number of sanitary conveniences inspected	1,027
Privies no action required	546
Number of defective privies	391
Number of places without sanitary conveniences	22
Number of sanitary re-inspections ..	195
Action taken	81
No action taken	294
Septic tanks	16

D Class—Regulation cabinet.

G Class—Below standard, but not allowing soil pollution.

E Class—Allowing soil pollution.

F Class—No sanitary convenience.

H Class—Soil pollution in evidence at time of inspection.

Hinchinbrook Shire.

	D Class.	G Class.	E Class.	F Class.	H Class.
Pails 207	332	356	22	29	
Pits 0	4	4	0	0	
Septic 16	0	0	0	0	

Appendix C.

GOVERNMENT CHEMICAL LABORATORY.

Government Analyst and Chief Inspector of Explosives: L. A. MESTON, F.A.C.I.

This laboratory does analytical work for, and gives chemical and other technical advice to—

1. Every Queensland Government Department except the Department of Agriculture, which has its own laboratories;
2. The Commonwealth Government services in Queensland; and
3. The public, including medical practitioners and private firms. This part of the service only covers work of national importance.

The service generally demands well informed, versatile and competent practitioners as it includes the fields of toxicology and biochemistry and the analysis of foods, drugs, air, water, road-making materials, minerals and metallurgical products.

Unfortunately, such practitioners are not available at present from outside the Government service, and unless they are forthcoming from time to time to rejuvenate the staff the laboratory may be reduced to a laboratory of professional labourers.

The following table shows the numbers and sources of the samples examined by the laboratory in the last four years.

TABLE I.

Department.	Number of Samples Examined.			
	1942-1943.	1943-1944.	1944-1945.	1945-1946.
Commonwealth Customs	1,755	1,954	1,622	1,616
Commonwealth War Services	612	3,877	4,460	1,954
Allied War Services	881	1,134	732	16
Health and Home Affairs	3,498	3,520	4,826	4,170
Geological Survey and Mines	431	478	369	377
Irrigation and Water Supply	1,001	571	769	614
Main Roads Commission	372	393	432	269
Police	298	364	250	282
Portmaster (Explosives)	1,508	1,079	1,104	1,244
Railway	67	59	77	82
State Stores Board	78	67	58	129
Other Departments (8)	170	144	347	672
Public	188	465	388	450
	10,859	14,105	15,434	11,875

The limitations of time and staff have prevented the conduct of many investigations contemplated.

The laboratory is sectionalised, each section being in charge of a senior analyst. It is really an aggregation of separate laboratories.

Under this system specialists are created.

While close specialism may have some disadvantages, concentration of one's activities within the confines of some defined portion of the vast domain of chemistry is preferable to an endeavour to embrace the whole.

SECTION 1.

This section examines samples from many departments, the main source of supply being the Department of Health and Home Affairs. It has worked under incessant pressure for many

years and, considering the small staff employed, has turned out an outstanding volume of work.

Staff.—A. S. Hurwood, B.Sc., A.R.I.C., A.A.C.I., Analyst; I. L. B. Henderson, B.Sc., A.A.C.I. (6 months), Analyst; R. S. Potter, Assistant Analyst; K. H. Deasy, Assistant to Analysts.

The number and source of samples examined were as follows:—

Department.	Number of Samples.
Health and Home Affairs ..	3,580
Other State Departments ..	168
Commonwealth War Services	1,511
Public	30
	<u>5,289</u>

TABLE II.

SUMMARY OF SAMPLES EXAMINED FOR THE DEPARTMENT OF HEALTH AND HOME AFFAIRS.

Nature of Sample.	Number of Samples.	Passed.	Rejected.
Beverage or cordial ..	32	11	21
Bread	42	25	17
Cereal	53	33	20
Condiment	21	10	11
Custard or cake powder ..	21	10	11
Disinfectant	84	47	37
Drug or medicine	60	26	34
Essence	28	13	15
Fruit or fruit juice	27	13	14
Jam or jelly	37	10	27
Meat	24	7	17
Vegetable	24	5	19
Milk	2,593	2,129	464
Milk product	36	27	9
Paint	118	35	83
Soap	58	38	20
Tobacco	20	10	10
Toy	46	20	26
Miscellaneous	211	134	77
	3,535	2,603	932
Industrial hygiene	11	..	..
Biochemical or clinical specimens	350	..	..
Water	274	..	..
	4,170		

The rejected samples include samples not conforming with prescribed standards, falsely described, or incorrectly labelled. Falsely described implies exaggerated or false claims in relation to a food, drink, drug, or medicine.

TABLE III.

DETAILS OF LEGAL SAMPLES TAKEN BY INSPECTORS IN ACCORDANCE WITH THE PROVISIONS OF THE HEALTH ACTS.

Nature of Sample.	Number Examined.	Passed.	Failed.
Milk	2,116	1,717	399
Essence (flavouring) ..	6	..	6
Ice cream	8	5	3
Paint	30	15	15
Spirituous liquors	25	4	21
Miscellaneous	17	5	12
	2,202	1,746	456

TABLE IV.

DETAILS OF LEGAL SAMPLES OF MILK.

Place.	Number of Samples.	Passed the Standard.	Below the Standard in Fat.	Below the Standard in Total Solids and/or Solids not Fat.	Number of Watered Samples.	Proportion of Watered Samples.
Greater Brisbane	1,411	1,195	46	155	15	1
Bowen	8	4	1	1	2	25
Cairns	8	8	..	..	..	..
Charters Towers	18	13	..	2	3	17
Dalby	9	2	..	7	..	..
Gladstone	11	9	..	2	..	..
Goondiwindi	10	6	..	2	2	20
Gympie	9	7	..	1	1	11
Innisfail	9	8	..	..	1	11
Ipswich	102	80	4	16	2	2
Longreach	9	1	..	7	1	11
Mackay	13	13	..	..	..	..
Maryborough	31	26	..	2	3	10
North Coast Districts	42	25	..	11	6	14
Rockhampton	117	97	4	7	9	8
Roma	19	13	1	..	5	26
South Coast Districts	74	43	2	6	23	31
Toowoomba	97	80	3	12	2	2
Townsville	29	17	1	11	..	..
Warwick	13	13	..	..	..	..
Yeppoon	27	22	1	4	..	..
Other Places (11)	50	35	4	2	9	18
	2,116	1,717	64	248	84	3.9 average

The proportion (1 per cent.) of watered samples in Greater Brisbane this year is the lowest on record. This improved position apparently is due, for the most part, to the great decrease in the number of warm milk suppliers.

The bulk of the milk is being handled by the large milk factories, where it is chilled and then sold to the retail vendors. It cannot be said of much of this cold "road" milk that it is as attractive to the eye and palate as freshly drawn or boiled warm milk.

TABLE V.
SUMMARY OF TABLE IV.

	Percentage of Total Samples.
Adulterated with water ..	3.97
Deficient in fat only ..	3.17
Below the standard in total solids and/or solids not fat	11.72
Passed the standards ..	81.14
	100.00

TABLE VI.
SAMPLES TAKEN IN GREATER BRISBANE.

Year.	Number of Samples.	Proportion of Total Milk Samples.	Proportion Adulterated with Water.
1943-1944	1,575	78.5	2.1
1944-1945	1,666	79.4	2.9
1945-1946	1,411	66.7	1.1

The population of Greater Brisbane, 394,000, represents 39 per cent. of the population of the State.

TABLE VII.
MILK POSITION COMPARED WITH PREVIOUS YEARS.

Year.	Number of Legal Samples.	Deficient in Fat.	Below the Standard in Total Solids and/or Solids not Fat.	Watered Samples.	Added Water.
		Per cent.	Per cent.	Per cent.	Per cent.
1941-1942	2,738	2.0	23.2	3.6	11
1942-1943	1,950	1.9	10.5	3.5	11
1943-1944	2,005	2.7	14.0	4.4	11
1944-1945	2,099	3.7	12.4	4.5	12
1945-1946	2,116	3.2	11.7	4.0	8

The overall proportion (4 per cent.) of watered samples remains high.

The large number, 248, of naturally poor milks indicates that a considerable proportion of the milk supply was derived from starving stock.

COMPARISON OF MILK ADULTERATION IN QUEENSLAND WITH THAT IN OTHER STATES (YEAR 1945).

	Queensland	New South Wales	Melbourne	Adelaide	Hobart
Watered samples (per cent.)	4.2	1.2	5.4	1.3	12
Deficient in fat only	3.5	0.8	1.5	1.0	1

Treatment of milk.—Recent (1945) investigations in the U.S.A. have indicated that pasteurisation, homogenisation, desiccation, zeolite treatment, and skimming do not appreciably alter the relative digestibility of cow's milk. Enzyme-treated and hyper-heated milks digested relatively faster than pasteurised cow's milk.

Mare's milk digested more readily than cow's milk and goat's milk.

The relative digestibility of goat's milk was found to be inferior to that of pasteurised cow's milk.

Opposition to Pasteurisation.—There are still persons, as evidenced in the Press from time to time, opposed to pasteurisation and feeding raw milk of questionable quality to their children.

The text book "Food and the Principles of Dietetics" (Hutchison and Mottram) sums up the position thus—

"There is every reason to advocate the habitual application of one or other of these methods (pasteurisation or boiling) to milk before it is consumed as food; and one looks forward to the day when the drinking of raw milk will be considered as barbarous a custom as the eating of raw meat is at present."

BREAD.

Of the 42 samples of bread examined 8 were deficient in the proportion of wholemeal required, 5 were under-baked, 2 of poor quality, and 1 had had a rodent baked in it.

A comprehensive bread survey was envisaged a few years ago but the advent of war with Japan prevented it.

Because of the important place bread occupies in the dietary, Great Britain and the United States of America are directing more attention than ever before to the improvement of bread.

Australian Wheats.

There has been no comprehensive chemical survey of Queensland wheats. Australian wheats generally contain less ash, calcium, magnesium, phosphorus and potassium than wheats elsewhere. On a moisture-free basis the ash percentage of wheats from different parts of the world would appear to be as follows:—

New South Wales and Victoria	1.52
Queensland	1.7
Africa	1.86
Asia	1.84
South America	1.9
North America	1.84
New Zealand	1.8
U.S.S.R.	1.8

Prior to the war Queensland produced the strongest and most uniform wheat and flour in Australia, and in the opinion of bread authorities the best bread.

It is most important from the standpoint of bread quality that these strong wheats be maintained or improved in preference to growing wheats which merely "fill the bag." Good bread will never be made from soft wheat alone. Such wheat may be used in small proportion to dilute wheats which are too strong for bread-making.

Queensland Wheaten Flours.

At time of writing the flours from seven Queensland flour mills have the following composition:—

WHITE FLOUR. (Percentage.)

—	Range.	Average.
Protein (N x 5.7)	10-11.2	10.6
Carbohydrate	75.5-77.1	76.0
Ether extract (fat)	1-1.3	1.2
Fibre .. ..	.18-.20	0.2
Ash .. ..	.50-.55	0.5
Moisture	11-12	11.5
		100.0
Wet Gluten	32-34.1	33.4

COMPARISON ON A MOISTURE-FREE BASIS OF WHITE FLOUR OF TO-DAY WITH THAT OF IMMEDIATE PRE-WAR YEARS.

—	Pre-war.	To-day.
	Per cent.	Per cent.
Protein	13.80	12.00
Carbohydrate	83.94	85.87
Fat	1.40	1.35
Fibre	0.20	0.22
Ash	0.66	0.56
	100.00	100.00
Wet Gluten	41.3	37.7

The increase in carbohydrate (starch) content of the flour of to-day is equivalent to its decrease in protein.

WHOLEMEAL FLOUR.

Percentage.

—	Range.	Average.
Protein (N x 5.7)	11.4-11.8	11.5
Carbohydrate	70.7-72.3	71.6
Ether extract (fat)	2.2-2.4	2.3
Fibre	2.0-2.1	2.1
Ash	1.5-1.6	1.5
Moisture	10.3-12.0	11.0
		100.0

PEANUT PASTE AND PEANUT FLOUR.

Three samples of peanut paste from different manufacturers were examined with the results following:—

—	1.	2.	3.
	Per cent.	Per cent.	Per cent.
Moisture	1.7	2.4	2.0
Protein	29.4	29.5	29.8
Carbohydrates	11.5	10.8	13.5
Oil	53.2	51.8	50.3
Added salt	0.8	2.1	1.0
Salt-free ash	2.0	2.0	2.0
Fibre	1.4	1.4	1.4
	100.0	100.0	100.0

PEANUT FLOUR.

—	Per cent.
Moisture	7.5
Protein	58.0
Carbohydrates	19.1 (sugar 7%)
Oil	9.6
Fibre	2.1
Ash	3.7
	100.0
Calcium	0.08
Phosphorus	0.55
Vitamin B1 (Thiamin) I.U. (units per 100 gm.)	1,000
Riboflavin B2 (mgm. per 100 gm.)	0.35
Nicotinic Acid (mgm. per 100 gm.)	25

COMPARISON OF WHEATEN FLOURS WITH PEANUT FLOUR (PER 100 GM. = 3.5 OZ.).

—	Peanut Flour.	Wholemeal 100%	80% Wholemeal.	White Flour (72 Extraction).
B1 (Thiamin), I.U.	1,000	760	550	190
Riboflavin (mgm.)	0.35	0.12	.09	0.05
Nicotinic Acid (mgm.)	25	6	4.5	1.0

It has been found that the protein of the peanut is of high nutritive value. Peanut flour is the product after most of the oil has been extracted. It has about seven times the mineral content of white flour, at least five times as much protein, and is markedly richer in vitamins than wholemeal. Bread made from flour containing about 20 per cent. of peanut flour should be a satisfactory substitute for meat. As the peanut

is high in phytin a considerable proportion of the calcium present may not be available.

Preference for White Bread.—The well-baked white loaf has lost little of its popularity during the last 2,000 years as it is still the bread most preferred.

In England prior to the war 95 per cent. of the bread consumed was white, in Queensland

90 per cent., and in the United States of America 80 per cent. There are even references in the Bible to the use of fine flour—presumably white flour—

“And thou shalt take fine flour and bake twelve cakes thereof.” (Leviticus xxiv., 5.)

A similar preference for whiteness in food is accorded the white variety of sweet potato, which is greatly inferior to the yellow variety in nutritional value and flavour.

Difficulty of Altering Established Notions.—Because of the extreme difficulty of altering the pre-conceived and established notions of an adult population more effort has been expended in trying to improve white bread than any other variety. The great majority of adults are enslaved to pre-formed tastes and are not likely to change them at the behest of any authority, hence the advisability of confining nutritional education to school teachers and the senior scholars in schools. Every child at the leaving school (Primary) age should have a practical knowledge of nutrition and of the composition of Australian foodstuffs.

There is no need to induce vitamin or food hysteria.

More Nutritionally Desirable Breads.—The more nutritionally desirable breads containing milk solids, peanut and/or soya bean flour, and fats cost more to produce than ordinary breads.

In the United States of America “enriched bread” is to have many additions.

Sound nutrition, however, should be based as much as possible in natural food and not in the addition of synthetic products to denatured food. These products may lack some vital substance which the human organism is able to extract from natural food.

If the more nutritionally desirable breads are to be marketed in quantity, some concession must be made to the baker. Concession in weight would be the fairest and most practicable.

The Influence of Phytin in Food.—Phytin is said to be either a sodium-magnesium or calcium-magnesium compound of phytic acid which is inositol hexaphosphoric acid with the formula $C_6H_6(OPO_4)_6$.

The proportion of phytin in food has assumed considerable importance in the war period because it has been found that phytic acid renders calcium non-available to the human organism.

In the process of the metabolism of phytin, phytic acid is split off and precipitates calcium in the intestine as calcium phytate preventing its absorption. The loss of calcium would be greater except for the presence in wheaten flours of the enzyme phytase which hydrolyses the phytic acid, splitting off inositol, during the preparation of the dough. These flours are a poor source of calcium and the complete loss of their calcium would not be serious in a country with the calcium food wealth of Australia, but in addition to the calcium in the flour the phytic acid may render calcium in other foods eaten at the same time non-available. Oatmeal is high in phytic acid phosphorus and is regarded as a ricket-producing food—that is, in the absence of an adequate intake of calcium from other sources. Fortunately, the breakfast cereals are only consumed in relatively small quantity, hence the loss of calcium from these is, although additional, not serious.

I am not aware of any published results showing the phytin content of Australian foodstuffs, hence the following determinations made in this laboratory may be of interest to nutrition authorities:—

TABLE I.

Sample.	Ash.	Calcium.	Phosphorus.	Phytic Acid Phosphorus.	Phytic Acid Phosphorus % of Total P.	Phytin Phytic Acid Px 3-55 (per cent.)
	Per cent.	Per cent.	Per cent.	Per cent.		Per cent.
Breakfast Delight ..	0.6	.014	.07	.025	36	.1
Cerevite	2.0	.028	.36	.30	83	1.0
Digestive Meal ..	0.5	.014	.09	.035	38	0.1
Cerelean	1.4	.028	.26	.20	77	0.7
Rolled Oats	1.6	.050	.30	.24	80	0.8
Wheatmeal	1.6	.028	.24	.20	83	0.7
Weet-Bix	1.7	.035	.22	.18	82	0.6
Corn Flakes	2.9	.009	.08	.043	54	0.2
Rice Bubbles	3.1	.014	.10	.06	60	0.2
Sharps “H”	3.5	..	.70	.50	71	1.8
Mixed Sharps	2.7	..	.52	.42	81	1.5
White Flour	0.5	.013	.09	.04	44	0.1
80% Wholemeal	1.2	.031	.20	.124	62	0.4
Bran	5.9	..	1.23	1.15	93	4.1

The position in regard to Queensland breads as determined by this laboratory is somewhat as follows:—

TABLE II.

PERCENTAGE DECREASE IN THE PROPORTION OF PHYTIC ACID PHOSPHORUS IN BREADMAKING.

	Wholemeal (100%)	Wheatmeal (80%)	White Flour (72%)
From flour to dough	8	..	..
From dough to bread	13	..	..
Total—Flour to bread	21	35	50

TABLE III.

PROPORTIONS OF TOTAL PHOSPHORUS, PHYTIC ACID PHOSPHORUS AND CALCIUM IN FLOUR AND BREAD.

	Phytic acid P (mg. per 100 gm.)	Total P.	Calcium.
White flour	90	39	13
80% wholemeal flour	200	124	31
White bread	63	14	20
80% wholemeal bread	141	56	35

It will be noted in this table that there is an increase of calcium from flour to bread. This is due to the use of a calcium bread improver—apparently calcium sulphate.

TABLE IV.

QUANTITY OF CALCIUM IN BREADS EXAMINED RENDERED NON-AVAILABLE BY PHYTIC ACID.

Bread.	Phytic Acid Phosphorus (mg. per 100 gm.).	Total Calcium (mg. per 100 gm.).	Total Calcium "Fixed" per 8 oz. Bread (mg.).	Calcium Balance per 8 oz. Bread (mg.).
Assuming formation of—				
I. <i>Tri-calcium phytate</i> —				
White	14	20	21	+ 25
80 per cent. wholemeal	56	35	82	- 2
Assuming formation of—				
II. <i>Hexa-calcium phytate</i> —				
White	14	20	41	+ 4
80 per cent. wholemeal	56	35	164	- 84

TABLE V.

RESULTS BASED ON CALCIUM NATURALLY PRESENT IN FLOUR.

Bread.	Phytic Acid Phosphorus (mg. per 100 gm.).	Total Calcium (mg. per 100 gm.).	Total Calcium "Fixed" per 8 oz. Bread (mg.).	Calcium Balance per 8 oz. Bread (mg.).
I. As tri-calcium phytate—				
White	14	9	21	Nil
80 per cent. wholemeal	56	22	82	- 32
II. As hexa-calcium phytate—				
White	14	9	41	- 21
80 per cent. wholemeal	56	22	164	- 114

The average daily per capita consumption of bread in Queensland is 8 oz.

RELEVANT FACTORS.

Daily calcium requirements—

	Optimal. (mg.)	Adequate. (mg.)
Children (all ages)	1,000	620
Women	1,000	620
Men	680	550

Calcium from flour (5 oz.) in 8 oz. white bread (mg.)—21 = 2.1 per cent. of optimal requirement.

Calcium from flour (5 oz.) in 8 oz. wholemeal bread (mg.)—50 = 5 per cent. of optimal requirement.

Added Calcium.—To increase the calcium intake and to compensate for the loss of calcium as calcium phytate the British Government during and subsequent to the war period compelled the addition of 7 oz. of calcium carbonate to 280 lb. of National flour (80 per cent. extraction). This is equivalent to 1.56 grains (101 mg.) of calcium to 8 oz. of bread. The following shows the actual surplus of calcium in the bread obtained through the addition of this quantity of calcium carbonate to flour—without improver.

TABLE VI.

SHOWS CALCIUM BALANCE IN 8 OZ. BREAD THROUGH THE ADDITION OF SEVEN OUNCES OF CALCIUM CARBONATE TO 280 LB. FLOUR.

Bread.	Total Natural Calcium. (mg.)	Total Calcium "Fixed." (mg.)	Calcium Added as Calcium carbonate. (mg.)	Calcium Balance. (mg.)
As tri-calcium phytate—				
White	21	21	101	+101
80% wholemeal	50	82	101	+ 69
As hexa-calcium phytate—				
White	21	41	101	+80
80+ wholemeal	50	164	101	+13

SUMMARY.

1. Wheaten flours are a poor source of calcium. Eight ounces each of white bread and 80 per cent. wholemeal bread contain only 2.1 per cent. and 5 per cent. respectively of the optimal daily requirement.

2. The high proportion of non-available calcium in bread, especially 80 to 100 per cent. wholemeal, is due to the phytic acid formed from the metabolism of phytin combining with calcium in the intestine.

3. It is not known whether the calcium is converted to the tri-calcium or hexa-calcium salt of phytic acid.

4. At the worst, considering the breads without the addition of calcium bread improver, which is usually added, and the calcium as the hexa-phosphate, there may be a loss of 16 per cent. of the optimal daily requirement of calcium through the ingestion of 8 oz. of 80 per cent. wholemeal bread, and 4 per cent. with 8 oz. of white bread. These losses would be halved if the tri-calcium salt is formed.

5. In England it is compulsory to add 7 oz. of calcium carbonate to 280 lb. of 80 per cent. extraction flour (National flour) which is equivalent to 1.56 grains (101 mg.) to 8 oz. of bread.

6. Considering—

- That milk is the chief dietary source of calcium;
- That the daily per capita consumption of milk in Australia is only 0.5 pints;
- That this quantity of milk provides only 35 per cent. of the optimal daily requirement of calcium for women and children;
- That all the calcium and a portion at least of the calcium in other foods and some phosphorus may be rendered non-available through the formation of calcium phytate;

it would appear advisable for health administrations in Australia to give consideration to the compulsory addition of calcium carbonate to flour in sufficient proportion to neutralise the phytic acid and of desiccated skim milk to provide available calcium. One fourth of an ounce of desiccated skim milk costing $\frac{1}{11}$ th of a penny would provide 10 per cent. of the optimal daily requirement of calcium.

There is no warrant in this food-rich land to supply additional calcium in the form of calcium carbonate. The general evidence shows that the supply of inorganic constituents in the food should be related to the age of the individual and to the present supply of food. The growing organism can and will utilise mineral salts in a manner impossible to adults. Hence the indiscriminate and apparently unnecessary dosing of adults with mineral salts might well be questioned. The disease, hypercalcemia, due to the excessive ingestion of calcium, is not unknown.

Meat.—Of nine samples of prepared meat received, six minced meats contained a sulphite preservative whereas the presence of preservative in this meat is prohibited. The sampling of meat on an extensive scale should be undertaken as soon as staff is available.

DENATURING OF FOOD.

The freer our foods, drinks, and drugs are from sophistication of any kind the better they must be for the human organism. The claim of commercial necessity has been used to force health administrations to adopt a system of allowances for objectionable substances, such as preservatives and coal tar dyes, in certain food products.

Pre-cooked Breakfast Foods.—There are some pre-cooked breakfast foods, commonly used because they can be quickly prepared for eating by merely pouring milk over them, in which vitamin B₁ has been almost entirely destroyed by the high temperatures used in the course of their manufacture. Such treatment of natural foodstuffs should be prohibited by law. The cheaper and more nutritional and palatable breakfast foods, such as oatmeal and wheatmeal, contain ten times or more vitamin B₁ than these comparatively expensive pre-cooked foods.

It is likely that much more is to be learned in regard to the nutritional constituents in foods and that in subjecting food to high temperatures nutritive constituents at present unknown are also destroyed.

Vitamin B₁ in white flour.—Only 23 per cent. of the vitamin B₁ in wheat is contained in white flour. Twenty per cent. of this is destroyed in the making of the flour into bread. Toasting also destroys about twenty, and thus in toast we end with a product containing less than 15 per cent. of the original B₁ in the wheat. Other vitamins originally present are also affected.

Effect of Baking Powder.—The housewife who uses baking powder in making scones from white flour or wholemeal destroys 30 per cent. of the vitamin present. Fortunately the destruction of B₁ in ordinary cooking of oatmeal and wheatmeal is small. Cereals are one of the most important sources of this vitamin.

Further, carbohydrates are not properly utilised by the organism if there is a deficiency of vitamin B₁ and most dietaries are deficient in it.

The addition of synthetic vitamins to foods will not compensate fully for the vitamins destroyed in the course of their commercial preparation.

Effect of Deficiency of Vitamin B₁.—It might well be asked at this point what ill-effects a deficiency of B₁ is likely to produce. Human subjects were fed on a diet containing 50 per cent. of the vitamin B₁ requirement. "Within five days the following signs and symptoms were noted: fatigue, lassitude, loss of appetite, precordial pain, burning of the feet, difficult breathing on exertion, muscle cramps, palpitation, excessive sensitiveness of the skin, and electro-cardiographic changes. All signs and symptoms disappeared following the addition of thiamin (B₁) to the deficient food." Considering the number of heart cases the subject is of special significance.

Fruit and Fruit Beverages.—Very few samples of these were taken during the year and there is much to be done in this connection by the laboratory.

PROTECTION AFFORDED TO FRUIT PREPARATIONS BY THE QUEENSLAND FOOD AND DRUG REGULATIONS, 1939.

The Citrus Fruit Growers' Conference in Victoria this year again directed attention to the sale of synthetic fruit essence products to the detriment of pure fruit preparations.

Queensland has done more than any other State to promote the sale of fruit juice as such and in the form of beverages but more, with advantage to the fruit industry, might be done. Fruit, however, will have to be more reasonable in price before it can be liberally incorporated in fruit drinks.

Queensland might well be designated the vitamin State as it has an abundance of every vitamin in its wealth of natural foods.

"Flavoured Cordials and Beverages."—This Queensland regulation includes cordials and beverages flavoured with essences derived from fruit. No pictorial representation of fruit is allowed in the label nor any expression, design or device indicating or implying the presence of fruit. The fruit name, however, is allowed in the label immediately following the words "Flavoured Cordial" or "Flavoured Beverage," as the case may require.

These preparations are no better nutritionally or aesthetically than the imitation and should be labelled as such.

The present label is deceptive and leads many consumers into the belief that fruit juice is present. Retention of the regulation encourages the sale of essence-flavoured preparations to the detriment of the pure fruit drinks. Our children, in particular, should be encouraged to drink the more healthful fruit beverages in preference to the artificially flavoured and dyed preparations simulating fruit drinks.

Lemonade.—A carbonated, aqueous solution of citric or tartaric acid, sweetened with sugar and containing a trace of essence of lemon.

genuine or synthetic, constitutes lemonade as it is sold to-day. It is merely an imitation fruit beverage.

Meaning of Lemonade.—"A beverage consisting of lemon juice mixed with water and sweetened" (Webster). "A drink made from lemons with (aerated) water and sugar" (Oxford Dictionary).

H. W. Wiley, M.D. (U.S.A.), in "Beverages and their Adulteration," writes: "Lemonade is

a beverage almost as widely consumed as soda water throughout all parts of the United States. Lemonade is a beverage made from the expressed juice of lemons sweetened to suit the taste with sugar.

"It is sometimes customary to substitute for lemonade a yellow solution of citric acid (and essence of lemon). This is of course simply an adulteration and a very undesirable one at that."

EXAMINATION OF EDIBLE NATIVE PLANTS IN THE GREATER BRISBANE AREA FOR ASCORBIC ACID (VITAMIN C).

Common Name of Plant.	Botanical Name.	Portion.	Taste.	Ascorbic Acid. I./U./16oz.
Pigweed or Purslane	Portulaca oleracea	Leaves	Poor	2,720
Fat Hen	Amarantis vividis	Leaves	Poor	16,330
Milk Thistle	Sonchus oleraceus	Leaves	Poor	3,360

The pigweed had about half the vitamin C potency of orange juice and the milk thistle about three-fourths. The fat hen was almost as potent as lucerne.

