Annual report on the health and medical services of the state of Queensland.

1947.

QUEENSLAND.

ANNUAL REPORT

ON THE

HEALTH AND MEDICAL SERVICES

OF THE

STATE OF QUEENSLAND

FOR THE

YEAR 1946-47.

PRESENTED TO PARLIAMENT BY COMMAND.

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ANNUAL REPORT OF THE DIRECTOR-GENERAL OF HEALTH AND MEDICAL SERVICES, 1946-47.

The Honourable the Minister for Health and Home Affairs.

SIR,—I have the honour to submit for your information the annual report of the activities of the Health and Medical Services Branch of the Department of Health and Home Affairs (Queensland) during the year ended 30th June, 1947.

STAFF.

Sir Raphael Cilento, Kt., M.D., B.S., D.T.M. & H., F.R.San. I., who was on special leave and engaged in duties for the United Nations Relief and Rehabilitation Administration during the previous year, was, because of his outstanding qualifications and distinguished service, appointed to the position of Director, Division of Refugees, United Nations Organisation, New York. Later the title of this position was changed to Director, Division of Social Activities. He resigned as Director-General of Health and Medical Services for Queensland on 15th August, 1946, and was succeeded by Dr. John Coffey. His loss will be keenly felt not only in Queensland but also in Australia generally.

Dr. Coffey, whose tact and genial personality were known to all, joined the Department in 1922 and during his long association with it has given meritorious service. To him must be given a large portion of the credit for the high standard of efficiency of the Department at the present time. He retired on 15th April, 1947, and was succeeded by myself.

Dr. E. H. Derrick resigned as Director of the Laboratory of Microbiology and Pathology to take up the position of Deputy Director of the Queensland Institute of Medical Research on 1st June, 1947. He was succeeded by Dr. D. W. Johnson, who had returned after a long illness, but unfortunately it was necessary for him to have further treatment, and at the present time Dr. J. I. Tonge is Acting Director. The research work carried out by Dr. Derrick while Director of the Department's Laboratory was of such outstanding merit that it has made this laboratory and Dr. Derrick world famous.

Dr. L. St. Vincent Welch retired on 9th June, 1947, as Chief Medical Officer, School Health Services, after 21 years of service. He pioneered the work of the School Health Services, and the Wilson Ophthalmic School Hostel will be a memorial to him and to his interest in children, particularly of the far west. It is with regret that we learn of his death since his retirement. He was succeeded by Dr. P. R. Patrick.

L. A. Meston, F.I.C.A., retired on 31st December, 1946, from the position of Government Analyst and Chief Inspector of Explosives after 40 years' loyal service in the Government Chemical Laboratory. He was succeeded by S. B. Watkins, A.A.C.I.

SECTION OF MATERNAL AND CHILD WELFARE.

This Section of the Department continues to give excellent service to the people of Queensland, and to the nurses must be given a good deal of the credit for the fall in infant mortality. The shortage of staff has limited activities and it is hoped during the coming year that expansion, particularly in the country districts, will take place.

One weakness in the scheme is that in a large number of centres no doctor is associated with the clinic and it is hoped that the services of a medical practitioner can be obtained to attend the clinics at least one session per week in the larger centres, so that the nurses can refer cases to them.

SCHOOL HEALTH SERVICES.

During the year Dr. P. R. Patrick was appointed Medical Officer.

Examinations of children are carried out by nurses, and consist mainly of testing of the eyes by Snellin's types, examination of the teeth and throat, and for glands of the body. It is hoped, as medical officers become available, to increase the medical staff so that a full medical examination of each child will be given periodically during his school life.

SECTION OF INDUSTRIAL HYGIENE.

Expansion of the Section of Industrial Hygiene has taken place during the year following the appointment of Dr. Douglas Gordon as Medical Officer in charge. The Health Acts contain the necessary powers to make regulations in relation to industrial hygiene, but it is preferred to act as advisers to the Departments of Mines, and Labour and Industry. If the full benefit is to be derived from the medical inspections it will be necessary to have a very close liaison with these departments.

SECTION OF ENTHETIC DISEASES.

The male and female clinics have been the subject of favourable comment both from overseas and interstate visitors. Alterations during recent years have made them more attractive, and increased staff more convenient to patients, who now attend at a time suitable to themselves. That the service is appreciated by the public is seen in the percentage increase in the number of patients attending. There was an increased number of notifications, but it is anticipated these will fall as the community returns to a normal life.

Vital Statistics.

The actual growth of the population of Queensland continues. The estimated population of the State at 1st January, 1947, was 1,098,325, an increase of 57,789. That of Brisbane at the same date was approximately 400,000, an increase of 46,410.

It is disturbing to find such a drift to the city, particularly as in the past Queensland had the lowest proportion of metropolitan population for any State except Tasmania. Although this is so this year, efforts must be made to provide further amenities and security to people living in the country, especially in isolated communities. As staff becomes available it is hoped to expand the medical services. The research of Professor D. H. K. Lee of the University of Queensland in the physiology of work, as well as the investigations into the most suitable types of houses for our different climates, should continue.

The crude birth rate of 24.8 is the same as last year, and is only exceeded in Australia by Tasmania.

The infant mortality rate (29.27) continues to fall and is the lowest rate recorded in this State. The chief cause of death is prematurity. The percentage of deaths of premature infants at the Brisbane Women's Hospital was 19.8; the percentage in public hospitals outside Brisbane. 40. The difference in the mortality rate is explained mainly by the shortage of nurses adequately trained in the supervision of premature infants, and is part of the general nursing shortage, which is world wide. Consideration is being given to the recommendations of the Director of Maternal and Child Welfare in this regard.

TABLE I.

Crude Birth Rate (Per 1,000 Population).

—	1939.	1940.	1941.	1942.	1943.	1944.	1945.	1946.
Commonwealth of Australia	17·6	18·0	18·9	19·1	20·6	21·0	21·8	23·7
Queensland	20·1	19·9	20·7	20·4	22·1	23·0	24·8	24·8
New South Wales	17·5	17·8	18·5	18·7	20·2	20·8	21·3	23·0
Victoria	16·2	16·8	17·8	18·3	19·7	19·7	20·5	23·0
South Australia	16·1	16·7	18·2	18·5	21·4	21·4	22·3	24·8
Western Australia	19·4	19·4	21·3	20·7	21·8	22·4	21·8	24·5
Tasmania	21·0	20·8	21·7	22·0	23·1	21·2	23·3	27·4
New Zealand	18·7	21·2	22·8	21·7	19·7	21·6	23·2	25·2
England and Wales	14·9	14·5	14·1	15·6	16·2	17·5	16·1	19·1
Scotland	17·4	17·1	17·5	17·6	18·4	18·5	*	*
Eire	19·1	19·1	19·0	22·3	22·3	22·0	*	*
North Ireland	19·5	19·6	20·8	22·8	24·2	23·5	*	*
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.	1946.
Commonwealth of Australia	9·9	9·7	10·0	10·5	10·3	9·5	9·5	10·0
Queensland	9·4	9·0	9·2	9·3	10·1	8·8	8·8	9·8
New South Wales	9·8	9·4	9·8	10·4	10·2	9·3	9·3	9·8
Victoria	10·7	10·7	10·6	11·2	10·8	10·3	10·2	10·6
South Australia	9·6	9·5	10·4	11·0	10·5	9·6	9·6	10·2
Western Australia	9·3	9·5	10·1	10·6	9·6	9·2	9·6	9·6
Tasmania	10·2	9·9	10·7	10·1	10·4	10·2	9·7	10·1
New Zealand	9·2	9·2	9·8	10·6	10·0	9·9	10·1	9·7
England and Wales	12·1	13·9	12·8	11·5	11·9†	11·6†	11·4†	11·5†
Scotland	12·9	14·9	14·7	13·3	14·0	13·6	*	*
Eire	14·2	14·2	14·6	14·0	14·7	15·4	*	*
North Ireland	13·5	14·6	15·2	13·3	13·4	12·8	*	*
Canada	9·6	9·7	10·0	9·7	10·1	9·7	*	*

* Not available. † Provisional.

TABLE III.

Infant Mortality Rate (Deaths under 1 Year per 1,000 Births.)

—	1939.	1940.	1941.	1942.	1943.	1944.	1945.	1946.
Commonwealth of Australia	38·2	38·4	39·7	39·5	36·3	31·3	29·4	29·0
Queensland	35·5	35·3	39·1	34·8	37·8	31·3	29·8	29·3
New South Wales	41·0	39·0	43·8	40·2	36·2	30·7	30·6	30·2
Victoria	35·6	39·4	36·2	41·7	35·8	33·0	28·0	27·2
South Australia	34·9	35·5	32·5	39·7	36·7	28·8	28·1	27·1
Western Australia	40·8	44·2	35·3	36·9	32·6	32·7	29·5	31·1
Tasmania	40·6	35·2	49·0	42·4	40·6	38·3	27·5	30·1
New Zealand	31·1	30·2	29·8	28·7	31·4	30·1	28·0	26·1
England and Wales	50·0	55·0	58·0	49·0	49·0	46·0	46·0	43·0
Scotland	68·5	78·3	82·7	69·3	65·2	65·0	*	*
Eire	66·0	66·0	73·0	68·0	80·0	79·0	*	*
North Ireland	70·0	86·0	77·0	76·0	78·0	67·0	*	*
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, 1946, TO 30TH JUNE, 1947. METROPOLITAN AREA (POPULATION AT 1ST JULY, 1946—396,890).

Diseases.	Months.												Totals 1946–1947.
	1946.						1947.						
	July.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	
Anchylostomiasis ..	..	..	..	..	..	..	1	1	..	..	..	..	2
Anthrax	..	..	..	..	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..	..	..	..	..
Cholera	..	..	..	..	..	..	..	..	..	..	..	..	..
Coastal Fever ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diphtheria	7	9	5	5	4	5	13	4	8	6	8	7	81
Dysentry, Amoebic ..	1	..	..	..	..	..	1	..	..	..	..	..	2
Dysentery, Bacillary	..	..	..	..	..	..	..	..	1	..	1	..	2
Encephalitis Lethargica	..	..	..	1	..	..	..	..	..	..	..	..	1
Filariasis	..	..	..	..	..	..	..	..	1	..	..	1	2
Lead Poisoning ..	1	1	1	1	1	..	..	..	..	..	..	2	7
Leprosy	..	1	..	..	..	1	..	..	..	..	..	..	2
Leptospirosis (Weil's Disease, Paraweil's Disease, Seven-day Fever)	..	..	..	..	..	..	..	..	..	..	..	..	..
Malaria	94	168	126	168	96	16	99	92	50	2	114	38	1063
Meningitis, Cerebro-spinal	..	..	1	4	1	..	..	3	5	1	2	..	17
Mossman Fever ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Plague, Bubonic or Oriental	..	..	..	..	..	..	..	..	..	..	..	..	..
Poliomyelitis, Acute Anterior	..	2	1	..	1	..	3	2	2	3	..	..	14
Puerperal Fever ..	..	..	..	..	1	..	..	..	..	..	..	..	1
Puerperal Pyrexia ..	19	22	18	17	8	9	13	10	6	16	18	11	167
Relapsing Fever ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sarina Fever.. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scarlet Fever or Scarlatina	26	24	24	28	19	23	19	11	12	16	19	23	244
Smallpox (including Amaas or Alastrim)	..	..	..	..	..	..	..	..	..	..	..	..	..
Tuberculosis (all forms)	19	20	21	31	18	15	24	35	44	30	20	24	301
Tetanus	5	3	..	3	2	..	3	..	..	2	2	1	21
Typhoid Fever(including Paratyphoid Fevers)	1	..	1	..	..	1	..	..	..	..	1	1	5
Typhus Fever (including Rural and Urban forms and Japanese River Fever)	3	1	4	..	..	..	4	1	2	5	2	2	24
Undulant (Malta) Fever	..	..	..	..	..	..	..	..	..	..	..	..	..
Yellow Fever ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals ..	176	251	202	258	151	70	180	159	131	81	187	110	1,956

TABLE VI.

COMMUNICABLE DISEASES (EXCLUSIVE OF VENEREAL DISEASES) 1ST JULY, 1946, TO 30TH JUNE, 1947.
EXTRA-METROPOLITAN AREA (POPULATION AT 1ST JULY, 1946—694,336).

Diseases.	Months.												Totals 1946–1947.
	1946.						1947.						
	July.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	
Anchylostomiasis ..	1	1	6	2	3	..	1	..	1	..	1	..	16
Anthrax	..	..	..	..	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..	..	..	..	..
Cholera	..	..	..	..	..	..	..	..	..	..	..	..	..
Coastal Fever ..	..	..	..	..	..	..	..	..	..	..	1	..	1
Diphtheria	15	45	22	17	17	13	44	21	32	29	69	44	368
Dysentery, Amoebic	..	..	..	1	..	..	..	..	1	..	2	..	4
Dysentery, Bacillary	..	..	..	..	1	1	1	..	..	4	1	1	9
Encephalitis Lethargica	..	..	1	..	..	..	..	..	..	..	1	..	2
Filariasis	..	..	..	..	..	1	..	..	..	..	..	..	1
Lead Poisoning ..	..	..	..	..	..	..	..	..	..	..	..	1	1
Leprosy	1	1	3	..	1	..	..	..	1	1	1	1	10
Leptospirosis (Weil's Disease, Paraweil's Disease, Seven-day Fever)	..	..	..	..	..	..	1	..	..	..	1	..	2
Malaria	71	63	71	63	43	54	51	29	24	28	34	28	559
Meningitis, Cerebro-spinal	..	3	1	1	3	1	3	..	2	2	..	4	20
Mossman Fever ..	..	..	1	..	..	2	..	..	1	1	..	2	7
Plague, Bubonic or Oriental	..	..	..	..	..	..	..	..	..	..	..	..	..
Poliomyelitis, Acute Anterior	1	3	1	..	..	1	1	..	1	..	..	1	9
Puerperal Fever ..	..	1	..	1	1	..	..	..	2	..	..	..	5
Puerperal Pyrexia ..	4	1	6	2	1	6	2	..	1	2	4	1	30
Relapsing Fever ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sarina Fever.. ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scarlet Fever or Scarlatina ..	20	16	22	15	17	18	18	18	23	24	24	32	247
Smallpox (including Amaas or Alastrim)	..	..	..	..	..	..	..	..	..	..	..	..	..
Tuberculosis (all forms)	16	23	15	21	18	12	12	19	19	17	21	29	222
Tetanus	3	..	1	..	1	2	1	1	1	..	2	1	13
Typhoid Fever (including Paratyphoid Fevers)	..	..	..	..	..	2	..	1	..	4	..	..	7
Typhus Fever (including Rural and Urban Forms and Japanese River Fever)	1	10	5	2	1	1	1	4	4	3	1	5	38
Undulant (Malta) Fever	..	..	..	1	..	..	..	..	..	..	1	..	2
Yellow Fever ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals ..	133	167	155	126	107	114	136	93	113	115	164	150	1,573

TABLE VII.

NOTIFIED INCIDENCE OF COMMUNICABLE DISEASES IN QUEENSLAND (EXCLUSIVE OF VENEREAL DISEASE), SECTION 29 OF "THE HEALTH ACTS, 1937–1946," DURING THE CALENDAR YEAR 1946.

Disease.	Cases Reported on Prescribed Form.			
	Metropolis.	Outside Areas.	Total Whole State, 1946.	Total Whole State, 1945.
Anchylostomiasis	4	17	21	15
Anthrax	..	..	..	..
Bilharziasis	..	..	..	..
Cholera	..	..	..	..
Coastal Fever	..	6	6	..
Diphtheria	92	369	461	499
Dysentery, Amoebic	1	1	2	..
Dysentery, Bacillary	..	2	2	26
Encephalitis Lethargica	1	1	2	3
Filariasis	..	1	1	1
Lead Poisoning	8	1	9	5
Leprosy	2	10	12	5
Leptospirosis (including Weil's Disease, Paraweil's Disease, Seven-day Fever)	..	..	..	6
Malaria	1,217	777	1,994	396
Meningitis, Cerebrospinal	12	24	36	54
Mossman Fever	..	5	5	..
Plague, Bubonic or Oriental	..	..	..	..
Poliomyelitis, Acute Anterior	27	122	149	299
Puerperal Fever	3	6	9	10
Puerperal Pyrexia	104	32	136	90
Relapsing Fever	1	..	1	..
Sarina Fever	..	..	..	..
Scarlet Fever or Scarlatina	264	227	491	605
Smallpox (including Amaas or Alastrim)	..	..	..	..
Tetanus	23	18	41	38
Tuberculosis (all forms)	213	185	398	424
Typhoid Fever (including Paratyphoid Fevers)	5	6	11	37
Typhus Fever (including Rural and Urban Forms, and Japanese River Fever)	35	40	75	98
Undulant (Malta) Fever	..	1	1	..
Yellow Fever	..	..	..	..
Totals	2,012	1,851	3,863	2,611

There has been no epidemic of the notifiable communicable diseases during the past year, although gastro-enteritis has been prevalent.

Typhoid fever and paratyphoid fever.—The numbers of cases notified were Brisbane 5 and outside areas 7, a total of 12, as against Brisbane 22 and outside areas 8 (total 30) for the previous year. The number of cases from these diseases should decrease in proportion to the installation of sewerage. It is pleasing to note the large number of Local Authorities which have commenced or are giving consideration to sewerage schemes.

Scarlet fever and scarlatina.—The total number of patients reported under these headings was 244 for the city and 247 for outside areas, making a total of 491, as compared with 264 and 245 respectively (total 509) for the year 1945-46.

Malaria.—The notifications from malaria are still high, due to ex-members of the armed forces developing the disease periodically. There have been no epidemics of primary malaria—i.e., first infection—in the State nor is it anticipated that epidemics will occur south of Ingham. *An. punctulatus moluccensis* has not yet been found

south of Ingham, and *An. amictus, bancrofti,* and *annulipes* are either not carriers or at best are poor carriers. Although sporadic cases will occur, unless the habits of these mosquitoes alter there is no danger of an epidemic. Finality has not been reached with the Commonwealth Government regarding the Cairns malaria scheme which the Army commenced but left in an unfinished state. It must therefore be borne in mind that an epidemic of malaria similar to that of 1942 might occur unless control measures are continued in Cairns.

Local Authorities have taken advantage of the Government's loan subsidy scheme for mosquito eradication, and Cabinet has decided that the subsidy will be granted to Council's during the year 1947-48.

Poliomyelitis, acute anterior.—The number of cases reported was 14 in the metropolitan area and 9 in the extra-metropolitan area (total 23) as against 105 and 324 respectively in 1945-46; total 429. This reduction in cases was to be expected as there must be a high degree of immunity in the population of Queensland at present.

In August, Dr. T. V. Stubbs Brown, Senior Orthopaedic Surgeon of the Brisbane Hospital, and myself were sent to England and America to study recent advances in the treatment of this condition, and a summary of our findings is attached as an appendix to this report.

Tuberculosis.—Three hundred and one cases were reported from the metropolitan area and 222 from the extra-metropolitan area—a total of 523—as against 219 and 185 respectively (total 404) for the previous year. Most of these cases are pulmonary tuberculosis. The continued increase over the years is a matter of concern, as it must be assumed that the disease is being spread by undiagnosed cases.

The plans of the sanatorium for Brisbane have almost been finalised, and accommodation is to be provided in North Queensland for patients in that area suffering from the disease.

It would appear from gestures made by the Commonwealth Government that they intend taking control of tuberculosis in the Commonwealth, and it is hoped that an early decision by them will be announced.

Diphtheria.—A total of 449 cases was reported, 81 being from the metropolitan area and 368 from outside areas, as against a total of 578 for the previous year (126 metropolitan, 452 outside areas). The fall in cases of diphtheria can be attributed to the free immunisation campaigns which are conducted by the Local Authorities of the State.

A minor epidemic occurred during the year in a school at Warwick, but the cases were not of a serious nature.

Gastro-enteritis.—This disease is not notifiable. The term "gastro-enteritis" is indefinite and includes any condition where vomiting and diarrhoea are the predominant features. The number of patients admitted to the Hospital for Sick Children, Brisbane, was 315 (267 under 2 years of age and 48 over 2 years of age), and the number of deaths 27 (26 under 2 years of age). The Queensland Institute of Medical Research is investigating the disease and the field work is being carried out by officers of this Department. The organisms causing the disease are members of the Salmonella group, but the reservoir of infection and method of spread are yet to be determined.

LEPROSY.

ERIC J. REYE, M.B., B.S. (Qld.), Medical Officer in charge. F. MAHONY, Superintendent.

(A) LEPROSY AMONG WHITES.

Population statistics.—There are at present 55 patients on Peel Island, and Table I. shows the number there on first, second and third admissions:—

TABLE I.

Admission.	Number.	Re-admissions.
First	33	22
Second	19	
Third	3	
Total	55	

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.

—	1944–45. M.	F.	T.	1945–46. M.	F.	T.	1946–47. M.	F.	T.	Total for 3 years.
Admitted	8	3	11	4	3	7	11	3	14	32
Discharged	2	2	4	4	2	6	4	0	4	14
Died ..	2	1	3	1	2	3	0	1	1	7
Increase	4	0	4	..			7	2	9	11
Decrease	..			1	1	2	..			..

Table III. shows the number of patients at 30th June, 1947, as compared with the number at the beginning of the financial year.

TABLE III.

—	Males.	Females.	Totals.
As at 1–7–46 ..	34	12	46
Admitted	11	3	14
Discharged	4	0	4
Died	0	1	1
As at 30–6–47 ..	41	14	55

In a survey of the ages of 54 of the patients it was found that 34 were over the age of 40, and of these 11 were over 70; of these 11, 4 were over 80. The highest incidence was found in the 30-40 age group with 13 cases. The average age of the patients was 53.3 years.

Treatment.—The past year has seen a considerable change in the treatment of leprosy in Queensland in that a group of drugs of known therapeutic value is now available—i.e., the sulphones. It is regrettable that, owing to industrial trouble promin could not be used earlier, but it has been possible, as a result of this delay and of inability to give it to all patients, to observe the effects of different groups of drugs side by side.

(*a*) *Derivatives of chaulmoogra oil.*—Since February, 1946, the only derivative of chaulmoogra oil used at the lazaret is "Moogrol," stabilised with 4 per cent. creosote. No results have been obtained from its use which could not be attributed to natural remission of the disease. During the year a report was received in which grave doubt was expressed as to the efficacy of this group. As if to emphasise departmental and overseas experience a case was readmitted during the year who had for one year, on parole, been taking the standard treatment employed at the lazaret until early in 1947. Several cases similarly bacteriologically negative became positive again as the drug failed to alter the natural course of remission and relapse.

(*b*) *Penicillin.*—Following a favourable report on the use of penicillin in leprosy, a trial was made on a number of cases. There has been no time to study fully the results of this trial, but, in general, the results were as expected—not as had been described. There was some effect on secondary infections (mainly nasal and pulmonary), but no specific effect. In two cases the use of penicillin was followed rapidly by generalised reaction lasting over four weeks and followed by a negative phase for about six months. It is considered that these reactions were coincidental as both cases were the type in which such a reaction was to be expected, at a time of the year in which such reactions are most frequent, and the number of reactions was very small in proportion to the number who received the penicillin. It is conceded that the dosage was small and of short duration, but in view of the uncertainty of its action and the difficulty of administration at the time, further tests in this direction were not considered justified. In other respects it has been found to be of great value, and is used regularly for the treatment of low-grade osteomyelitis of the extremities, for secondary nasal infection and for various acute infections.

(*c*) *Testosterone.*—In view of the attack made by leprosy on the testes in lepromatous cases, testosterone was used in a small experimental series of four cases with L3 leprosy in an endeavour to ascertain the role it played in the bodily resistance to the disease. Full dosage was used and a marked response was obtained, especially in the return of sexual function and in the removal of depression; there was some evidence of increased resistance and those who received it have all done well since. Unfortunately the advent of promin caused the experiment to be ceased after two months. It is felt there is a definite place for the use of testosterone in selected cases and that more work should be done to determine the optimum dose and to assess the improvement to be expected from its use.

(*d*) *Promin.*—Treatment with promin began on 23rd January, 1947, with 4 cases; 16 cases were being treated by the end of January and by the end of April the maximum of 20 cases was reached. It is regretted that a greater number of cases could not be treated, but without unobtainable staff it was not possible, and cases had to be selected on their merits for this treatment. The technique selected was one aimed at supplying the maximum amount of the drug the patient could stand in the shortest possible time, in order both to halt the onset of serious complications and to achieve a maximum result in case of breakdown of apparatus or staff. This technique consisted of intravenous administration of the drug six days per week for six weeks in seven, the injections being given in the early morning. To date 20,010 c.c. of promin solution, equal to 8,004 grams of the drug, have been given in 1,677 intravenous injections. While it is yet too early to estimate the full value of

promin on this small series, the results so far are full of promise and it is felt that it can safely be said that this is the greatest step forward that has been seen in Queensland.

(*e*) *Diasone.*—As this drug is reputed to be as effective as promin, and is given by mouth, its use will, by saving the time taken in giving injections, enable more patients to have adequate treatment. A supply of diasone has been ordered from America, and it is hoped that the first batch of tablets will reach here soon.

Laboratory.—The use of sulphones has necessitated the setting up of a laboratory at Peel Island. Owing to the shortage of patient accommodation and lack of suitable buildings, its life has been a migratory one. Owing to staff shortage its activities have been confined to blood counting and urine examination when not serving the purpose of office for the medical side of the administration. It really came into activity on a full scale just before the use of promin was started and to date has carried out the work shown in Table IV.:—

TABLE IV.

——	Haemoglobin Estimations.	Red Cell Counts.	White Cell Counts.	Microscopic Urine Examination.
To—				
31–12–46	192	39	35	..
30–6–47	625	198	198	278
For—				
1946–47	817	237	233	278

There is scope for greater extension of laboratory activities on Peel Island. In leprosy a check should be kept on the blood sedimentation rate; the bacteriology of secondary infections should be known, not only that the correct treatment can be given but also that operations such as skin-grafting can be done with proper precautions; studies should be made of the changes in tissues as treatment begins to take effect. In routine blood examinations of patients not on promin it has been found that anaemia (mainly hypochromic) is a fairly frequent finding—it does not appear to respond to ordinary treatment and as yet no time is available to find out why.

Staff (Medical).—The medical staff was increased by one sister and an experienced nurse early in the year, and later another sister was added. It is doubtful if the staff can be maintained at this strength for long as the present conditions on the island are not sufficiently attractive to compete with hospitals on the mainland in the present nursing shortage.

Repeated advertisements for a medical officer to assist in the treatment and control of leprosy have so far brought no response.

Medical Records.—With the additional staff it has been possible to take patients' temperatures twice daily and to keep a weekly weight check. These have proved a great help in control of treatment and, as there is an upset of the heat-control mechanism of the body in leprosy, it is hoped at some future date to use these records in a study of this disturbance. It has also been possible to keep better records of treatment against the day when they can be properly collated. The medical records are, however, still incomplete and must remain so until more time is available to examine patients fully.

(B) Leprosy Among Aboriginals.

It has not been possible to do any further work among aboriginals during the year and the work done last year in the settlements has, therefore, not been followed up, as recommended in the reports on them.

(C) General Remarks.

Records.—Practically no work has been possible during the year on the records of past patients, the tracing of paroled patients, and of contacts, though now, thanks to the work of Mrs. Reye, an alphabetical index and serial numbers exist for all the white cases since the year 1900. Mrs. Reye has also done a considerable amount of work on the native cases. However, the task of catching up on some 20 years of back work is no light one: the records are, therefore, still far from complete.

Epidemiology.—Owing to the incompleteness of the records, the trend of the disease is virtually unknown. However, the position among whites would appear to be that there is a high natural resistance among the great majority of the population—the susceptible minority is very susceptible and therefore presents a high proportion of the lepromatous cases. Among aborigines susceptibility to the disease appears to be more widespread, producing proportionately more cases, but of more types.

The opinion is held that less than half the active white cases are at present known to the Department, and that until proper surveys are made, and treatment instituted for as many cases as possible, neither will the epidemiological position be known nor the disease brought under control.

Patients are being encouraged to engage in outdoor activities as much as their condition allows, and fishing and boating are favoured, while a few maintain their interest in gardens. Entertainment is well provided by radio, the patients being very appreciative of the Department purchasing receivers when application is made. Batteries and recharging remain a departmental responsibility. The provision of a motor vehicle during the year has proved a boon, and it is hoped to institute beach picnics when the warmer weather comes. The recreation hall opened in November, 1945, is used by the patients for entertainments and socials.

It was hoped that this year would see completed many projects such as the construction of kitchen and dining room (for which approval had been given), improved water reticulation, and electric light, but material shortages coupled with manpower problems have precluded this. It is anticipated that water and electric light will be completed at an early date.