Anaesthetic Ether.—Four out of twelve samples of anaesthetic ether failed to pass the B.P. standard for this ether.

PURITY OF ANAESTHETICS.

The need for very pure anaesthetics needs no stressing. Fortunately, the deaths under anaesthesia are few and the majority of these are due to causes other than to the quality of the anaesthetic. The skill of the anaesthetist is of paramount importance. Ether is the most commonly used anaesthetic.

Exposure to Light.—Ether when exposed to light forms various peroxides and di-oxy-ethyl peroxide has been found to be a powerful irritant in low concentration. In the Queensland climate peroxides may form quickly once the ether has been exposed to light.

While there is difference of opinion as to whether peroxide is the most deleterious ingredient there is agreement that the presence of peroxide casts doubt on the fitness of the ether for use in anaesthesia.

Machine Anaesthesia.—With machine anaesthesia peroxide would not be inhaled as its volatilisation point is much higher than that of ether. In droplet anaesthesia, however, some may be inhaled.

Other Impurities.—Aldehydes and acetone also occur in impure ether.

It has been found that ether which is initially pure does not oxidise readily and remains pure for some months.

Use of Stabilisers.—Initial purity would appear to be preferable to the use of stabilisers but on further investigation it may be found necessary to add a stabiliser to ether intended for use in the tropics.

Storage of Anaesthetic Ether.—Ether should be stored in small bottles, 1 lb. or less, wrapped in heavy black or red paper, stoppered with a

well-fitting glass stopper or with a cork covered with tin-foil, protected from light and stored in a cool place.

Ether should not be used after it has been removed from the original container longer than twenty-four hours.

WORLD MORTALITY RATE DUE TO ANAESTHETICS.

Anaesthetic.	Cases Investigated.	Mortality Rate.
Ether	over 1,000,000	1 in 12,000
Chloroform	1,000,000	1 in 2,600
Ethyl chloride	50,000	1 in 12,000
Nitrous oxide	1,000,000	1

DRUGS AND MEDICINES.

Of the 135 drugs and medicines examined by the laboratory 43 represented the entire stock of a homoeopathist. The base of this stock consisted of commercially pure milk sugar. To each of the different tablets prescribed for different ailments there had been added at least one of the following common chemicals: calcium fluoride, calcium phosphate, calcium sulphate, iron phosphate, magnesium phosphate, potassium chloride, potassium phosphate, silica, sodium chloride, sodium sulphate, and sodium phosphate, at the rate of one part per million parts of milk sugar. The milk sugar used already contained collectively similar compounds at the rate of 1,600 parts per million, hence the addition of one more part is manifestly preposterous. Each tablet contained 1/33,780th grain of the added chemical. Based on the prescribed daily dose of four tablets (29.6 grains) it would take 33,784 days or 92 years to consume 1,000,000 grains of the tablet with one grain of the added mineral substance.

The practice of homoeopathy is not illegal and I believe that some at least of its misguided devotees have faith in it. It appears to the writer, however, that homeopathy should be treated as quackery.

Quackery.—Quacks in medicine know that man is a dupable animal and trade on that knowledge. Freedom to medicate the people and thus tamper with the national health is a freedom that might well be restricted by health administrations.

A community that allows quackery to function in its midst is not hard to please or difficult to exploit. Any person, irrespective of qualifications or nationality, can market a medicine without declaring its composition in the label or to the Department of Health. The formula of, and claims for, the medicine should first be examined by such Department before the medicine is allowed to be marketed, if at all. It is questionable whether any advantage would be gained by disclosing the formula in the label, except the presence of certain potent drugs as now legally required. A considerable measure of faith must be swallowed with most medicines which would be lost if the patient knew that the medicine only contained constituents known to and already used by him without improvement to his health.

Modern Medical Practice.—In preventive medicine, public hygiene and medicinal and surgical measures we have placed in the hands of the modernly-trained regular medical practitioner scientific technique in the place of magic, chance, charlatanry, and quackery.

Medical Tribunal.—Many ill-informed persons have been forced into the hands of quacks because their usual medical practitioner has failed them, and they wander sadly from one practitioner to another knowing not just where to go for advice. If there were a tribunal of specialists to which these cases could appeal for advice very few of them would fall into the hands of quacks. This tribunal could also examine the qualifications of the pseudo-medical schools now operating in many guises and determine whether or not they should be allowed to continue practising.

HEADACHE POWDERS.

In no other field of drug exploitation is there so much high-pressure advertising as in the sale of headache powders. Headache is usually associated with or follows constipation, hence the advertising of constipation nostrums is also intense. The extensive use of both preparations is deplored or condemned by health authorities and is a scathing reproach on the national health.

Nine headache preparations were examined with the following results:—

Sample Number.	Average Weight of Powder or Tablet (grains).	Aspirin.	Composition (Per cent.).		Acetanilide.
			Phenacetin.	Caffeine or Caffeine Citrate.	
1	6.0 (T)	66.7	33.3	..	..
2	5.0 (T)	100.0	..	..	..
3	11.0 (P)	56.0	31.0	13	..
4	13.6 (P)	42.0	42.0	16	..
5	11.3 (P)	60	20	20	..
6	10.0 (P)	60	40	..	..
7	13.2 (P)	39.3	35.7	14.3	10.7
8	13.0 (P)	60.0	20.0	20.0	..
9	6.5 (T)	53.8	38.5	7.7	..

USE OF D.D.T. ON TOBACCO PLANTS.

A tobacco company submitted an enquiry during the year in regard to the effect on smokers of D.D.T. in tobacco. The most objectionable product of combustion of D.D.T. is hydrochloric acid. The small quantity, however, liable to be formed in the process of smoking would be neutralised by the alkaline smoke from the tobacco. Experiments in this laboratory have demonstrated that there is no free hydrochloric and not more than a trace of D.D.T. in the smoke from tobacco containing D.D.T. at the high rate of three grains to the pound, which rate may never be reached in practice. Further, the smoke passing through a cigarette or cigar will not volatilise D.D.T. from the unsmoked portion, hence none will be taken into the mouth. Three grains of D.D.T. to the pound represents 0.4 milligrams per cigarette and 1.5 milligrams per pipeful of tobacco.

Composition of Tobacco Smoke.—Over twenty products of combustion of tobacco smoke have been identified, which include the following: ammonia, arsenic, carbon monoxide, cyanide, formaldehyde, lead, nicotine, methyl alcohol, phenolic bodies, and pyridine. About 15 per cent. of the nicotine is said to be absorbed by the organism. The continued use of tobacco apparently creates a tolerance for nicotine and the products of combustion; otherwise, cases of poisoning would not be limited to the beginner.

Tooth-paste (8). — The collapsible tubes containing the paste had the compositions following:—

Tin only	1
Lead coated on both sides with tin	6
Lead coating on inside surface only with tin	1

In no tube was the nozzle corroded.

—	1.	2.	3.	4.	5.	6.	7.
Thickness of tin coat (mm.) ..	.008	.005	.004	.006	.005	.011	.011
Internal corrosion	Nil	Nil	Nil	Nil	Slight	Nil	Nil
Lead in paste (p.p.m.)	5	6	14	5	200	8	2

The paste in the tin tube contained lead at the rate of five parts per million. No. 5 tube contained an excessive proportion of lead. The

uniformity of the tin coating is as important as its thickness, which should not be less than 0.004 millimetres.

The quantity of lead in the paste from a well-tinned tube liable to remain in the mouth could not be estimated; the quantity from a badly-tinned lead tube should not exceed $\frac{1}{150}$ milligram.

Nevertheless, the tinned-lead tube was a war-time expedient that cannot be regarded as entirely satisfactory from a health standpoint. If it is to be retained a minimum thickness of tin should be prescribed for it.

Paint.—Of 118 samples of paint examined 83 contained more than the permitted limit of 5 per cent. of soluble lead. While the great reduction of lead poisoning in persons not in contact with lead in industry is a tribute to the campaign by the Queensland Department of Health against lead, consideration might be given to reducing the tolerance in paint to 3 per cent. as 5 per cent. of soluble lead in a dusty paint is a potential hazard to a young child.

The present limit was recommended by the British Departmental Committee on lead poisoning many years ago and adopted by Queensland.

Law in U.S.S.R.—The U.S.S.R. decreed that from January, 1930, the sale, preparation and use of white lead in any form whatsoever was forbidden.

France.—A law decreed in 1914 prohibited the use of white lead in paint altogether. Later the Committee on Degree of Purity of Materials used in Painting recommended that paints which do not contain more than 3 per cent. of soluble lead be considered as lead-free.

Belgium.—No lead paints allowed for railway carriages. Soluble lead limited to 4 per cent.

Geneva Convention.—“It shall nevertheless be permissible to use white pigments containing a maximum of 3 per cent. of lead expressed in terms of metallic lead, which is equal to 3.2 per cent. soluble lead.”

A NEW RAT POISON.

A sample of a new rat poison, 1080, which is a fluorine compound, namely, sodium fluoracetate, was submitted.

It is a white powder, odourless and tasteless. Our experiments have demonstrated that it is highly toxic to and readily taken by rats and is probably the most efficient of all rodent poisons. Dogs and cats are fifteen times more susceptible to it than rats. Rats and mice that have taken it are a secondary source of poisoning to dogs and cats.

Because of the hazard to pets and humans it would not be advisable to allow this poison to be used in residential areas and it should not be made available for general use.

The danger to health of aluminium cooking utensils was again raised during the year, hence the following note:—

HAZARD TO HEALTH, IF ANY, FROM THE USE OF ALUMINIUM COOKING UTENSILS.

Aluminium is a metal to which considerable attention from the standpoint of human health has been directed during the last twenty-five years because of its use in cooking utensils

and its use, especially in the United States of America, in the form of alum (sodium aluminium sulphate) baking powder. This alum contains 11 per cent. of aluminium. Australian health administrations have prohibited its inclusion in baking powder or any food.

Cooking Utensils.—Immediately after aluminium cooking-ware was introduced about 61 years ago accusations were made that the aluminium dissolved in the cooking of food would, if taken over a long period, cause skin disease, digestive trouble and even cancer.

In Plants.—While there is no evidence that aluminium is essential to plants, it is claimed to be responsible for the blue colour of flowers.

In Food.—Milk (human, cow's and goat's) was found to contain no aluminium or at the most in the case of goat's milk, 0.3 parts per million.

In Blood.—Normal blood may contain up to three parts per million. The blood of persons who had consumed food prepared with alum baking powder showed up to five parts per million.

In Human and Animal Tissues.—One to two parts per million, in all organs.

Action of Food on Aluminium.—Hard waters corrode aluminium slightly but the quantity that may be taken up is only of the order of one to five parts per million. Vegetables cooked with soda yielded up to ninety parts per million; hence, use of soda is objectionable apart from its destructive action on vitamin C. The pure aluminium being produced to-day is more resistant to corrosion than that of many years ago.

As aluminium is readily attacked by alkalis it should not be cleaned frequently with soda.

Examination of workers exposed to aluminium dust in industry has revealed no disease or disability due to the aluminium.

Clinical Summation.—Dr. Monier-Williams, Minister of Health, London, writes: “It cannot be said that available evidence indicates the harmfulness of aluminium which may normally be derived from cooking vessels, but if in any particular individual it could be established that an idiosyncrasy to the metal existed, the prudent course for such an individual would be to avoid it in the future. Much of the experimental work which has been carried out to ascertain whether aluminium in food is harmful or not is conflicting and inconclusive. There is, however, no convincing evidence that aluminium in the amounts in which it is liable to be consumed as a result of using aluminium utensils has a harmful effect upon the ordinary consumer. It is possible that there may be individuals who are susceptible to even such small doses as may be derived from aluminium utensils but evidence of this is inconclusive.”

PROPOSAL FOR A NATIONAL HEALTH DAY.

The first duty of a nation is to become healthy. The collective national health is founded in the quality and quantity of pre-natal and post-natal nutrition.

It has been rightly said that the fundamental principle of defence is that the defenders shall be healthy enough to do the defending, and that to maintain a world position our nation

must be as vitally informed in the building of healthy citizens as in the construction of instruments of war.

"The healthy man," said Carlyle, "is the most meritorious product of nature."

Unfortunately such meritorious products are too few in number in our community.

Australia might be described as an immense hospital ward filled with almost every conceivable form of ill-health, whereas, with its salubrious climate and great diversity of food wealth, it should be producing citizens unexcelled in physical well-being. The feeding of our lower animals is more soundly based than the feeding of our human population.

In order to stress the vital importance of national health I would suggest that some monument be devised to bring it effectively before the national mind.

What better or more popular form of monument could there be than a national holiday to be designated National Health Day? On that day national health and virile parenthood could be celebrated. Failing a special day, Australia Day might be called Australia and National Health Day and celebrations arranged accordingly.

SECTION II.

TOXICOLOGICAL, CLINICAL AND BIOCHEMICAL SPECIMENS.

Staff.—S. B. Watkins, M.Sc., A.A.C.I.; M. J. Guyder, B.Sc.

Specimens examined—800.

Police Department.—The Police Department submitted 282 specimens, as against 250 last year. One hundred and thirty-five specimens were connected with twenty-nine cases of real or suspected homicide or with suspicious deaths.

The poisons found in these cases, in order of frequency, were: strychnine (4), arsenic (3), barbiturate (2), and one case each of aconitine cyanide, nicotine, and nitroprusside.

The remaining submissions were as follows:—

Nature of Specimen.	Number of Specimens.
Animal viscera	15
Alcoholic liquid	21
Drug or medicine	64
Food	10
Miscellaneous	37
	147

Poisoning by Sodium Nitroprusside.—There was a fatal human poisoning during the year by sodium nitroprusside. As this poison is chiefly used as a chemical reagent it is almost unknown to the public.

While the symptoms of nitroprusside poisoning before and after death are those of hydrocyanic acid the time elapsing after taking the poison is usually about two and a-half hours, whereas the action of the simple cyanides is much faster. Although a stable compound under ordinary conditions nitroprusside forms free hydrocyanic acid in the stomach and liver.

Death Through Eating Tubers of Gloriosa Superba.—*Gloriosa superba* is also known as Superb Lily. The tuberous root is one of the seven minor poisons of Sanscrit writers. The death in Queensland this year was caused through cooking and eating the tubers in mistake for sweet potato. Tubers submitted in connection with the case contained 0.18 per cent. of the poisonous alkaloid colchicine. Death from 1/20th grain of colchicine has been recorded; one-third of a grain is liable to cause death.

An interesting feature of colchicine poisoning is the latent period of several hours or more between the taking of the alkaloid and the onset of symptoms. Death has occurred as late as ten days after ingestion of the poison.

Clinical and Biochemical Specimens submitted by the Department of Health, hospitals and private medical practitioners:—

	Number of Specimens.
Blood	116
Hair and nails	18
Urine	190
Miscellaneous	26
	350
Drugs and medicines	75
Other departments	93

The table following shows results from 172 specimens of urine submitted by medical practitioners from patients with symptoms simulating lead poisoning, compared with those from a cross-section of Public Service personnel determined last year:—

Lead (mg. per Litre).	Percentage of Specimens.	
	Doctor's Patients.	Public Service Personnel.
·01 ..	25.6	24.0
·02 ..	15.7	32.0
·03 ..	9.3	8.0
·04 ..	11.1	20.0
·05 ..	11.6	8.0
·06 ..	5.2	4.0
·07 ..	2.3	4.0
More than ·07 ..	19.2	..
	100.0	100.0

Lead in the urine of persons not in contact with lead in industry should not exceed 0.05 milligrams per litre; with more, there is probably too much lead in the food being taken.

Even in the presence of 0.05 milligrams or less of lead there may be lead poisoning as transitory periods sometimes occur during the course of chronic lead poisoning in which the lead content of the urine is normal.

Further, relatively large quantities may appear in the urine in the absence of symptoms of lead poisoning.

SECTION III.

MINING, MINERALOGY, METALLURGY, ROAD-
MAKING MATERIALS AND EXPLOSIVES.

Staff.—V. R. Cundith, B.Sc., A.A.C.I.; D. Mathers, M.Sc.; H. G. Dunstan, B.Sc., A.A.C.I.; T. R. Lowth, B.Sc.; J. C. Yule (7 months), Cadet.

Samples examined—2,755.

The table following shows the sources of work done by this section and the number of samples from each:—

Department.	Number of Samples.
Geological Survey and Mines Department	377
Portmaster (Explosives)	1,244
Commonwealth War Services	151
Main Roads Commission and Allied Works Council	247
Forestry	204
Local Government	20
Auditor General	150
Other Departments	106
Public	256
	2,755

GEOLOGICAL SURVEY AND MINES DEPARTMENT.

Nature of Sample.	Number.	Purpose of Examination.
Bauxite	50	Aluminium content
Coal	51	Proximate analysis
Ore	219	Mostly for gold and silver
Uranium ore	6	Uranium content
Miscellaneous	44	
	370	

The miscellaneous samples included gas, shale oil and a wide range of minerals.

EXPLOSIVES.

Samples examined—1,244.

Chiefly due to decreased activity in metalliferous mining the consumption of explosives is low compared with 1942-43, when 48,905 cases were consumed.

INDUSTRIAL EXPLOSIVES IMPORTED INTO QUEENSLAND DURING THE YEAR ENDED 30TH JUNE, 1945.

Explosive.	Number of 50 lb. Cases.
Blasting Gelatine	212
A.N. Gelatine Dynamite " 75 "	200
60 per cent. Gelignite S.N.	1,017
A.N. Gelignite " 60 "	4,368
50 per cent. Gelignite S.N.	2,465
A.N. Gelignite " 50 "	6,883
Ajax	6,152
Quarry Monobel	2,488
Dynobel No. 2	1
40 per cent. Ligdyn	4,737
A.N. Ligdyn " 40 "	551
	29,074 cases (Australian)
Blasting Powder (50 lb. cases)	599 cases (Australian)
Blue Fuse	4,312,800 feet (Australian)
Primacord	11,000 feet (Overseas)
Cordtex	27,500 feet (Overseas)
No. 6 Detonators, Aluminium	2,325,000 (Australian)
E.D. Fuses No. 6 x 72"	195,000 (Australian)
E.D. Fuses No. 6 x 120"	10,000 (Australian)
E.D. Fuses No. 6 x 144"	10,000 (Australian)
E.D. Fuses No. 8 x 12" Submarine	8,900 (Australian)
Fuse Igniters	27,000 (Australian)

Condemned Explosives.

Explosive.	Quantity.
Ajax	10 $\frac{3}{4}$ cases
60% S.N. Gelignite 1"	1 case
Quarry Monobel	6 cases
Gelignite	36 plugs
Detonators	320
Fuses	6 cases

Licenses in Force.

	1944-1945.	1945-1946.
Bulk magazine	6	8
Retail magazine	534	409
Rackarock	3	2

One hundred and ninety-nine retail and two bulk licenses were issued, for which fees were not received.

The number of retail magazines in Brisbane has been decreased by three and the quantity of explosives permitted to be stored in each of the others considerably reduced. It would be advisable to prohibit the storing of explosives within a radial distance of one mile of the G.P.O., which might be regarded as the centre of the city.

Inspection of Magazines.—Mr. V. R. Cundith of this Section inspected the Brookhill and Queerah magazines and the retail magazines at Townsville and Cairns.

Mr. Cundith also—

- (1.) Visited the Styx No. 3 State coal mine in connection with the presence of sulphuretted hydrogen in the workings;
- (2.) Made ventilation surveys in the Burrum collieries;

- (3.) Visited Mt. Garnet and Ingham as a member of a Government committee formed to investigate the pollution by mining activities of the Herbert River; and,
- (4.) Accompanied by Mr. T. R. Lowth, visited New South Wales for the purpose of—
- (a) Interviewing officers in Government Departments engaged in determining dust hazards in mines;
- (b) Visiting mines on the Southern and Northern coalfields to investigate methods of sampling and analysing coal and coaldust, zoning of mines, and the quantity and quality of inert dust used and method of applying it.

SECTION IV.

WATER.

Staff—J. A. Forbes, A.A.C.I.

The 1,079 samples of water examined by this Analyst, as against 1,118 samples last year, were submitted by the following authorities:—

Department.	Number of Samples.
Health	244
Local Government	74
Irrigation, Water Supply and Sewerage ..	614
Other State Departments	33
Public	114
	1,079

Waters are submitted for examination in regard to their use for one or more of the following purposes:—

- (1.) Human consumption and domestic use;
- (2.) Town supply;
- (3.) Steam-raising;
- (4.) Industrial;
- (5.) All-purpose—stock, irrigation and human consumption.

The service also covers investigations and advice.

FLUORIDE IN ARTESIAN BORE WATERS.

As no survey prior to 1943 had been made of the artesian bore waters in Queensland used for human consumption a survey was started in that year by this laboratory. Eighty-one waters have been examined from cardinal points and centre of the artesian basin. A considerable number contained more than the accepted maximum of one part of fluorine per million parts of water for a domestic water supply. Presumably, the fluorine exists as sodium fluoride.

Number of Bores.	Total Solids.	Fluorine.
	Grains per Gallon.	Parts per Million.
10	24-47	1.1-1.5
8	19-66	1.9-3.0
2	72-80	4.0-6.0
1	42	10

The waters from the bores containing 4 to 10 parts of fluorine are only used for human consumption in drought.

BELOW ONE PART OF FLUORINE.

Number of Bores.	Total Solids.	Fluorine.
	Grains per Gallon.	p.p.m.
42	15-36	.1-.5
18	25-76	.6-.9

The best waters recorded were from—

—	Depth.	Total Solids.	Fluoride.
		Grains per Gallon.	p.p.m.
Blackall No. 2 ..	2,590	18	0.1
Morven	2,657	15	0.3

The fluoride is mostly associated with the soft sodium bicarbonate waters, which waters are used for human consumption and also for stock.

Fluoride in Water Survey Committee.—An Inter-departmental Fluoride in Water Survey Committee, of which the Government Analyst is a member, was formed during the year at the instance of the Minister for Lands, the Hon. A. Jones, M.L.A., to investigate the fluoride in ground waters and its effect upon stock and to include waters used for human consumption.

This action affords a unique opportunity, which this laboratory has sought for many years, of making a complete chemical examination of all the ground waters in the State used for stock and/or human consumption.

DENTAL FLUOROSIS.

Our knowledge of dental fluorosis is older than civilisation; its causation baffled all investigators until 1931. In that year it was determined by the University of Arizona that the presence of fluoride in the drinking water was the cause of the mottling of human teeth. There are 375 known endemic areas in the United States among 26 States, including Arizona. The Argentine Republic is the most seriously affected in America. There are parts of the Middle East where every native-born inhabitant has dental fluorosis. It is now accepted that the continuous use of water for drinking or cooking containing as little as 0.9 parts per million of fluorine will cause fluorosis in some degree. As the damage to the teeth is permanent and irreparable it is important that children during the susceptible period—3 months to 8-10 years—should not use continuously water containing more than 0.9 parts of fluorine per million.

The effects of fluorine on the teeth vary from mere loss of translucency or a dead paper-white appearance to a mottled appearance with a discoloration of all shades of brown, yellow and black.

Teeth properly developed outside an affected area will not become mottled if the individual shifts to an affected district.

There are at least two town water supplies in the U.S.A. to which fluoride is being added at the rate of 0.9 parts per million calculated as fluorine because of the supposition that dental caries may be due to a deficiency of fluorine in the enamel of the teeth.

It would appear, however, to be fundamentally unsound to add a poison to the drinking water to correct a dietary fault.

EFFECT OF ARTESIAN BORE WATER ON VITAMIN C.

Because of the alkalinity of the Queensland artesian bore waters used for human consumption it was deemed advisable to investigate their action on vitamin C in cooking. The western portions of the State are generally naturally deficient in vitamin C, hence the destruction of this vitamin in the cooking of vegetables and fruit would be serious from a nutritional standpoint.

A representative sample of artesian bore water from the Charleville town supply was used in the tests. It had the following composition:—

	Grains per Gallon.
Calcium sulphate	1.0
Magnesium sulphate	0.4
Sodium sulphate	1.0
Sodium carbonate	2.1
Sodium bicarbonate	14.8
Sodium chloride	9.9
Difference	0.8
Total salts	30.0
pH as received	9.0
pH after boiling	10.4

This composition is typical of that of many artesian waters being used for human consumption.

TESTS.

I. Nasturtium leaves—

Ascorbic acid (100 gm.) .. 286 milligrams

One hundred grams of leaves were placed in 1.4 pints of boiling bore water (just sufficient to cover the leaves) and boiled for thirty minutes in a glass beaker with a clock glass on top.

The liquid and solid portions were separated by draining and the residual ascorbic acid determined in each. The tests were repeated with the addition of four grains of bicarbonate of soda prior to boiling.

The results following were obtained:—

	Bore Water Ascorbic Acid (mg.)	Bore Water + NaHCO ₃ Ascorbic Acid (mg.)
Solid portion	39	49
Liquid portion	232	196
Ascorbic acid destroyed (per cent.)	5.2	14.3
Final pH of cooking water ..	5.0	5.8

II. Green peas—

Ascorbic acid (100 gm.) 23.2 milligrams.

Peas taken .. 100 grams (3½ oz.)
Bore water .. 7 oz.
Boiling time .. 30 minutes

	Ascorbic acid (mg.)
Solid portion	11.6
Liquid portion	6.6
Ascorbic acid destroyed (per cent.)	21
Final pH	6.9

III. Cabbage—

Ascorbic Acid (100 gm.) ..	53.1
Cabbage	100 gm.
Water	7 ounces.
Boiling Time	30 minutes

	Bore Water Ascorbic Acid (mg.)	Bore Water + 3 grains Bicarbonate of Soda (NaHCO ₃) Ascorbic Acid (mg.)
Solid portion	26.6	22.2
Liquid portion	16.6	13.6
Ascorbic Acid destroyed (per cent.)	18.6	32.6
Final pH of cooking water	6.6	8.8

PERCENTAGE OF ORIGINAL ASCORBIC ACID REMAINING IN THE SOLID PORTION OF THE COOKED MATERIAL.

	Bore Water	Bore Water + 3 grains Bicarbonate of Soda.
Nasturtium leaves	14	16
Green peas	50	not deter- mined
Cabbage	50	42

The tests have established that the artesian bore waters used for human consumption will destroy no more vitamin C in the cooking of vegetables than rain water or Brisbane tap water.

Although bore waters of the quality used in these tests are alkaline and become more alkaline when the carbon dioxide is driven off on boiling, the acidity of vegetables and fruits is sufficient to neutralise the alkalinity of the water and to maintain an acid reaction.

VITAMIN C POTENCY OF TROPAEOLUM MAJUS COMMONLY KNOWN AS NASTURTIIUM OR INDIAN CRESS.

Three years ago this laboratory determined and apparently were the first to publish the vitamin C potency of the leaves of this plant which ranged from 24,500 to 30,850 international units per pound. These results were later confirmed by Sutherland (New Zealand), who obtained from 18,140 to 42,200 units. The old sample of nasturtium used in the recent tests contained vitamin C at the rate of 25,970. This plant has a higher vitamin C potency than any fruit or vegetable in common use. It grows freely almost anywhere in Queensland and should be a useful source of vitamin C in regions where vegetables and fruit are scarce or too expensive. It could be used freely in salads and sandwiches. Most of the vitamin C is in the leaf of the plant. We intend when opportunity offers to isolate and examine the principle that is responsible for the pungency of nasturtium.

SECTION V.

COMMONWEALTH CUSTOMS AND EXCISE.

Staff.—J. R. W. Adamson, A.A.C.I.; H. B. Cribb, A.A.C.I.

Samples examined.—1,954.

The samples submitted by the Commonwealth Customs are mainly for duty classification and in connection with the Excise and Commerce Acts.

They cover a wide range of work, including lubricating and fuel oils, kerosene, petrol,

spirituous compounds, textiles, chemicals, drugs, and medicines.

The table hereunder records the number of samples examined by this section:—

	Number of Samples.
Commonwealth Customs ..	1,616
Commonwealth War Services	217
State Departments	71
Public	50
	1,954

COST OF ANALYTICAL WORK.

Period.	Total Units of Professional Personnel.	Number of Samples Examined.	Samples per Unit of Professional Personnel.	Total Cost per Sample.
1928–1933 (5 years)	11·6	44,325	764	£ s. d. 0 18 5
1933–1938 (5 years)	12·0	68,291	1,138	0 12 1
1938–1943 (5 years)	14·5	62,607	863	0 16 4
1943–1944 (1 year)	14·75	14,105	956	0 14 11
1944–1945 (1 year)	15·0	15,431	1,029	0 15 3
1945–1946 (1 year)	15·5	11,875	766	1 1 0

The major problems of any competent analytical laboratory are the accuracy of the analytical work, the time taken for it, and the cost thereof.