Patients' relatives have been allowed increased visits, and clergymen hold regular services.

Thanks are due to the Brisbane City Mission for the gift of an accordion; the Salvation Army for band instruments and a visit by the Salvation Army Band; and the Country Women's Association for pianola rolls.

At the *Fantome Island Lazaret* the number of patients as at 30th June, 1947, was 65, 35 males and 30 females. The Franciscan Missionaries of Mary continue to give devoted service to the patients, and their humane work is deeply appreciated. This institution is for coloured patients only.

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.)

During the year 1,373 persons were notified as suffering from venereal disease, as compared with 986 for the previous year. Of these 346 were females and 1,027 were males, as compared with 406 and 580 respectively in the previous year.

Of the 1,373 persons, some 9 had double infections (coincident infection with two types of venereal disease) and so really represented 1,382 actual cases of venereal disease. Of these 1,046 were gonorrhoeal cases and 304 were syphilitic, as compared with 746 and 240 respectively for the previous year.

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

TABLE A.

Incidence of Notified Venereal Disease, 1946–47.

—	Metropolitan.		Outside Centres.		Total (Whole State.)		
	Males.	Females.	Males.	Females.	Males.	Females.	Males and Females.
Gonorrhoea—							
Unspecified	13	10	53	11	66	21	87
Acute	554	110	128	20	682	130	812
Sub-acute	5	42	7	3	12	45	57
Chronic	16	29	9	9	25	38	63
Vulvo-vaginitis	..	8	..	6	..	14	14
Ophthalmia (Gonorrhoeal)	2	4	..	..	2	4	6
Proctitis (Gonorrhoeal)	1	..	..	..	1	..	1
					788	252	1,040
Syphilis—							
Unspecified	8	5	2	1	10	6	16
Primary	86	17	20	4	106	21	127
Secondary	30	14	11	13	41	27	68
Tertiary	5	7	11	6	16	13	29
Latent	21	11	8	4	29	15	44
Heredo-	..	..	4	2	4	2	6
Neuro-	1	..	3	2	4	2	6
					210	86	296
Syphilis and Gonorrhoea	1	3	..	1	1	4	5
Syphilis and Venereal Warts	..	..	1	1	1	1	2
Syphilis and Ulcerative Granuloma	1	..	..	..	1	..	1
Gonorrhoea and Venereal Warts	..	..	1	..	1	..	1
Soft Sore (Ulcus Molle)	2	2	4	..	6	2	8
Venereal Warts (C. acaminata)	19	1	..	..	19	1	20
					29	8	37
	765	263	262	83	1027	346	1,373

In order to obtain a reasonable perspective from which to draw some conclusions regarding the trends of venereal disease incidence, the following summarised table for the past 20 years is given:—

Fiscal Year.	Notifications.			Brisbane V. D. Clinics.				Sources of Notifications. Civilian.			Relative Incidence.		
				Males.		Females.							
	Civilian.	Defence.	Totals.	New cases.	Notifiable cases.	New cases.	Notifiable cases.	Hospitals.	Clinics.	Private Practitioners.	Total Syphilis.	Early Syphilis.	Gonorrhoea.
1927–28	1,373	..	1,373	629	356	42	25	176	535	662	261	..	1,103
1928–29	1,382	..	1,382	648	373	83	19	212	520	650	227	..	1,159
1929–30	1,541	..	1,541	727	437	84	29	267	583	691	239	..	1,292
1930–31	1,552	..	1,552	771	445	98	38	316	629	607	273	..	1,514
1931–32	1,841	..	1,841	756	434	83	65	702	631	508	628	..	1,217
1932–33	1,464	..	1,464	783	440	147	77	420	633	411	344	64	1,087
1933–34	1,576	..	1,576	674	407	142	73	458	620	498	343	77	1,196
1934–35	1,248	..	1,248	659	367	115	50	271	622	355	228	51	998
1935–36	1,125	..	1,125	680	384	135	81	218	612	295	123	28	997
1936–37	1,211	..	1,211	689	406	142	97	286	571	354	187	44	1,014
1937–38	1,256	..	1,256	764	482	143	124	339	634	283	183	56	1,042
1938–39	1,147	..	1,147	663	415	106	87	274	570	303	196	59	930
1939–40	1,091	..	1,091	729	348	110	104	351	436	304	261	98	806
1940–41	1,281	47	1,328	606	324	144	107	696	392	193	293	90	975
1941–42	893	314	1,207	524	238	187	..	..	..	..	215	88	637
1942–43	1,565	1,536	3,101	497	183	626	377	654	721	190	244	88	1,310
1943–44	1,234	1,484	2,718	873	310	494	326	310	786	139	348	67	861
1944–45	858	1,533	2,391	475	170	393	292	340	431	87	204	64	659
1945–46	986	323	1,309	938	377	279	230	207	640	137	240	114	746
1946–47	1,373	37	1,410	1,682	688	282	172	239	1,000	134	304	195	1,046

It is interesting to note that 20 years ago the total incidence of notified venereal disease for the State was 1,373 (in 1927-28), exactly the same figure as for 1946-47.

However, an analysis discloses some startling differences. Whereas 20 years ago approximately 48 per cent. of notifications came from private practitioners, less than 10 per cent. came from this source during 1946-47 (vide Table F). Also 20 years ago approximately 28 per cent. of notified cases were treated at the *ad hoc* clinics in Brisbane, but in 1946-47 approximately 74 per cent. were treated at these same clinics. It would appear from the great increase in numbers attending that they have attracted patients from private doctors. The probable reason of this is that these clinics have been vastly improved and made much more attractive and convenient for patients.

The co-operation of the medical profession is asked for in regard to the notification of venereal disease. In this connection it should be noted that it is the "case" not the "patient" which is notified. The patient's name is not mentioned and the requirements of the Act in no way infringe upon the confidential nature of doctor-patient relationships. This statistical information is of the utmost value to the Department in establishing the efficacy of its campaign to control the incidence of venereal disease.

In comparing figures of venereal disease incidence in Queensland with those of other States or countries where notification is not in force, it should be noted that these States and countries—e.g., South Australia and Great Britain—base their incidence figures on clinic returns. On this basis the clinic returns for Queensland in 1946-47 were 1,239, as compared with 711 20 years ago.

Estimating the true incidence of venereal disease is extraordinarily difficult and allowances have to be made for many and continually varying factors.

Acting on the assumption that the incidence of venereal disease in Queensland is possibly greater than 20 years ago, it is hoped to intensify efforts to control it more effectively, and some reorganisation to this end is expected shortly.

Sources of Infection.

TABLE C.

—	1946–47.	1945–46.	1944–45.
Unknown prostitute ..	74	12	11
Prostitutes in "houses" ..	5	3	2
Non-professionals (amateurs)	665	131	41
Wives	15	6	3
Husbands	14	14	10
Occupational	9	68	94
Parents	5	10	10
Female aboriginals ..	3	5	6
Homosexual	1	..	..
Unknown or unstated ..	582	737	681
	1,373	986	858

Epidemiological Control as Applied to Venereal Disease.

Every case of venereal disease seen by a doctor is a clue to another case and every case brought under treatment and either cured or rendered non-infectious lessens the reservoir of infection. Many patients frankly do not know or can only very vaguely describe their sexual contacts. A few will eagerly volunteer the information. A great many, either through a sense of guilt and fear of consequences or a false sense of chivalry, will not divulge much definite information. The manner in which this avenue of control is explored varies in different countries. In the U.S.A. Social Hygiene Workers and Almoners are largely employed to interview patients. In England under the war-time regulation 33B the Ministry of Health would act if two separate reports on a particular person were received from doctors. In Queensland it was usual to get a signed and witnessed statement from a patient before acting.

During the past six months a somewhat different system has been employed at the *ad hoc* clinics in Brisbane. At the interview, when the diagnosis is established, the desirability of eradicating venereal disease is explained to the patient and his help and co-operation sought. Very often he undertakes to see his partner again and persuade her to seek treatment. The confidential and purely professional nature of such treatment is emphasised. Where he does not wish to discuss the matter with his erstwhile paramour he is persuaded to divulge the name and address or some useful description without being required to sign any official document. The responsibility for judging whether such information is genuine or malicious rests with the doctor, and here the personality and judgment of the interviewer are important. From this information discreet inquiries are made to identify the person and he or she is asked to report to a medical officer. The discretion exercised in employing these contact case-finding methods is proved by the fact that even when persons so named are found not infected with venereal disease, all have admitted promiscuity and the risk of infection.

The following table (Table D) summarises this work as far as it is complete for the six months up to 30th June, 1947:—

Contact case-finding questionnaires	97
Identified to date	69
Not identified to date	28
Examined and found suffering from venereal disease	44
Examined and no evidence of venereal disease found	14

Venereal Disease Clinics.

There are two *ad hoc* clinics in Brisbane—the Hope Street Clinic for males and William Street Clinic for females. Outside Brisbane clinic facilities are provided at the general hospitals in the larger towns and all public hospitals (which includes virtually all hospitals in Queensland) are required to treat venereal disease.

Hope Street Clinic (males).—The year just concluded was a record year, both for numbers of new cases seeking advice (1682) and for the number found suffering from a notifiable form of venereal disease (688). A number of the non-notified cases were ex-servicemen seeking a check up on previous infections, but most of the notified cases were infections contracted as civilians, and supports the evidence for an increased civilian incidence of venereal disease. Increase of staff at Hope Street has made it possible to keep the clinic open for 12 hours daily, continuously from 7 a.m. to 7 p.m., so that patients are no longer embarrassed by having to get away from work at inconvenient times. Also the policy of not regarding Hope Street merely as a venereal disease clinic has been encouraged. This clinic is and has been for many years a polyclinic for men with a wide variety of genito-urinary and sexual disorders, and many cases of skin disorders—particularly of the genital region—of impotence, sterility, and of prostatic and vesical infections other than gonorrhoeal, are seen. By treating and encouraging such cases to attend, the gospel of sexual hygiene is more widely spread and the sensitive patient, dubious about being seen at a venereal disease clinic has his fears dispelled.

It should also be pointed out that the so-called non-specific urethritis is often a symptom of a non-specific (i.e., not notifiable) vesiculitis or prostatitis, and that a good deal of male sterility is attributed to this cause. Sterility clinics have been established for females, but beyond Hope Street there is no corresponding clinic for males. It is estimated that in 50 per cent. of infertile partnership, the male is at fault.

The William Street Clinic (females).—This clinic has shown a reduction in numbers, as compared with the peak war years, but is still well above pre-war figures. During the war there was a large influx of girls from the south, but over the last 12 months the attendances are more truly representative of the permanent population.

Some statistics for these two clinics are given in the table below:—

—	Hope Street. (Males).	William Street. (Females).
New cases	1,682	282
Notified cases	688	172
Arsenic injections ..	1,522	641
Bismuth injections ..	921	631
Penicillin injections ..	2,704	526

The ratio of infected females to males—approximately 1 to 4—does not necessarily mean that a lesser proportion of infected females seek treatment. The explanation lies in the fact that symptoms are less obvious in women and the promiscuous female will infect on an average at least four males before she comes under treatment and is rendered non-infectious. In men the symptoms are usually so obvious that treatment is sought at once and any infections spread by the promiscuous male are usually transmitted during the short incubation period. For this reason, given an approximately equal population of both sexes, it is to be expected that 4 to 5 times as many males as females would be infected, rather than explain the discrepancy by a 4 to 1 chastity in favour of females.

The *ad hoc* clinic sessions at the larger hospitals outside Brisbane will probably gradually be absorbed into the general out-patient sessions as, with modern treatment, there is not the same need for a special set-up of irrigation rooms, &c. The old system of a night clinic, once or twice a week, does not fulfil the requirements of present-day treatment. There is no risk whatever in these patients attending in the general out-patient sessions—they always do so on their initial visit anyhow—and it has the advantage of secrecy. It was of little advantage in former days to tell a patient that treatment was secret and confidential and then immediately label him by segregation at an *ad hoc* session.

For the information of those interested, the routine treatment for early syphilis and gonorrhoea at present employed at Hope Street is as follows: —

Early (acute) gonorrhoea.—300,000 Oxford units penicillin in beeswax oil emulsion as a single injection. No further treatment is usually necessary but surveillance and routine tests of cure as laid down in the Venereal Diseases Regulations should be adhered to. In females, owing to the fact that the disease is usually more chronic when first seen, a second and third injection in 24 and 48 hours is advisable.

Early (acute) syphilis.—A ten day course of penicillin and arsenoxide which can, if preferred, be given on five consecutive days (Monday to Friday) one week and on the five corresponding days of the following week. This is followed by a three months' course of a Bismuth-Iodine-Quinine compound. The full course is as follows:—

Attend twice daily for 10 days.

A.M. Penicillin 300,000 0/Units in aqueous solution.

P.M. Penicillin 300,000 0/Units in beeswax oil Arsenoxide (e.g., "Mapharsan") 0.06 G. intravenously.

Note.—Arsenoxide and not neoarsphenattmine is used.

After this course attend once or twice weekly for bismuth-iodine-quinine injection for at least three months.

There is evidence that penicillin given twice daily is as effective as given at more frequent intervals, and also that the high initial concentration of penicillin in the tissues following the injection is an advantage—hence the dosage. It is, of course, too early to be dogmatic regarding the place of penicillin in treatment and the best methods of using it await the passage of time and evaluation of statistics; but the scheme outlined has so far been encouraging at Hope Street. The dosage is for the average adult male.

In late syphilis penicillin is often useful, but the longer schedules with arsenic and bismuth are still advisable.

The Venereal Isolation Hospital.—Owing to the rapid cures with penicillin and the fact that most patients were rapidly rendered non-infectious by ordinary out-patient schedules of treatment, the daily bed state fell away so rapidly that the need for such an institution no longer existed.

The Medical Officer to the Female Clinic in William Street also conducts the ante-natal venereal disease clinic at the Women's Hospital and examines and treats any female prisoners in His Majesty's Prison—a most desirable and satisfactory arrangement.

General Remarks.

At the risk of repetition of observations previously expressed, it should be stated that modern scientific medicine can now cure venereal disease very rapidly and efficiently once it has been contracted. However, the eradication of venereal disease requires the eradication of promiscuity, and to this end we need the help of all those agencies fostering idealism, culture, refinement, and a love for the decencies of life.

The death recently of Dr. G. P. Dixon in Brisbane severed a link with the early days of this section of the Department. Dr. Dixon was the first Medical Officer to the Enthetic Diseases Clinic when it was established in 1913. It was as a result of his efforts and representations that the first special venereal disease hospital ward was built at the General Hospital by the Department. This substantial brick building was taken over during World War I. for other urgent purposes arising out of the war, and later became "a lock ward for patients needing restraint"—a purpose which it still fulfils.