This laboratory has established an excellent record for the accuracy of its analyses in law courts and elsewhere.

Expedition.—It is important that expedition be practised but not at the cost of accuracy.

The progressive Queensland Police Department demands more expedition than ever before so that the wheels of justice are not unduly retarded.

Clinical specimens require quick examination as treatment may have to be modified in accordance with the results.

It is inadvisable to report long-delayed samples, the result of which have lost interest to the person concerned.

Cost Per Sample.—The cost per sample shows a marked increase on that of last year due to the following causes:—

- (a) increased expenditure;
- (b) reduced income of work, especially from war services; and
- (c) absence of some officers on investigations outside the laboratory.

Mere enumeration of samples does not afford a complete picture of the numerous activities

of the laboratory. Every officer has responded effectively and cheerfully to every call made on him.

Staff Changes.—Miss I. M. Parker resigned from the Public Service as from 30th June, 1946. Three and a half years of her term of eleven years were spent as clerk-typist in this laboratory. She performed her duties in a commendable manner and left with the good wishes of the staff for her future married life.

Mr. W. H. Hotten was retired on the official age limit after spending thirty-five years as a Government employee, twenty-nine of which were spent in a laboratory as attendant in the Mining and Metallurgy Section. He maintained a good standard of efficient and devoted service.

Mr. J. Welsh, attendant, was also retired on the age limit after serving for fourteen years competently, willingly and courteously. For two years after Japan entered the war he was part-time magazine keeper at the Ebbw Vale Explosives Magazine, where his duties were also performed in a most praiseworthy way.

New Appointments.—Mr. J. V. Foreman was appointed clerk in place of Miss L. P. Victorson, steno-typist, who has taken over the typing duties.

Mr. C. H. Couper, lately L.A.C. in the R.A.A.F., and holder of the B.E.M., was appointed as temporary attendant.

CONTRIBUTION OF THE LABORATORY TO WAR SERVICES.

Royal Australian Navy	K. A. Glover (Lt.), Assistant to Analyst
A.I.F.	I. L. B. Henderson (Lt.), Analyst
A.I.F.	J. E. O'Hagan (Sergeant), Assistant to Analyst
Ammunition Factory, Rocklea	L. G. Crookall (Mechanic)

Messrs. Glover, Henderson and Crookall have returned to the laboratory; Mr. O'Hagan is attending the Queensland University under the Commonwealth Training Reconstruction Scheme.

ANALYTICAL WORK.

	Number of Samples.
U.S.A.	2,695
Other Allied Services	68
Department of Commerce and Agriculture (Common- wealth)	6,255
Other Commonwealth War Services	5,630
	14,648

The laboratory was open at all times—Saturdays, Sundays, and public holidays included—to all the war services. The decision of the State Government not to charge the Allied services for analytical work was heartily endorsed by the staff. Further, 5,630 samples were not charged to the Commonwealth Government; the remainder, 6,255, entailed a nominal fee.

Contribution to World War I.—As the oldest survivor in the laboratory of the staff of 1914-18 I deem it appropriate to record here the contribution by that staff to World War I.

Nine officers out of a professional personnel of fourteen left the laboratory for overseas service.

T. W. Jones died in a military camp in Australia, J. E. MacDonnell was killed in action in France, and seven returned.

Lieut.-Colonel R. A. Stanley, D.S.O., and Lieut. P. C. Hall passed into the silences some years ago; R. W. Latimer is in a Commonwealth Government munitions department; J. R. W. Adamson, H. B. Cribb, V. R. Cundith, and A. S. Hurwood are still in the laboratory.

The Government Analyst at the time, J. Brownlie Henderson, was awarded the O.B.E. for munitions service in Australia. I have in mind that every officer volunteered for active service. Deprivation of all recreational leave, a six-day working week or more and much additional work were regarded as minor penalties and accepted without complaint by those compelled to remain in the laboratory.

FUTURE OUTLOOK.

If it is to fulfil its proper function in the State this laboratory must have more assistance. There are extensive fields to be covered in the analytical control of food, drugs, medicines, industrial hygiene, and mining. The health of the next generation is in the hands of the present generation and this is for the most part dependent on a liberal supply of the right kinds of natural foods and hygienic working conditions.

Qualifications for appointment as analyst should include comparative youthfulness, a reasonable knowledge of English—written and spoken—microscopy, spectroscopy, optics, photography and electricity; all this in addition to a sound knowledge of physics and chemistry, and manipulative skill. Because of the better emoluments to be earned by the medical profession, engineers, and dentists, most of the cream of university students is attracted to these faculties.

As the increase in the number of professional men is disproportionate to the increase in population, observers in the U.S.A. and elsewhere have predicted a surplus of such men in the near future. The Australian Chemical Institute expects an overplus of chemists in Australia. Hence it would be preferable to stand by until qualified men are available rather than to make appointments which might be regretted later.

Appendix D.

SCHOOL HEALTH SERVICES.

Chief Medical Officer: L. ST. VINCENT WELCH, M.R.C.S. (Eng.), L.R.C.P. (London);
 Chief Inspector School Dental Service: E. W. HAENKE, L.D.Q.

The cessation of world hostilities has not yet enabled a return to pre-war conditions—rather has this relief thrown men and women into a state of bewilderment and mental unbalance which will require long months to adjust.

During the war years all Departments, Branches and Divisions worked short-staffed and, in this respect, the School Health Services Branch was no exception.

Viewing the work of the past year in retrospect, there is cause for satisfaction in the knowledge that a fair standard has been maintained and, in some directions, even a small advance made.

When a school health programme was first drawn up some eighteen years ago, little encouragement was received from the Education authorities or the rank and file of the teaching staff.

With the passing of the years and the expansion of the Service, it is pleasing to note that this attitude has greatly changed for the better and the help of the Branch is continually sought on the many school health problems which confront members of the teaching service.

The School Health Services can now look forward to an increasing sphere of usefulness whereby the embryo citizens of the State will be guided along the lines of sound health which will eventually enable them to take their places in the national activities, strong in body and clear in brain.

The duties the School Health Services perform for the State require finance—and ample finance; but such expenditure pays dividends though it may be years before this fact becomes apparent.

The work was commenced in Brisbane. It has now extended with the passing of years and, at the present time, a nursing sister is stationed in each of the following centres: Cairns, Townsville, Mackay, Rockhampton, Bundaberg, Maryborough, Gympie, Brisbane (6), Ipswich (temporarily vacant), Toowoomba and Warwick.

It is planned in the near future to station officers at Cloncurry, Longreach and Charleville. The magnitude of the work may, later, warrant duplication of officers at Townsville, Rockhampton, Ipswich, and Toowoomba.

The present staff consists of—

- Chief Medical Officer;
- 1 Part-time Ophthalmic Officer;
- 1 Part-time Medical Officer;
- 1 Senior Sister and 15 School Sisters;
- Chief Dental Inspector of Schools, 15 School Dental Inspectors, and 1 part-time Dental Inspector.
- Drivers (2)—1 attached to Road Dental Clinics, of which there are two.
- Handyman (1) attached to Rail Dental Clinic No. 2; and
- Attendant (1) attached to Rail Dental Clinic No. 3.
- Clerical Staff—
 - 1 Clerk in charge of the office;
 - 1 Junior clerk, and
 - 2 Clerk-typists.

WILSON OPHTHALMIC SCHOOL HOSTEL.

Despite exceptionally difficult conditions due to short staff during the war years, the Wilson Ophthalmic School Hostel has rendered valuable service to Western children suffering from trachoma. The Ophthalmic Officer in charge has effected many satisfactory cures.

With the return to a more normal working state, the number of children under treatment will be increased to capacity.

Arrangements are well in hand for a visit of the Ophthalmic Officer to the Western districts to examine and select cases for admission to the hostel.

The improvement in the physique and general health of children under treatment in the institution is remarkable. Their training in good manners, pride in personal appearance and deportment have yielded valuable results which should be of much interest to the Education authorities should they at some future time decide to establish residential schools for children living in remote areas of the State.

Much credit is due to the matron and her staff for this excellent training.

COMPARISON OF PRESENT PHYSICAL CONDITION OF SCHOOL CHILDREN WITH FIFTEEN YEARS AGO. HEALTH CONSCIOUSNESS OF PARENT AND TEACHER. CONDITIONS OF SCHOOLS AND SANITARY CONVENIENCES THEN AND NOW.

Comparison of the physical conditions and general health of primary State school children of to-day and fifteen years ago leaves a balance greatly in favour of those now attending school. This is largely due to an increasing health consciousness of parents who apparently realise that, in the struggle for existence, a child with those physical defects which interfere with growth and mental development is at a serious disadvantage in competition with healthier and more alert individuals. It is rare now to find school children with septic tonsils or adenoid overgrowth in those districts where school staff sisters carry out regular health inspections.

The co-operation of the family medical adviser has been of great value, for upon the diagnosis and treatment given by these members of the medical profession rests the completion of the action commenced by the school sisters.

Cleaning of Schools.—Much industry and not a little effort has been observed in the so-called cleaning of schools. The amount of dust which is shifted from one point in the school to another is astonishing. Sweeping produces a cloud of dust which settles on desks, walls and furniture only to be driven off again to settle elsewhere when the cleaner makes an onslaught with her duster. All this would be obviated and the school rooms made cleaner, sweeter places in which to live and work were vacuum cleaners installed and the dust removed each day from rooms and passages.

The American Commission on dust found that in general it was not harmful bacteriologically, but it is certainly most unpleasant and gives a sense of "stuffiness" from which a properly vacuum-cleaned room is entirely free. Moreover, it has irritating properties which induce conjunctivitis and catarrh.

Under School Areas.—It is gratifying to note that the practice of leaving the area under school buildings to become a dust heap, where bits of bread, banana and orange skins, and other flotsam and jetsam from the lunch bag become incorporated with the dust, sand, flakes of hide and disease germs from countless feet, is giving place to properly graded and well-laid concrete. The clouds stirred up from these "dust bowls" by children at play are a cause of conjunctivitis and respiratory catarrh as well as an unwelcome addition to the mid-day meal eaten under such unhygienic and uncomfortable conditions. Recommendations have been made for building an assembly hall and canteen accommodation in new schools of large capacity. These facilities are nothing new in Britain and America.

In some State schools the conditions under which children have to spend recess in wet or cold weather are the height of discomfort and are an invitation to onslaught by respiratory diseases, while over-crowding may necessitate the instruction of pupils on verandas in bitter westerly weather. Proper protection of feet and legs so as to afford ample warmth is a necessity, but often youngsters are barefoot and the draughts which whistle under veranda blinds are not conducive to health or comfort. It is

difficult at the best of times for a teacher to hold the attention of children for long periods; when those same children are suffering acute physical discomfort, either from the inclemencies of the weather or from hunger, the task becomes almost insuperable.

Water Supplies—Need For a Better System.—The present drought has emphasised a serious drinking water shortage in many schools and also the introduction of questionable supplies into the school tanks in some instances. This subject has been one of the frequent complaints in past annual reports and on other occasions. Not sufficient storage tanks, no provision for emptying and cleaning of tanks and poor installation which permits contamination of tank contents either through overflow or intake, are points that have been raised. These are matters of most serious import in safeguarding the health of pupils.

A regular tank service is most urgently needed; not the sucking of filth from the inside by a syphon arrangement and leaving the supernatant contaminated liquid for drinking purposes. In some instances, violent diarrhoea has been traced to drinking such water.

Were such a service inaugurated, sufficient tanks to supply the needs of pupils should be provided while allowing of one tank to be flushed out and cleaned each year. Tanks would be used only in rotation. Three or four tank squads giving regular service would find plenty to do all the year round.

EXAMINING AND REPORTING DEFECTS OF SCHOOL BUILDINGS, SANITATION, ETC.

During the year, many defects of sanitation, inadequate lighting and overcrowding were reported and prompt action taken.

The health and sanitation of State schools has steadily improved and there is ample evidence to prove that not only head teachers but teaching staffs have a greatly enlightened attitude in this respect. The teaching of personal hygiene and the rudiments of public health to primary school children would in time bring about a health consciousness in the people of the State which would go far in keeping many serious diseases in check. Perhaps those in authority may see fit in due course to add this as an accomplished fact to the already long list of valuable subjects taught. The intelligent co-operation of parents in matters respecting school health would be of material assistance. Children suffering with catarrh of nose and throat are sent to school, where they disseminate their infection among their class-mates, often with distressing results. A little forethought and care on the part of the parent would do much to prevent the dissemination of respiratory troubles especially in infant classes.

During the year 71 reports were submitted by members of the school nursing staff on matters relating to sanitation which required attention. Prompt repairs were carried out by the Works Department, whose officers have been most helpful.

A gradual but steady change over from E.C. to water-borne sewerage is proceeding and had not the war upset programmes, the writer is credibly informed that many of the large schools would now be enjoying this convenience.

EXAMINATION OF TEACHER TRAINEES.—
NECESSITY FOR LECTURES ON PUBLIC
HYGIENE AND PREVENTIVE MEDICINE.

During the year 257 teacher trainees entering the Teachers' Training College were medically examined.

It is interesting to note the remarkable improvement in the attention now given to remediable physical defects. Where in the early days every fourth or fifth entrant required surgical attention for throat and nose conditions, it is now the exception to encounter such neglected cases. Dental treatment is rapidly becoming the rule rather than the exception. Even here, however, one is faced with a tragic condition because restorative rather than preventive treatment has been adopted and at a time often too late to materially benefit. Hence complete extraction of all upper dentition and the wearing of a denture. The future health of these young people is dismal in the extreme.

There appears to be a health conscious attitude engendered in these students who now study personal hygiene and appearance much more carefully than fifteen years ago. This augurs well for their attitude respecting these important matters when they eventually become teachers. A course of lectures on public health and personal hygiene would be of great value to these students—it should be an important item in the college curriculum.

PRE-SCHOOL CHILDREN AND LIAISON WITH
MATERNAL AND INFANT WELFARE ACTIVITIES.

During the year a move has been made to establish a closer liaison between the Maternal and Infant Welfare Division and that of the School Health Services.

This should enable the children within this most important category to receive the attention for dental and physical defects essential to their well-being. No period of human growth and development is more important for attention to physical and dental defects which now commence to make inroads upon the child's health.

School Lunches.—Following a survey of the types of lunch brought to school by pupils, a recommendation was received through the School Health Services staff for the inauguration of a hot or cold milk or a milk and cocoa drink at 11 a.m. Many children eat their lunch by 8 a.m. or 9 a.m., after an unduly early breakfast.

The scheme has proved successful and the favour with which it is regarded may be judged by official decision to grant a pound-for-pound subsidy for approved equipment acquired for the purpose of providing food or drink for school pupils for a mid-day or mid-morning meal. Parents with simple faith provide tasty sandwiches for their offspring but little reckon that their darlings are not above exchanging or selling these for less digestible but, in their eyes, more delectable articles of diet.

Every teacher knows the child who spends his daily lunch money on lemonade and ice

blocks with, perhaps, an occasional indigestible meat pie thrown in to vary the diet.

Contamination of food by dust or gross dirt due to lack of decent facilities for consuming lunch like reasonable human beings are also arguments in favour of school canteens and assembly halls where meals can be partaken under adequate supervision.

Meantime, parents and school committees are making splendid efforts to lay a foundation upon which, if Providence pleases, will be built a system which provides healthful, nutritious school lunches. Canberra does it, Sydney is doing it in some districts and it is proving a workable proposition.

Queensland is making a brave effort to follow suit in the face of many difficulties which will eventually be surmounted.

Immunisation Against Diphtheria.—Immunisation against diphtheria was carried out in a number of districts and the students of the Gatton Agricultural College and High School were as usual immunised against enteric and tetanus. The Millmerran Shire Council again requested that unimmunised children in all parts of its area be immunised against diphtheria. The annual response is now a fraction short of 100 per cent. and only three cases have occurred in the shire in nine years—one a child whose parents refused permission to immunise, and two unimmunised children who came into the shire and developed diphtheria within a matter of a few days. Whether the above statement is a case of *post hoc propter hoc* is not clear, but it is highly suggestive of the beneficial results of immunisation against diphtheria. School Health Services sisters have worked in close liaison with the personnel of the Brisbane City Health Service in immunising children at the various schools within the Greater Brisbane area with most satisfactory results.

Scabies.—Efforts are now being made to control *Pediculi capitis* (head lice) and Scabies (Egyptian itch) occurring among school children by close co-operation with the Health authorities.

During the war these disgusting pests assumed alarming proportions in some districts. Freeing the school child from infestation is of little value unless the home whence he comes can also be rendered free from infestation.

Two hundred and seventy-three cases of scabies were reported in the metropolitan area.

Infantile Paralysis.—The severe epidemic of Anterior Poliomyelitis which swept up from the South greatly increased the work of the nursing staff.

In the metropolitan area, there were in all 105 cases—24 in children of pre-school age—and a total death roll of 8.

Watching this last epidemic, one is inclined to the belief that the disease is far more prevalent than it would at first appear, that it is overlooked in its most common form—a gastro-enteritis—and that the paralysis form is the highlight of a disease running a definite course and conferring a marked immunity on those

attacked. While investigating the outbreak at the Slade School, Warwick, the following interesting facts were related:—

1. A day boy from that school stayed at a certain house in the town of Warwick. Within three weeks of his arrival, two children in a neighbouring house, and with whom he had had contact, developed the disease.
2. A boy at Bony Mountain School developed a severe attack of paralysis—his two sisters were sick at the same time, one with vomiting and the other with headache and abdominal pain. Three weeks previously a man, his wife and three children stayed some days at the home of the sufferers. The visiting family came from Warwick, where there were several cases of the disease at the time.

Recently, in Maryborough, two children developed the disease. One died. A sister of the School Health Services visited the homes of all children absent from the school about the time of the infantile paralysis occurring. She reported a number suffering from gastro-enteritis, as diagnosed by the family practitioner. Such histories are highly suggestive, but not conclusive.

Hookworm Campaign.—This campaign continues to function satisfactorily. It is possible that the work may increase unless great care is taken that members of the forces discharged from further service are examined methodically and systematically to safeguard any who harbour *Nocator americanus* or *Ankylostomum duodenale* being passed with a clean bill of health. Cases have been reported of discharged soldiers being examined by the hookworm campaign officers and found to be still infested with the worms. This is a serious matter.

GERMAN MEASLES—NUMBER OF CASES OF DEAFNESS, &C., FROM LAST EPIDEMIC.

During the years 1938 and 1941 German measles (Rubella) attacked the community.

Considerable controversy has raged round the question of certain ear, heart and brain defects being caused by this disease should it attack a pregnant woman prior to the third month of gestation.

It is therefore of interest to note that—

- (a) of the 56 children born in 1938 admitted to the Blind and Deaf School, 29 have a history of maternal German measles during the early months of pregnancy; and
- (b) of the 31 children born in 1941 admitted to the Blind and Deaf School, 21 have a history of maternal German measles during the early months of pregnancy.

This important matter requires a full investigation, as the effects of the disease may be very tragic.

At present a preliminary investigation is being made. The results will be published.

VISIT TO ABORIGINAL SETTLEMENT—WOOD, METAL AND LEATHER WORK BY ABORIGINAL CHILDREN.

By official direction, a visit was paid to the aboriginal settlements at Cherbourg, Woorabindah, Yarrabah, Mona Mona and Palm Island, for the purpose of delivering certain lectures illustrated with projector slides. The excellent condition of the aboriginal children was noted with agreeable surprise and the facilities for their education were astonishingly good.

At Cherbourg the wood, metal and leather work were revelations in the aptitude and careful training of these youngsters who apparently took great pride in their work.

The Department has accomplished a great work in caring for and training these people—a work which has amply repaid the care and foresight bestowed upon a very worthy objective.

In each settlement plans were in train for extensive improvements, directly post-war conditions enabled labour and materials to be obtained. The work in the native hospitals was carried on during the war years under exceptionally difficult conditions, but there was a cheerfulness and spirit of co-operation among the nursing staffs which augured well for the patients under their care.

Of all experiences *en tour*, that which left the most lasting impression was the visit to the Leper Station on Fantome Island, an island opposite Palm Island.

Here a band of nuns has settled to minister to the needs of aboriginal lepers, and with them stout-hearted Father McDermott labours valiantly, even to the extent of building his own presbytery. No more noble example of devotion to duty is to be found anywhere in Australia.

Dental Services have been ably carried on under most trying conditions of war and short staff.

Despite these difficulties, two magnificent rail dental clinics were put into commission and the officers in charge are rendering the most perfect dental service any State could provide for its child population.

With more dental officers available in the future, this service gives promise of remarkable expansion and usefulness. The Chief Dental Inspector has been called upon to furnish his report; and it is therefore unnecessary to reiterate a statement of the excellence of the work which the dental officers have performed.

The Staff.—During the year all members of the School Health Services staff have worked conscientiously, and team work has been a strong feature. Despite the shortness of nursing staff and difficulties of filling vacancies occurring through resignations of those leaving to be married or for family reasons, work has been faithfully performed and co-operation between the field and office staff has resulted in the smoothest running.

The office staff has also done a fine work and carried a heavy burden while some members were absent on active service. All personnel of medical, dental, nursing and office staff have united in bringing the past year to a very satisfactory termination. The most valuable co-operation and assistance has been given at all times by the Department of Public Instruction and the Public Works Department, the Police

Department, the State Children Department, the staff of the Health Department and the Brisbane City Council.

With the return of society to normal conditions, it is anticipated that the School Health Services will be able so to extend its activities that the health of every primary school pupil in the State will come under its supervision with beneficial results.

TABLE OF FINDINGS—SCHOOL HEALTH SERVICES—
SCHOOL YEAR, 1945.

Number of children examined by school sisters—	
Metropolitan	23,699
Country	19,728
Number of children referred to private medical practitioners by metropolitan school sisters	
	1,189
Number of children treated by private medical practitioners	
	737
Apparent physical defects discovered by metropolitan school sisters and recommended to private medical practitioners for diagnosis and treatment—	
Tonsils and adenoids overgrowth ..	798
Vision	432
Affections of eyelids	2
Squint	6
Hearing	12
Otorrhoea	1
Skin diseases	64
Hernia	50
Number of children referred to private medical practitioners by country school sisters	
	1,276
Number of children treated by private medical practitioners	
	699
Number of homes visited by school sisters—metropolitan area	
	249

Apparent physical defects discovered by country school sisters and recommended by private medical practitioners for diagnosis and treatment—

Tonsils and adenoids overgrowth ..	843
Vision	172
Affections of eyelids	35
Squint	15
Hearing	21
Otorrhoea	8
Skin diseases	147
Hernia	27
Malnutrition	43
Scabies in metropolitan area (treated by school sisters)	
	273
Number of cases of diphtheria in school children—	
Metropolitan	63
Country	139
Number of cases of scarlet fever in school children—	
Metropolitan	133
Country	141
Number of cases of infantile paralysis in school children—	
Metropolitan	39
Country	103
Inspection and treatment performed by school dental inspectors—	
Number of children dentally examined	37,161
Number treated	10,180
Number of extractions	22,902
Number of fillings	20,839
Other treatments	10,185
Treatment at Brisbane Dental Hospital—	
Number treated	6,927
Number of extractions	23,233
Number of fillings	18,083
Other treatments	14,077

SCHOOL DENTAL SERVICES.

INSPECTION.

The subjoined table details the total findings revealed at the different inspections of the staff of dental officers during the year.

Number Examined.	Number with Sound Mouths.	Condition of Mount.			Use of Tooth Brush.			Permanent Teeth.			Carious Teeth.		Permanent Carious Teeth.		Percentage of Children with Dirty Mouths.	Total No. of Carious Teeth Permanent.	Average No. Carious Teeth Per Child. Permanent.
		Clean.	Fair.	Dirty.	A.	B.	C.	Lost or Extracted.	6-Year Molars Extracted.	Filled.	Permanent.	Temporary.	Savable.	Unsavable.			
37,161	4,390	7,434	25,082	4,645	12,350	17,379	7,432	12,840	10,644	58,912	59,372	37,430	52,528	6,844	15	59,372	1.6

CLINICAL PHASE OF SERVICE.

Tabulated hereunder are particulars of the total treatment which was performed through the clinical activities associated with the service for the period under review:—

Number of Children Treated.	Number of Extractions.	Number of Fillings.	Number of Other Treatments.
18,367	46,450	48,278	25,014

Appendix E.

SECTION OF MATERNAL AND CHILD WELFARE.

Director: T. HENRY R. MATHEWSON, M.B., Ch.B. (Edin.).

Deputy Director: H. C. MURPHY, M.B., B.S. (Appointed 21st March, 1946; will be taking up duty on 4th July, 1946).

Superintendent: D. BARDSLEY, A.T.N.A.

INTRODUCTION.

Looking back on the year that has past, the question arises as to what have been the prevailing conditions affecting the health and welfare of mothers and children in Queensland.

Apart from the recent epidemic of poliomyelitis, localised outbreaks of diphtheria, and the prevalence of the common cold, no widespread epidemic has occurred amongst children of pre-school age. This is reflected in the infant mortality rate which is the lowest on record for the State as well as for the metropolitan area in spite of the existence of conditions which are generally regarded as having an adverse effect upon the health of children, the chief of which is overcrowding due to shortage of homes. One very gratifying feature is the low mortality rate of infants between the ages of one month and one year, the period of life when the Maternal and Child Welfare Service exerts its greatest influence on the health of the child.

The maternal mortality rate is also the lowest on record for the State and for the metropolitan area. Coupled with the highest number of births ever recorded in Queensland during any previous year and the highest birth rate since 1923, these low mortality rates constitute an exceedingly satisfactory result for the year.

The infant mortality rate is usually regarded as a reliable index of the standard of living of a people. Whatever be the factors responsible for the lowering of this rate, the event should not be looked upon as an indication for relaxed effort on the part of those concerned with maternal and child welfare, but rather as a stimulus to renewed effort and increased vigilance, so that everything calculated to maintain and improve the health of mother and child may be done. There is still much to be learnt about the causes of maternal and infant mortality and morbidity. Many advances have been made recently in therapeutics, and it must be the aim of all workers in the field of preventive medicine to see that no lag occurs in the advances made in connection with the important branch of medical science in which they are engaged.

In most of the States of the Commonwealth as well as in other parts of the world, infant mortality rates have had a steadily downward trend during the last few years. It has been stated that one factor contributing to the lowering of infant mortality rates is the raising of the average income. The Child Welfare nurse has played an important part. During the war it became increasingly apparent that in her work she became intimately bound up with the interests and life of the family, and her advice was sought not only in regard to the care and

management of the child but also in regard to a variety of domestic matters and social questions.

The family remains the most fundamental unit of modern society. It has been basic throughout the long history of mankind. The family group provides an environment in which children can "grow up," in which they can learn to "give and take" and adjust themselves to changing conditions. The household serves as a training ground on which children can learn social values. The process of "growing up" is one of the most remarkable of human achievements. Every child is an individual by birthright and requires to be given an opportunity to develop along lines which will build up his sense of responsibility to the group as well as his own individual personality.

The problems of maternal and of child welfare are intimately related; they are not two problems but one. Considering them individually it may be said that they centre round the family, being largely dependent on the state of goodwill and harmony or otherwise in the home. Any disturbance of family life is usually reflected in the health of the children in one form or another. Unless the responsibilities as well as the privileges associated with parenthood are fully understood and appreciated the improvement in the health of the children physically and mentally cannot be maintained. The truth of this is being demonstrated in these post-war years. The best results cannot be achieved until there develops in the family and in the community as a whole a strong, clear sense of personal responsibility.

Much depends upon the mother, whose influence in the home is far-reaching. To bring about a condition of happy, healthy motherhood and of harmony in the home is the aim of this Service, and every effort is being made to assist mothers by advice in regard to the preservation of their own health and that of their children.

It is noted with extreme satisfaction that, in spite of the temporary closure of centres owing to staff shortages, the total number of attendances has increased.

The developments of the Ante-natal Section of the Service and the interest shown by mothers in responding to the invitation to bring children aged one to five years to the centres established for their regular examination or health check-up have been most gratifying and encouraging. If the needs of expectant mothers and of children in this age group are to be adequately met, the work of these sections requires to be greatly extended, so that it will embrace not only the whole of the metropolitan area, but the entire State. There are difficulties associated

with the handling of some children of pre-school age, but once they become accustomed to attending centres, their co-operation is secured and they look forward with interest and pleasure to their visits. They come to regard the doctor and nurse as their friends, which makes it easier for them and their medical and dental attendants if they require to be referred for corrective treatment.

Education for parenthood and successful living, which should be commenced in the home, requires to be continued in the school and in addition to the present curriculum should include theoretical and practical instruction in the essentials of health and hygiene generally, with particular attention to nutrition and clothing, the value of exercise, fresh air and sunshine, the proper use of leisure, care and management of the young child, &c.

In the past the work of child welfare centres has been chiefly concerned with giving advice to mothers regarding the health of babies and children up to school age with the object of keeping them well. The treatment of the sick has been undertaken at the hospitals.

It would appear that welfare centres in the future may become part of a comprehensive service to include curative as well as preventive sections. In England an institute of child health has been established in the city of Birmingham and it is stated that "the aim of the institute is to obtain a closer relationship between the preventive and curative aspects of child health." It is maintained that, by combining the educational and preventive as well as the curative aspects of the work, not only will there be provided an improved medical service for children, but also better facilities for undergraduate and postgraduate training. It may be observed that this would apply equally to the training of students of medicine and of nursing.

There is no doubt that a gap in the training of the medical student has been created by the lack of opportunity of studying the care and management of the healthy child. Up to the present the work of the hospital and that of child welfare centres have been divorced, with the result that many students graduate with very little knowledge of the factors concerned in the maintenance of health, particularly the health of the child on which a good deal of their attention will be, or should be, directed in the practice of their profession. "In order that the student's view of children's diseases may be kept in proper perspective, arrangements should be made for him to maintain his contacts with healthy children throughout the period of his training."

In many instances, unfortunately, hospital physicians have possessed very little knowledge of the work carried on in the child welfare centres and those are the physicians who are responsible for instructing the student in the feeding and handling of the normal infant on whom they have had relatively few opportunities of making observations when compared with the opportunities they have had of making observations on the sick child. Until there is greater collaboration between those engaged in preventive and those engaged in curative work the best results cannot be achieved.

In combining these two aspects of medical service it is essential to keep intact the health services and facilities for health education

which the Maternal and Child Welfare Service has built up over the years. In order to provide every facility for the study of the newborn child and his mother, as well as of the expectant mother, there requires to be close collaboration between the staffs of the maternity hospitals and the Maternal and Child Welfare Service.

Associated with the ante-natal departments, provision should be made in the hospitals for instructing the expectant mother in the hygiene of pregnancy. There should be employed a staff specially trained and qualified to give advice in regard to diet, care of the teeth and breasts, clothing, baby's layette, &c., and advantages of breast feeding, and opportunities for personal interviews should be made available.

In the comprehensive health service mentioned facilities should also be provided for research into the causes and prevention of maternal and infant mortality, still-birth, dental decay, malformations, postural defects, disturbances of nutrition, failure of lactation, &c.

The scope of the work of the Maternal and Child Welfare Service of Queensland has already expanded to such an extent and is continuing to expand so rapidly that the assistance of a Deputy Director has become necessary, and on 21st March, 1946, Dr. H. C. Murphy was appointed to that position.

COMMENTS ON STATISTICS.

The vital statistics of Queensland for 1945 show the following outstanding features:—

- (i.) The crude birthrate was the highest for over twenty years and the number of births was the greatest ever recorded in the State.
- (ii.) The infantile mortality rate was the lowest ever recorded in the State, being less than one-half of what it was at the end of the 1914-18 war.
- (iii.) The maternal mortality rate was the lowest ever recorded for the State.

BIRTHS.

During the year ending 31st December, 1945, 26,713 births were registered in Queensland, giving a crude birthrate of 24.8 per 1,000 of the population. The number of births was 2,193 more than in 1944, in which year there occurred the highest number of births ever previously recorded in the State. During 1945 there were 13,719 males and 12,994 females born, equivalent to 105.6 males per 100 females. The excess of births over deaths numbered 17,254, being equal to an increase of 1.6 per cent. of the population. Of the 9,459 deaths 5,516 were males and 3,943 were females.

The crude birthrate, 24.8, was the highest since 1923, when the rate was 25.1, after which it fell to its lowest level, 18.1, in 1933. Since then it has steadily risen, the greatest increase occurring between 1944 and 1945. As pointed out in last year's annual report, the increased numbers of births have been due largely to a very high proportion of first births during recent years, following increased numbers of marriages due to marriages delayed from the depression years and marriages hastened by war conditions. A satisfactory feature of recent years is the tendency for births other than first births to increase.

MARRIAGES.

Marriages during 1945 numbered 9,905, and although the number was high it did not reach the high figures of 1942 and 1944 when they were 11,722 and 11,325 respectively. The marriage rate was 9.2 per 1,000 of the mean population and was the lowest since 1939. Of the women in the age group 20 to 24 years, 43.08 per cent. were married.

Of bridegrooms married in 1945, 591 were minors, while 2,737 of the brides were minors. During the war years the proportion of minors married increased slightly for both sexes, and in 1945 the proportion of bridegrooms who were minors was 6 per cent., compared with 4.3 per cent. in 1939, while the proportion of brides who were minors was 27.6 per cent., compared with 24.3 per cent. in 1939.

DEATHS.

Maternal.

In the State the number of deaths of women due to diseases associated with pregnancy, childbirth, and the puerperal state was 66, compared with 74 in 1944 and 89 in 1943, and the mortality rate (maternal deaths per 1,000 live births) 2.47, which constitutes a record for Queensland. The corresponding mortality rate was 3.02 in 1944, 3.83 in 1943, 3.97 in 1942, 4.28 in 1941 and 4.65 in 1940. Of the 66 deaths which occurred during 1945, 37 followed childbirth, the mortality rate being 1.38, compared with 37 deaths and a mortality rate of 1.51 in 1944, and 49 deaths and a mortality rate of 2.11 in 1943. Of the 37 deaths during 1945, 9 followed surgical operations, including Caesarian section, 7 were due to haemorrhage, 6 to infections, 13 to toxæmias.

Deaths of women due to diseases and accidents of pregnancy (excluding abortion) numbered 15, representing a mortality rate of 0.56, compared with 27 deaths and a mortality rate of 1.10 in 1944. Twelve of the 15 deaths in 1945 were due to toxæmia. In the metropolitan area the number of maternal deaths during 1945 was 13 and the mortality rate 1.36, compared with 21 deaths and a mortality rate of 2.46 in 1944. Of the 13 deaths 6 followed childbirth, 3 being due to toxæmias and 1 to haemorrhage, 2 followed surgical operations. Deaths of women due to diseases and accidents of pregnancy (excluding abortion) numbered 4, all of which were due to toxæmias.

During the year ending 30th June, 1945, the latest date for which figures are available, there were 18,852 women admitted to public maternity hospitals and maternity wards in general hospitals in Queensland, and in these hospitals there were 16,877 living children born and 448 children still-born. This represents a still-birth rate of 25.86 per 1,000 births (live and still-births), compared with a rate of 27.20 in 1944, 25.84 in 1943 and 26.40 in 1942.

Infantile.

In Queensland during the year 1945, 795 children died under the age of one year. Of these, 641 died under the age of one month and 154 between the ages of one month and one year. Of those who died under the age of one year 468 were males and 327 were females, and of those who died under the age of one month 378 were males and 263 were females. The

infantile mortality rate (deaths of children under the age of one year per 1,000 live births) was 29.76, which constitutes a record low rate for this State. The corresponding mortality rate in 1944 was 31.32 and 37.79 in 1943. The mortality rate of infants dying under the age of one month was 24.00, and of those aged one month and under one year 5.76. This latter figure constitutes a record mortality rate for this age group. The chief causes of death during the first month of life were prematurity 295, birth injury 121, malformations 84 (including malformations of the heart 46), atelectasis 51, infections of respiratory tract 20, haemorrhagic disease of newborn (malaena) 13, icterus neonatorum 13. Deaths during the succeeding eleven months were due chiefly to infections of respiratory tract (including whooping cough) 53, malformations 26 (including malformations of heart 11, pyloric stenosis 4, hydrocephalus 8), diarrhoea 19.

In the metropolitan area 270 children died under the age of one year, which represents a mortality rate of 28.15, which constitutes a record low for Brisbane. Of the 270 deaths under one year 218 died under the age of one month and 52 between the ages of one month and one year, representing mortality rates of 22.73 and 5.42 respectively. The chief causes of death were similar to those in the rest of the State with the exception that there were no deaths due to pyloric stenosis or haemorrhagic disease of the newborn (malaena).

THE YEAR'S WORK.

General Observations.

Sisters in charge of centres have expressed concern regarding the high price of fruit and vegetables and are of the opinion that the food of families in the lower income groups contains less vitamin C than is required for the maintenance of health. Formerly, when oranges were in short supply or too highly priced, tomatoes or one or other of the seasonal fruits were available at prices within the reach of all. Now all fruit and vegetables are equally expensive.

Sisters in charge of Western centres report that during the summer months toddlers in addition to failing to gain weight become listless and fatigued.

One sister remarks that a good number of country mothers, although overworked in many cases, make every effort to breast-feed their babies, in contrast to mothers in the city who often prematurely wean their babies on the slightest pretext. During times of prosperity the number of artificially fed babies tends to increase, the mothers being able to purchase the much advertised infant foods.

A sister who was recently trained by this Service and is now working at the Mitchell River Aboriginal Mission, has written stating that she does not know what she would do without her Child Welfare training. She has four expectant mothers attending the mission station daily to receive milk as well as for periodic examinations. The people have become quite interested in their diet.

EXTENSIONS.

During the year the following sub-centres were opened:—Kandanga on 14th December, 1945,

and Cooran on 8th April, 1946, both of which are visited from Gympie; Caloundra on 14th May, 1946, visited from Nambour.

The staff shortage has made it impossible to make some extensions for which departmental approval had been received.

At Toowoomba there has been purchased a home for the admission of premature and other babies whose feeding and management require whole-time supervision, and for the admission of mothers for the restoration of breast milk. As it has been impossible to secure adequate staff for this purpose, a skeleton staff consisting of one permanent sister and two child welfare assistants with domestic staff has been engaged to deal with equipment and build up linen stocks in preparation for the admission of mothers and babies. Since the home has been occupied there have been admitted into residence a baby and two children whose mother had been admitted to hospital, and such admissions will continue to be made until certain necessary alterations to the building have been effected and it is possible to secure sufficient trained staff to undertake the care and management of premature and other babies whose feeding has proved difficult, as well as the training of mothers in the care of their infants. This home is excellently situated for this type of work and when in full operation should serve not only Toowoomba itself but the whole south-western area of the State and make it unnecessary to bring small babies to Brisbane for special observation and treatment as has to be done at present.

ST. PAUL'S TERRACE HOME.

Shortage of nursing staff between the terms of training has again limited the number of mothers and babies who could be admitted to the home. The centres have done what they could by getting mothers to attend for a whole day or part of a day. Where whole-time supervision has been essential for the correction of the baby's feeding, the Clayfield Home has been able to render valuable assistance by admitting artificially fed babies and breast-fed babies with their mothers. The wisdom of establishing a second home has been amply justified as the need of whole-time care is increasing.

Infants admitted included those who were premature, those suffering from malnutrition and digestive upsets due to various causes, infants who were over-stimulated as the result of the home environment, triplets, and twins. Mothers were admitted in order to receive treatment for restoration of breast milk and instruction in regard to the feeding and care of their infants.

Total admissions—Mothers, 73 ; Babies, 100	
Test feeds	7,508
Complementary feeds	4,444
Artificial feeds	7,217

ST. PAUL'S TERRACE TRAINING SCHOOL.

During the term August to November, 1945, 34 nurses were released by the Manpower Directorate to take their training. In December, 1945, that organisation ceased to function and it was therefore possible to admit into the term, February to May, 1946, a number of nurses who had waited some years for admission to the training school but who under manpower regu-

lations had been directed to remain in hospitals. The trainees with few exceptions showed interest in the work and those who subsequently maintained contact with this Service expressed appreciation of the value of the training in carrying out the duties of their positions whether in general or obstetric hospitals or other practice. There is no question of the fact that under the present system of training the nurse who has had hospital experience only has a very limited understanding of the day-to-day problems of the mother and her family and the effect these problems may have on her mental and physical health. These matters require to be understood by every nurse in whatever branch of nursing she may be employed. The remark of a past trainee who had been retained on the temporary staff for some months that work in this Service had taught her tolerance is worthy of note and is a pointer to the need for the development of a social service outlook in all nurses. The close contact which is maintained by the sisters of this Service with the mothers and children in their homes has a value for the trainee nurse far beyond the instruction which she receives in the lecture room and ward of the training school. The psychological benefit to mothers in being able to bring all their problems to the sisters is exemplified to the trainees and most of them agree that this training rounds off, as it were, their general and obstetric training and admit that their knowledge is incomplete without it.

In the February to May term five discharged members of the A.A.N.S. received their training and also several nurses who are studying for missionary work in the Northern Territory or the Pacific islands. The majority of medical missionary organisations prefer candidates for the mission field to take their child welfare training before proceeding to their stations on account of its great value in building up the health of the native peoples.

Up to the present it has not been possible to procure the teaching equipment, such as an epidiascope, films, and up-to-date charts, which are urgently needed to improve the scope of the teaching. The large amount of new information which the student has to absorb in this very overcrowded course necessitates the greatest effort being made to provide every facility for the instruction of each pupil nurse in each subject. This is so because many nurses who undertake this training have been many years away from study and examinations, and therefore have greater difficulty in grasping unfamiliar procedures. It is hoped that these teaching materials may be available as conditions become more normal.

During the year 61 nurses passed their examination and received the certificate of the Nurses and Masseurs' Registration Board.

CLAYFIELD HOME.

The demand for accommodation far exceeds the supply, particularly in regard to mothers with young babies desiring residence. Early admission to the home is often the deciding factor in keeping a baby on the breast. Unfortunately far too many babies are weaned unnecessarily within the first few weeks of life and owing to their failure to thrive require to be admitted to the home. The additions now under construction will provide increased and better accommodation for mothers.

Infants admitted into residence were those who required whole-time supervision in regard to feeding and general management and included infants who were under-nourished, those who were failing to gain weight satisfactorily, those suffering from digestive upsets, over-stimulated infants, and twins. A number of toddlers presenting feeding and other difficulties were also admitted. Mothers were admitted to receive treatment for restoration of breast milk and instruction in regard to the feeding and care of their infants.

Total admissions—Mothers, 69 ; babies, 178	
Test feeds	7,505
Complementary feeds	5,795
Artificial feeds	18,949

CLAYFIELD TRAINING SCHOOL.

Since the home was opened in 1943 30 girls have completed their twelve months' training. Of these, 2 have married, 7 are undergoing their training in general nursing, 12 are engaged as Child Welfare assistants (mothercraft nurses) in private homes, 1 is doing an Arts course at the University preparatory to doing a Social Service course, 2 are on the staff of a Children's Home, and 6 are employed in homes controlled by the Department of Health and Home Affairs.

Work in private homes is exacting and requires tolerance, tact and intelligence, as well as a capacity on the part of the girl to adjust herself to the household. Some mothers are unreasonable in what they expect of these girls and do not know how to treat them. The girls have shown enthusiasm, understanding and honesty of purpose in their work.

Four of the trainees graduated in August, 1945, 9 in November, 1945, and 8 in June, 1946. On each occasion parents and friends of the graduands attended when certificates were presented to them by the Deputy Director of Health and Medical Services (Dr. J. Coffey) in August, by the Assistant Deputy Director of Health and Medical Services (Dr. A. Fryberg) in November, and by the Under Secretary (Mr. R. H. Robinson) in June.

The training has benefited during the year by the appointment of a tutor sister, who has devoted her whole time to teaching and general supervision.

There are at present 25 girls in training, 11 in the senior and 14 in the junior group.

The additions now under construction will improve the accommodation for trainees.

SANDGATE HOME.

Into this home which has been established for the admission of children whose mothers have been admitted to hospital to be confined or on account of illness, and for whose care no other suitable arrangements can be made, 278 children were received into residence during the year, an increase of 19 over last year. In several cases children from the same family have been in the home on two or three occasions. The ages of the children admitted ranged from 10 months to 13 years—171 children from 10 months to 5 years, 107 children from 5 years to 13 years. One hundred and forty were boys and 138 were girls. The children appear happy, and

those who have been in residence seem glad to return when necessity arises. Children who are bottle-fed on admission soon learn to drink from a cup, and within a short time those who have been refusing solid food relish their meals and feed themselves. With patient handling of the children habits of dummy sucking and going to bed with a bottle of milk are overcome and the children settle down comfortably in company with the other children. A wireless set has been installed for the entertainment of the children. All the children are examined by the medical director before admission.

Staff difficulties have been experienced during the year, many changes taking place. Child Welfare assistants have given valuable assistance in the care of the children.

CHILD WELFARE CENTRES.

The total attendances for the year at the 170 centres throughout the State numbered 352,726, compared with 342,985 last year, and 20,246 mothers were visited in the hospitals in which they were confined or in their own homes. The total attendances at centres situated in the metropolitan area numbered 148,464, compared with 143,724 last year.

Owing to the temporary closure of some Centres due to staff shortages, and the fact that a number have had to carry on with reduced staffs, the work has suffered. Continuity of service is vital to the success of the work. Whenever an interruption occurs, ground is lost which may take a long while to regain.

Requests for the establishment of Centres have been received from a number of country areas, but again owing to shortage of staff it has not been possible to comply with them. The Maternal and Child Welfare railway car covered the usual itinerary during the year, supplying a three-weekly service to Winton, Cloncurry, Dajarra, Julia Creek, Hughenden, Kajabbi, Mt. Isa, Richmond, except for a period of five weeks at the end of the year, when it was laid up for overhaul and repair. In addition mothers and children were advised at the following stations and sidings not included in the regular itinerary:—Corfield, Chimbi, Duchess, Nonda, Maxwellton, Lana, Wariana, Whitewood, Quamby, Olio, Dobbryn, Elsi, Oorinda, Nelia, Tibarra, Malbon.

At the urgent request of the residents of the Mary Valley, where no Service had hitherto been established, Centres were opened at Kandanga on 14th December, 1945, and Cooran on 8th April, 1946, and these will be visited fortnightly by a sister from Gympie. By employing as temporary sister a married nurse resident in Gympie the opening of these Centres was made possible. A request has now been received for a third Centre to be opened at Imbil, and this has been approved.

A Centre was also opened at Caloundra, where it was not necessary to employ extra staff for the purpose, the Centre being visited by the sister in charge of Nambour.

CENTRES FOR EXPECTANT MOTHERS.

The improved financial position of many mothers appears to be responsible for the increased numbers who are attending private medical practitioners, from whom they receive

ante-natal care and enter private hospitals or intermediate wards of maternity hospitals to be confined.

The total attendances for the year numbered 1,459—624 at Fortitude Valley, 593 at Woolloongabba, 89 at Herschell Street, 78 at Caboolture, 35 at West End, 29 at Nundah, 6 at Corinda, 5 at Morningside.

Talks to mothers were given at the various Centres during the year by the sister in charge of this Section.

With the appointment of a Deputy Director to this Service it is hoped to carry out some reorganisation of the Ante-natal Section and provide medical supervision at Caboolture and probably one or two suburban centres. In order to establish a personal service for expectant mothers as distinct from routine tests and physical examinations, it has been arranged for the sister in charge to attend the four main Centres (Fortitude Valley, Herschell Street, Woolloongabba, and West End), and also Nundah and Caboolture to give personal interviews to expectant mothers. These will be conducted in an attractively furnished room in complete privacy, thus enabling nervous mothers and especially those expecting first babies to explain their problems and receive sympathetic advice and, most important of all, education. Patterns of baby clothes, diet charts, special exercises, &c., will be shown to the mother and an atmosphere of happy confidence built up. The mother will be referred either to her own medical adviser, if she has not already visited him, or to the Ante-natal Centres attached to this Service, or to the Women's Hospital according to circumstances. As stated in the opening section of this report, the need for education of parents is most important, and this should definitely begin before baby is born. At an Ante-natal Clinic or in the rooms of a busy general practitioner it is not always possible to give all the instruction required, and the atmosphere is such that nervous mothers are not encouraged to ask for all the information they feel they need. It is hoped that if this new personal service proves a success something of the same kind may be developed in all public maternity hospitals.

EXPECTANT MOTHERS' CORRESPONDENCE SERVICE.

This Service, established at the end of 1944, has proved an unqualified success. Country mothers are most appreciative of the serial letters forwarded to them at appropriate periods of their pregnancies, and very soon regard the sister in charge as their friend and confidant and look forward to her letters. Several mothers reported the arrival of a living baby for the first time after receiving ante-natal supervision and advice, and it was noted that mothers who had lost previous babies either at full term or earlier were most anxious to receive advice in order to prevent the loss of another baby. Letters of thanks regarding the helpfulness of the serial letters in which the mother states that she has learnt so much of which she was quite ignorant are received almost daily. When the baby is born the mother transfers to the Mother and Child Correspondence Section.

The special exercises for mothers both before and after confinement have proved so useful

and been so much in demand that they have now been printed in booklet form and are well illustrated.

Circular letters forwarded to expectant mothers	2,671
Response to circular letters	924
Circular letters forwarded to expectant mothers (other than above) <i>re</i> "The Expectant Mother" book	1,558
Serial letters to expectant mothers	4,570
Special letters of advice sent on request	242
Copies of "The Expectant Mother" sent on request	890
Copies of baby patterns sent on request	44
Copies of other patterns sent on request	20
Copies of special exercises sent on request	28

DIRECTOR'S CONSULTANT CENTRE.

A number of infants and toddlers whose feeding or management had proved difficult or who were not making satisfactory progress were referred to the Director at St. Paul's Terrace during the year by sisters in charge of Centres, some by private medical practitioners. The total attendances numbered 1,446.

TODDLERS' CENTRES FOR THE PERIODIC EXAMINATION OF CHILDREN BETWEEN THE AGES OF 1 AND 5 YEARS (PRE-SCHOOL AGE).

In an effort to extend this branch of the Service new Centres were established during the year. There are now twelve Centres at which children from the ages of 1 to 5 years are examined periodically by the Director. The total examinations made during the year numbered 2,038 of which 1,088 were first examinations and 950 were subsequent examinations. The total examinations made during the previous year numbered 1,110.

The number of children found with defects was as follows:—

Children with decayed teeth	336
Children with enlarged tonsils	314
Children with knock knees	275
Children with bow legs.	100
Children with flat feet	301

A relatively small proportion showed good posture.

PARENT EDUCATION AND GUIDANCE.

The need for education for parenthood is widespread. It should begin in the home and the school as already mentioned, but it requires to be continued into adult life. The sisters in the Centres frequently meet with cases of ignorance, negligence and indifference on the part of mothers. The sister in charge of the Centres for the examination of children of pre-school age has given talks to mothers at various places. Obviously this can benefit only those who attend, and unfortunately the attendances have been small in many cases. Notable exceptions are those in which the mothers have been sufficiently interested to organise a meeting for sister to address. Voluntary effort of this kind needs to be encouraged.

On reaching their first birthday children are handed attractive cards by the sisters at the centres inviting them to attend the toddlers' centres.

CORRESPONDENCE SECTION.

During the year less birth notices were received than during the previous year, therefore a smaller number of circular letters was sent to country mothers. This may be due to the fact that more mothers are living within reach of the centres. There was a small increase in the number of responses to circular letter No. 2, which indicates that the mothers are still interested. Increased requests for copies of "Care of Mother and Child" were received, and mothers have frequently expressed their appreciation of the valuable information contained in these books and the help it has been to them. The usual shopping has been done for country mothers.

There has been an increase in the number of letters received in response to newspaper articles. Mothers have asked for toddlers' patterns and posture exercises, and fathers for advice in regard to suitable toys as well as books on the management of children.

During the year attractive birthday cards were printed and these have been sent to children on their first birthday. Many letters of appreciation have been received in response. These cards not only convey good wishes but also invite mothers to continue corresponding until their children are of school age. Where necessary some of the mothers have visited Brisbane and consulted the Director.

Number of birth notifications received ..	3,585
Number of circular letters posted—	
(1) Within reach of Centre	1,948
(2) Not within reach of Centre	1,637
Number of follow-up circulars posted to mothers who did not respond to circular letters No. 1 and No. 2	2,743
Letters to correspondence section in response to circular letter No. 2	647
Attendances at centres in response to circular letters	673
Letters of advice in regard to feeding and management	1,657
Number of "Care of Mother and Child" sent on request	635

SOCIAL WELFARE SECTION.

This Section has continued to do valuable work in contacting mothers in the Women's Hospital soon after the birth of their babies, and also in visiting in their homes mothers who, because of multiple births, prematurity of babies or other disabilities cannot attend centres for the regular weighing and supervision of their babies. There is still much to be done in the successful development of this service and its progress is definitely being retarded by shortage of staff.

Brisbane extends over far too large an area for the work to be covered adequately by one sister. As mentioned in last year's report, home visiting requires staff with special qualifications and considerable experience, and in order to maintain the existing Centre and Home services, it has not been possible to make a further appointment to the Social Welfare Section.

Reports from the sister in charge of this section show that the difficulties experienced by families have not lessened with the end of the

war, but have become greater. Owing to the shortage of houses, families are living in rooms and flats and the children in many instances are being brought up in most adverse circumstances. The number of artificially fed babies has increased. In cases in which the mother has returned home from the hospital with a young baby fully breast fed and a complement subsequently becomes necessary, or in cases in which the baby has been discharged on a complement, the mother often requires to use a dried milk preparation and early weaning frequently results.

The difficulty of locating mothers after they leave hospital has increased and causes much waste of time. Subsequent visits are often disappointing, as not infrequently the mother has weaned the baby in the interval, sometimes on the doctor's advice. Some doctors are themselves undertaking the supervision of the baby's feeding during the first six or nine months of life and this is all to the good provided trained nursing assistance is employed. There is little or no provision for the periodic examination of the child from nine months to school age apart from those centres established by this Service. The best results in all cases are achieved where the mothers themselves seek advice and this can only come about as they realise the importance of bringing their children along regularly for examination.

LECTURE DEMONSTRATIONS TO SCHOOL GIRLS.

This section of the work is carried out by a sister-lecturer on the staff who devotes the whole of her time to the work which is recognised as a very important activity of the Service. Girls from the ages of 14 to 16 years show great interest in the lessons on the feeding and management of the baby and young child, as well as in the lessons on the care of their own health. Scrap books illustrating the work have been prepared by the girls and some of them have shown great ingenuity in their preparation by making use of pieces of material or original drawings. Courses of instruction have been given in twelve schools in the metropolitan area and in one school in Ipswich. In all 793 girls attended, and of these 642 sat for the examination, 566 receiving certificates. Prizes were awarded to those obtaining the highest marks.

As soon as staff is available it is intended to extend this section of the Service to country schools.

It is interesting to note that attending welfare centres are young mothers who were taught the care and management of the baby by the sister-lecturer, and in some instances their scrap books are still treasured possessions.

WOMEN'S SERVICES.

The lectures in connection with the Army Educational Scheme to the A.W.A.S. and A.A.W.M.S. were continued through 1945.

KINDERGARTEN STUDENTS.

At the request of the Principal of the Kindergarten Training College, lectures on "The Development of the Child from Birth to Two Years," "Infections," and "Rashes" were given to the students by the Director, and lectures on "Nutrition" by the superintendent and sisters.

MEDICAL STUDENTS.

Fourth year medical students attended lectures on maternal and child welfare given by the Director at the Medical School. They also attended demonstrations on infant feeding at St. Paul's Terrace Training School given by the sister in charge, and clinics conducted by Lady Cilento, Specialist Lecturer in Mothercraft at the University of Queensland, at one of the centres.

NEWSPAPER ARTICLES.

During the year a copy of an article on some aspect of maternal and child welfare has been sent each month to sixty-three newspapers in the State for publication. The titles of the articles were as follows:—"Posture—Its Importance in Infancy and Childhood," "Parents—Please be Gentle," "Summer Clothes for the Toddler," "The Spread and Prevention of Infection," "Christmas and the Holidays," "Fathercraft," "Baby's Skin in Hot Weather," "How Mother and Children can Obtain Their Vitamins," "The Problem of the Only Child," "The Father's Share in the Care of His Children," "A Sneeze is so Important that it has been Photographed," "Helpful Hints to Mothers on the Care of Sick Children."

PUBLICATIONS OF THIS SERVICE.

Numerous requests were received during the year for copies of the two books published by this Service, "The Expectant Mother" and "Care of Mother and Child." These have been distributed to mothers who have attended the centres and to those who have been advised by correspondence. Requests from other States are still being received for these books. In response to a request, copies of these and other literature were forwarded to a welfare officer in charge of the Forestry Department in South Africa. Copies of "The Expectant Mother" were also given to mothers attending the ante-natal clinics of the Women's Hospital, Brisbane.

EDUCATION CO-ORDINATION COMMITTEE.

During the year the Director attended meetings of this committee, consisting of five Government representatives, four of whom are officers of the Department of Public Instruction and an equal number of representatives of the Education Committee of the Creche and Kindergarten Association.

MINISTRY OF POST-WAR RECONSTRUCTION.

The Superintendent was asked to become a member of the Professional Advisory Committee for Nursing under the Universities Commission, Ministry of Post-war Reconstruction, and has attended several meetings of that committee.