TABLE E.

Marital Status.

Marital Status.	Males.	Females.	Total.
Married	257	94	351
Single	746	194	940
Separated	12	29	41
Widowed	6	13	19
Divorced	3	9	12
Unknown or unstated	3	7	10
	1,027	346	1,373

TABLE F.

Sources of Notification.

——	Males.	Females.	Totals.
Private doctors	96	38	134
Clinics	801	199	1,000
Hospital doctors	130	109	239
	1,027	346	1,372

TABLE G.

Ages Stated by Venereal Disease Patients.

1946-47.

——	Males.	Females.	Totals.
Under 1 year	3	3	6
1–5 years	2	8	10
6–10 years	2	9	11
11–15 years	2	6	8
16–20 years	123	64	187
21–25 years	309	110	419
26–30 years	231	55	286
31–35 years	121	28	149
36–40 years	94	14	108
41–45 years	45	12	57
46–50 years	32	5	37
51–55 years	10	5	15
56–60 years	9	2	11
61–65 years	8	..	8
66–70 years	3	..	3
71–75 years	..	2	2
77 years	1	..	1
Unknown or unstated	32	23	55
	1,027	346	1,373

SECTION OF PUBLIC HEALTH SUPERVISION.

Deputy Director-General of Health and Medical Services (vacant);
State Health Officer (vacant);
C. M. Cato, Chief Inspector of Food and Drugs;
W. McNeil, Chief Sanitary Inspector;
T. O'Shea, M.R.San.I (Lond.), Clerical and Statistical Branches;
Miss J. E. McNae, B.Sc., Nutrition Adviser;
Mrs. V. Wills, Welfare Officer.

SANITATION SECTION.

Local Authority Administration.

The administration of "*The Health Acts, 1937 to 1946*," and the Regulations made thereunder by Local Authorities has always been limited in its scope, due to extensive areas and inadequate staff.

It has been evident for many years that it is impossible for one inspector to control one area administered by four or more local Authorities, and it is quite apparent that a number of separate councils cannot exert proper control over one joint inspector.

Local authorities do not appoint joint clerks, joint overseers, or other joint officials, and as so many of the elected representatives of the people often preach that "Health is of paramount importance," why in practice should health administration be relegated to a low position on the list by so many councils as to warrant only one inspector among four to six local authority areas.

A state-wide survey and study in regard to the State's Local Authority health service has been in progress for a number of years and has produced abundant evidence to prove that the present health service is inadequate to cope with the ever-increasing demands for improved conditions and modern sanitation.

At the present time field control work is irregular and spasmodic. Visits to the townships are of short duration, and house to house inspection, which is so important for the control of mosquitoes, rats, flies, nuisances, &c., cannot be done. Closely settled farming districts, small mining, and other communities seldom or ever get a visit from a health inspector, and these citizens of the country are entirely neglected, and never receive assistance, advice, or any supervision.

Many of these joint areas were established about twenty to twenty-five years ago, and despite the advancement and the demands of our modern times have carried on the same old methods and dull routine, and show no inclination to change from stagnation to progress. The fact that public health administration is unlimited in its ramifications, is a progressive science, and a national necessity appears to have escaped recognition.

An increase in the State's population must be expected from the present immigration policy, and immigrants from many different countries portend development and expansion in primary and secondary industries, and as a sequence new health problems and difficulties will arise which will compel wider and stricter enforcement of the health laws, and for this purpose an adequate and well-organised Local Authority Health Service is essential to control any eventuality before it becomes uncontrollable.

A very important part in practical health preventive measures is the field work so as to hold in check all disseminators and causes of disease and ill-health. The health inspector is the field worker and the execution of the duties therein are his responsibility and if he is overburdened control is slack and ineffective.

The plan prepared in the Department for smaller and more easily controlled areas has been submitted to the local authorities concerned for consideration, and it is anticipated that finalization will be accomplished during 1947-48.

Water Reticulation Schemes.

In addition to the twelve towns mentioned in last year's report the following have come under the Department's notice as having reticulated water supplies under consideration. Yeppoon (Livingstone Shire), Woolooga (Kilkivan Shire), Nebo (Nebo Shire), and Wallangarra (Stanthorpe Shire).

At Goondiwindi a preliminary report has been submitted to the Council by Council's engineers for a treatment plant at an estimated cost of £21,000. A Treasury loan and subsidy has been granted for preparation of plans, specifications and estimate of cost.

Gladstone has now an ample supply available. The new 1,000,000 gallon storage tank has been completed. No filtration plant has been provided, but a chlorination plant is in operation.

As domestic water supply schemes come under the jurisdiction of the Director of Local Government, other schemes may be in course of preparation, of which this Department has no advice.

Sewerage Schemes.

The following information from Departmental records indicates the progress being made by local authorities. Other sewerage schemes not on departmental records may be under consideration by the Director of Local Government.

All sewerage schemes are subsidised by the Government.

Local Authority.	Place.	Remarks.
Cairns ..	City ..	Plans in course of preparation
Charters Towers	City ..	Scheme submitted to Director of Local Government. Sinking of test holes commenced
Gympie ..	City ..	Detailed survey 100 per cent. Design 80 per cent. and house connections 80 per cent. complete
Ipswich ..	City ..	Western and northern areas complete. Eastern watershed now being surveyed
Maryborough	City ..	Extensions estimated £21,000
Townsville	City ..	North Ward main sewerage lines almost completed
Warwick ..	City ..	Extensions to existing system
Dalby ..	Town ..	Plans almost finalised
Gladstone ..	Town ..	When plans approved and finance available a start will be made
Hughenden	Town ..	Plans well under way. House connections now being investigated
Southport ..	Town ..	Survey near completion. Tenders called for house survey
Barcaldine Shire	Barcaldine	Application for loan and subsidy (£2,000) for survey and preparation of plans
Blackall Shire	Blackall ..	Application for loan and subsidy (£3,500) for survey and preparation of plans
Cloncurry Shire	Cloncurry	Application for loan and subsidy lodged
Emerald Shire	Emerald ..	Proposed installation of unit septic tank systems on premises
Johnstone Shire	Innisfail ..	Anticipated work will commence end of 1947
Kilkivan Shire	Woolooga..	Scheme submitted to Director of Local Government
Kingaroy Shire	Kingaroy ..	Plans under consideration
Longreach Shire	Longreach	Plans, &c., almost complete
Mulgrave Shire	Gordonvale	Application for loan and subsidy £5,000
Murilla Shire	Augathella, Morven	Proposed unit septic tank systems
Woothakata Shire	Mareeba ..	Scheme for main section under consideration

The advent of so many sewerage schemes throughout the State directs attention to the necessity for regulations or standard by-laws governing domestic sewerage installations. Domestic installations have an important bearing on public health and it is considered that very early consideration should be given to this matter so that a set standard of practice, materials, and workmanship shall apply to the whole State, and avoid the confusion and difficulties which are bound to arise if the various cities and towns have different standards.

Another important factor is again emphasised —that is, the necessity for the licensing of plumbers and drainers by one authority, and so avoid the confusion which exists at the present time. Licenses issued in Townsville, Rockhampton, Mackay, Maryborough, Toowoomba, Ipswich, are not accepted in Brisbane, and *vice versa*, and also among the towns named.

A draft set of sewerage By-laws has been drawn up by the Department. These have been criticised by many authorities, revised, and checked, and have now been forwarded to the Director of Local Government for finalisation.

Drainage Schemes.

Drainage schemes are being carried out at, or are in course of preparation at:—Maryborough, Herberton, Goondiwindi, Mirani, Mareeba, Monto, Eacham, Innisfail, Mitchell, Barcaldine, Ilfracombe, Southport.

Loans.

Applications for loans and subsidies to the value of £27,055 for improvement of sanitation were received from local authorities.

Nightsoil Removal Services.

Many nightsoil removal services were unable to attain a high standard of performance due to the continued shortage of galvanised iron and other materials. Defective pans and faulty plant had to be retained in service and as a result many unsatisfactory conditions could not be improved or avoided. Unfortunately an early easement of the position cannot be forecast, as a large number of orders have to be executed for existing services before local authorities can embark on new services or extensions to existing ones. The Department under the existing circumstances cannot press local authorities to modernise their service or insist on new or extended services where such are required. Despite this many local authorities have extended or initiated new services.

Sanitary Contracts.

Eighty draft sanitary contracts were submitted by 40 local authorities for approval.

Refuse Removal Services.

As a public health service the importance of modern plant in the collection, removal, and disposal of domestic and other refuse has received very little consideration by local authorities, and as a consequence few removal services can be classed as satisfactory.

The time is overdue for the reorganisation of this service. Unlike the present nightsoil removal service which is being gradually replaced by sewerage systems, refuse collection, removal, and disposal will remain a permanent institution, and for this reason must be properly planned, organised, and carried out in accordance with modern practice.

The miscellaneous collection of receptacles must be replaced by a standard bin, supplied by the local authority to all premises within the defined serviced areas. The absence of a standard properly lidded bin is one essential factor in the hygienic environment of our dwellings and work places. The duty to provide these receptacles is placed on the local authorities by the Plague Prevention and Destruction Regulations—a very significant fact.

The transport of the refuse is, in many cities and towns, crude and obsolete, and their replacement with modern closed and well constructed vehicles is an urgent requirement.

The disposal of the refuse at the tips has been improved in a number of areas, but crude and uncontrolled methods still exist, despite the efforts of departmental officers by instruction and advice to induce Councils to change from a crude insanitary method to a sanitary and well controlled practice.

The reclamation of waste and useless land can become an asset if reclaimed by the community's refuse.

Plague Precautions.

Two surveys of the Brisbane River frontages and wharves were made during the period under review. The river walls and embankments show no alteration or improvement in regard to rat harbourages. Circumstances of war, shortages of material and labour prevented any forward move being made in the construction of permanent works to eliminate harbourages.

The Harbours and Marine Department advised that "no ratproofing of river training walls was carried out during 1941-47." At present this department is constructing two river walls and on completion of this work a start can be made on ratproofing of other walls.

The ratproofing of the river front is a big engineering job and a period of time must elapse before Brisbane possesses a ratproof riverfront as a first line of defence against plague and other ratborne diseases. A planned progressive programme of works is necessary to accomplish this desired objective.

Rat destruction work was carried out during the year by the local authorities. Five thousand seven hundred and fifty-one smears were forwarded to the various laboratories for bacteriological examination. Twenty-two leprous rats were reported from Rockhampton, and one from the metropolitan area.

Rat and mice returns for the year 1946-47 were as follows:—

Rat Return, 1946–47.

Local Authority.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	Totals.
Brisbane	5,201	4,660	4,793	6,039	4,875	3,470	3,531	4,416	4,877	4,967	5,056	4,739	56,624
Bundaberg	54	88	75	63	64	32	45	32	24	36	62	55	630
Cairns	54	77	79	66	64	125	185	151	132	94	117	125	1,269
Gympie	5	1	16	4	4	3	3	4	4	10	8	6	68
Ipswich	219	55	132	159	176	128	64	101	143	83	115	91	1,466
Mackay	40	58	70	125	123	99	80	0	66	120	90	65	936
Maryborough	65	32	136	120	124	88	88	91	97	89	115	90	1,135
Rockhampton	287	237	217	216	229	114	177	167	232	246	273	192	2,587
Townsville	62	37	63	35	47	27	49	38	46	36	23	42	505
Totals ..	5,987	5,245	5,581	6,827	5,706	4,086	4,222	5,000	5,621	5,681	5,859	5,405	65,220

Mouse Return, 1946–47.

Local Authority.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	Totals.
Brisbane	285	232	192	200	141	117	153	196	286	253	358	196	2,609
Bundaberg	30	..	..	..	..	..	..	..	..	..	..	..	30
Cairns	..	11	14	13	9	20	30	28	13	14	15	21	188
Gympie	301	..	..	..	..	..	..	..	..	..	..	..	301
Ipswich	..	129	2	1	..	..	..	..	..	..	..	..	132
Mackay	77	85	57	109	90	41	52	..	59	80	103	82	853
Maryborough	..	..	..	..	..	..	..	..	..	..	..	..	Nil
Rockhampton	..	..	..	..	..	..	..	..	..	..	..	..	Nil
Townsville	..	..	..	..	..	..	..	..	..	..	..	..	Nil
Totals ..	693	457	265	323	240	178	235	224	358	347	476	299	4,095

Mosquito Prevention and Destruction.

The activities of local authorities in mosquito prevention and destruction increased during the year. The Government's 50–50 subsidy on approved works has encouraged a number of local authorities to carry out permanent works.

The necessity for the control of the domestic species, particularly the *Aëdesægypti* (carrier of yellow fever and dengue fever) and the *Culex fatigans* (carrier of filariasis) has not received the same consideration from local authorities.

The control of these domestic types calls for "house to house" inspection at regular periods for complete control.

The table below gives a list of the subsidies granted by the Government since the inception of the scheme in February, 1943.