HEALTH WEEK.

This Service joined in a Health Exhibit with the Department of Agriculture and Stock, the Brisbane City Council, the Australian Dental Association (Queensland Branch), the Creche and Kindergarten Association and the Mothercraft Association. The object of the exhibit was to educate people in the maintenance of health, particularly the health of women and children. The exhibit was held in the basement of the City Hall during June, 1946. A large number of

people attended, particularly the evening sessions. Interesting addresses on various aspects of child health were given.

PUBLICITY.

Participation in the Health Week Exhibit again emphasised the need for a publicity department in connection with this Service. Such a department would be responsible for providing up-to-date charts and posters for the centres, radio and film publicity, &c. The Health Education Council, constituted by the Queensland Government to deal with health education generally, has already been of great assistance in connection with the work of this Service.

STAFF.

On 21st March, 1946, Dr. H. C. Murphy was appointed Deputy Director of the Maternal and Child Welfare Service. This is a new position. (Dr. Murphy will be commencing duty on 4th July, 1946.)

To replace sisters resigned, retired, &c., two permanent and four temporary sisters were appointed, the total nursing staff now numbering 87.

ACTIVE SERVICE.

Of the six members of the staff still remaining on active Service five were discharged between February and April, 1946, and with the permission of the Department were given a two-months' refresher course at the St. Paul's Terrace Training School and in the Brisbane Centres in order to fit them again for Maternal and Child Welfare work. Two of the sisters who had been several years in the Service before enlistment have been placed as sisters in charge at Mackay and Charters Towers respectively to replace temporary nurses, and a third will take up duty as an assistant at the Innisfail Centre, which has been working with one sister only for some months. The remaining two sisters will be retained in Brisbane for further experience. This leaves one member of the permanent staff still in the A.A.N.S., but it is expected that she will be discharged shortly.

RESIGNATIONS.

Two sisters resigned during the year—Senior Sister Marjorie Chowne, sister in charge of the Ante-natal Section, to be married, and Sister G. E. Banks, while still in the A.A.N.S., for domestic reasons.

RETIREMENTS.

Sister S. McKinstry, who was in charge of the Dalby Centre, with sub-centres at Chinchilla and Miles, and who had completed over twenty-two years in the Service, retired on 30th June, 1946. Senior Sister E. J. McCrum, who had been on extended sick leave, retired on 22nd November, 1945, on the grounds of continued ill-health. Presentations and acknowledgements of loyal and devoted service rendered to the Department were made to these sisters.

THE STAFF POSITION.

The termination of the war has not resulted in any improvement in the staff position. Very few nurses were released from the Army until 1946, and few of these have as yet returned to settled civilian occupations. This Service of

necessity continues to employ far too many temporary nurses. These are obviously less subject to control than permanent staff and many who applied for positions for the duration of the war ceased duty on fairly short notice when their husbands returned from active service, thus seriously upsetting the work of Centres, particularly in the country.

The marriage rate amongst nurses generally has been high, and unfortunately several sisters who joined the staff in the early years of the Service have now reached retiring age, thus further complicating the position.

The policy pursued by the Manpower Directorate during the major period of its control resulted in a limited number of nurses being released to take Child Welfare training, and many of them were women who would not be attracted to the work later. The result is that there is a very much smaller number of trained Child Welfare nurses available for permanent positions.

It is hoped that as conditions of life in the community become stabilised and an increased number of nurses are accepted for training, staff difficulties will be gradually overcome. However, it is expected that some years may elapse before anything like the pre-war situation is reached. In the meantime it must be recorded that permanent staff and a number of temporary staff with several years' service have continued to give of their very best to the needs of the Service, and the Director and Superintendent cannot speak too highly of the devotion to duty which has been shown. In spite of a high sickness rate, probably the result of working under very difficult conditions during the war years, few Centres have had to be closed owing to staff illness. Rather than disappoint country mothers, many of whom travel long distances to attend, the sisters have maintained their Centre service in spite of their own ill-health. There is no doubt that Centres must be staffed by sisters of the right type and of sufficient experience, if the high standard of work reached is to be maintained. Every effort will now be made to retain newly appointed sisters in assistant positions in Homes and Centres in Brisbane for a definite length of time to make them thoroughly efficient in the work before sending them out to country districts where they are often called upon to deal with difficult problems in regard to general care and management of babies and young children.

It will also be necessary to resume the pre-war practice of bringing in for a two-months' refresher course sisters who have been stationed

in country centres for a number of years and who unavoidably lose touch with the latest developments in Maternal and Child Welfare work. This is essential if a nurse on the staff of this Service is to continue to be thoroughly well informed on all matters relating to maternal and child welfare, dietetics, obstetrics, social services, &c., and do effective work.

STAFF MEETINGS.

Meetings attended by the Director, Superintendent and the nursing staff were held during the year. These were addressed by visiting lecturers, including Mr. N. R. Henry, of the Pathology Department of the Brisbane Hospital, who spoke on the Rh factor; Mr. L. Vincent, of the Queensland Dental School, who spoke on Dental Health Education in relation to Maternal and Child Welfare; and Mr. E. W. Haenke, Chief Dental Officer, School Health Services, Department of Health, who spoke on the Importance of Early Dental Attention in Childhood.

WAR SAVINGS GROUP.

The War Savings Group which was commenced on 22nd June, 1940, was terminated on 3rd November, 1945. The Honorary Secretary's report showed that during that period the total contributions amounted to £2,288 16s. and the total number of certificates purchased was 2 861.

ACKNOWLEDGMENTS.

The Director wishes to place on record his appreciation of the assistance of those branches of the Queensland Country Women's Association which have placed the use of their rooms at the disposal of the Service.

He also wishes to express appreciation of the co-operation of the officers of other Departments, of medical officers, matrons and secretaries of hospitals throughout the State, of the Acting Principal of the Kindergarten Training College, the proprietors and editors of newspapers in which copies of the articles forwarded by this Service have appeared each month, and of all others who directly or indirectly have assisted in forwarding the work for the welfare of mothers and children of this State.

The Director also takes this opportunity of thanking every member of the staff for her loyal co-operation and for her unfailing devotion to the work of the Service during a year when staff shortages have made her duties arduous and difficult, and when problems arising out of the exigencies of war have tested her professional ability and her capacity to deal with them.

Appendix F.

SECTION OF MENTAL HYGIENE.

REPORT UNDER SECTION 4 OF "The Mental Hygiene Act of 1938."

For the fiscal year 1944-45 an outline of progress in accommodation, clinical activities, and amenities was given and future plans were set out.

With the cessation of hostilities many national problems have arisen, and in consequence spectacular progress is not an immediate possibility. However, there is such a wide scope for progress in the art of healing the mentally sick that steady constructive progress is more likely to achieve stable and permanent advance.

In further developments I feel that effective planning must be based on the following principles:—

1. *A balanced distribution of mental hygiene facilities in the State.*—Towards this end the establishment of a Northern Mental Hospital is essential.
2. *A more effective classification of mentally sick patients, both as to mental hospitals and within the mental hospitals themselves.*—To attain this end the early implementation is desired of plans to provide—
 - (a) Segregate accommodation of the criminal mentally sick.
 - (b) Special provision for the aged and infirm who incidentally show deterioration of their mental capacities.
 - (c) Special provision for types of backwardness requiring institutional care.
 - (d) Special provision for patients suffering from epilepsy.
 - (e) Special provision for patients suffering from pulmonary tuberculosis.
 - (f) Special accommodation for private patients and for voluntary patients.
 - (g) Special accommodation for convalescent patients.
3. *Skilled medical and nursing staffs and numerical efficiency of medical and nursing staffs.*—This is the most important pre-requisite for an efficient service, and could rightly claim to be the leading principle. However skilled the professional staff may be, they would labour under insuperable difficulties unless provided with necessary and

suitable patient accommodation, essential and desirable clinical facilities, and generally, an organised service in which they can find a career and pride of work.

The future of the medical officers on the staff of the Mental Hygiene Service is dependent on the standing they are able to take amongst their colleagues in the community. Every effort should be made to associate the Mental Hygiene Service with the teaching and practice of neuro-psychiatry. Planning should include the development of modern clinical trends in the mental hospitals, and the bringing of a much closer relationship between the hospitals and other specialties in medicine.

This would obviate any tendency to dissociate psychiatry with other branches of medicine, which would ultimately fail by resolving itself into a service where the efficient medical officer must become a Jack-of-all-trades; and where he would become essentially occupied in administrative problems or problems of physical medicine, with little time or opportunity to practice his own specialty.

Successful psychiatric nursing needs innate aptitude, efficient training, and experience. Group nursing is less costly, but the patient's illness needs individual attention. The future of the Mental Hygiene Service is very dependent on a liberal quota of nursing personnel, and the provision of more efficient training facilities in both psychiatric nursing and in general nursing.

4. *Preventive Treatment.*—Owing to the nature of mental sickness, it is unavoidable that in serious cases legislative provision has to be made to protect the patient's person and property and at times to protect the community.

This state of affairs has led the public generally to avoid early treatment in mental hospitals. It can be accepted that in common with all diseases, the sooner treatment is initiated, the more surely will the disease be arrested.

To this end the Psychiatric Clinic has been established in Brisbane, and which is destined to be the fore-runner of clinics in other centres. These will provide a therapeutic service to mild and early cases of mental sickness, and associated with the plan of prevention a neuro-psychiatric hospital is planned

to provide necessary in-patient treatment for the volitional patient. Together, these facilities should develop as the centre of progressive therapy, research, and teaching activities.

Some reorganisation of the observation ward of the General Hospital is planned so that a rapid allocation of its patients to appropriate treatment facilities can be assured.

For the early part of the year, the difficulty in maintaining a full staff of medical officers continued; but this condition has now eased by the return to duty of Dr. Boyce and the appointment of Dr. McMenam, in addition to which it is likely that the proposed increase to our medical staffs will be effected in the near future. The hospitals have been fortunate in that we were able to retain the whole of the services of our visiting specialist staff with the exception of Dr. Jobbins, who is still on military service.

The acute shortage of female nursing staff still constitutes a very serious problem. With the whole-hearted loyalty of the staff, however, the requisite standards of nursing treatment have been maintained. In this regard a special commendation is proffered to the nursing staff, who, following the example set by the matrons and assistant matrons have rendered particularly meritorious service.

To relieve the situation on the female nursing staff there is a total of 60 male assistants, almost all young ex-servicemen, assisting the nurses by doing the heavy work in and about the female wards. So efficient has been the service rendered by these officers that it will probably be found desirable, if not necessary, to retain the services of some male officers on the female nursing side even when the staff position has settled down to normal.

A great majority of those who had been on active service have now returned to duty and an opportunity was taken recently to extend a welcome home to these returnees.

The dental health of the patients at the mental hospitals and the Home for Epileptics is cared for by the dentists of the respective institutions, whilst their optical needs are attended to by the visiting optometrists.

During the past year the patients again had the benefit resulting from visits by the honorary chiropodist.

The therapeutic usefulness of the electric convulsive therapy machines has been adequately maintained and these, together with the other forms of therapy, have kept the treatment in our hospitals of mental illnesses up to date.

The physical health of the patients throughout has been generally good, and the hospitals have been free of any serious epidemics. A number of surgical cases have been dealt with by the visiting specialists, whilst a few urgent surgical cases had to be sent to the General Hospitals at Brisbane and Toowoomba, where facilities for the treatment of such cases do not at present exist at the mental hospital.

Of the total deaths which occurred during the past twelve months more than 50 per cent. were over 70 years of age. Several were over 90 years while one male patient was 104 years old at death.

One untoward death occurred at the Ipswich Mental Hospital when a male patient committed suicide by hanging. A magisterial inquiry was held and it was considered there were no suspicious circumstances.

There were 2 male and 4 female children born at the Brisbane Mental Hospital of mothers who were pregnant on admission.

During the year 23 male and 11 female patients escaped from hospital care, and of these all except 2 males were returned after a maximum period of two days.

Under reorganised administration, the Rockville Home for Epileptics received 6 patients admitted during the year. Five were discharged and 12 were transferred to the Toowoomba Mental Hospital, leaving 40 males, 55 females—a total of 95 patients remaining at the end of the year. There were no deaths at the Epileptic Home during the past twelve months. The school facilities of the Home continue to maintain their high standard. A number of the indoor and outdoor handicrafts occupied the inmates above school age, and during the year under review, efforts were made to encourage the participation by the inmates in field games and organised sports.

The Psychiatric Clinic in Brisbane is more than fully occupied with the number of patients seeking the benefit of its services. The demands made upon the Clinic indicate that its establishment is meeting a long felt want. In addition to the benefit to the patients from early treatment or advice regarding their incipient mental illnesses, there is probably considerable economic benefit to the State by the avoidance or lessened period of hospitalisation in the great majority of these cases.

The Clinic is at present functioning in temporary and very inadequate accommodation, and it will develop considerably further as soon as the rooms now being prepared are available for occupation. Thereafter, the spheres of the activities of the Clinic should be considerably widened and the resultant benefits to patients increased in a like measure.

Entertainments are held regularly and frequently in the recreation halls in the mental hospitals, comprising picture shows weekly throughout the year, dances during the cooler months, whilst concert parties frequently visit the hospitals and provide much appreciated entertainments. The religious interests of all patients are guarded at each institution, where services of the various denominations are held regularly, whilst some patients attend the divine services in the nearby churches.

The Red Cross Society continues to supply extras of fruit, cake, sweets, and tobacco weekly to the returned soldier patients from both wars in the mental hospitals, whilst the local sub-branches of the R.S.S.A.I.L.A. also provide for the comfort and entertainment of these patients in their respective centres. The local branches of the Country Women's Association provide regular entertainments for the female patients in the hospitals adjoining their centres, whilst the Silver Shield Hut provided some furnishings for the returned soldiers' ward at the Brisbane Mental Hospital, and will also provide a library for this ward.

The daily newspapers and periodicals are provided to the various wards throughout the

mental hospitals, and each ward is also provided with a wireless receiving set. Several of the wards are provided with pianos on the female sides, whilst indoor recreation in the male wards is provided by billiard or bagatelle tables. Several of the male and female wards also have ping-pong tables. The libraries are kept replenished throughout the various wards.

The canteen at the Brisbane Mental Hospital continues to function satisfactorily. The establishment of a similar facility at each of the other mental hospitals in the near future is also visualised.

At the Brisbane Mental Hospital the building to house the medical ancillary services is nearing completion.

The construction of the repatriation block at Wacol is progressing and this building is being furnished with all modern appointments. During the progress of its construction, representatives from various Commonwealth and State authorities have interested themselves in this project and the benefit of their advice and interest should be apparent when this work has been completed. The total expenditure incurred on this work during the period under review was £42,105 18s. 2d.

To provide more congenial surroundings for a number of male children patients at the Brisbane Mental Hospital, a suitable playground area is being constructed for their benefit.

During the past year Dr. J. E. F. McDonald retired from his post as medical superintendent of the Toowoomba Mental Hospital, and he was succeeded by Dr. C. R. Boyce, who had returned from military service early in the year. I regret to record the death of Dr. F. W. Harlin on 21st September, 1945, and the sympathy of the Department is extended to his widow. Likewise sympathy is extended to the relatives of Dr. F. Glynn Connolly, an official visitor for many years, and who died on 12th August, 1945. Mr. W. R. McKenna resumed duties as dentist on the staff of the Brisbane Mental Hospital on 17th February, 1946, following his return from service with the R.A.A.F., thus

releasing Mr. W. G. Illingworth to devote the whole of his time to his private practice. Mr. C. E. Daye, chief male nurse on the staff of the Brisbane Mental Hospital, retired on 30th June, 1946, after having served the Department for almost 46 years. Mr. F. Jehn, head male nurse on the staff of the Ipswich Mental Hospital, after 37 years' service retired on 31st January, 1946, owing to ill-health. Mr. F. H. Julian was appointed superintendent of the Rockville Home for Epileptics on 17th April, 1946.

Dr. Fryberg visited the hospitals during the year, whilst the official visitors also made monthly visits. On several occasions the medical and administrative officers from the Repatriation Commission visited the hospitals.

The statistics for the three mental hospitals are appended. These disclose that during the past year the relative increase in the number of female patients in comparison with recent former years has persisted. The total admissions in 1939 numbered 621, which had increased to 689 in 1946, this increase being made up by an increase of 7 male and 61 female patients admitted. The average number of patients resident in 1939 totalled 3,384, which had increased to 3,640 at the end of 1946. This increase was brought about by there being 28 male patients fewer resident and 284 females more than in 1939. The ratio of males and females was 59:41 in 1939 as against 54:46 at the present time.

Various building repairs and improvements were executed by the Works Department during the year, the total cost of such items at the various hospitals being—Brisbane Mental Hospital, £9,318 10s. 3d., Toowoomba Mental Hospital, £7,154 16s. 4d., Ipswich Mental Hospital, £3,199 6s. 6d., Townsville Mental Hospital, £181 17s. 3d., and Epileptic Home, £242 0s. 11d., a total cost of £20,096 11s. 3d.

In conclusion I should like to express my appreciation of the courtesy and consideration that has been extended to me by the officers of Government Departments with whom my duties have brought me into contact.

TABLE I.

ADMISSIONS, READMISSIONS, DISCHARGES, AND DEATHS DURING THE YEAR ENDED 30TH JUNE, 1946.

	Brisbane.			Toowoomba.			Ipswich.			Townsville.		
	Males.	Fe- males.	Total.	Males.	Fe- males.	Total.	Males.	Fe- males.	Total.	Males.	Fe- males.	Total.
On books of Hospitals on 30th June, 1946	1,005	998	2,003	606	596	1,202	369	156	525	5	1	6
Admitted for the first time ..	207	226	433	38	29	67	18	7	25	27	11	38
Readmitted	37	58	95	14	9	23	1	..	1	3	4	7
Transferred from—												
Toowoomba	2	2	4	..	..	..	..	..	..	..	..	..
Ipswich	2	..	2	..	..	..	..	..	..	..	..	..
Brisbane .. .. .	..	..	..	31	4	35	15	8	23	..	..	..
Townsville	28	13	41	..	..	..	..	..	..	..	..	..
	276	299	575	83	42	125	34	15	49	30	15	45
Total under care ..	1,281	1,297	2,578	689	638	1,327	403	171	574	35	16	51
Discharged, died, transferred—												
Discharged—												
Recovered	87	109	196	18	12	30	1	2	3	4	3	7
Relieved	9	20	29	10	7	17	2	1	3	..	..	..
Not improved	2	1	3	7	2	9	3	..	3	..	..	..
Section 49	14	33	47	..	..	..	..	..	..	..	..	..
Transferred to—												
Toowoomba	31	4	35	..	..	..	..	..	..	..	..	..
Ipswich	15	8	23	..	..	..	..	..	..	..	..	..
Brisbane .. .. .	..	..	..	2	2	4	2	..	2	28	13	41
Townsville .. .. .	..	..	..	..	..	..	..	..	..	..	..	..
Died	104	104	208	33	24	57	24	6	30	2	..	2
Total discharged, died, &c. ..	262	279	541	70	47	117	32	9	41	34	16	50
Remaining on the books on 30th June, 1946	1,019	1,018	2,037	619	591	1,210	371	162	533	1	..	1
Average number daily resident	983	945	1,928	603	582	1,185	366	157	523	2	2	4
Number on leave of absence on 30th June, 1946	40	66	106	10	9	19	1	1	2	..	..	..

TABLE II.

ADMISSIONS, DISCHARGES, AND DEATHS WITH THE PROPORTIONS OF RECOVERIES AND DEATHS PER CENT. DURING YEAR ENDED 30TH JUNE, 1946.

	Admitted.	Re- admitted.	Discharged.			Died.	Re- maining on 30th June, 1946.	Average Number Daily Resident.	Per- centage of Re- coveries on Ad- missions.	Per- centage of Patients Relieved.	Per- centage of Deaths on average Number Resident.
			Re- covered.	Relieved.	Not Improved.						
BRISBANE.											
Males ..	207	37	87	9	2	104	1,019	983	35.65	3.66	10.58
Females ..	226	58	109	20	1	104	1,018	945	41.39	7.04	11.01
Total ..	433	95	196	29	3	208	2,037	1,928	45.26	5.49	10.79
TOOWOOMBA.											
Males ..	38	14	18	10	7	33	619	603	34.61	19.23	5.31
Females ..	29	9	12	7	2	24	591	582	31.58	18.42	4.12
Total ..	67	23	30	17	9	57	1,210	1,185	33.33	18.88	4.81
IPSWICH.											
Males ..	18	1	1	2	3	24	371	366	5.26	10.52	6.55
Females ..	7	..	2	1	..	6	162	157	28.57	14.28	3.82
Total ..	25	1	3	3	3	30	533	523	11.50	11.57	5.73
TOWNSVILLE.											
Males ..	27	3	4	..	..	2	1	2	13.33	..	100.0
Females ..	11	4	3	..	..	..	..	2	20.0	..	..
Total ..	38	7	7	..	..	2	1	4	15.55	..	50.0
TOTAL.											
Males ..	290	55	110	21	11	163	2,010	1,954	31.88	6.08	8.34
Females ..	273	71	126	28	3	134	1,771	1,686	36.62	8.14	7.94
Total ..	563	126	236	49	14	297	3,781	3,640	34.25	7.11	8.18

TABLE III.

FORMS OF MENTAL DISORDERS IN PATIENTS ADMITTED DURING THE TWELVE MONTHS.

	Brisbane.		Toowoomba.		Ipswich.		Townsville.		Total.
	Males.	Fe- males.	Males.	Fe- males.	Males.	Fe- males.	Males.	Fe- males.	
1. AFFECTIVE REACTION TYPES—									
(a) <i>Mania</i>	4	4	..	..	..	..	..	..	8
Acute Mania	4	1	3	4	..	..	..	..	12
Recurrent Mania .. .. .	..	2	..	..	..	..	..	..	2
Depression	15	17	4	2	..	..	4	1	43
Agitated Depression	1	3	..	..	..	..	..	..	4
Recurrent Depression .. .. .	..	1	..	..	..	..	..	1	2
Simple Depression .. .. .	..	..	1	..	..	..	..	..	1
Acute Depression .. .. .	..	..	1	5	..	..	..	..	6
Mixed Depressive Forms .. .. .	..	3	1	1	..	..	..	..	5
(b) <i>Involuntional Psychosis</i>	2	9	..	1	..	..	..	1	13
2. SCHIZOPHRENIC REACTION TYPES—									
(a) <i>Schizophrenia</i>	66	73	9	8	..	..	3	5	164
Schizophrenia Dementia	4	4	..	1	..	..	..	1	10
(b) <i>Paraphrenia</i>	21	34	..	..	..	..	10	3	68
3. EPILEPTIC REACTION TYPES—									
Epileptic Psychosis	2	10	6	5	..	..	1	..	24
Epileptic Dementia	1	..	..	..	..	..	..	..	1
4. ORGANIC REACTION TYPES—									
(a) Organic Psychosis .. .. .	..	2	1	2	..	..	..	..	5
Organic Psychosis (associated with Hunting- ton's chorea) .. .. .	..	1	..	..	..	..	..	..	1
Organic Psychosis (associated with Hypo- thyroidism) .. .. .	..	1	..	..	..	..	..	..	1
Organic Dementia .. .. .	..	2	..	..	..	..	..	..	2
Post-encephalitis with Epilepsy	1	..	..	..	..	..	..	..	1
(b) <i>Toxins</i> —									
Alcoholic Hallucinosiis	2	2	..	..	..	..	..	..	4
Alcoholic Psychosis	3	..	2	..	..	..	2	..	7
Alcoholic Dementia	3	3	..	..	..	..	..	..	6
Chronic Alcoholism	1	..	3	..	..	..	..	..	4
Confusional Psychosis .. .. .	..	1	..	..	..	..	..	..	1
Toxic Exhaustive Psychosis .. .. .	..	..	..	1	..	..	..	..	1
Nouro-syphilis	2	..	..	..	..	..	..	..	2
Tabo-paresis	1	..	..	..	..	..	..	..	1
Juvenile Tabes .. .. .	..	1	..	..	..	..	..	..	1
Dementia Paralytica	6	2	1	..	..	..	..	..	9
(c) <i>Degenerative Brain Changes</i> —									
Senile Dementia	23	40	..	..	..	..	4	2	69
Pre-senile Dementia	1	..	..	..	..	..	..	..	1
Senile Psychosis	11	12	5	2	..	..	1	..	31
Pre-senile Psychosis	2	2	..	..	..	..	..	..	4
Arterio-sclerosis	22	19	2	1	..	..	4	..	48
(d) <i>Disseminated Sclerosis</i>	2	..	..	..	..	..	..	..	2
5. PSYCHONEUROTIC REACTION TYPES—									
Psychoneurosis	5	5	..	1	..	..	..	..	11
Hysteria .. .. .	..	..	..	..	..	..	..	..	..
Obsessional .. .. .	..	1	..	..	..	..	..	..	1
6. MENTAL DEFICIENCY—									
(a) <i>Mental Deficiency</i>	1	..	..	..	..	..	..	..	1
(b) <i>Idiocy</i> —									
With Epilepsy .. .. .	..	..	..	..	..	..	..	..	..
Without Epilepsy .. .. .	..	..	2	2	1	1	..	..	6
Mongol	2	..	..	..	..	..	..	..	2
(c) <i>Imbecility</i> —									
With Epilepsy	10	7	..	1	2	..	..	..	20
Without Epilepsy	6	7	6	1	15	5	..	..	40
Moron .. .. .	..	..	2	..	..	..	..	..	2
(d) <i>Feeble-minded</i>	14	13	2	..	1	1	1	1	33
(e) <i>Moral Deficiency</i> .. .. .	..	1	..	..	..	..	..	..	1
(f) <i>Secondary Amentia</i>	1	..	..	..	..	..	..	..	1
(g) <i>Mental Deficiency and Post-encephalitis</i>	2	..	..	..	..	..	..	..	2
(h) <i>C.M.D. (cerebral diplegia)</i> .. .. .	..	..	1	..	..	..	..	..	1
7. TRAUMATIC PSYCHOSIS									
	3	..	..	..	..	..	..	..	3
8. OTHER PSYCHOSES—									
Secondary Dementia .. .. .	..	1	..	..	..	..	..	..	1
	244	284	52	38	19	7	30	15	689

TABLE IV.

CAUSES OF DEATHS DURING THE TWELVE MONTHS ENDING 30TH JUNE, 1946.