Local Authority.	Period.	Subsidies.	Total Subsidies.
		£ s. d.	£ s. d.
Brisbane City	1943/6	100,304 0 0	
	1946/7	39,827 0 0	
			140,131 0 0
Townsville City	1943–6	536 10 0	
	1946–7	6,058 0 0	
			6,594 10 0
Rockhampton City	1943–6	10,959 0 0	
	1946–7	425 0 0	
			11,384 0 0
Gympie City..	1943–6	1,404 10 0	1,404 10 0
Ipswich City..	1943–6	775 0 0	
	1946–7	9,150 0 0	
			9,925 0 0
Maryborough City	1943–6	4,528 6 6	
	1946–7	250 0 0	
			4,778 6 6
Bundaberg City	1943–6	1,916 5 0	
	1946–7	2,050 0 0	
			3,966 5 0
Charters Towers City	1946–7	..	312 0 0
Warwick City	1946–7	..	2,600 0 0
Mackay City..	1946–7	..	5,925 0 0
Redcliffe Town	1943–6	215 12 0	
	1946–7	1,815 0 0	
			2,030 12 0
Charleville Town	1943–6	..	2,000 0 0
Roma Town..	1943–6	..	693 0 0
Dalby Town..	1943–6	2,042 5 0	
	1946–7	165 0 0	
			2,207 5 0
Coolangatta Town	1946–7	..	3,000 0 0
Gladstone Town	1946–7	..	2,500 0 0
Aramac Shire	1943–6	..	27 0 0
Barcaldine Shire	1943–6	..	335 0 0
Beaudesert Shire	1946–7	..	2,500 0 0
Blackall Shire	1943–6	30 2 6	
	1946–7	200 0 0	
			230 2 6
Boonah Shire	1943–6	..	788 15 0
Burrum Shire	1946–7	..	400 0 0
Cardwell Shire	1946–7	..	500 0 0
Esk Shire ..	1943–6	..	153 10 0
Herberton Shire	1946–7	..	67 0 0
Hinchinbrook Shire	1946–7	..	1,000 0 0
Isis Shire ..	1946–7	..	1,000 0 0
Jondaryan Shire	1943–6	..	11 10 0
Kingaroy Shire	1943–6	298 17 6	
	1946–7	25 0 0	
			323 17 6
Livingstone Shire	1943–6	53 12 6	
	1946–7	2,500 0 0	
			2,553 12 6
Longreach Shire	1943–6	194 5 0	
	1946–7	116 0 0	
			310 5 0
Mirani Shire..	1943–6	856 15 1	
	1946–7	62 0 0	
			918 15 1
Monto Shire ..	1943–6	..	111 4 0
Mundubbera Shire	1946–7	..	357 0 0
Mulgrave Shire	1946–7	..	1,000 0 0
Nerang Shire..	1946–7	..	250 0 0
Pioneer Shire	1946–7	..	1,410 0 0
Rosewood Shire	1946–7	..	1,500 0 0
Woothakata Shire	1943–6	..	107 16 5
Widgee Shire	1946–7	..	1,081 0 0
Total		..	£216,387 16 6

Subsidies approved, 1943-46 ..	£133,338 6 6
Less subsidies withdrawn ..	2,395 10 0
	£130,942 16 6
Subsidies approved, 1946-47 ..	85,445 0 0
Total Subsidies	£216,387 16 6

The undermentioned local authorities have lodged applications for loan and subsidy on mosquito eradication works for their 1947-48 programme:—

Local Authority.	Estimate for proposed works.
	£ s. d.
Townsville	20,000 0 0
	10,000 0 0
	2,315 0 0
Rockhampton	9,614 0 0
Ipswich	10,600 0 0
	10,000 0 0
	2,500 0 0
	25,000 0 0
Maryborough	12,000 0 0
	10,000 0 0
Bundaberg	..
Charters Towers	52,571 9 7
Warwick..	5,200 0 0
Redcliffe	26,320 0 0
	33,000 0 0
	750 0 0
Bowen	5,737 17 6
Gladstone	6,029 3 3
Toowoomba	10,060 0 0
Boonah	1,500 0 0
	250 0 0
Burrum	1,000 0 0
	730 0 0
Chinchilla	1,000 0 0
Douglas	6,350 0 0
Emerald	300 0 0
Johnstone	1,000 0 0
Longreach	292 0 0
Livingstone	10,000 0 0
Moreton	390 0 0
	3,800 0 0
Murgon	1,000 0 0
Nerang	500 0 0
Pioneer	2,784 0 0
	5,216 0 0
Paroo	3,000 0 0
Rosewood	2,000 0 0
	1,300 0 0
Roma	560 10 0
	131 3 0
Sarina	5,680 0 0
Tingalpa	250 0 0

Sandflies.—A survey was carried out at the request of the Gladstone Hospitals Board by Miss E. N. Marks, M.Sc., Graduate Research Assistant of the Mosquito Control Committee, and her report is attached as Appendix B.

Inspections.

General inspection work carried out by the sanitation section staff is shown in the table below:—

Area.	First Inspections.	Re-inspections.	Official Calls.	Towns Visited.
Metropolitan ..	3,243	398	318	..
Country	454	74	131	43
Totals ..	3,697	472	449	
Grand Total ..		4,618		

First inspections included common laneways (145), drainage (52), sanitary conveniences (73), rat infestation (147), refuse tips (246), sanitary depots (62), mosquito infestation (54), sewerage (52), fly infestation (14), sanitary service (22), and many others.

The country towns visited were Beaudesert (2), Beenleigh (2), Booval, Boonah (2), Coolangatta (3), Dalby, Esk, Goodna, Ipswich (7), Kingston, Kilcoy (2), Kalbar, Lowood, Mooloolaba (2), Nambour (2), Miles, Peak Crossing, Redland Bay, Rosewood (3), Redcliffe (8), Redbank, Strathpine, Stapylton.

Tours of inspection were:—(1) Maryborough, Pialba, Scarness; (2) Bundaberg, Bargara, Burnett Heads, Elliot Heads, Gin Gin, Mount Perry, South Kolan; (3) Murgon, Kilkivan, Goomeri, Crawford, Hivesville, Kingaroy, Nanango, Proston, Tingoora, Woolooga, Wondai, Wooroolin.

Barbers' shops in the metropolitan area were regularly inspected and supervised; 235 inspections were made. All barbers' shops in country towns were also inspected.

The hygienic standard has improved greatly, and only minor breaches of the Regulations were observed. Follow up visits found that these faults had been remedied.

Common laneways and yards were kept under observation; 145 inspections were carried out. Insanitary conditions, and defective bins, or absence of bins were reported to the Council for the necessary action.

Public Sanitary Accommodation.

Inspections of public sanitary accommodation were carried out by officers of the department. Reports revealed that the misuse by the public of the accommodation provided for their convenience is the real cause of many of the foul and offensive conditions so often found.

It is again emphasised that control can only be exercised by employing a permanent attendant under the direct supervision of the Local Authority.

Ladies' retiring rooms provided in retail shops were kept under supervision by the welfare officer. She reported that the accommodation was maintained in a clean and sanitary condition.

The necessity for public accommodation in country towns is engaging the attention of a number of councils. Application for loan and subsidy has been lodged with the Co-ordinator-General's Department, and recommended by this Department:—

	£
Beaudesert Shire Council	1,500
Beenleigh Shire Council	700
Mackay City Council	5,000
Millmerran Shire Council	450
Murgon Shire Council	550
Noosa Shire Council	1,000
Southport Town Council	10,000

Licensed Premises.

Number of inspections of hotels carried out were:—

Area.	First Inspections.	Re-inspections.	Reports Submitted.
Metropolitan	378	73	378
Country	131	7	131
Totals	509	80	509

During show week in Brisbane, officers of the Department were on duty supervising the sanitary conditions of the grounds and accommodation; 320 inspections were carried out.

Theatres.

An officer was detailed to make a survey of the theatres within the Brisbane metropolitan area. Sixty-one theatres operate, nine of which are in the centre of the city and the remaining fifty-two in the Valley and suburban areas.

The report submitted classified the nine central city theatres as A, B, C and below standard, which classification is based on—

(*a*) Air conditioning;
(*b*) Sanitary accommodation;
(*c*) Lounges and retiring rooms;
(*d*) Seating comfort and vermin control.

"A" class, maintained a high standard in every respect.

"B" class, deficient in (*b*) and (*c*).

"C" class, no air conditioning provided, but possessed some mechanical means of ventilation—e.g., fans propelling outside air through ducts. Satisfactory in other respects.

The classification is as follows:—

"A" Class.	"B" Class.	"C" Class.	Below Standard.
3	4	1	1

The one theatre below standard is not provided with adequate ventilation to cope with four daily sessions. The sanitary accommodation was found very unsatisfactory, and lounges or retiring rooms are not provided. Vermin control was unsatisfactory and cockroach infestation was heavy. The necessary action was taken.

The sanitary accommodation of the remaining eight theatres was found to be well lighted, adequately ventilated, well appointed and in clean condition. No congestion was observed during inspections.

Vermin control is a most important precautionary measure, and is directed against bugs, fleas, and cockroaches, and a regular application of a reliable insecticide is essential.

The type of control measures adopted and the conditions found were:—

Class.	Insecticide used.	Periods of Treatment.	Infestation.
A	D.D.T.	Weekly	Nil
A	Pyrethrum	Daily	Nil
A	Pyrethrum	Daily	Nil
B	D.D.T.	Weekly	Nil
B	D.D.T.	Fortnightly	Nil
B	D.D.T.	Weekly	Nil
B	D.D.T.	Daily	Nil
C	D.D.T.	Daily	Nil
Under Standard	Crescylic Acid.	Weekly	Heavy Cockroach

Thirty-five suburban theatres, including the Valley area, were also inspected. Only one theatre was found to be infested, and this by fleas, which were confined to the dry earth floor.

Results of the investigations are as follows:—

Accommodation.								Ventilation.			Rodent Control.		Vermin Control.									
W.Cs.				E.Cs.									Insecticide.			Period of Treatment.						
Satisfactory.	Insanitary.	Defective.	Insanitary and Defective.	Satisfactory.	Insanitary.	Defective.	Insanitary and Defective.	Air Conditioned.	Mechanical.	Natural.	Satisfactory.	Unsatisfactory.	D.D.T.	Pyrethrum.	Nil.	Daily.	Bi-weekly.	Weekly.	Fortnightly.	Monthly.	Nil.	Number Infested.
22	3	3	2	2	..	..	3	1	2	32	32	3	23	10	2	5	4	13	6	5	2	1

Water Samples.

The number of water samples despatched, collected, and delivered to the Government Analyst for analysis, and the Director of the Laboratory for examination during the year were:—

Despatched To.	Chemical.	Bacteriological.
Local Authorities ..	125	138
Others	21	25
Totals	146	163

An increase of 55 and 46 respectively over 1945-6.

Holiday and Camping Resorts.

During the Christmas-New Year holiday period all seaside camping and picnic grounds from the border to Pialba were policed by officers of the headquarters staff.

Inspectors were stationed for a two-week period at Coolangatta, Maroochydore, and Pialba. The difficulty of obtaining accommodation at other seaside resorts prevented full-time supervision, but regular visits were made by motor transport.

The following places were policed:—Coolangatta, Bilinga, Miami, Palm Beach, Tugun, Currumbin, Burleigh Heads, South Burleigh, Surfers' Paradise, Southport, Redland Bay, Wellington Point, Cleveland, Thornside, Victoria Point, Beechmere, Deception Bay, Redcliffe, Caloundra, Tewantin, Gympie Terrace, Noosa Heads, Coolum Beach, Maroochydore, Alexandra Headlands, Mooloolaba, Buderim, Pialba, Scarness, Torquay, Urangan, Point Vernon, The Pines, Gallaghers Bay, Strathpine, Pine River, Sandgate, Wynnum, Cribb Island, Logan Park, Colmslie.

Total inspections over the two weeks' holiday period amounted to 4,012.

Reports submitted by the inspecting officers revealed that the majority of these camping areas do not lend themselves to comfortable camping, and that they are deficient in the ordinary amenities which should be expected for the complete enjoyment of a health-giving vacation.

The record season experienced points to the fact that holiday camping, week-end camping, and daily picnicing have become an integral part of the vacational and recreational life of a very large section of our population. It is therefore incumbent on all authorities concerned to recognise this fact and appreciate its significance, in that, the health, welfare, and physical development of the State's citizens, especially the rising generation, depend on the clean, sanitary, and comfortable environment of well planned and designed camping grounds and picnic places furnished with modern accommodation and all conveniences necessary for holiday enjoyment.

The present conditions of camps cannot be considered satisfactory to meet the demands of the holiday-maker or the tourist.

A number of local authorities have carried out improvements, others have plans in course of preparation, and some have schemes under consideration.

Woongarra Shire Council has provided a septic-tank block at Bargara, together with new dressing sheds and E.Cs. in brick at the Basin. At Neilsen Park the same council has erected new public dressing sheds and showers, and also three new showers at the camping ground. Their architect has been instructed to prepare septic-tank installations, and a community laundry is under consideration.

Widgee Shire Council has carried out improvements to the accommodation provided at Tin Can Bay.

Livingstone Shire Council has planned improvements for Keppel Sands, Emu Park, and Yeppoon.

Johnstone Shire Council is to carry out improvements to the conveniences at Etty Bay, Flying Fish Point, Murdering Point, Mission Bay, and Cowley Beach. Application for loan and subsidy (£6,750) has been lodged with the Co-ordinator General.

Redcliffe Town Council is preparing a complete scheme to cover all camps and picnic grounds in their area. It is planned that all sanitary conveniences will be sewered, either to council's sewers, or, where not available, by septic-tank systems.

Burrum Shire Council has applied for loan and subsidy on £3,000 for improvements to camping areas at Urangan, Torquay, and Scarness.

Maroochy Shire Council has plans under consideration for the modernising of camping and picnic grounds at Maroochydore and Mooloolaba.

Southport and Coolangatta Town Councils have plans in hand to meet the requirements of the very large camping and visiting population at Christmas and other holiday periods in their respective areas.

Landsborough Shire Council has an application lodged for a loan and subsidy on the estimated cost of £1,000 for the improvement of camp sites.

Tingalpa has plans completed for a camping site with all modern conveniences, and a motor car parking area for the visiting public at Victoria Point.

Swimming Pools.

During the swimming season regular weekly samples of pool water were obtained from all the State school and municipal swimming pools. The routine procedure is to obtain two samples for bacteriological examination and one sample for chemical analysis from each swimming pool.

The bacteriological samples are taken from the shallow and deep ends approximately half way between the end and the centre line of the pool. The chemical sample which is for the estimation of the chlorine residual content is taken from the outlet end of the pool.

The disadvantages due to the absence of modern design and construction are overcome by strict supervision and the enforcement of instructions issued to ensure the purity of the swimming pool water and the cleanliness of the users.

The standardisation of the procedure of chlorination and the strict supervision exercised are reflected in the excellent results, as proved by the examination and analysis as shown in the following table:—

Name.	Bacteriological.			Chlorine.	
	No. of Samples	No. of Tests.	No. Satisfactory.	No. of Tests.	No. Satisfactory
Municipal Pools.					
Booroodabin ..	12	6	6	7	5
Davies Park ..	12	6	6	6	5
Ithaca	10	5	5	5	5
Spring Hill	10	5	5	5	5
Toowong	10	5	5	6	6
Totals	54	27	27	29	26
State Schools Metropolitan Area.					
Ascot	14	7	7	7	7
Buranda	22	11	11	11	9
Cannon Hill ..	14	7	7	7	5
Coorparoo	26	13	13	13	7
Greenlanes	24	12	12	12	11
Greenslopes ..	22	11	11	11	10
Junction Park ..	16	8	8	8	6
Milton	22	11	11	11	11
Wilston	14	7	7	7	7
Windsor	6	3	3	3	3
Wooloowin	16	8	8	8	4
Totals	196	98	98	98	80
Silkstone State School	14	7	7	7	6
Ipswich Municipal Pool	10	5	5	5	4
Totals	24	12	12	12	10

Number of visits and inspections, 138.

Kingaroy Shire Council has applied for a loan for a modern swimming pool estimated at £20,000. The site has been selected, and Treasury have approved of a loan of £600 for the preparation of plans and specifications.

Bedding and Upholstery Regulations, 1943.

A survey of the conditions of the manufacture of flock and submission of samples was conducted and the following results are tabulated hereunder:—

Flock Manufacturers.

Manufacturer.	Nature of Materials.	Source of Materials.	Bacteriological and Pathogenic Organisms.	Chemical Chlorine parts per 100,000.
A	Cotton wadding ..	Factory wastes and Commonwealth Salvage Department	*A. aerogenes* ..	140
	Wool filling	ditto	Nil	12
B	Cotton flock	Factory wastes	Intermediate type ..	80
C	Wool flock	Factory wastes and Commonwealth Salvage Department	Intermediate type ..	60
	Cotton flock	ditto	*A. aerogenes* ..	100
	Cotton flock	ditto	Intermediate type ..	124

A further survey was conducted into the conditions of manufacture of articles of bedding and upholstery and samples were submitted and examined. The following table summarises the results:—

Material.	Bacteriological.	Chlorine parts per 100,000.
Kapok (Java)	No coliform bacilli ..	16 and 80
Kapok (Java)	*A. aerogenes* ..	84 and 112
Fibre (Ceylon)	No coliform bacilli ..	140 to 240
Fibre (Ceylon)	*A. aerogenes* ..	44 to 232
Fibre (Queensland) ..	No coliform bacilli ..	120
Fibre (Queensland) ..	Intermediate type ..	68
Fibre (India)	No coliform bacilli ..	72 and 192
Fibre (India)	Intermediate type and *A. aerogenes*	104
Flock (Victoria)	*A. aerogenes*	12
Wool flock (Victoria) ..	*A. aerogenes*	344
Flock (Queensland) ..	*A. aerogenes*	52 to 156
Flock (Queensland) ..	Intermediate type ..	92 to 100
Flock (Queensland) ..	*E. coli*	72
Flock (Queensland) ..	*A. aerogenes* and *E. coli* ..	100

TABLE—*Continued.*

Material.	Bacteriological.	Chlorine. parts per 100,000.
Cotton flock (Queensland)	*A. aerogenes*	48 and 64
Cotton flock (Queensland)	*E. coli*	80
Cotton flock (Queensland)	Intermediate type and *A. aerogenes*	92
Wool flock (Queensland) ..	*A. aerogenes*	12 and 88
Wool flock (Queensland) ..	*E. coli*	80
Wool flock (Queensland) ..	Intermediate type and *A. aerogenes*	88
Flock (N.S.W.)	Intermediate type and *A. aerogenes*	28
Garnette flock (Victoria) ..	*E. coli*	80
Kapok (Ceylon)	No coliform bacilli ..	320
Kapok, reconditioned ..	*A. aerogenes*	48
Cotton (Queensland) ..	*A. aerogenes*	72
Cotton (N.S.W.)	No coliform bacilli ..	116
Cotton (America)	*A. aerogenes*	60
Cotton linters (Queensland)	Intermediate type ..	68 and 80
Coloured wool (N.S.W.) ..	*A. aerogenes*	40
Virgin wool (N.S.W.) ..	*A. aerogenes*	16
Wadding (Queensland) ..	No coliform bacilli ..	52
Wadding (Queensland) ..	Intermediate type ..	52

A study of these results shows that four of the samples contained *E. Coli*, while the other samples contained either "intermediate type" or *A. Aerogenes.*

The present regulations do not require sterilization of flock or other materials before sale, but prohibit the sale of "any material which is not clean, free from pathogenic organisms, and which contains more than 30 parts of chlorine in every 100,000 parts by weight."

The results appear to indicate that disinfection should be practised at the flock factory before sale to the manufacturers of bedding, upholstery, &c., and also that the manufacturers should provide means for the protection of the disinfected article from contamination on their premises.

Under the primitive and insanitary conditions at the majority of these factories and shops, it is difficult to discover whether contamination takes place on either or both premises.

The Government Analyst has summarised the chlorine content of these materials in his annual report and reference should be made thereto for particulars.

The mechanical shredding of materials in the flock factories creates a dust hazard, which is not remedied in any way by means of exhaust systems, and operators are required to work in enclosed places from which dust and effluvia arising from the process are not removed.

The results of this survey reveal that the existing regulations require to be recast. This will be done in the near future, and draft regulations submitted for consideration.

CAIRNS SUB-OFFICE.

The year under review has shown a further return to normality, although there are still several factors retarding the pace of such improvement. Difficulty is still being encountered in regard to the supply of galvanised iron for sanitary purposes and local authorities have to be particularly keen to ensure ample supplies for these purposes. The fact that despite erratic and small supplies of iron there has been no major hold-up is indeed gratifying.

Coverage to local authorities' activities has been maintained as far as possible, but such service, although much better now as a consequence of efficient transport, is not all that could be desired. Exigencies of staff and the many and varied duties to be undertaken by an officer in a country district militate against the desideratum. Augmentation of the staff in country areas would appear to offer the only solution. Problems are many, especially in the tropical areas, and efficient aid to local authorities can only be achieved by more frequent visits.

The local authorities are worthy of commendation for their efforts under trying conditions and it is gratifying to report no major breakdowns in essential services and no serious outbreaks of infectious diseases.

In addition to routine inspections, many special visits have been paid for specific purposes and these are dealt with in detail under the headings of the local authorities concerned.

Cairns City.—Essential services were again well carried out during the year, complaints received by me in this regard being at a minimum. The nightsoil incinerator received regular inspections, whilst visits were paid periodically to the rubbish disposal tip.

A staff, as big as the finances of the local authority allow, is engaged on mosquito control work, especially in regard to the anti-malaria drainage, and is efficiently doing as much work as the exigencies of staff and finance permit. This is a very big job and will remain so until such time as permanent works of drainage and reclamation reduce the areas now subject to continual control.

During the year the local authority, with such a purpose in view, made submissions for loan and subsidy for certain drainage and reclamation and these have been favourably reported on. The completion of such work will be of inestimable value. It is pleasing to note that in quite a few instances levelling of property by the owners has been done with a consequent building up of the low-lying sections of their property. A continuance of this will be all to the good.

A deal of concrete channelling has been undertaken during the year and this will help to eliminate nuisances caused by both storm-water and drainage.

Rat control has been carried out on similar lines to the previous year and good work is being done by the staff in the control of this pest.

Immunisation has been steadily carried out in Cairns and the city is now more favourably placed in this regard than ever before.

It now appears that a definite stage has been reached in plans for the installation of sewerage in Cairns and it is to be hoped that this worthy amenity be no longer delayed than possible. An efficient sewerage system, especially in a coastal tropical town, will be a very big factor in the elimination of health hazards.

Mulgrave Shire.—As usual, essential services at the various towns in this shire were carried out efficiently, a paucity of complaints being received. Periodical inspections were paid to nightsoil and rubbish depots and any necessary advice given for improvement. At Gordonvale during the year, the local authority gave serious consideration to another method of nightsoil disposal other than by burial because of the difficulties encountered at the depot, where the soil is most hostile to effective disposal. The method proposed is a treatment works, with subsequent disposal of the effluent in a tidal salt-water creek. Final negotiations are now in hand for this work, which will eliminate a long-standing nuisance.

Plans are now complete for the anti-mosquito work proposed at Babinda, and the completion of this work will improve conditions at this town to a marked degree.

Concrete channelling, with a consequent improvement in drainage conditions, has been carried out in various parts of the shire.

Immunisation has not been neglected and a consistent campaign has maintained the high percentage of immunised children in this shire.

Crenothrix bacteria was found in the Gordonvale water supply. The solution of this trouble is engaging the attention of the local authority.

Johnstone Shire.—Characteristic efficiency was again shown by this shire in the performance of the essential services. In this connection, it is pleasing to report that plans have now been completed for the installation of a sewerage system for the town of Innisfail.

During the year inspections were made of several proposals for anti-mosquito work, the requisite reports being submitted as a result of my investigations.

Beach sanitation received the necessary attention.

Cardwell Shire.—Matters were found generally good in this shire, the essential services being well maintained, whilst immunisation against diphtheria and whooping cough received constant attention.

A proposal for anti-mosquito work was investigated and, as a result, plans are now being formulated for the necessary work.

A sewerage scheme is under consideration by the Council.

Douglas Shire.—The appointment of a full-time inspector earlier in the year led to an improvement in the town's sanitation, and it was found that matters, especially in regard to rubbish disposal, showed commendable progress. It is to be regretted that the officer has now taken another appointment, but the Douglas Shire is endeavouring to secure another certificated man to replace him.

In portion of the Douglas Shire, a National Fitness camp for 200 people is mooted, and the necessary inspections of site, &c., were made. Plans are at present under consideration and the next few months will see this camp an actuality. It is worthy of note that septic systems are to be installed.

Woothakata Shire.—This is a very large and scattered shire, in which essential services were found functioning very well at all the main centres visited.

The local authority has been bearing in mind the possibility of sewerage for the main town of the shire, Mareeba. This town is achieving steady and sound progress and is the centre of a thriving tobacco-growing area.

Cook Shire.—A visit of inspection was made to Cooktown in this shire and recommendations were made to that local authority for certain improvements.

This is a shire with small population and revenue and, so far has not had the benefit of even a part-time trained inspector. The services of such a man would be worth while.

Atherton Shire.—During the year under review Atherton and Eacham Shires sundered the agreement for a part-time inspector and each shire now has a full-time inspector. This has enabled more frequent coverage for health work.

Visits of inspection were paid and it was found that all essential services were functioning well, whilst other avenues of health work were receiving the necessary attention.

Eacham Shire.—The provision of a full-time inspector has led to increased control, with most beneficial results.

Essential services were found at all times functioning well.

Herberton Town.—Matters were found in reasonable order in the main sections of this local authority, which shares an inspector with the Woothakata Shire. These two areas are difficult to police together, owing to the size of the Woothakata Shire, and departmental action to provide an inspector for this shire should have the effect of improving health matters considerably.

Etheridge Shire.—This is a shire of large area and small population, where inspections revealed a reasonable state of affairs.

A special visit was paid to Einasleigh, where labour conditions were such that no one could be found to conduct the nightsoil removal service. The placing of premises in this town on a cesspit system as recommended was the only solution.

Croydon.—This is a shire of small population and revenue, to which a special visit was paid in regard to the inauguration of a duplicate pan system of nightsoil collection.

Transport difficulties and material shortages have somewhat delayed the inauguration of this method, but it is not escaping the attention of the local authority.

Matters otherwise were found reasonable.

Thursday Island.—During the period under review Thursday Island reverted once again to civilian administration.

A visit was paid there and it was found that, due to shortages of manpower and materials, allied with a lack of inspectorial direction, steps as far forward as desired in a return to pre-war health conditions had not been made. Under the direction of the Administrator, matters were shaping in the right direction.

The advice tendered as a result of my visit should result in still further improvement.

LOCAL AUTHORITY SUPERVISION.

Area.	First Inspections.	Re-inspections.	Official Calls.	Number Reports Submitted.	Number of Towns Visited.
Headquarters	555	33	151	7	..
Country ..	617	..	107	84	54 (133 visits)
Totals ..	1172	33	258	91	
Grand Totals	1,463				

The above inspections included:—Anti-malaria drainage (36), barbers (5), camps (4), chemists (19), cold stores (1), drainage (45), fly infestation (1), food factories (94), food premises (562), hospitals (8), incinerator (3), insanitary premises (1), lead in toys (17), milk premises (39), mosquito infestation (20), premises (2), rat infestation (11), rubbish (21), sanitary conveniences (235), warehouses (23), wharf (1), and waters (11).

LICENSED PREMISES.

Area.	First Inspections.	Re-inspections.	Number of Reports Submitted.	Number of Plans Examined.
Headquarters ..	40	3	28	4
Country	90	..	90	..
Totals	130	3	118	4
Grand Total ..	133			

Miles travelled by truck, rail and boat during the year—7,674.

TOWNSVILLE SUB-OFFICE.

DETAILED SUMMARY OF INSPECTIONS MADE.

Area.	Number of Inspections.	Number of Re-inspections.	Official Calls.	Number of Reports.	Number of Towns Inspected.
Headquarters	848	69	261	126	16
Country	97	3	45	85	..
Totals ..	945	72	306	211	16
Grand Total	1,323				

SANITATION GENERALLY.

During the year under review attention has been given to all matters of general sanitation, and when necessary action was taken to suitably deal with defects observed.

Included in the principal major Townsville City Council works in operation throughout the year was the extension of the sewerage scheme in the North Ward area. Reticulation of the main pipeline to the extreme end of the defined area is practically completed and branch lines are now well under construction at various points. It is anticipated that within the next twelve months the whole of North Ward will be available to receive house connections.

The total number of tenements now provided with water closets and connected to the Council sewerage scheme is 4,753, whilst the number of actual pedestals in use is 6,529. These figures refer to the areas included in the original scheme known as Sections No. 1 to No. 6 of the city. The number of premises not yet connected in this area may be estimated at approximately 160. However, with the gradual improvement in the arrival of materials for the purpose steady progress is being made towards having all such premises brought into line.

With the exception of a break in the main pipeline at the point of discharge no difficulties have been encountered in respect to the sewerage operations.

Sanitary Service.—This service is still being performed under contract and the average number of removals per month during the year was 12,875. The gradual increase in the number of premises being connected to the Council sewerage scheme within defined sewered areas is being offset by the number of new houses being erected in unsewered areas, therefore it is likely a sanitary removal service will still continue for some years.

Hotel Licensing.—Inspections of hotels on behalf of the Licensing Commission were resumed after a lapse of some years (due to war-time conditions). These were carried out in conjunction with the Police Licensing Inspector and reports covering the existing conditions of each hotel together with recommendations for improvements were submitted in respect to every hotel in the city area. In most cases such recommendations included extensive alterations, improvements, and additions in respect to matters of sanitation, particular attention being given to bathroom and toiletroom facilities.

Subsequently orders were issued by the Licensing Commission and the respective owners proceeded to have the work carried out.

Diseases.—A mild outbreak of diphtheria occurred during April and extended into May, resulting in over thirty cases being reported. All the cases came from two closely congested residential areas and the usual precautions and action were taken by the local authority upon receipt of notification by the medical practitioner.