	Brisbane.		Toowoomba.		Ipswich.		Townsville.	
	M.	F.	M.	F.	M.	F.	M.	F.
GENERAL DISEASES—								
Adeno Carcinoma .. .. .	..	1	..	..	..	..	..	..
Asphyxia (Strangulation by Hanging) ..	..	..	..	..	1	..	..	..
Carcinoma of Breasts .. .. .	..	1	..	..	..	..	..	..
Carcinoma of Bowel .. .. .	..	..	1	..	..	..	..	..
Cachexia .. .. .	..	1	..	..	..	..	..	..
Epithelioma of Face .. .. .	..	..	..	1	..	..	..	..
General Debility	3	3	2	..	..	..	..	..
Malnutrition and Imbecility .. .. .	..	..	..	..	..	1	..	..
Multiple Abscesses .. .. .	..	1	..	..	..	..	..	..
Post-operative Shock .. .. .	..	1	..	..	..	..	..	..
Senile Decay	3	4	..	..	..	..	..	..
Toxæmia	1	..	..	..	..	..	..	..
DISEASES OF NERVOUS SYSTEM—								
Acute Mania	2	..	..	..	..	..	..	..
Apoplexy .. .. .	..	..	..	..	..	..	1	..
Cerebral Thrombosis .. .. .	..	2	..	1	..	..	..	..
Cerebral Oedema .. .. .	..	..	..	1	..	..	..	..
Cerebral Hæmorrhage	3	7	..	..	1	..	..	..
Cerebral Degeneration	1	..	..	..	..	..	..	..
Cerebro Arterio-sclerosis .. .. .	..	..	..	1	..	..	..	..
Disseminated Sclerosis	1	1	..	..	..	..	..	..
Epilepsy	2	2	..	..	..	..	..	..
Exhaustion of Mania	2	1	..	..	2	..	..	..
Imbecility	1	1	..	..	..	..	..	..
Melancholia	1	..	..	..	..	..	..	..
Mania	1	..	..	..	..	..	..	..
Mental Deficiency .. .. .	..	..	..	..	..	1	..	..
Paraplegia .. .. .	..	..	..	..	..	..	..	..
Pre-senile Psychosis .. .. .	..	..	..	1	..	..	..	..
Status Epilepticus	5	1	..	..	3	1	..	..
Neurasthenia .. .. .	..	..	1	..	..	..	..	..
DISEASES OF CIRCULATORY SYSTEM—								
Aplastic Anæmia .. .. .	..	..	1	..	..	..	..	..
Arterio-sclerosis	3	..	..	..	..	..	..	..
Arterio-sclerosis Myocardial Degeneration .. .. .	..	1	..	..	..	..	..	..
Auricular Fibrillation	2	2	..	..	..	..	..	..
Coronary Occlusion	1	1	3	..	..	..	..	..
Coronary Thrombosis	1	..	..	..	1	..	..	..
Cardiac Failure	1	1	1	..	..	..	..	..
Cardio-vascular Degeneration	32	36	..	..	..	..	..	..
Cardiac Asthma	1	..	..	..	..	..	..	..
Congestive Cardiac Failure .. .. .	..	1	..	..	..	..	..	..
Hypertension	1	..	1	..	..	..	..	..
Myocarditis	10	16	13	9	7	1	..	..
DISEASES OF RESPIRATORY SYSTEM—								
Asthma Bronchitis	1	..	..	..	..	..	..	..
Broncho-Pneumonia	3	2	6	5	2	..	..	..
Bronchitis	2	1	..	..	..	..	..	..
Bronchiectasis .. .. .	..	..	..	..	..	1	..	..
Carcinoma of Laryngeal	1	..	..	..	..	..	..	..
Hypostatic Pneumonia	1	3	..	..	..	..	..	..
Lobar Pneumonia	1	..	..	3	..	..	1	..
Pulmonary Oedema	1	1	1	..	..	..	..	..
Pulmonary Tuberculosis	5	5	1	1	3	1	..	..
DISEASES OF ALIMENTARY SYSTEM—								
Acute Intestinal Obstruction .. .. .	..	..	1	..	..	..	..	..
Colitis	1	4	1	..	4	..	..	..
Carcinoma of Pancreas	1	1	..	..	..	..	..	..
Carcinoma of Rectum	1	..	..	..	..	..	..	..
Carcinoma of Pharynx	1	..	..	..	..	..	..	..
Gastro-enteritis and Epilepsy .. .. .	..	1	..	..	..	..	..	..
Subacute Peritonitis .. .. .	..	..	..	1	..	..	..	..
DISEASES OF GENITO-URINARY SYSTEM—								
Carcinoma of Prostate	1	..	..	..	..	..	..	..
Chronic Nephritis	2	..	..	..	..	..	..	..
Hypertrophied Prostate	1	..	..	..	..	..	..	..
Uræmia	3	..	..	..	..	..	..	..
	104	104	33	24	24	6	2	..

TABLE V.

BODILY HEALTH AND CONDITION OF PATIENTS ADMITTED DURING TWELVE MONTHS.

	Brisbane.		Toowoomba.		Ipswich.		Townsville.	
	M.	F.	M.	F.	M.	F.	M.	F.
In apparently good health and condition	142	169	37	29	16	5	16	11
In indifferent health and reduced condition	80	93	10	6	3	2	11	3
In bad health and exhausted condition ..	22	22	5	3	..	..	3	1
	244	284	52	38	19	7	30	15

TABLE VI.

BIRTHPLACES OF PATIENTS ADMITTED DURING THE YEAR.

	Brisbane.		Toowoomba.		Ipswich.		Townsville.	
	M.	F.	M.	F.	M.	F.	M.	F.
Queensland	140	187	32	29	19	5	16	7
New South Wales	31	23	5	4	..	1	2	2
Victoria	8	8	2	2	..	1	..	..
South Australia	1	2	4	..	..	..	..	..
Western Australia	2	1	..	..	..	..	..	..
Tasmania .. .. .	..	3	..	..	..	..	..	..
New Zealand	2	..	..	..	..	..	..	..
England	25	28	3	..	..	..	3	..
Wales .. .. .	..	3	..	..	..	..	..	..
Scotland	6	3	1	..	..	..	1	..
Ireland	6	8	..	..	..	..	1	1
France .. .. .	..	..	..	..	..	..	..	..
Germany .. .. .	..	2	..	..	..	..	1	..
Spain .. .. .	..	..	..	..	..	..	1	..
Italy	2	3	..	..	..	..	1	1
Russia	1	4	..	..	..	..	..	..
Norway	2	..	..	..	..	..	..	..
Greece	1	1	..	..	..	..	..	1
Poland	1	..	..	1	..	..	..	..
Sicily	1	1	..	..	..	..	1	1
Denmark .. .. .	..	1	..	..	..	..	..	..
U.S.A.	1	..	..	..	..	..	..	..
India	1	..	..	..	..	..	..	..
China.. .. .	5	2	..	..	..	..	..	..
N.E.I.	2	..	..	..	..	..	..	..
At Sea	1	..	..	..	..	..	..	..
Unknown	5	4	5	2	..	..	3	2
	244	284	52	38	19	7	30	15

TABLE VII.

DISTRICTS WHENCE PATIENTS WERE RECEIVED DURING THE TWELVE MONTHS ENDING 30TH JUNE, 1946.

	Brisbane.		Toowoomba.		Ipswich.		Townsville.		Total.
	M.	F.	M.	F.	M.	F.	M.	F.	
Northern and North-Western Districts	15	14	1	..	..	..	30	15	75
Central Districts	19	24	..	1	..	..	..	..	44
Southern and South-Western Districts	210	246	51	37	19	7	..	..	570
	244	284	52	38	19	7	30	15	689

TABLE VIII.

AGES OF PATIENTS WHOSE ADMISSIONS, DISCHARGES OR DEATHS OCCURRED DURING THE YEAR, AND OF THOSE WHO REMAINED IN THE HOSPITAL ON 30TH JUNE, 1946.

Ages.	Admissions.			Discharges.						Deaths.			Remaining.		
				Recovered.			Relieved and not Improved.								
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	T.	T.
BRISBANE MENTAL HOSPITAL.															
Under 5 years	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5 years and under 10 years	1	..	1	..	..	..	..	..	..	..	..	..	..	4	..
10 years and under 15 years	2	1	3	..	..	..	..	..	..	2	..	2	13	2	15
15 years and under 20 years	10	10	20	3	5	8	..	1	1	3	..	3	27	14	41
20 years and under 30 years	40	50	90	16	24	40	3	2	5	9	..	9	117	113	230
30 years and under 40 years	52	44	96	26	31	57	2	3	5	5	9	14	194	192	386
40 years and under 50 years	38	51	89	17	17	34	1	2	3	7	8	15	236	234	480
50 years and under 60 years	37	45	82	14	19	33	2	3	5	13	12	25	214	206	420
60 years and under 70 years	17	21	38	7	11	18	1	6	7	14	13	27	134	126	260
70 years and under 80 years	32	38	70	1	2	3	1	2	3	32	27	59	62	79	141
80 years and under 90 years	12	19	31	3	..	3	1	1	2	18	30	48	17	35	52
90 years and over	1	3	4	..	..	..	..	..	..	1	5	6	..	6	6
Unknown	2	2	4	..	..	..	..	1	1	..	..	..	1	1	2
	244	284	528	87	109	196	11	21	32	104	104	208	1,019	1,018	2,037
TOOWOOMBA MENTAL HOSPITAL.															
Under 5 years	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5 years and under 10 years	3	1	4	..	..	..	1	..	1	..	..	..	2	2	4
10 years and under 15 years	3	..	3	..	..	..	..	..	..	..	..	..	4	2	6
15 years and under 20 years	3	1	4	1	1	2	..	..	..	1	..	1	8	2	10
20 years and under 30 years	14	6	20	2	3	5	4	2	6	..	2	2	36	18	54
30 years and under 40 years	6	6	12	1	1	2	1	4	5	2	..	2	85	62	147
40 years and under 50 years	3	5	8	3	2	5	2	1	3	..	2	2	107	107	214
50 years and under 60 years	11	11	22	9	4	13	5	1	6	4	5	9	147	174	321
60 years and under 70 years	1	7	8	2	1	3	2	..	2	8	9	17	112	119	231
70 years and under 80 years	6	1	7	..	..	..	2	..	2	11	3	14	80	86	166
80 years and under 90 years	2	..	2	..	..	..	..	..	..	6	2	8	29	15	44
90 years and over	..	..	..	..	..	..	..	..	..	..	1	1	4	1	5
Unknown	..	..	..	..	..	..	..	1	1	1	..	1	5	3	8
	52	38	90	18	12	30	17	9	26	33	24	57	619	591	1,210
IPSWICH MENTAL HOSPITAL.															
Under 5 years	9	4	13	..	..	..	2	..	2	1	2	3	13	6	19
5 years and under 10 years	6	..	6	1	1	2	1	..	1	2	1	3	23	6	29
10 years and under 15 years	2	3	5	..	..	..	..	1	1	2	2	4	5	10	15
15 years and under 20 years	2	..	2	..	..	..	..	..	..	..	..	..	2	9	11
20 years and under 30 years	..	..	..	..	1	1	2	..	2	..	1	1	15	17	32
30 years and under 40 years	..	..	..	..	..	..	..	..	..	..	..	..	44	18	62
40 years and under 50 years	..	..	..	..	..	..	..	..	..	3	..	3	67	26	93
50 years and under 60 years	..	..	..	..	..	..	..	..	..	3	..	3	86	30	116
60 years and under 70 years	..	..	..	..	..	..	..	..	..	5	..	5	61	28	89
70 years and under 80 years	..	..	..	..	..	..	..	..	..	6	..	6	40	10	50
80 years and under 90 years	..	..	..	..	..	..	..	..	..	2	..	2	14	2	16
90 years and over	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Unknown	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
	19	7	26	1	2	3	5	1	6	24	6	30	371	162	533
TOWNSVILLE MENTAL HOSPITAL.															
Under 5 years	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5 years and under 10 years	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10 years and under 15 years	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15 years and under 20 years	1	1	2	1	..	1	..	..	..	..	..	..	..	..	..
20 years and under 30 years	3	1	4	..	1	1	..	..	..	..	..	..	..	..	..
30 years and under 40 years	6	4	10	1	1	2	..	..	..	..	..	..	1	..	1
40 years and under 50 years	6	4	10	..	..	..	..	..	..	..	..	..	..	..	..
50 years and under 60 years	4	3	7	..	..	..	..	..	..	1	..	1	..	..	..
60 years and under 70 years	3	..	3	1	..	1	..	..	..	..	..	..	..	..	..
70 years and under 80 years	4	1	5	1	1	2	..	..	..	..	..	..	..	..	..
80 years and under 90 years	2	1	3	..	..	..	..	..	..	..	..	..	..	..	..
90 years and over	1	..	1	..	..	..	..	..	..	1	..	1	..	..	..
Unknown	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	30	15	45	4	3	7	..	..	..	2	..	2	1	..	1

TABLE IX.
PREVIOUS OCCUPATIONS OF PATIENTS ADMITTED DURING THE TWELVE MONTHS.

	Brisbane.		Toowoomba.		Ipswich.		Townsville.		Total.
	M.	F.	M.	F.	M.	F.	M.	F.	
Accountant	1	..	..	..	..	..	..	..	1
Barber	1	..	..	..	..	..	..	..	1
Basket maker	1	..	..	..	..	..	..	..	1
Blacksmith	1	..	..	..	..	..	..	..	1
Builder	1	..	..	..	..	..	..	..	1
Butcher	1	..	..	..	..	..	..	..	1
Cabinet maker	1	..	..	..	..	..	..	..	1
Cane cutter	2	..	..	..	..	..	2	..	4
Cane farmer .. .. .	..	..	..	..	..	..	3	..	3
Carpenter	2	..	..	..	..	..	..	..	2
Chemist's assistant .. .. .	..	1	..	..	..	..	..	..	1
Child	4	3	..	1	18	7	..	..	33
Clerk	8	3	..	2	1	..	1	..	15
Chiropodist .. .. .	..	1	..	..	..	..	..	..	1
Carrier .. .. .	..	..	..	..	..	..	2	..	2
Comptometrist .. .. .	..	1	..	..	..	..	..	..	1
Compositor	1	..	..	..	..	..	..	..	1
Dairy farmer	4	..	..	..	..	..	..	..	4
Docker	1	..	..	..	..	..	..	..	1
Domestic duties .. .. .	..	60	..	10	..	..	..	3	73
Dressmaker .. .. .	..	1	..	..	..	..	..	..	1
Drover	1	..	..	..	..	..	..	..	1
Electric welder	1	..	..	..	..	..	..	..	1
Engine driver	1	..	..	..	..	..	1	..	2
Farmer	19	..	7	..	..	..	1	..	27
Fettler	1	..	..	..	..	..	..	..	1
Fitter	1	..	..	..	..	..	..	..	1
Cleaner	1	..	..	..	..	..	..	..	1
Fruiterer	1	..	..	..	..	..	..	..	1
Ganger	1	..	..	..	..	..	..	..	1
Gardener	4	..	3	..	..	..	2	..	9
Grazier	1	..	1	..	..	..	..	..	2
Hairdresser	1	..	..	..	..	..	..	..	1
Horsedealer	1	..	..	..	..	..	..	..	1
Housewife .. .. .	..	113	..	12	..	..	..	9	134
Housemaid .. .. .	..	1	..	..	..	..	..	..	1
Insurance collector	1	..	..	..	..	..	..	..	1
Jute worker .. .. .	..	..	1	..	..	..	..	..	1
Labourer	39	..	10	..	..	..	7	..	56
Laundress .. .. .	..	1	..	..	..	..	..	..	1
Matron .. .. .	..	1	..	..	..	..	..	..	1
Machinist .. .. .	..	1	..	..	..	..	..	..	1
Mechanic .. .. .	..	..	1	..	..	..	..	..	1
Meatworker	4	..	..	..	..	..	1	..	5
Merchant seaman	1	..	..	..	..	..	..	..	1
Medical practitioner	1	..	..	..	..	..	..	..	1
Medical student	1	..	..	..	..	..	..	..	1
Miner	4	..	..	..	..	..	..	..	4
Motor builder	1	..	..	..	..	..	..	..	1
Moulder	1	..	..	..	..	..	..	..	1
Motor mechanic	1	..	..	..	..	..	..	..	1
Music teacher .. .. .	..	1	..	..	..	..	..	..	1
Nurse .. .. .	..	3	..	2	..	..	..	..	5
Packer	3	2	..	..	..	..	..	..	5
Painter	3	..	2	..	..	..	1	..	6
Pensioner	44	37	8	3	..	..	4	1	97
Photographer	1	..	..	..	..	..	..	..	1
Plumber .. .. .	..	..	1	..	..	..	..	..	1
Process engraver .. .. .	..	..	..	..	..	..	1	..	1
Railway employee	2	1	..	..	..	..	..	..	3
Rubber worker .. .. .	..	1	..	..	..	..	..	..	1
School teacher	3	2	..	..	..	..	..	..	5
Seaman	3	..	..	..	..	..	..	..	3
Shedhand	1	..	..	..	..	..	..	..	1
Shop assistant	3	2	..	1	..	..	..	..	6
Shearer .. .. .	..	..	1	..	..	..	..	..	1
Ship's foreman	1	..	..	..	..	..	..	..	1
Soldier	23	2	1	..	..	..	1	..	27
Salesman .. .. .	..	..	..	..	..	..	1	..	1
Station hand	3	..	..	..	..	..	..	..	3
Speedway rider	1	..	..	..	..	..	..	..	1
Stockman .. .. .	..	..	..	..	..	..	1	..	1
Storekeeper	1	..	..	..	..	..	..	..	1
Student	1	1	..	..	..	..	..	..	2
Sugar worker	1	..	..	..	..	..	..	..	1
Surveyor's assistant	1	..	..	..	..	..	..	..	1
Tailoress .. .. .	..	1	..	..	..	..	..	..	1
Telephonist .. .. .	..	1	..	..	..	..	..	..	1
Timber worker	1	..	..	..	..	..	..	..	1
Theatre manager	1	..	..	..	..	..	..	..	1
Typist .. .. .	..	3	..	..	..	..	..	..	3
Waggon builder	1	..	..	..	..	..	..	..	1
Waitress .. .. .	..	2	..	..	..	..	..	..	2
Watchmaker	1	..	..	..	..	..	..	..	1
Wharf labourer	2	..	..	..	..	..	..	..	2
Yardman .. .. .	..	..	1	..	..	..	1	..	2
Unknown	10	14	3	1	..	..	..	..	28
Nil	16	24	10	6	..	..	..	2	58
Truck driver .. .. .	..	..	2	..	..	..	..	..	2
	244	284	52	38	19	7	30	15	689

TABLE X.

CONDITION AS TO MARRIAGE OF PATIENTS WHOSE ADMISSIONS, DISCHARGES, AND DEATHS OCCURRED DURING THE YEAR, AND THOSE WHO REMAINED IN THE HOSPITAL ON 30TH JUNE, 1946.

Condition as Regards Marriage.	Admissions.			Discharges.						Deaths.			Remaining.		
				Recovered.			Relieved and Not Improved.								
	Males.	Fe-males	Total.	Males.	Fe-males	Total.	Males.	Fe-males	Total.	Males.	Fe-males.	Total.	Males.	Fe-males.	Total.
BRISBANE MENTAL HOSPITAL.															
Single	148	99	247	43	31	74	4	8	12	52	28	80	771	504	1,275
Married	76	112	188	37	59	96	3	9	12	33	37	70	205	375	580
Widowed	11	70	81	6	15	21	2	4	6	14	36	50	23	131	154
Divorced	3	3	6	..	1	1	..	..	..	..	1	1	9	6	15
Unknown	6	..	6	1	3	4	2	..	2	5	2	7	11	2	13
	244	284	528	87	109	196	11	21	32	104	104	208	1,019	1,018	2,037
TOOWOOMBA MENTAL HOSPITAL.															
Single	33	21	54	5	6	11	11	5	16	19	9	28	501	316	817
Married	15	13	28	12	6	18	4	4	8	7	13	20	81	224	305
Widowed	2	4	6	..	..	..	2	..	2	4	1	5	15	35	50
Divorced .. ..	..	..	..	..	..	..	..	..	..	..	..	..	1	10	11
Unknown	2	..	2	1	..	1	..	..	..	3	1	4	21	6	27
	52	38	90	18	12	30	17	9	26	33	24	57	619	591	1,210
IPSWICH MENTAL HOSPITAL.															
Single	19	7	26	1	2	3	5	1	6	18	5	23	288	97	385
Married .. ..	..	..	..	..	..	..	..	..	..	3	1	4	62	53	115
Widowed .. ..	..	..	..	..	..	..	..	..	..	1	..	1	7	7	14
Divorced .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2
Unknown .. ..	..	..	..	..	..	..	..	..	..	2	..	2	14	3	17
	19	7	26	1	2	3	5	1	6	24	6	30	371	162	433
TOWNSVILLE MENTAL HOSPITAL.															
Single	17	2	19	2	..	2	..	..	..	1	..	1	1	..	1
Married	8	10	18	2	2	4	..	..	..	1	..	1	..	..	..
Widowed	4	3	7	..	1	1	..	..	..	..	..	..	..	..	..
Divorced .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Unknown	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..
	30	15	45	4	3	7	..	..	..	2	..	2	1	..	1

TABLE XI.

LENGTH OF RESIDENCE IN THE HOSPITALS OF THE PATIENTS WHO WERE DISCHARGED OR WHO DIED DURING THE YEAR AND OF THOSE WHO REMAINED ON THE BOOKS OF THE HOSPITAL ON 30TH JUNE, 1946.

Length of Residence.	Discharges.									Deaths.			Remaining.		
	Recovered.			Section 49.			Relieved and Not Improved.			Males.	Fe-males.	Total.	Males.	Fe-males.	Total.
	Males.	Fe-males.	Total.	Males.	Fe-males.	Total.	Males.	Fe-males.	Total.						
BRISBANE MENTAL HOSPITAL.															
Under 1 month ..	6	2	8	..	..	..	5	3	8	12	12	24	27	13	40
1 month and under 3 months ..	20	21	41	..	..	..	3	3	6	16	10	26	23	50	73
3 months and under 6 months ..	33	39	72	..	1	1	..	5	5	11	9	20	50	57	107
6 months and under 9 months ..	11	16	27	3	9	12	..	1	1	8	19	27	38	46	84
9 months and under 12 months ..	5	9	14	3	4	7	2	3	5	4	3	7	34	36	70
1 year and under 2 years	8	12	20	2	9	11	1	4	5	13	13	26	103	103	206
2 years and under 3 years ..	2	5	7	3	8	11	..	1	1	4	5	9	62	86	148
3 years and under 5 years ..	1	3	4	..	1	1	..	..	..	3	9	12	103	124	227
5 years and under 7 years ..	1	1	2	..	1	1	..	1	1	5	4	9	100	122	222
7 years and under 10 years ..	..	1	1	..	..	..	..	..	..	5	5	10	113	114	227
10 years and under 12 years ..	..	..	..	1	..	1	..	..	..	..	2	2	68	52	120
12 years and under 15 years ..	..	..	..	..	..	..	..	..	..	2	2	4	67	71	138
15 years and under 20 years ..	..	..	..	2	..	2	..	..	..	4	3	7	80	64	144
20 years and over ..	..	..	..	..	..	..	..	..	..	17	8	25	151	80	231
	87	109	196	14	33	47	11	21	32	104	104	208	1,019	1,018	2,037
TOOWOOMBA MENTAL HOSPITAL.															
Under 1 month ..	3	2	5	..	..	..	3	1	4	2	3	5	4	3	7
1 month and under 3 months ..	4	..	4	..	..	..	4	1	5	1	..	1	6	7	13
3 months and under 6 years ..	2	4	6	..	..	..	1	1	2	..	1	1	24	7	31
6 months and under 9 months ..	2	3	5	..	..	..	2	..	2	..	1	1	5	5	10
9 months and under 12 months ..	2	..	2	..	..	..	1	1	2	1	1	2	22	7	29
1 year and under 2 years	4	1	5	..	..	..	4	1	5	4	3	7	14	13	27
2 years and under 3 years ..	..	1	1	..	..	..	1	..	1	1	1	2	22	30	52
3 years and under 5 years ..	..	..	..	..	..	..	..	3	3	6	1	7	84	34	118
5 years and under 7 years ..	..	..	..	..	..	..	..	..	..	4	2	6	61	55	116
7 years and under 10 years ..	1	1	2	..	..	..	..	1	1	..	..	..	29	47	76
10 years and under 12 years ..	..	..	..	..	..	..	..	..	..	1	..	1	33	72	105
12 years and under 15 years ..	..	..	..	..	..	..	..	..	..	..	1	1	51	47	98
15 years and under 20 years ..	..	..	..	..	..	..	1	..	1	..	..	..	55	57	112
20 years and over ..	..	..	..	..	..	..	..	..	..	13	10	23	209	207	416
	18	12	30	..	..	..	17	9	26	33	24	57	619	591	1,210
IPSWICH MENTAL HOSPITAL.															
Under 1 month ..	..	..	..	..	..	..	..	..	..	..	1	1	3	..	3
1 month and under 3 months ..	..	..	..	..	..	..	1	..	1	..	1	1	2	2	4
3 months and under 6 months ..	..	..	..	..	..	..	..	..	..	1	1	2	18	9	27
6 months and under 9 months ..	..	..	..	..	..	..	..	..	..	3	..	3	8	..	8
9 months and under 12 months ..	..	..	..	..	..	..	1	..	1	..	..	..	2	1	3
1 year and under 2 years	..	1	1	..	..	..	1	1	2	3	..	3	33	5	38
2 years and under 3 years ..	..	..	..	..	..	..	1	..	1	1	1	2	30	28	58
3 years and under 5 years ..	..	1	1	..	..	..	..	..	..	1	..	1	34	20	54
5 years and under 7 years ..	..	..	..	..	..	..	..	..	..	..	2	2	28	14	42
7 years and under 10 years ..	1	..	1	..	..	..	1	..	1	3	..	3	37	11	48
10 years and under 12 years ..	..	..	..	..	..	..	..	..	..	..	..	..	26	8	34
12 years and under 15 years ..	..	..	..	..	..	..	..	..	..	2	..	2	26	13	39
15 years and under 20 years ..	..	..	..	..	..	..	..	..	..	3	..	3	30	9	39
20 years and over ..	..	..	..	..	..	..	..	..	..	7	..	7	94	42	136
	1	2	3	..	..	..	5	1	6	24	6	30	371	162	533

TABLE XII.
QUANTITIES OF VEGETABLES AND FARM PRODUCE.

	Brisbane.	Toowoomba.	Ipswich.
Chaff	55 tons	..	12 cwt.
Ensilage	156 tons	290 tons	50 tons
Garden Vegetables	76 tons	50 tons	25 tons
Green Feed	469 tons	..	99 tons
Maize	5 tons	15 tons	..
Potatoes	53 tons	..	4 tons
Pumpkins and Turnips	40 tons	57 tons	12 tons
Lucerne and Hay .. .. .	..	30 tons	..
Oats .. .. .	..	8 tons	..

TABLE XIII.
EXPENDITURE TABLE.

	Brisbane.	Toowoomba.	Ipswich.	Townsville.
Average number daily resident during the twelve months	1,927	1,185	523	4
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Total expenditure	187,752 6 10	99,357 3 2	65,420 12 10	2,724 18 1
Maintenance collected by Public Curator ..	30,183 2 0	11,674 5 10	4,737 4 1	..
Sales	1,650 9 4	793 8 11	440 10 3	..
Net expenditure	155,918 15 6	86,889 8 5	60,242 18 6	..
Gross cost per patient per annum.. .. .	97 8 8	83 16 11	125 1 9	681 4 6
Net cost per patient per annum	80 18 3	73 6 6	115 3 9	..
Gross cost per patient per week	1 17 6	1 12 3	2 8 1	13 2 0
Net cost per patient per week	1 11 1	1 8 2	2 4 4	..

Appendix G.

REPORT OF AN ANOPHELINE SURVEY OF LUCINDA POINT, QUEENSLAND, WITH NOTES ON THE BREEDING PLACES OF ANOPHELINE MOSQUITOES IN THE INGHAM DISTRICT.

by

ELIZABETH N. MARKS, M.Sc.,
Graduate Research Assistant, Mosquito Control Committee.

(With 2 maps and 12 photographs.)

- I. An Anopheline Survey of the Lucinda Point Area, with a Discussion of the Relationship of the Findings to the Recent Local Malaria Outbreak.
- II. Report on Anopheline Breeding in the Ingham district.
- III. General Comments.
- IV. Acknowledgments.
- V. References.

Maps of Lucinda Point and Halifax.

Photographs of Lucinda Point, Halifax, and Ingham.

I.—AN ANOPHELINE SURVEY OF THE LUCINDA POINT AREA, WITH A DISCUSSION OF THE RELATIONSHIP OF THE FINDINGS TO THE RECENT LOCAL MALARIA OUTBREAK.

(i.) *Introduction.*

Ten cases of benign tertian malaria were reported from Lucinda Point, Queensland, during the first week of May, 1946, this number representing about 10 per cent. of the population of the township. All had apparently acquired the infection locally. In order that adequate control measures should be instigated, an Anopheline survey of the area was requested, the results of which form the subject of this report. The survey extended over a period from 15th to 23rd May, 1946, and additional information was obtained from collections made by Mr. D. Pryor, of the State Health Department, between 26th May and 3rd June.

(ii.) *General Description of the Area.*

The township of Lucinda Point extends over an area about $\frac{1}{2}$ mile in diameter, made up of low sandy ridges, separated and surrounded by lowlying swampy areas, except on the east and north-east, where it is bounded by the sea. Roads run along the ridges, and the houses are built along either side of the roads, mainly on those running north and south. Thus no house would be more than 12 chains distant from a waterhole or swamp, either brackish or freshwater. All bodies of ground water found within $\frac{1}{2}$ mile radius of the township were examined, and several occurring at greater distances.

The township is divided roughly into northern and southern halves by the eastward extension of the Lucinda Point-Dungeness road (which runs east and west). Taking first the portion to north of this road, on east and north is the sea, on west is the C.S.R. tramline, running to the jetty at the northern end of Lucinda Point. To west of the tramline is a tidal mangrove swamp, an arm of which extends on the east side of the tramline, and is known locally as the "C.S.R. swamp." This portion has been cleared of mangroves. To east of the C.S.R. swamp a sandy ridge runs

north and south, along which a road runs, continuing round the northern end of the town and returning along the eastern side, to become continuous with the Dungeness road. This more or less circular road is known as the Parade. Houses are built along the outer edge of the circle and also on the inner side at the northern end. The middle and southern end of the area encircled have been set aside as a recreation reserve. Most of this area is lowlying and forms a swamp with several outlying pools. During cyclones the sea sweeps from the north-east into this swamp and the water when examined was slightly brackish. There is an outlet, at a fairly high level, into the C.S.R. swamp. The northern half of the settlement is mainly cleared, there being some timber on the eastern side of the recreation reserve, and another patch on the south-eastern side of the C.S.R. swamp. To the west of the tramline, however, there is dense bush and mangroves.

The southern half of the town is much more heavily timbered. On the eastern side a road known as School road runs south from the Parade and about $\frac{1}{4}$ mile along this, to the rear of residences on the western side, is an extensive fresh water swamp which, being to the rear of J. Patterson's property, is referred to in this report as Patterson's swamp. An area of dense bush separates the rear of residences on the western side of School road from the rear of residences on the eastern side of the Halifax-Lucinda Point road and tramline, to which School road is parallel. To the east of the tramline, on the south side of the Dungeness road is a small swampy area with a fairly high level drain into the C.S.R. swamp on the northern side of the road.

The Lucinda Point hotel (Royal Hotel) is situated on the south-west corner of the junction of the Dungeness road with the Halifax road and tramline. As already noted, there is a tidal mangrove swamp here on the northern side of the Dungeness road, and about 8 chains west of the tramline a small portion of this swamp appears to have been cut off by the construction of the road, leaving several mangrove-fringed pools. Also at this spot are a number of borrow-pits on either side of the road. About

$\frac{1}{4}$ mile west of the tramline, on the southern side of the Dungeness road is a freshwater tea-tree swamp, while about a mile along the road are further pools cut off from the tidal swamp.

About $\frac{1}{4}$ mile south of the hotel, on the western side of the Halifax road is a freshwater swamp, while 100 yards south of this on the eastern side is a small tea-tree swamp, and a short distance south of this again is the northern end of a long drain or gutter between the tramline and the road, which runs into tidal mangrove swamps to the south. On the western side of the road at this point there are also tidal mangrove swamps which sweep round in a northerly direction about 12 chains from the road. There is very little cleared ground in the southern half of the township, and all residences are within a short distance of dense bush.

It is obvious, from the lowlying nature of much of the area, that during the wet season the waterholes examined would be much more extensive, and in all probability others also would occur.

(iii.) *Account of Anopheline Breeding Places and other Bodies of Water Examined.*
(Anophelines found in Nos. 1, 4, 5, and 6.)

1. *C.S.R. Swamp and Adjoining Pools* (photographs I., II., and III.).—The main area of this swamp consists of a shallow tidal body of water, several acres in extent, running north and south, and draining at its northern end under the tramline into a mangrove swamp. This swamp, however, is cleared of mangroves, and consists of an unshaded mud flat with tussocks of saltwater couch grass. It is stocked with fish, which have access to all parts, and no mosquito larvae were found.

About 10 to 15 yards from the main portion of the swamp, on the eastern side of its southern end, amongst fairly long grass, but otherwise unshaded, are several depressions, 20 to 60 square feet in area, with mud bottoms and grassy edges. These, when examined on 16th May, 1946, contained brackish, slightly discoloured water, but were practically dry by 20th May, 1946. They apparently would be filled by heavy rain, or possibly by extra high tides, or by a combination of both. Culicines were breeding prolifically in these pools, and larvae of *Anopheles punctulatus moluccensis** were collected, but were very scarce. Collections from similar pools elsewhere (see No. 7) suggest that such are not greatly favoured by this species.

At the southern end of the C.S.R. swamp, where it borders the road, is a high bank (now overgrown) apparently where a road at one time has been thrown up. This runs at an angle of 45 degrees from the Dungeness road north-eastern towards the Parade and completely cuts off from the swamp a long, shallow, unshaded waterhole on its southern side, about 40 yards long and 3 yards wide, while on its northern side there is also a long water-holding depression, more or less cut off from the tidal portion of the swamp, and probably formed, in part at least, as a borrow-pit for this old road. Both these pools had been extensively oiled when examined on 16th May, 1946; numerous dead Culicine larvae were observed, but no

* This species should more correctly be referred to as *A. farauti*.

Anophelines. However, they do not appear to differ materially in type from the isolated pool described above in which *A. p. moluccensis* was found.

On the south side of the Dungeness road at this point is a shallow, swampy, grassy area, which would cover about 40 square yards when filled, but when examined on 22nd May, 1946, was almost dried out. The pool had a mud bottom, with thick grass growing in it, and the water extended for 2 or 3 yards under the dense matted grass round about it. Some pollution from cattle was probable. No Anophelines were collected, but Culicines were numerous, including both fresh and salt-water species. There is a drain several feet above the present level of this swampy area, running under the Dungeness road—not directly into the C.S.R. swamp, but into the long pool cut off on the south side of the old road.

A small waterhole about 2 feet square adjoining this grassy swamp was also examined, and Culicines found breeding but no Anophelines.

An impression was gained that mosquito control measures suggested locally included blocking the tide from the tidal C.S.R. swamp. It must be strongly urged that this would fail to destroy any breeding places of Anophelines, whereas it is exceeding likely that it might create a large and favourable breeding place (cf. No. 4).

2. *Recreation Reserve Swamp and Adjoining Pools*—(Photograph IV.).—This swamp, when examined on 17th May, 1946, consisted of an open area of slightly brackish water about $\frac{1}{2}$ acre in extent, having a large patch of sedges in the middle with open water round them. Thick and matted "swamp couch" grass surrounds it and the water extends for varying distances under the grass, usually a few yards only except at the southern end where it extends for many yards. The whole area is fully exposed to sunlight. By 22nd May, 1946, the area of open water had been reduced to about $\frac{1}{4}$ acre. This swamp had been heavily oiled. No Anophelines were found in repeated collections from it but Culicines were collected from a small pool a few feet from its northern edge on 15th May, 1946, amongst the grass along its western edge on 17th May, 1946, and from a small grassy depression about 2 feet in diameter on 22nd May, 1946, this being about 15 yards south-east of the culvert draining the area, and at the time some distance from the main body of water. On one occasion a fish was observed amongst the matted grass near the edge.

This swamp lies in a shallow basin surrounded by low sandhills round which runs the Parade. It is possible that it receives some drainage from dwellings to north of it, and some pollution from cattle. Its only outlet is a pipe running under a culvert on its west side, so that when the water is about 3 feet below the level of the road it would drain across into the C.S.R. swamp. At present it is far below this level.

To north-east of the swamp the encircling sandhill is at a somewhat lower level, and there is an outlying pool, about 16 square yards in area near the Parade and well separated from the main swamp. This pool had been oiled, and also contained numerous fish and no mosquito larvae were found in it.

During cyclones the sea drives across this piece of ground into the recreation reserve swamp after which residents state that the swamp gives off a very unpleasant smell, possibly due to rotting vegetation. It is regarded as a public nuisance and, therefore, it is likely to be urged locally that it should be filled in.

There are patches of timber and undergrowth (but not dense) separating the recreation reserve swamp from the Parade on the east and between it and the C.S.R. swamp (on the west side of the Parade) on the south-west.

3. *Patterson's Swamp*.—This is an extensive freshwater swamp in a hollow separated by a broad sandhill from the seashore, its northern end being at the rear of J. Patterson's residence at southern end of School road, which runs along this sandhill. It runs north and south being about $\frac{1}{4}$ mile long and 50 yards wide. The east edge has mainly a sandy bank with overhanging cotton and scrub box trees. Along the west edge are tea-trees, wattles, &c. In the middle and in places along the banks are large areas of dense, tall sedges; there are patches of open water and patches of waterlilies. Towards its south end the swamp is almost divided in two by a shallow sandbank on which partly submerged grass is growing, while its edges also are grassy in places, sometimes with green algae. The edges of this swamp had been heavily oiled. However when first examined on 15th May, 1946, a small northerly extension among tea-trees, which had been filled by rain, and a couple of outlying grassy pools yielded Culicine larvae but no Anophelines. These had dried up by 21st May, 1946. A few Culicines also were collected from the south-west end of the swamp, but again no Anophelines were observed. In the middle this swamp is waist deep, and it was not possible to search for larvae there. As adults of *A. p. moluccensis* have been taken in the bush along its banks, they might perhaps be breeding in the shelter of vegetation in the middle (cf. No. 5), and it is regretted that this could not be investigated.

There is dense bush with thick undergrowth along the western and southern sides of this swamp, and the more open timber along the eastern and northern.

4. *Brackish Pools along Dungeness Road* (Photograph V.).—Running west from the Halifax road, the Lucinda Point-Dungeness road is at present under construction, being built partly through mangrove swamps. Rocks and sand are used in construction, and sand is obtained from borrow-pits alongside the road where it traverses sandy ridges. At the Lucinda Point end of the road there is an extensive tidal mangrove swamp to north and a small portion of this has apparently been cut off by the construction of the road, as on its south side, about 8 to 10 chains to rear of the hotel, there was found, on 16th May, 1946, a shallow brackish waterhole about 30 feet by 10 feet, bordered by mangroves, but otherwise exposed to sunlight, with mud bottom and sandy edge. Its greatest depth was about 12 inches and there were numerous old tins lying in it, but no recent rubbish. On this date a few very immature larvae of *A. amictus hillyi* and *A. p. moluccensis* were collected, in addition to Culicines. By 20th May, 1946, the surface area had been reduced

by two-thirds, the depth was only $\frac{1}{2}$ to 1 inch and larvae were numerous, including the same species of Anophelines, now almost ready to pupate. On 22nd May, 1946, the pool was almost dry, but it is probable that sufficient moisture and damp mud remained for many mosquitoes to complete their pupal period.

This pool contained no fish. Adjoining pools, some of which may, however, have been more in the nature of borrow-pits than cut-off portions of the swamp, were stocked with fish and no larvae could be found; the same applied to a couple of nearby pools on the north side of the road.

The Dungeness road was followed as far as was trafficable (about 1 mile), and at this point on its west side there occurred similar mangrove-fringed brackish pools cut off from the tidal swamp by the construction of the road. Though Culicine larvae were numerous in these, no Anophelines were found. Adjoining pools, which were discoloured and malodorous, contained no larvae. Where portion of the tidal swamp on the north-east side of the road had been drained, isolated wheel-ruts contained fish and no larvae were present.

The type of pool described above has no vegetation to afford shelter for mosquito larvae, and when fish are present breeding is controlled. Being cut off from the swamp, however, they will dry out during dry weather and the stock of fish will be destroyed. When the pools are filled again, either by heavy rains or possibly by seepage from very high tides, they will provide potential breeding grounds for Anopheline larvae.

5. *Freshwater Swamp to south of Dungeness Road*.—A few yards to the south of Dungeness road, and about $\frac{1}{4}$ mile west from the tramline, is a freshwater swamp about $\frac{1}{4}$ acre in extent. This swamp has been fringed with tea-trees which have recently been felled and the edges are now, like the centre, exposed to full sunlight. Along the edges there is a certain amount of rotting vegetation, and the impression gained is that the equilibrium of plant and animal life in this portion of the swamp has been upset by the removal of the trees and it has not yet re-established itself as a sunlit area. In the middle of the swamp are sedges; the edges are grassy in places, and there are patches of water lilies and of green algae.

When examined on 20th May, 1946, a prolonged search along the edges yielded only Culicine larvae and one immature Anopheline which it was not possible to identify. However, this swamp was subsequently visited by Mr. D. Pryor on 26th and 28th May, 1946, and he found numbers of *A. p. moluccensis* larvae in the shelter of the vegetation in the middle of the swamp, the edges at that time having been oiled.

6. *Freshwater Swamps on Halifax Road*.—West of Halifax road, about $\frac{1}{2}$ mile south of its junction with the Dungeness road, is a freshwater swamp about $\frac{1}{2}$ acre in extent. This swamp has a dense, tall growth of sedges throughout, with a few water lilies. The banks are mainly steep and sandy with overhanging trees, mostly wattles, at the top of the banks, so that there are many fallen leaves along the edges of the water. Portion on its north side however has a grassy, shallow edge. Culicine larvae

were very numerous in this swamp, but no Anophelines could be found when it was examined on 22nd May, 1946. However, on 3rd June, 1946, Mr. D. Pryor observed a number of Anopheline larvae in it, the species of which was not ascertained. There are probably no fish present, since larvae were numerous in open water several feet out from the edge.

In this area there are a variety of swamps. On the west side of the road a short distance separates the freshwater sedge swamp described above from an extensive tidal mangrove swamp to south and west. On the east side of the road, about 100 yards south of the sedge swamp, is a shallow shaded tea-tree swamp which appeared recently dried up when examined on 22nd May, 1946, while a short distance south of this again is an arm of a tidal swamp in the drain between the tramline and the road.

7. *Brackish Pools on Halifax Road.*—East of Halifax road, at a point about 2 to 3 miles south of Dungeness road, there commences a long waterhole or drain about 3 to 4 feet wide which runs between the tramline and the road and empties into tidal swamps to the south.

At its northern end the water is clear, very slightly brackish and 6 to 12 inches deep; the edges are grassy, with some green algae, and partially shaded by overhanging trees. It is probable that this extremity of the drain is filled by a combination of heavy rain with very high tides. Larvae were scarce and no Anophelines were found.

About 2 miles from Lucinda Point, on the west side of Halifax road, an examination was made of a number of slightly brackish pools, with mud bottoms and grassy edges, 12 to 30 square feet in area, 6 to 12 inches deep, and unshaded. These were a few yards from the edge of a tidal mangrove swamp, and probably are filled by king tides, or very heavy rain. They are similar in type to those beside the C.S.R. swamp at Lucinda Point (see Photograph No. 1). In those pools which were not stocked with fish Culicine larvae were numerous but no Anophelines were observed. There is no habitation in the neighbourhood of these pools.

(iv.) *Adult Collections.*

When the residences of the various malaria patients were visited, a cursory examination for resting mosquitoes was made inside some, and round about most of them, in such places as outlying sheds, under tank stands, and round butts of trees; but no Anopheline adults were observed, even where conditions of shade and moisture appeared most favourable. Many of the houses in this area are constructed wholly or in part of corrugated iron, which probably would become hot during the day and render the walls unsuitable as resting places. However, the darkness inside these dwellings would make any resting adults very difficult to observe.

The Royal Hotel, Lucinda Point, situated at the junction of Halifax and Dungeness roads, is a concrete building with the inside walls calcimined a cream colour, and the coolness of the interior renders it a favourable resting place for adult mosquitoes, while these are easy to observe on the light coloured walls. A collection was made here about midday on 16th May, 1946, and a total of nine Anophelines were collected, three being dead specimens found in cobwebs, and six

living, resting on the walls of various rooms. These comprise four *A. punctulatus moluccensis*, four *A. amictus hilli*, one *A. meraukensis*. Two specimens were dissected, the findings being—

Specimen of *A. p. moluccensis*—No oocysts observed; wings stage I. or II. (very good condition); ovaries stage V. (eggs completely developed).

Specimen of *A. amictus hilli*—No oocysts or sporozoites observed; wings stage II.; ovaries stage IV. or V.; midgut contained remains of almost completely digested bloodmeal.

Several of the other specimens appeared to have had bloodmeals.

Three additional specimens, collected by a member of the hotel staff and submitted on 23rd May, 1946, comprised two *A. amictus hilli* and one *A. meraukensis*. No resting Anophelines were observed in an examination of various sheds, tank stands, &c., behind the hotel.

It is not unusual for *A. amictus hilli* and *A. meraukensis* to be collected from dwellings during the daytime. Lee and Woodhill (1944) state that "Most of the evidence so far available indicates that the adults [of *A. p. moluccensis*] leave the houses or tents after feeding and take shelter elsewhere, but several instances have been recorded of large numbers of fed females sheltering in huts and tents throughout the day." The presence of adults of *A. p. moluccensis* resting in the hotel appears therefore to indicate a large population of this species in the vicinity.

On the evening of 20th May, 1946, between 5.15 and 6 p.m. (*i.e.*, at dusk) a collection of adults was undertaken at the north-western end of Patterson's swamp (site A on map), between 5.15 and 5.40 p.m. amongst tea-trees at the edge of the swamp, where only Culicines were collected, and between 5.40 and 5.55 p.m. in thick bush about 10 yards west of this site, where one female of *A. punctulatus moluccensis* was taken, its appearance indicating that it was a young specimen. On the evening of 21st May, 1946, a collection was made in a patch of bush along the south-east edge of C.S.R. swamp (B on map); very few Culicines were taken, although this was alongside pools in which they had been breeding freely, and no Anophelines. As there had been a cool change in the weather on 19th May, 1946, accompanied by a light west wind, these collections were probably not a true indication of the adult mosquito population normally encountered.

Further adult collections were made by Mr. D. Pryor as follows:—

On 26th May, 1946, at a spot in heavy timber opposite the hotel, on the western side of the tramline (C on map) between 6.35 and 8.55 p.m., eight specimens of *A. p. moluccensis* were taken and one of *A. amictus hilli*, the latter at 8.25 p.m. Mr. Pryor noted that after 8.55 p.m. the evening became cold and all biting, including Culicines, practically ceased. Of these, five specimens of *moluccensis* and the single *hilli* were dissected. All had wings stage I.; ovaries stage II. or III.; no oocysts or sporozoites were observed and none of the specimens appeared to have had a bloodmeal. The undissected specimens likewise appeared in fresh condition. It is not unlikely

that these adults had bred out from the mangrove-fringed pool at the rear of the hotel, where both species were found breeding, or possibly some were from the freshwater swamp $\frac{1}{4}$ mile along the road.

On 29th May, 1946, at a spot amongst timber on the eastern side of Patterson's swamp (D on map), between 6.10 and 6.25 p.m., six Anophelines were taken, all being *A. p. moluccensis*, and adults were observed to be very numerous. Three specimens were dissected; all had wings stage I., ovaries stage II., no sporozoites or oocysts were observed and none had had a bloodmeal. The three remaining specimens likewise appeared recently emerged.

This spot was revisited by Mr. Pryor on the following evening at the same time, but no Anophelines were observed and Culicines were scarce, although atmospheric conditions appeared similar. A possible difference was that on the 29th the morning was overcast and threatened rain, though the afternoon was fine, whereas the 30th was fine and clear all day.

These findings indicate the uncertainty of making assumptions on the basis of a small series of adult captures, as the collection of the 29th would suggest that Anophelines were breeding in large numbers in Patterson's swamp, whilst that of the 30th conveys the opposite impression.

On no occasion were male adult Anophelines collected.

(v.) *Occurrence of Malaria Cases at Lucinda Point.*

While the ten locally acquired cases of malaria were reported during the first week of May, there was obviously some time lag between the time the patients first became ill and the time they were recorded as positive cases of malaria.

Mr. J. Patterson, the first case, was admitted to hospital on 4th April, 1946, but had been sick for two or three weeks previously. His residence (I on map) is at the southern end of School road, and he is a fisherman with a lease 3 miles south of this. He states that he rarely moves about in the main portion of the town, and attributes his infection to a visit to the hotel (the first for 12 months) made on 12th March, 1946, maintainning also that all the men who had contracted malaria locally were in the habit of visiting the hotel.

Evidence in support of this suggestion is given below, but an alternative explanation is available. Two brothers, L. and W. Keast, living at the northern end of the town (IV on map), are returned soldiers subject to recurrent attacks of malaria. One of these men, when fishing on the beach in front of Patterson's residence, was taken suddenly ill with an attack, and was taken into Patterson's house where he rested until he had recovered sufficiently to return home. The house is of corrugated iron, and very open, and does not appear to provide much suitable shelter for Anophelines. However, Mr. Patterson had noticed "grey speckled" mosquitoes about, and as reported above, adults of *A. p. moluccensis* are at times numerous in the vicinity.

Miss J. Patterson, daughter of the above patient, and employed at the post office, also acquired the infection at a later date, presumably in her own home, though when she became ill she was taken into Mrs. Walker's residence (V on map) next to the post office.

At the northern end of School road were two other cases, F. Herron and V. Hobbs (the latter a school girl), their residences adjoining one another. A covered well in front of the Hobbs's house was examined but neither resting adults nor larvae were found.

From the northern half of the town only one locally acquired case of malaria was reported, this being Mrs. I. V. Johnson, who resides with her daughter, Mrs. Walker (V on map). Mrs. Johnson, however, owns a house on the Halifax road at the southern end of the town (X on map), where she had been in the habit of spending the day, returning to Mrs. Walker's for the night. This house is of iron with a low roof, and in dense shade from overhanging trees; there is a fernery beside it, and about 20 yards to the rear is the dense bush along the western side of Patterson's swamp. Mrs. Johnson was ill before Miss Patterson was taken into Mrs. Walker's house with an attack of malaria. It was subsequently (20th May, 1946) suggested that Mr. Walker was suffering an attack of malaria (locally acquired). This was not proved, but supposing it to be the case, while the possibility of his having acquired it in his own home cannot be excluded, he had, subsequent to Mrs. Johnson's illness, been visiting her house in Halifax road in the evening to feed her fowls, and would therefore have been similarly exposed to any infected mosquitoes in that vicinity.

Another locally acquired malaria case, G. Davis, was resident in Mrs. Johnson's house in Halifax road when he became ill. He has since left the town and it was not possible to ascertain relative dates of his and Mrs. Johnson's attacks.

In the southern half of the town, along the Halifax road, four other newly acquired cases of malaria occurred. One was Mrs. Markkaven (IX on map), resident a short distance north of Mrs. Johnson's on the western side of the road. Also resident in this house is J. Stenros, a returned soldier subject to recurrent attacks of malaria. About half-way between this house and the hotel is the home of Mr. J. C. Madsen (VII on map), another locally acquired case. (He stated that he had not been out much or away from the district.) Opposite this, but about 40 yards from the road, surrounded by bush is the residence of Mrs. Camenzuli (VIII on map), also infected locally.

At the hotel (VI on map), on the corner of Halifax and Dungeness roads, are resident C. Burnett, a locally infected malaria case; H. Simpson, a returned soldier subject to recurrent attacks of malaria; and Mr. Ross, the contractor for the Dungeness road, who had had malaria in the Pacific islands before the war, came to Australia in 1937 and has been at Lucinda Point since about January, and who suffers from recurrent attacks of malaria every month or six weeks, which he treats himself. (It may also be noted that the returned soldiers subject to attacks were said to have come back to the district at the beginning of the year.)

In view of the number of Anophelines found resting in the hotel, the presence there of persons subject to attacks of malaria, and the fact that local residents would visit there in the late afternoon and evening when Anophelines might be expected to be biting, it is not unlikely that some, if not most, of the locally acquired malaria infections were contracted there, or in the vicinity, from mosquitoes which had fed there

and were resting in the neighbouring undergrowth. Indeed a case could be made out attributing the epidemic to the construction of the Dungeness road, which brought to the district a man suffering from malaria and probably treating it by unorthodox methods, and at the same time cut off portion of the nearby tidal swamp, thus creating a prolific breeding ground for the potential vectors.

However, there is insufficient evidence to prove this case and though it may perhaps be partly true it is not likely to give the full picture of the combination of circumstances involved. Other malarial subjects are known to be taking inadequate treatment, and other Anopheline breeding places have been found.

It is worthy of note, in connection with the occurrence of malaria cases, that in the Lucinda Point area the sources of bloodmeals available to mosquitoes are restricted. Evidence of this is afforded by the apparently unfed state of all the Anophelines taken in the bush. The stock in the township amount to no more than three or four cows; there are a few dogs, and a number of the residents keep their own fowls and ducks; apart from ibis, few native birds were noticed.

Lee and Woodhill (1944) quote the results of various precipitin tests on *A. punctulatus moluccensis* which indicate that this species shows no special preference for man, attacking a variety of animals and birds, and they conclude that the females attack whatever animal is nearest at hand. In the Lucinda Point area there are so few animals about that these mosquitoes may be expected to travel some distance from their breeding places before finding a source of blood, and the first source encountered will in a large percentage of cases be man; this would not be the state of affairs if there were farmyards or pastures near at hand.

A classical method of naturalistic malaria control which has achieved some success in other parts of the world is by deflecting the biting of the Anopheline concerned from man to animals. While it cannot be stated that this would be practicable or successful at Lucinda Point, it is suggested that the malaria outbreak there might not have involved such a large proportion of the population had a larger number of stock been available to supply bloodmeals for the Anophelines.

(vi.) Conclusions.

Anopheles punctulatus moluccensis has been found breeding in three places at Lucinda Point, in both fresh and brackish water, and adults of the species have been collected from a dwelling where a locally acquired case of malaria had occurred and also at various sites in the bush about the town. This subspecies is the only proven malaria vector on the Australian mainland and was responsible for the epidemic at Cairns in 1942. It is reasonable to assume that it is responsible for the outbreak of malaria at Lucinda Point, though definite proof from dissections has not been obtained. It is possible also that it has been breeding in additional sites to those found, evidence of this having been destroyed either by the drying up or the oiling of the pools, and where a thorough examination of the edges of a waterhole has failed to reveal any larvæ, though the indication is that they are not breeding there, the possibility of their sheltering among vegetation in the middle should not be overlooked.

Two other species of Anophelines were found at Lucinda Point. Adults of *Anopheles amictus hilli* were taken in a dwelling and in a bush, and a breeding place was located. A naturally infected female of this species was taken once during the Cairns epidemic, and it might possibly fill a subsidiary role also at Lucinda Point. *Anopheles meraukensis* was found resting in a dwelling, but its breeding place was not located. This species is susceptible to experimental infection with malaria but no natural infection has been recorded.

Breeding places, both from oiling and drying up, are now becoming restricted and it is unlikely that large numbers of Anophelines will again be breeding until next summer. Adults which had had bloodmeals and sufficient time for their eggs to mature were found resting in the hotel, but all adults taken in the bush were apparently freshly emerged and unfed. While it is possible that some of these might continue the infection of the population, most of the inhabitants, both infected and uninfected are now undergoing suppressive treatment (on a voluntary basis) while the cooler weather is also rendering the adult mosquitoes less active. For these reasons it appears that the malaria outbreak is now on the wane, if not over.

The cases of malaria which occurred were confined mainly to the southern half of the town, and the Anopheline breeding places found adjoin this area. However, the northern portion would be more exposed to sea breezes, and also offers comparatively little shelter in the form of trees and bush, so that if Anophelines did breed in that region they would probably seek shelter in the extensive areas of dense bush and mangroves in the southern portion.

As the Lucinda Point area is one in which extensive swamps and waterholes occur, larvicidal treatment of the entire area is obviously out of the question. At the present time (end of May) pools are rapidly drying up, but when heavy rains again occur it is apparent that there will be extensive areas of ground water available for breeding places and it is impossible to forecast now which of these will be favoured by *A. punctulatus moluccensis*, a species which is notably catholic in its choice of breeding places. Indeed it is not unlikely that when the selected breeding places have been rendered unsuitable, it will adopt others of different type.

It will therefore be essential that larval control measures be undertaken by someone who is able to distinguish an Anopheline larva from a Culicine (since Culicines will be found in many more places than Anophelines), and who can be depended upon to make a regular check of all potential mosquito breeding places in the area, whether Anophelines have hitherto been found in them or not. At the same time all members of the local population who suffer from recurrent attacks of malaria should be assiduous in their suppressive treatment in order to reinforce any measures which may be taken against the vector.

II. REPORT ON ANOPHELINE BREEDING IN THE INGHAM DISTRICT, MAY, 1946.

At the request of Dr. G. C. Morrissey, Government Medical Officer at Ingham, after the Anopheline Survey at Lucinda Point had been completed, collections were made in the vicinity of other settlements in the district, in order to ascertain what species of Anophelines were

occurring and in what type of breeding places. The information so obtained could then be availed of as a basis for control measures, should further outbreaks of malaria occur in the district.

(i.) *Halifax* (20th and 23rd May, 1946) (see map).

This is a town (population 700) situated on the right bank of the Herbert River about 12 miles east-north-east from Ingham, and between the latter and Lucinda Point. Two cases of malaria, probably acquired locally, were reported from the neighbourhood of Halifax, these being I. Marini and E. Martini, on adjoining cane farms about 3 miles north of Halifax and about $\frac{1}{2}$ mile east of the Herbert River. Martini stated that his brother also was suffering from malaria. None of these patients had visited Lucinda Point prior to their illness. An ex-soldier, Beggs, who suffered recurrent attacks of malaria, was said to live on a neighbouring farm.

A visit to the farm of Marini failed to reveal any Anopheline breeding places. A tidal creek about 6 feet wide runs within 10 yards of the house, but this had straight clear mud banks and fish were present; no mosquito larvae were found here nor in a patch of water and damp mud beside a windmill. On the track to the farm of Martini, a number of muddy pools in wheel-ruts were examined, but no larvae were found; these pools would however be fairly frequently disturbed by traffic. Nor could any breeding places be located in the vicinity of the farm buildings. On both farms it was apparent that immediately after wet weather there would be many pools, in hoof-marks, wheel-ruts, and other depressions, which might afford suitable breeding sites for Anophelines.