Rat Control.—The importance of this section of the Council's responsibility has frequently been stressed by the Director-General with a view to having an increased staff engaged so as to enable systematic house-to-house visits to be made throughout the city. The fact that Townsville is a very important deep-sea port cannot be over emphasised, and unless a properly organised, equipped and experienced gang of men is employed permanently it will be difficult to maintain the city in a reasonably free-from-rat state.

Baits are laid on river retaining walls and other premises periodically where harbourages are known to exist, but as many carcases are not recovered it is impossible to estimate the rat population.

Trapping is also carried out by the local authority.

Water Supply—Mount Spec Scheme.—Work has commenced on the construction of the pipeline from Townsville to Crystal Creek in the Mount Spec area. This scheme, which is designed to augment Townsville's water supply by 3,000,000 gallons per day, comprises the construction of a 20-inch diameter concrete-lined steel pipeline approximately 48 miles long, the estimated cost of which is £660,000.

The pipe, with the exception of the first 3 miles, is to be laid above ground and the reinforced concrete structures supporting the pipe have been constructed for a distance of approximately 12 miles.

During periods of low flow in Crystal Creek the discharge from the pipeline will fall below 3,000,000 gallons per day, but during these periods the water storage maintained by the dams in Ross River will be drawn upon.

Contracts have been entered into for the supply of the necessary concrete-lined steel pipes and for the supply of concrete for structures along the line.

All other work is being carried out by day labour by the Townsville City Council.

Provided the materials, particularly steel and concrete, are available as required, it is anticipated that the work could be completed by the end of 1948.

COUNTRY.

Visits were paid to the undermentioned towns during the year:—Ayr (4), Bambaroo, Bemerside, Charters Towers (3), Halifax (2), Hawkin's Creek, Hughenden, Ingham (10), Long Pocket, Lucinda Point (4), Macknade, Magnetic Island, Richmond, Rollingstone (2), Stone River, and Trebonne.

Routine inspectorial duties accounted for visits to most of the towns, whilst special visits were paid to the Ingham and Ayr districts for the purpose of hotel inspections.

A visit was made to Halifax in connection with a request for the establishment of a cottage hospital at that centre and the State school at Hawkin's Creek was visited for the purpose of obtaining water samples.

The City of Charters Towers and the Shire of Hinchinbrook both made application for loans under the 50/50 subsidy scheme in connection with mosquito eradication.

MACKAY SUB-OFFICE.

For the period under review inspections were carried out at Mackay City, North Mackay, Bowen town, and the country towns of Eton, Finch Hatton, Gargett, Koumala, Nebo, Pinnacle, and Sarina.

The general sanitary conditions at premises, yards, and sanitary conveniences were found to be satisfactory.

Australian National Power Alcohol Co., Sarina.—Two visits of inspection were made to the above Company's effluent disposal area at Oonooie, in company with their chemist and the local health inspector, relative to complaints regarding the fly nuisance thereat. On each occasion (summer season) no fly menace was discernible and the disposal of the effluent was being conducted in a satisfactory manner.

Mosquito Eradication and Control.—Inspections of areas were made at the request of headquarters in regard to applications for subsidies by the Mackay City Council, Pioneer, Bowen, and Sarina Shire Councils, and reports and recommendations thereon submitted.

Water Supply.—Acting on a complaint regarding the unfitness of the domestic water supply to residents in North Mackay (Pioneer Shire) bacteriological and chemical samples were obtained from several points in the area and submitted for examination. Some of these samples were reported as unfit for human consumption. The matter was taken up with the Pioneer Shire Council, who took the necessary action to rectify same.

Licensed Premises.—No general inspection of licensed premises in the city area has been made during the period under review the reason for such being that the annual inspections were made by the Police Licensing Inspector just prior to the opening of the Mackay Office in October, 1946. This matter will receive attention in the forthcoming financial year, 1947-48.

Licensed premises in the townships of Eton and Koumala were inspected and reports submitted.

Inspections—Headquarters District.

First inspections	95
Reinspections	30
Official calls	55
Total	180

Inspections—Country Areas.

First inspections	84
Reinspections	10
Total	94
Towns visited	12
Miles travelled—by car	1,838
„ „ by train	230

Sanitary and Garbage Depots.—The undermentioned depots were visited during the period ended 30th June, 1947:—Eton, Finch Hatton, Otterburn, and Sarina. The conduct of the depots and the general sanitary conditions were found to be satisfactory, with the exception of the Otterburn Depot (Mirani Shire), where it was found that the water and camping reserve adjacent to the depot was being used as a refuse tip and that the shed and plant were housed on this reserve. This matter was brought under notice and was the subject of correspondence with Mirani Shire Council and the Department of Public Lands.

ROCKHAMPTON SUB-OFFICE.

GENERAL.

Under the heading of local authority supervision, duties performed included inspections and investigations with regard to sewerage, drainage, nightsoil and refuse removal services, nightsoil disposal depots and refuse tips, sanitary conveniences, rat, mosquito, and fly infestation, sanitation of seaside resorts and holiday camps, river pollution, and general sanitary conditions of towns. Advice was given to local authorities, mainly through their Inspectors. Numerous other duties received attention.

A large amount of time was taken up by inspections of and reporting on hotels.

HEADQUARTERS AREA (City of Rockhampton).

In the areas to which the sewerage system had not been extended the pan system of nightsoil removal remained in operation. The collection services were performed efficiently, and excepting on one or two occasions disposal of nightsoil was carried out in the prescribed manner. On the occasions referred to improper methods of trenching which could be attributed to unreliable labour resulted in fly-breeding at one of the depots. Speedy adjustment resulted on the defects being brought to the notice of the City Inspector.

It is expected that the present horse-drawn nightsoil collection vehicles will be replaced with motor transport in the coming year.

Eight men were employed on refuse collection as against seven in the previous year. In addition two sanitary employees collected refuse in part of their time. The efficiency of the service will be further increased by the employment of one additional carter and a change over to motor vehicles.

The main difficulty in keeping premises free from exposure of edible refuse to rats, &c., was the continued inability to obtain supplies of galvanised iron for the manufacture of standard garbage containers. Although some southern firms were able to quote for galvanised iron bins supplied in lots of several hundreds, local authorities were precluded from securing iron for similar purposes.

In extending the sewerage system 3·8 miles of sewers were constructed, bringing the total now to 152.71 miles. One hundred and thirty-seven new connections to premises were made, making a total of 6,547 to date. Operating on a loan of £10,000 and a Government subsidy grant of a similar amount in the coming year the sewerage scheme will be further extended to benefit another 205 premises.

Certain city buildings having sewage discharging to open drains, mentioned in last year's report, were again brought under the notice of the City Council, which finally took action, had one block of buildings connected to the sewer, and commencement made on another block.

Many sinks and hand basins in the city were left discharging to street channels when the sewerage system was installed. The Council now contemplates calling upon owners to effect the necessary connections to the sewers.

The local authority proposes to cover a further section of a large open main drain and has applied to the Government for a loan and subsidy for the purpose. This Department's local officer certified to the necessity for carrying out the work.

Sections of defective street water channelling in the city area require renewing. It is hoped that the Council will give consideration to undertaking some of these renewals in the near future.

Rat destruction work was continued with systematic visitations to premises by the rat gang assisted by dogs, trapping, and poisoning. Some progress was achieved in ratproofing of premises, but as a whole this work was again retarded by shortages of labour and materials.

Leprous rats were captured on a number of premises. The Department's officer accompanied the City Health Inspector on inspections of all of such premises, following which owners or occupiers were called upon to adopt prescribed measures to eradicate rats and prevent further harbouring.

Ships which berthed at the port of Rockhampton were inspected to ensure that prescribed precautions were taken to prevent rats gaining the shore. Breaches of these precautions were reported to the Commonwealth officer concerned, who took up the matters with the masters of the ships.

The Council's mosquito-control gang operated throughout the year. The gang consisted of four men, and motor transport was added to the equipment.

Some anopheline species were in evidence after heavy rains replenished lagoons and other collections of water. Likewise replenished domestic rainwater storage tanks and other receptacles resulted in an increased number of *Aedes egypti*. An influx of *Aedes vittiger* from the city's environs was a source of annoyance for a time. Few *C. fatigans* now breed in the areas served by sewerage.

Eradication of *A. egypti* was again hampered by shortages of supplies of galvanised iron, and the services of plumbers not being available for attention to rainwater tanks.

The Jardine Lagoon (50 per cent. Government subsidy) mosquito eradication scheme was nearing completion at the end of the year. The final cost will prove to be well below estimate, due to the use of mechanical earth-moving plant secured by the Council. Other mosquito eradication work of a permanent nature is contemplated for the coming year.

Public sanitary conveniences were accorded regular attention. Two new blocks of modern conveniences are to be constructed in suitable locations below street level.

The stabling of horses in closely settled residential areas again gave rise to complaints. The City Council has been giving some attention to this matter, and it is hoped that suitable action will be taken in the forthcoming year.

Many dilapidated buildings have been listed for reconstruction or demolition in the past few years. One block of buildings in the city area was demolished under order, but little progress generally can be expected in this line until the building industry recovers a greater degree of stability.

The City Council commissioned the firm of Messrs. Bates, Smart, & McCutcheon of Melbourne to prepare a town-planning scheme for the future beautification and development of Rockhampton. An officer of that firm visited the city during the last month of the fiscal year. By invitation this Department's officer was accorded an interview when certain aspects of development in so far as public health laws would be concerned were discussed.

Country Areas.

Townships visited for inspection purposes were:—Alpha, Aramac, Arrilalah, Baralaba, Barcaldine, Biloela, Blackall, Bouldercombe, Cracow, Dingo, Duaringa, Emu Park, Gladstone, Gogango, Goovigen, Gracemere, Ilfracombe, Jambin, Jundah, Keppel Sands, Longreach, Marmor, Mount Morgan, Rannes, St. Lawrence, Stonehenge, Thangool, Theodore, Tocal, Westwood, Windorah, Wowan, Yeppoon. For various reasons it was necessary to visit some of these on more than one occasion, the total number of visits being 81. The greatest distance travelled from headquarters was approximately 640 miles, and the total distance by train and car services 5,695 miles.

In most areas an awakening to the necessity of improved sanitation was noticeable. However, a few local authorities are still very tardy in giving effect to obviously necessary improvements recommended from time to time by their own or departmental officers. These bodies overlook the fact that they are the direct custodians of sanitation within their respective areas and as such are charged with the execution and enforcement of the relevant sections of the Health Acts and Regulations.

Aramac Shire.

Aramac Township.—This township presented a tidy appearance following systematic collection and removal of refuse from all premises some weeks earlier. The refuse tip was somewhat out of control in consequence, but word was subsequently received to the effect that the tip had been put in order. A new motor nightsoil removal vehicle was in operation.

Breeding grounds of anopheline and culicine mosquitoes were encountered in surface waters. Spraying was recommended to combat these.

Banana Shire.

A pleasing feature in this area is the operation of nightsoil and refuse removal services at reasonable cost in all townships requiring down to as few as twenty services. The majority of refuse tips needed attention and this will be facilitated as modern earth-moving plant becomes available.

Special visits were paid to several townships in order to secure improved hotel accommodation and general sanitation on main tourist routes.

A cafe proprietor carrying on business at Biloela who failed to heed warnings issued previously with regard to untidy and insanitary premises was proceeded against in the court. The presiding magistrate imposed a fine of £5 and ordered defendant to pay 6s. costs of court.

Barcaldine Shire.

Barcaldine Township.—An upward trend in sanitation was revealed on a survey of this township. The nightsoil removal service had been reorganised and a new motor nightsoil collection vehicle put into use, replacing the horse-drawn van used previously. The old surface refuse tip of many years' accumulations was being tidied up with the use of a bulldozer. It is proposed to change over to the burial of refuse in trenches on the sanitary reserve, where the soil is of a sandy nature and easily excavated. Regulation garbage receptacles were installed on all premises and a systematic clean-up of all types of refuse throughout the town was being arranged. An unsatisfactory feature is the carriage of sewage in open channels. A complete sewerage system is under consideration by the Council.

Barcoo Shire.

The townships of Stonehenge, Jundah, and Windorah were visited and sanitary surveys made. It was evident that much improvement to cesspit closets had been effected since the Health Inspector attached to the Longreach Shire had been engaged to carry out inspections in the Barcoo area. Spraying of cesspits with a D.D.T. solution was having a good effect in destroying cockroaches.

As the result of the visits to these townships the following recommendations were submitted for attention by the Council:—That all receptacles such as old tanks used for accumulating refuse on premises be removed and replaced with regulation containers. That refuse removal services be operated weekly. That refuse tips be tidied up, combustible material fired, and a controlled ramp system of disposal be adopted. That purification of river water reticulated to each township be undertaken.

Blackall Shire.

Blackall Township.—A sanitary survey of this town was made. Matters found to be in need of attention by the local authority were: Nightsoil left uncovered in a trench at the disposal ground; flies breeding out from covered trenches; earth-closet cabinets not flyproof; refuse accumulating on some premises; a nuisance caused by bad drainage on cafe premises; a minor mosquito-breeding ground. In the absence of a health inspector these matters were brought under the notice of the chairman of the Shire. The Council subsequently advised that necessary attention had been given to these items.

Duaringa Shire.

Bluff Township.—An outbreak of dysentery which occurred here was attributed to the drinking of water from domestic water storage tanks after they had been replenished by rain. Similar occurrences are more or less common where rain water collected from roofs of dwellings is the means of supply, but the duration of the outbreaks is generally brief, as was the case here.

Emerald Shire.

Emerald Township.—An application made by the Shire Council to the Government for the granting of a subsidy in connection with a mosquito eradication project was recommended for approval.

Fitzroy Shire.

The Council was requested to give consideration to inauguration of nightsoil services for the townships of Bajool, Westwood, and Gogango. This Department's officer assisted in an investigation as to the practicability of installing septic systems on all premises in Westwood township. It was considered that all conditions were favourable, including the probability of the necessary water supply being made available from the new scheme for supplying the local sanatorium.

The local authority subsequently commissioned its consulting engineer to submit reports on proposals to install septic systems throughout each of the three townships.

Samples of water were obtained from the creek from which the sanatorium water supply was drawn and submitted to both bacteriological and chemical analysis. Results were communicated to the Rockhampton Hospitals Board, which is the controlling authority.

Gladstone Town.