In and around the town of Halifax, the following pools were examined:—

1. A stagnant waterhole (1 on map) almost in the main shopping centre, at the corner of River avenue and Victoria terrace, near the War Memorial.—This pool was in a depression at the side of the road, and partially shaded by a mango tree; it measured about 12 feet by 8 feet and about 4 inches deep, being made up of muddy pools and puddles, and was very evil smelling, apparently polluted both by drainage and by stock. In addition to Culicines, *Anopheles punctulatus moluccensis* larvae were collected from this pool but were not numerous.

2. A stagnant waterhole (2 on map, Photograph VI.) between the Ingham Halifax road (Musgrave street) and the grounds of Halifax State school.—This unshaded pool of fresh muddy water, about 15 yards long and up to 3 yards wide, lay in a depression beside and below the level of the road; the edges were grassy with more or less isolated hoofprints and depressions, and pollution from cattle was likely. *Anopheles punctulatus moluccensis* larvae were numerous in this pool, in addition to Culicines. An unsuccessful attempt had been made to fill in a similar pool some distance along the road by dumping rubbish in it.

3. A drying-up waterhole (3 on map) in Rosendahl street between the road and the Show-ground reserve, and about $\frac{1}{4}$ mile east from the Ingham-Halifax road.—This waterhole consisted of an unshaded pool of fairly clear fresh water with numerous outlying deep hoofprints and

puddles, the total area being about 18 feet by 6 feet. The edges were grassy, there was some green alga, and it was polluted by cattle. Fish were present in the main body of water but not in the puddles, and from these *Anopheles punctulatus moluccensis* and *Anopheles annulipes* larvae (the former more numerous) were collected, in addition to Culicines.

4. A drying-up waterhole (4 on map) beside a road running south at right angles to Rosendahl street, and situated about 100 yards from site No. 3.—This unshaded pool of slightly muddy water had no grass or other vegetation in it; it was probably polluted by cattle. In addition to Culicines, larvae of *Anopheles amictus amictus* were numerous, and a few *Anopheles annulipes* larvae were also taken.

5. A deep waterhole (5 on map) in Montgomerie street about 200 yards east of the Ingham road.—This is a large pool in a dried-up watercourse, about 100 square yards in area, with steep sand and gravel banks, unshaded except along one side where there is an overhanging cotton tree. The water contained suspended mud or clay. Fish were present but shelter for larvae was afforded along the edge by small patches of water weed and green alga, and by pieces of rock which had fallen down from the road. Larvae were very scarce, but in addition to Culicines, *Anopheles punctulatus moluccensis* and *Anopheles annulipes* were collected.

A small deep pool some distance east of this, in a gully under a tramline, beside the road was also examined. Fish were numerous but no larvae could be found.

6. A large waterhole (6 on map) on the west side of Herbert River and north side of Halifax-Bemerside road, about 50 yards from the river.—This unshaded waterhole was about 100 yards long and 3-4 yards wide. It lies in a hollow which forms an overflow from the Herbert River in floodtime, and would probably also be filled by heavy rains. The water was fresh and muddy, probably polluted by stock; the bottom was of mud and grass along the edge formed a mat, giving shelter to larvae. In addition to Culicines, larvae of *Anopheles amictus amictus* were collected here.

7. A deep waterhole near the junction of Victoria terrace and Jessup avenue in the town of Halifax.—This is a deep pool about $\frac{1}{4}$ acre in extent with very high, steep banks and almost entirely covered with water hyacinth. Fish were present and no mosquito larvae were found.

8. Leichhardt Swamp.—This is a large lagoon, about $\frac{3}{4}$ acre in extent, situated to the east of Halifax-Lucinda road, on the outskirts of the town of Halifax. It has a clear mud edge affording no shelter, and fish are present. No mosquito larvae were found.

9. Muddy waterhole about $\frac{1}{2}$ mile from Halifax on south-east side of Lucinda Point road. This was a large drying-up unshaded pool of fresh muddy water, about 30 yards long and 8 yards wide, lying in a depression between the road and a canefield. The edges were muddy and it was polluted by stock. A few Culicines only were collected here.

10. Herrin's Swamp.—This is a large unshaded fresh-water swamp, several acres in

extent, about $\frac{3}{4}$ mile from Halifax on south-east side of Lucinda Point road. It is almost entirely covered with water hyacinth, and the edges are muddy and fairly clear of vegetation. No mosquito larvæ were found here. On the north-west side of the road, a continuation of this swamp forms more or less isolated pools, partly shaded by trees and grass, and from these a few Culicines, but no Anopheline, larvæ were collected.

11. Stagnant muddy pools at roadside (Photograph VII) in a portion of the Halifax-Lucinda Pt. road known as "The Washaway," which has recently been under repair. This is a couple of hundred yards from Herrin's swamp. These unshaded pools were in a sort of gutter at the side of a built-up road; individual pools had an area of about 8 square feet, being about 4 inches deep with a mud edge and numerous small stones lying on the bottom. The water was fresh and contained suspended clay; there was no vegetation growing in it. In addition to Culicines, larvae of *A. p. moluccensis* were collected.

(ii.) *Macknade* (23rd May, 1946).

This is an area of sugar farms with a rather scattered settlement, about 2 miles west of Halifax, on the left bank of the Herbert River. There is a sugar mill at the south end of the settlement, and from it a channel or drain about 3 feet wide—the "molasses drain"—runs in a northerly direction to empty into the river downstream from Halifax. The channel traverses a low-lying swampy area which it does not appear to drain to any extent, and alongside it there occur a number of shallow waterholes. This swampy area forms an overflow channel of the Herbert River during floods. In places the molasses drain is shaded by undergrowth, but in general it is exposed to sunlight. It was examined at a spot at the rear of a residence a short distance north of Macnade post office, and about 100 yards north of where the road crosses the tramline. At this place it is an unshaded semi-stagnant open drain about 6 inches deep and 3 feet wide, the water being fresh and muddy, with some grass and waterweeds in it, and polluted by drainage from the nearby house and by cattle. A few Anopheline larvae were found sheltering in the grass. About 15 yards from the drain was a shallow unshaded muddy pool about 12 yards long and 6 yards wide, polluted by cattle. There was a dense low-growing waterweed in this pool, amongst which Anopheline larvae were sheltering in large numbers.

Anopheles amictus amictus was the dominant species in both these places but *Anopheles annulipes* was also collected.

An examination was made of a large, stagnant waterhole about 100 yards south of the Lion Hotel, Macknade, which is at the junction of Macknade and Halifax-Bemerside roads. The gully in which this pool lies would run in the wet season into the channel of the molasses drain. The waterhole was unshaded and deep, about 6 yards wide and 30 yards or more long, with steep earth banks. The water was fresh and slightly muddy and there was considerable vegetation in the form of water-weed, *Azolla*, and grass along the edges. Some pollution from cattle was probable. Larvae were scarce, and found only amongst waterweeds and in puddles

and hoofprints at the edges. In addition to Culicines, *Anopheles annulipes* larvæ were taken.

(iii.) *Bemerside* (23rd May, 1946).

This is a small settlement about 4 miles west of Halifax on the left bank of the Herbert River. A creek runs through the township but this was dry when examined. To the rear of the church is a large, shallow, muddy fresh-water lagoon about 1 acre in extent. There were some water lilies in the middle, but no vegetation in the water round the edges, where there are numerous muddy hoofprints partially shaded by trees. Some pollution is caused by stock. Larvæ were very scarce, and found only in isolated hoofprints at the edge of the lagoon where *Anopheles amictus amictus* and *Anopheles annulipes* were breeding.

It was noted on the road from Bemerside, through Ripple Creek to Ingham, that there were many dried-up shallow grassy depressions which earlier in the season would have furnished potential breeding places for Anophelines.

(iv.) *Trebonne Area* (28th May, 1946).

This is an area of cane farms about 10 miles west of Ingham. There is a small township at Trebonne, but otherwise only scattered farms, some however being small, as at Beeva, where there are 10 acre blocks. The following pools were examined:—

1. Lannercost Creek, Lannercost Extension.—This creek was examined where it runs under the road and tramline, close to a farmhouse. The creek is said to run for six months in the year. When examined it had ceased running, the water being fresh and slightly discoloured. Portion was densely shaded by overhanging trees, and without vegetation except for tangled roots of the trees in the water; while the portion nearer the road would be sunlit for a large part of the day, and had steep banks overgrown with Para grass, the stems of which lay in the water with debris and alga collecting on them, affording shelter for larvæ. In addition there was some waterweed. Larvæ were not very numerous but were taken among both the grass and the tree roots. The commonest Anopheline was *Anopheles bancrofti* but *Anopheles punctulatus moluccensis* was also collected.

2. Lannercost road, about $\frac{1}{4}$ mile from its junction with Long Pocket road.—Muddy unshaded fresh-water pools on either side of a culvert were examined. These are in a gully which forms an overflow from Lannercost Creek, and runs during the wet season. They varied in size from 8 inches diameter to 15 feet by 3 feet. The edges were shallow, of mud and gravel; grass overhung them, but was not in the water. In addition to Culicines, numerous larvae of *Anopheles annulipes* were collected here. (Photograph VIII).

3 Stone River.—This is a running fresh-water river, with high timbered banks and sandy bed. It was examined just upstream from the bridge on the Long Pocket road, near the settlement of Beeva. At the time of examination, the river was only about half the width of its sandy bed, and there were a number of isolated stagnant pools in the sand on the left bank. No larvae could be found in these. The edge of the river itself, on the left bank was shallow and shelving

about $\frac{1}{2}$ to 3 in. deep, with a coarse sandy bottom, the water being clear and fresh. Extending out about 3 feet from the edge was a dense growth of green alga with debris entangled in it, affording a shelter for numerous larvae of *Anopheles annulipes* and Culicine species. (Photograph IX.)

4. Beeva.—At a spot about $\frac{1}{4}$ mile east of the Stone River on the north side of the road a large shallow fresh unshaded waterhole an acre or more in extent was examined. This had a mud edge about 2 inches deep; the water was fairly clear but the mud was easily stirred up; it was polluted by stock. A small outlying pool about $2\frac{1}{2}$ yards in diameter was similar in type. The only vegetation present was green alga in small patches along the edges and larvae were found to be fairly numerous sheltering in it. *Anopheles amictus amictus* predominated, and there were smaller number of *Anopheles annulipes*.

5. Trebonne Creek.—This was examined in the township of Trebonne, on the west side of the Upper Stone road, where there was a large, deep unshaded waterhole of clear fresh water, with steep banks and mud edge. There were a few hoofprints along the edge, and some waterweeds and green alga, and waterlilies (*Nymphaea gigantea* in the centre. Fish were numerous and mosquito larvae were very scarce and found only among the vegetation along the edge. In addition to Culicines there were a few immature Anophelines which could not be identified with certainty but were probably *Anopheles meraukensis* or *Anopheles annulipes*.

6. Fairford road, Trebonne, about $\frac{1}{4}$ mile east of the township.—At this spot a creek or gully was examined. This ran south under a culvert in the road, broadened out into a large pool, and then continued as what appeared to be an excavated drain emptying into Trebonne Creek about a mile away. At the time of examination the water was not running. (Photograph X.)

The pool examined on north side of the road measured about 10 yards by 2 yards and 6 to 12 inches deep, being unshaded, with steep banks overgrown with weeds and grass. The edges were muddy, the water fresh and fairly clear and with much vegetation in the form of waterweed, grass and green alga in it. Fish were plentiful in the open water but could not penetrate in the thick weed, and here larvae were moderately numerous. Anophelines collected were *Anopheles punctulatus moluccensis*, *Anopheles annulipes*, *Anopheles meraukensis* and *Anopheles bancrofti*. About 20 yards from this spot, on the south side of the road in the same gully was a large muddy unshaded waterhole about 20 yards long and 1 to 6 yards wide, with a shallow mud edge with numerous hoofprints and puddles and some small patches of waterweed. Larvae were fairly numerous in the puddles and included *Anopheles amictus amictus* and *Anopheles annulipes*.

(v.) *Town of Ingham.*

The town of Ingham is traversed by Palm Creek, which runs through the centre of the town, dividing the main shopping centre from the centre of East Ingham, passes through a residential area and within about 30 yards of the rear of the General Hospital. At the time

of examination the creek was no longer running and consisted of a series of deep waterholes of varying sizes up to about 10 yards wide, some being many yards in length. The bed of the creek is up to about 50 yards wide, with fairly high banks, and in places at this time the isolated waterholes give it rather the appearance of a swamp. The banks have been cleared of heavy timber, but there are numerous trees along them, and for the most part they are overgrown with thick high grass of "bladey-grass" type. In most places there is fairly thick grass to the edge of the water, and numerous pandanus trees grow in the creek bed. The pools themselves support waterlilies (*Nymphaea gigantea*), hyacinth, *Azolla*, duck weed (*Lemna*), and sedges, and in places there is little open water. Where the banks are not steep there are several yards of boggy, grassy ground along the edges and ends of the pools.

In the centre of the town (Photograph XI) the creek is spanned by two bridges to East Ingham, these being about 60 yards apart. An attempt is being made to fill in the portion of the creek between these two bridges (opposite the police station), the purpose, as far as could be ascertained, being to make it of even depth rather than fill it in completely. The filling is with loads of rubbish which are subsequently covered by sand. The wet season had interrupted this work, and at the time of examination part of this creek could be described only as a morass of boots and tins. Some of the pools were shaded by trees, others exposed to full sunlight; areas varied, some being merely puddles and hoofmarks about 2 inches deep; the banks were grassy, and the edges of the pools were of sand and dirt. The water was discoloured, in places covered with a thick red scum, and thoroughly filthy and stinking, being polluted not only by the rubbish, but by general drainage as this creek is in effect the town drain. Anophelines were fairly numerous in the smaller pools and both *Anopheles punctulatus moluccensis* and *Anopheles annulipes* larvae were collected. (*Culex fatigans*, a considerable pest in the town, was also breeding here.)

To the rear of the General Hospital (Photo. XII.), Palm Creek forms a long swampy waterhole terminating where a culvert runs under a road; it is sunlit except for shade from pandanus trees growing on grassy "islands" in the middle and high, rank growth of grass and weeds. The edge is grassy and boggy with numerous hoofmarks and pools 4 inches to 2 feet in diameter and 2 to 6 inches deep. The water is clear but the mud is easily stirred up. Near the edges there is a considerable amount of duckweed (*Lemna*) while the main body of water is thickly covered with *Azolla*. It is polluted by stock and by drainage from further upstream. Mosquito larvae were very numerous along the edges of the creek here. Anophelines however were practically confined to the hoofmarks and boggy pools. *A. p. moluccensis* larvae were exceedingly numerous, and *A. annulipes* were also collected.

A small, deep pool, partially covered with hyacinth, beside a culvert near the Ingham State school, was examined for larvae, but none were collected and the presence of fish was noted. This culvert was in a gully draining into Palm Creek.

Muddy water in unshaded wheel-ruts in a track leading from the rear of the General Hos-

pital about 4 inches deep and with a total area of about 30 square feet, yielded larvae of *A. p. moluccensis* and *A. annulipes*.

Conclusions.

All information available at present points to the conclusion that on the mainland of Australia where *A. punctulatus moluccensis* is present other species of Anophelines may be disregarded as of importance as malaria vectors. This species has been found to be widespread in the Ingham district, where in addition *A. annulipes*, *A. amictus amictus*, *A. amictus hilli*, *A. meraukensis*, and *A. bancrofti* occur.

Records show that *moluccensis* may be found in a wide variety of breeding places, and observations of it in the Ingham district, including Lucinda Point, only serve to confirm them. It would therefore be unsound to make any definite statement as to where it would or would not be likely to be found, particularly if such a statement were taken to apply at a different season, when many more breeding places were available. Bearing this in mind, however, it does appear that more or less isolated, unshaded, grassy puddles and hoofprints round the edge of fresh-water holes are a particularly favourable breeding place, as indicated by the number of larvae occurring in a given area of water; whereas repeated search has failed to reveal any larvae of this species in the water which extends some distance under a dense mat of grass (being consequently shaded) at the edges of brackish swamps.

It appears that control measures directed against the larvae of *A. punctulatus moluccensis* would only be practicable in the vicinity of towns or closely settled areas, or about isolated farms inhabited by persons subject to recurrent attacks of malaria.

III. GENERAL COMMENTS.

While it is appreciated that some, if not all, the following miscellaneous observations are outside the scope of this report, they are nevertheless submitted, for what they are worth, as impressions gained by a disinterested observer.

1. Persons engaged in mosquito control measures need only a very elementary knowledge of identification of mosquitoes, the essential being that they should be able to distinguish an Anopheline from a Culicine in both the larval and adult states. If further details are required they can be obtained by submitting specimens to a competent authority. Such a set-up, however, can only yield reliable results if the control worker is an efficient collector, and in order to be such he must be informed on the essential details of the habits and biology of the important disease vectors and pest species and know not only *where* but *how* to look for them.

2. An outbreak of mosquito-borne disease, awakening the public as it does to the importance of these insects, no doubt offers the opportunity of more readily enforcing health regulations on mosquito control, such as screening of tanks, &c. The importance of this as a health measure is not in question, but in the case of a malaria outbreak one must beware of its obscuring the fact that tanks are *not* the

breeding places of Anophelines, and lulling the population into a false sense of security that having screened their tanks they will be safe from malaria infection.

3. Long range engineering projects are important measures of mosquito control. If, however, "long range" means that pools are to be gradually filled with rubbish over a long period of months, in the meantime becoming highly polluted morasses, the breeding places of disease vectors, such schemes are of questionable value, particularly in the middle of a town.

4. Palm Creek, Ingham, bears a striking resemblance to the classical photographs, to be seen in various works on mosquito control of breeding grounds in various parts of the world, before control measures were taken. In such cases the photograph of the "treated" breeding ground shows it transformed into a concrete or earth drain with straight sides and cleared banks. What measures should be taken with Palm Creek are not known, but it is worth pointing out that it acts as a drainage channel, and any scheme preventing rapid drainage of water from the surrounding areas would mean the creation of pools and puddles suitable as breeding places for *A. punctulatus moluccensis*.

IV. ACKNOWLEDGMENTS.

Generous assistance has been received from many quarters, and in particular from the following:—

Dr. G. C. Morrissey suggested lines of investigation, and Matron M. Duffy, of Ingham General Hospital, made available laboratory accommodation which greatly facilitated the work. In the field, the assistance of Mr. P. Lowes, State Health Department, at the inception of the Lucinda Point investigations was invaluable, while the energy and enthusiasm of Mr. J. Fisher, Acting Health Inspector, Hinchinbrook Shire, coupled with his extensive knowledge of the district, were responsible for such a wide area being covered. Additional collections were made available by Mr. D. Pryor, State Health Department. Mr. and Mrs. A. A. Howell generously provided hospitality at Lucinda Point, and Miss L. Giorcelli loaned artists' materials used in the preparation of the maps.

Their material contributions to the studies on which this report is based is very gratefully acknowledged.

V. REFERENCES.

(Only those are cited to which immediate reference has been made in the preparation of this report.)

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PHOTOGRAPHS OF LUCINDA POINT, HALIFAX AND INGHAM.



PHOTOGRAPH I.

C.S.R. swamp, Lucinda Point, 22-5-46. Photograph taken from east edge shows south half of swamp. Drain from Recreation Reserve swamp runs into C.S.R. swamp at about this point. Building at extreme right is hotel, and east continuation of Dungeness road runs at foot of trees in background. White posts can be seen marking culvert which drains swampy area on south side of road. Depressions from which *A. punctulatus moluccensis* were collected are amongst grass on extreme left in middle distance.



PHOTOGRAPH IV.

Recreation Reserve swamp, Lucinda Point, 22-5-46, taken from its south-east corner looking north-west. Post Office is to left of palm trees on right. Houses in background are on west side of the Parade, and back on to C.S.R. swamp. Culvert from Recreation Reserve swamp to C.S.R. swamp is just out of picture, on left.



PHOTOGRAPH II.

Mud-bottomed depression amongst long grass on south-east side of C.S.R. swamp, Lucinda Point, 22-5-46. Hole was dry at time of photograph, but it was from this pool that *A. punctulatus moluccensis* larvae were collected on 16-5-46. The patch of bush in left background was site of an adult collection on 21-5-46, but no Anophelines were taken.



PHOTOGRAPH V.

Mangrove-fringed depression on south side of Dungeness road, about 8 to 10 chains west of tramline, 22-5-46. Photograph taken looking north-west and Dungeness road may be seen background on left. Photograph taken when pool had dried up; it had extended over the whole area of bare mud in foreground and middle background. Tins and rubbish are seen lying in the mud. *A. punctulatus moluccensis* and *A. amictus hilli* were breeding here.



PHOTOGRAPH III.

C.S.R. swamp, Lucinda Point, 22-5-46. Photograph taken looking north from east continuation of Dungeness road a few yards east of culvert seen in Photograph I. Pools in foreground are part of the long shallow pool into which this culvert drains, and which is cut off from the tidal swamp by the high bank or old road seen behind them. The signal in left background is on C.S.R. tramline, and buildings at right background are near the jetty.



PHOTOGRAPH VI.

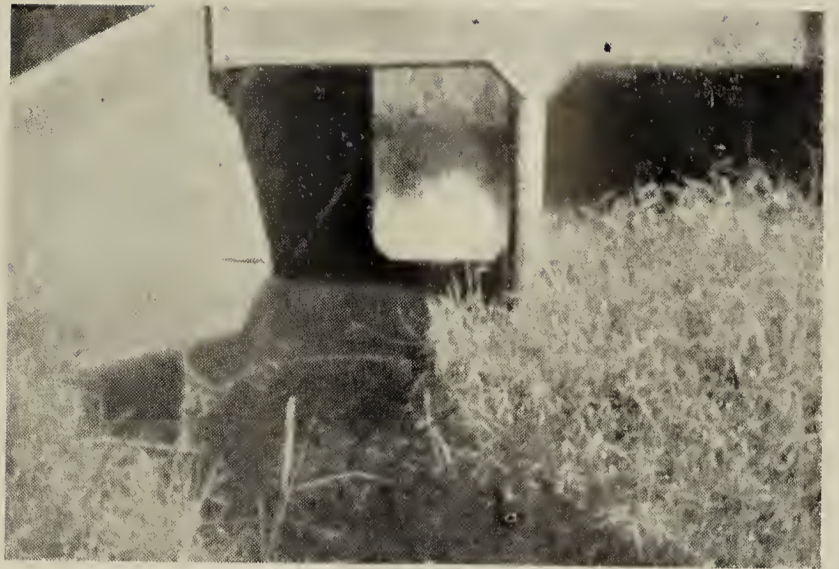
Stagnant pool, Halifax (23-5-46), taken looking south (2 on map of Halifax). Road to Ingham is on top of bank at left, fence of State School grounds on right. Breeding place of *A. punctulatus moluccensis*.





PHOTOGRAPH VII.

Muddy pools at side of Halifax-Lucinda Point road, 23-5-46. Pools contain no vegetation and are breeding place of *A. punctulatus moluccensis*. Built-up bank along which road runs is on right.



PHOTOGRAPH X.

Weedy pool, Fairford road, Trebonne, 28-5-46, on north side of road. Sheltering amongst dense water weeds were larvae of *A. punctulatus moluccensis*, *A. annulipes*, *A. meraukensis* and *A. bancrofti*, while in the same gully about 20 yards away, on the other side of the road, *A. amictus amictus* was breeding.



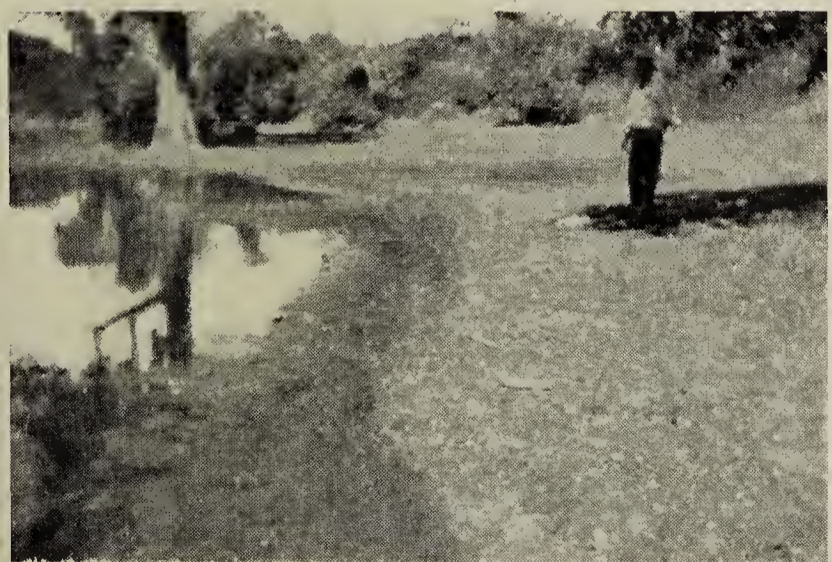
PHOTOGRAPH VIII.

Stone River, near Beeva, 28-5-46, looking upstream from bridge. *Anopheles annulipes* larvae were numerous amongst green alga which extended in a strip about 3 feet wide along the sandy edge seen in the mid foreground.



PHOTOGRAPH XI.

Palm Creek, Ingham, 19-5-46. Polluted pools in the creek bed between shopping centres of Ingham and East Ingham, looking upstream. Road running to right, to East Ingham, can be seen in background. Tins and rubbish are dumped in creek bed. A much worse patch of rubbish was in deep shade a few yards downstream. Breeding place of *A. punctulatus moluccensis* and *A. annulipes*.



PHOTOGRAPH IX.

Large unshaded waterhole, Beeva, 28-5-46. Larvae of *A. amictus amictus* and *A. annulipes* were found sheltering in small particles of green alga along the muddy edges of this pool, and in the small isolated pool to the rear of the figure.



PHOTOGRAPH XII.

Palm Creek, Ingham, 19-5-46. Taken from a culvert in a road on east side of General Hospital, looking upstream. Rear of hospital is behind tree at top of bank in left background. Pandanus tree on right is in a boggy area in middle of creek. Overgrown nature of creek is apparent. Hoofprints from which larvae of *A. punctulatus moluccensis* and *A. annulipes* were collected are among shorter grass on left and in foreground.



ANOPHELINE SURVEY

MAY, 1946

TOWN OF HALIFAX

PARISH OF CORDELIA

COUNTY OF CARDWELL

LAND AGENT'S DISTRICT OF INGHAM

Pools and waterholes examined for larvae

Breeding places of Anopheles spp.

1. A. punctulatus moluccensis
2. A. punctulatus moluccensis
3. A. punctulatus moluccensis, A. annulipes
4. A. annulipes, A. amictus amictus
5. A. punctulatus moluccensis, A. annulipes
6. A. amictus amictus

Collections by E. N. Marks and J. Fisher
 Identifications and Map details by E. N. Marks
 (NOTE—Waterholes are not drawn to scale)

Scale of Chains
 Drawn and Published at the Survey Office, Dept of Public Lands, Brisbane Feb. 1942
 Printed at the Govt Printing Office. Price 1s 6d

Note—All bearings are on the
 County Arbitrary Meridian
 Variation at N.W. Con of Pn 20v, 5° 55' 02" E.
 Lat. 18° 35' 15" S. Long. 146° 17' 15" E. (Approx)

CROWN COPYRIGHT RESERVED



PORT ANOPHELINE SURVEY OF

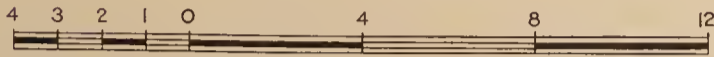
MAY, 1946

TOWN OF LUCINDA

PARISH OF CORDELIA
COUNTY OF CARDWELL

LAND AGENT'S DISTRICT OF INGHAM

Scale of Chains



Drawn and Published at the Survey Office, Dept. of Public Lands Brisbane Nov., 1941.

Printed at the Govt. Printing Office

Price 1s.

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Reference to Real Property Information
Subdivisions indicated thus 24
Resubdivisions " " 24

H. Lewis Del.

R.149

Res. 93/81

TIDAL MANGROVE SWAMP

LUCINDA POINT - DUNGENESS ROAD

Teatree Swamp

Mangrove Pool

- Swamps, waterholes, and pools examined for mosquito larvae
- Sites at which Anopheles spp. were found
- Sites at which adult mosquito captures were made
- Site of Malaria case, locally acquired
- Site of Malaria case, acquired on Army service
- Site of Malaria case, otherwise acquired

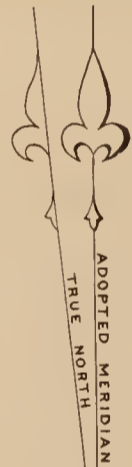
Collections by E. N. Marks, D. Pryor, P. Lowes, and J. Fisher
Identifications and Map details by E. N. Marks

(NOTE.—Waterholes are not drawn to scale. Numbers of allotments could not be ascertained in all cases.)

Town Reserve

GG.1926 I 1687

790 0 0



Admiralty Chart No. 1254

Fresh water Swamp

Teatree Swamp