Inspector R. D. Elliott of headquarters staff, who relieved the district officer while the latter was on leave, visited Gladstone and carried out a sanitary survey. He reported that, with regard to recommendations made to the Council previously, (1) nightsoil was being disposed of in the prescribed manner at the new depot, (2) the refuse tip was under better control, (3) defective street water-channels were still in existence, (4) such channels were not being cleansed as frequently as was necessary, (5) a mosquito eradication scheme was listed for attention, (6) anti-mosquito spraying was being done. Subsequently notification was received of the granting of £2,500 loan and £2,500 subsidy to the Council by the Government for carrying out the most urgent sections of a mosquito-eradication scheme.

In April of the present year a complaint made to Head Office alleged that nightsoil was being disposed of at a previously abandoned depot in close proximity to the public hospital, resulting in flybreeding and an outbreak of gastro-enteritis. On inquiry it was learned that use of the old depot had been resorted to temporarily on account of flood rains having rendered the new disposal area unapproachable. An all-weather road to the new site was necessary. The Council subsequently advised that necessary action was being taken and the old depot would thereafter be completely abandoned.

Ilfracombe Shire Council.

Ilfracombe Township.—This township upon inspection was found to be cleaner and tidier generally following an organised clean up and removal of refuse from premises. The Council had installed regulation garbage containers on all premises. The refuse tip was out of order, but with the arrival of a bull-dozer which the Council had on order it was expected that the tip would be put into a satisfactory condition.

Material was on hand for improvement of the nightsoil depot buildings and plant.

The local woolscour, which had always been responsible for heavy flybreeding, was again gone over in company with the local authority's Inspector. Fly-breeding grounds were located. Measures for suppressing flybreeding were recommended, and it is understood that these were put into effect.

Jericho Shire.

Alpha Township.—Defects found on inspection here were: Nightsoil deposited in trenches left uncovered; earth covering of the refuse tip not kept up to date; accumulations of refuse on premises due to lack of garbage containers. At the time the local authority was without the services of a health inspector, and these matters requiring attention were brought to the notice of the Medical Officer of Health.

Livingstone Shire.

Inspection of the seaside resorts of Yeppoon, Emu Park, and Keppel Sands and intermediate holiday camping areas prior to the commencement of the 1946 Christmas vacation period revealed the necessity of urgent action to improve some of the sanitary features. These were brought under the notice of the local authority for attention but not all were given effect to. The Council was unfortunately temporarily without the services of a health inspector during the first half of December. In addition essential materials were in short supply, a number of new sanitary conveniences of brick construction which had been budgeted for could not be completed in time, and repairs to some of the existing sanitary conveniences were delayed. Generally speaking, however, the holiday camps were better conducted than formerly, nightsoil and refuse removal services were performed efficiently, and complaints were fewer.

A coastal strip at Yeppoon which had previously been levelled was fully occupied by campers. Other sites require to be similarly treated in order to accommodate more campers and facilitate orderly camping.

The restricted area of land at Yeppoon on which nightsoil has been disposed of for a number of years was found to be no longer fit for the purpose. Suitable land of adequate acreage is not available in close proximity to the town, so that it will be necessary to go further afield or to use a smaller area temporarily until the old depot has been regraded and spelled for some time. The Council has this matter in hand and early action is expected.

Low-lying land is being reclaimed with refuse collected in Yeppoon and the tip is well controlled.

The refuse tips at Emu Park and Keppel Sands required improvement and were brought under the notice of the local authority for attention.

The proposal to provide at Yeppoon a sewer for carriage of foul waste waters at present conveyed by an open channel again failed to materialise. In the meantime the project has been revised and enlarged in scope so that greater benefit will accrue when the work is accomplished. The Government subsidy grant of 50 per cent. of the cost will be applicable to portion of the project.

Two other projects combining drainage and mosquito eradication in Yeppoon, for which the local authority applied to the Government for loans and subsidies, were investigated and reported on with favourable recommendations, subject in one instance to the inclusion of an adjoining low-lying mosquito-breeding area.

There remains considerable breeding of domestic species of mosquitoes on household premises in the town, due chiefly to the services of plumbers not being available for repairing and screening rainwater storage tanks.

Investigation was also made regarding the practicability of eradicating mosquito breeding in three areas within the township of Emu Park. Reports thereon were submitted to Head Office.

Permanent mosquito eradication work in the vicinity of the State coal mine at Ogmore was still proceeding at the end of the year. In last year's report it was stated that an outbreak of malaria had occurred here, the vector mosquito being *Anopheles annulipes*. Control was effected during this year by regular spraying of the nearby breeding grounds with malariol.

The nightsoil collection and disposal service at this town was again carried out in an unsatisfactory manner. A new disposal site was selected but not equipped for use. It was recommended that the service, which is controlled by a committee of miners, should be placed under the absolute control of the local authority.

Longreach Shire.

Longreach Town.—During the year all house designs were completed in preparation for the inauguration of a complete sewerage system.

At present many premises discharge their waste waters to "covered places," due to the non-absorbent nature of the soil precluding disposal by subsurface methods. The Council undertakes the emptying of these receptacles, using an efficient unit mounted on motor transport, which does the work in a very short time. The waste water is chlorinated and used for watering town streets to mitigate nuisance from dust.

A new up-to-date motor unit was put into commission in the town refuse removal service.

Shortage of galvanised iron delayed the supplying of adequate numbers of refuse containers on some business premises. The more recently used section of the refuse tip was under better control.

The Council continued with progressive measures, which included the construction of a dustproof road to the public hospital and the aerodrome and the grassing of a large sports oval. The latter feature proves to be as pleasing to both local people and visitors as it is unexpected in a western town.

Mount Morgan Shire.

Mount Morgan Town.—There still remained need for much improvement in sanitation in this town. The local authority was without a health inspector throughout the previous year and in the last month of the present year the Council lost the services of an appointee who took up duty during September of 1946. The lack of a proper refuse service for the whole town was again brought under the notice of Head Office, resulting in the local authority being called upon to provide for such service in its next budget. Subsequently advice was received to the effect that this course would be adopted.

Theodore Shire.

Theodore Township.—When visited early in the year it was found that the refuse tip had been cleaned up and the method of nightsoil disposal improved somewhat. However, no proper facilities had been established at the nightsoil depot and very little improvement in the sanitary conditions of the town had been effected. Recommendations made by the local inspector in the matter had not been carried out.

LICENSED PREMISES.

All hotels in the Rockhampton headquarters area, totalling 53, were inspected and reported on with recommendations for reconstruction, alterations and/or repairs as was deemed necessary. Several were classed as sub-standard and it is expected that some of these may be delicensed, and the owners of others required to replace them with new buildings.

Hotels in a number of country towns received similar attention. All hotels at Longreach were inspected and alterations necessary for connecting to sewerage determined.

LOCAL AUTHORITY SUPERVISION.

Area.	First Inspections.	Re-inspections.	Official Calls.	Number of Reports Submitted.	Number of Towns Visited.
Headquarters ..	488	66	250	39	..
Country	1,474	..	40	69	33 (81 visits)
Totals	1,962	66	290	108	33
Grand Total ..	2,318				

The above inspections were made in connection with: barbers' shops 2, camps 73, clubs 2, drainage 73, fly infestation 5, hotels 177, housing 1, mosquito infestation 29, nightsoil disposal depots 29, nightsoil disposal scheme 1, rats 91, refuse removals 393, refuse tips 35, sanitary conveniences 894, sewerage 17, stables 8, stream pollution 1, swimming pools 2, water supplies 32, wharves (visits re shipping) 163.

LICENSED PREMISES.

Area.	First Inspections.	Re-inspections.	Number of Reports Submitted.
Headquarters	72	25	53
Country	76	6	48
Totals	148	31	101
Grand Total	179		

TOOWOOMBA SUB-OFFICE.

PLACES VISITED.

In addition to work at headquarters, inspections were carried out in 56 country centres as follows:—Acland, Allora, Amiens, Applethorpe, Ballandean, Bell, Bowenville, Broadwater, Brookstead, Cambooya, Cecil Plains, Cottonvale, Cooyar, Crows Nest, Dalby, Drayton, Emu Vale, East Greenmount, Finnie, Fletcher, Glen Aplin, Goombungee, Goondiwindi, Greenmount, Haden, Hendon, Jandowae, Jondaryan, Karara, Kaimkillenbun, Killarney, Kulpi, Leyburn, Maclagan, Maryvale, Millmerran, Nobby, Oakey, Pechey, Peranga, Pittsworth, Pozieres, Quinalow, Sandy Creek, Severnlea, Southbrook, Stanthorpe, Tannymorel, Tara, Thulimbah, Wallangarra, Warra, Warwick, Wutul, Yangan, Yelarbon.

A number of these places were visited on several occasions, and the number of miles travelled by road totalled 4,766.

LOCAL AUTHORITY SUPERVISION.

Area.	First Inspections.	Re-inspections.	Official Calls.	Reports.	Towns.
Headquarters ..	422	125	56	7	..
Country	309	..	38	29	56
Totals	731	125	94	36	56
Grand Total ..	950				

These inspections included the following:—Aged peoples homes 2, aerated water factories 19, bakers 50, barbers 22, cafes and stores 418, camp sites 15, chemists 26, drainage disposal 1, dumping station 1, food factories 14, incinerators 3, laneway 1, milksellers 49, mosquitoes 3, picnic ground 1, public conveniences 3, rats 6, refuse tips 13, saleyards 2, sanitary depots 14, school 1, sewage disposal 1, showgrounds inspections 130, street drainage 6, water pollution 9, water supply 1, water samples 2.

LICENSED PREMISES.

Area.	Hotels.	Others.	Reports.
Headquarters	15	..	12
Country	96	33	97
Totals	111	33	109
Grand Total	144		

After a break of some years, the inspection of hotels on behalf of the Licensing Commission was resumed throughout the district. As a result of these inspections, a number of orders requiring repairs and alterations, and stricter compliance with the Liquor Acts, have been served, but much yet remains to be done before the general standard of accommodation reaches a satisfactory level. When the current lag on housing has been overcome a vigorous campaign of modernisation should be instituted, particularly in Toowoomba and the larger centres of population, where the majority of hotels are small, old-fashioned, and lacking any degree of comfort. Emphasis should be laid on the provision of modern bathroom and sanitary accommodation, hot and cold running water in bedrooms, and brighter, well-equipped kitchens and dining rooms.

At the request of the Licensing Commission, inspections were made in the Stanthorpe district of the premises of 33 persons desirous of making wine for sale. It was found that, with few exceptions, the general standard of the various plants was low and not in accordance with pure food practice. As this industry is now assuming fairly large proportions, some early improvement is essential, and recommendations were submitted accordingly.

Barbers' Shops.

Inspections of barbers' shops were made in Toowoomba and all centres visited. Few were found to be complying in full with the Regulations and action was taken to ensure a higher standard of hygiene in all cases. With better supplies of barbers' requisites now available, full compliance should be much easier of attainment than in former years. Many ex-service men, returning to the profession from the Forces, were found to be unfamiliar with the Regulations.

Sewerage.

The sewerage systems at Toowoomba, Warwick, and Goondiwindi continue to function satisfactorily. Only part of Toowoomba is sewered, and an early resumption of reticulation, which was suspended during the war years, is now desirable, as, in addition to the existing unsewered suburbs, the city is rapidly expanding, and many new estates are being established well outside the area served by the system.

Nightsoil and Refuse Services.

These were inspected at all centres, and their general conduct was satisfactory. In several instances, however, it was found that the business sections of towns were receiving insufficient or no refuse removal services, resulting in insanitary conditions of rear yards caused by attempts to burn food wastes, &c. These faults, and any other matters requiring improvement were brought to the notice of the Councils concerned for rectification.

At Allora the present depot for the disposal of nightsoil and refuse, located in blacksoil on a hillside, has never been entirely satisfactory and a new site in sandy soil at Hendon has been selected and approved for the purpose. When a permanent water supply has been securd oprations will be transferred, and it is anticipated that a considerable improvement in the standard of disposal will result.

In the Stanthorpe Shire sanitary services for many of the small settlements along the main road and railway line, recommended by this Department, have been approved and will be implemented at an early date, and a refuse removal service has been instituted at Wallangarra.

The extension of the Toowoomba sanitary area to embrace the populated semi-rural suburbs has not yet been effected and is long overdue. The Council is anxious for this service to commence, but apparently cannot induce its contractor to carry out the additional work involved.

Water Supply.

Of the reticulated systems in operation in the district—Toowoomba, Warwick, Dalby, Goondiwindi, Texas, Inglewood, Talwood, and St. George—none can be classed as entirely satisfactory. Those at St. George and Dalby are drawn from the artesian basin and are heavily charged with sulphur and other chemicals, while the remainder lack filtration and aeration plants and do not find favour for drinking purposes or most other domestic uses.

As a result of complaints from Goondiwindi claiming that campers on the bank of the McIntyre River were polluting the town water supply, a special visit was paid to that centre and a survey made of possible sources of pollution of the water supply. It was found that, while the camps complained of must be regarded, because of their location and sanitary conditions, as a potential source of pollution, there were other influences equally liable to endanger the safety of the untreated river water as a domestic supply. Samples of water from the town supply, and from the McIntyre River at the point of intake, were forwarded for examination and a report containing recommendations submitted for consideration.

Progress is being made on the provision of a water supply at Dirranbandi, and plans are under consideration by the Stanthorpe Shire Council for reticulated systems at Stanthorpe and Wallangarra.

Mosquitoes.

Strict control measures have resulted in a comparative freedom from mosquitoes in the Toowoomba city area, while a vigorous campaign against breeding places in the Condamine River resulted in a marked diminution of infestation at Warwick during last summer.

Of the other centres, reports do not confirm any marked improvement, and, while the lack of sewerage installations, rainwater tank replacements, and other shortages are a contributing factor of importance, intensified house to house inspections and location and control of the nearer outdoor breeding places would minimise the extent of infestation considerably.

Both Toowoomba and Warwick have been allotted major grants under the Mosquito Subsidy Scheme—Toowoomba for work on Gowrie Creek, and Warwick for the construction of a stormwater sewer. Work is in progress on the Warwick project, but, to date, no start has been made at Toowoomba.

Rats.

In Toowoomba, Warwick, and Dalby rat control measures are continuous. The other towns and smaller centres have few rats and control is restricted to premises where infestation has been reported.

In spite of steady work by the City Council of poisoning and trapping, there is evidence that the rat population of the business section of Toowoomba is still large. Many of the city buildings are old and contain numerous places hard of access which afford good harbourages, and only major works of ratproofing and other extensive alterations will have the desired result. Until such time as these works can be carried out, the present methods of control, which are, at least, keeping the numbers at a reasonable level, must be continued and intensified.

Flies.

The summer incidence of flies remains heavy throughout the district. During last summer the Toowoomba City Council conducted an anti-fly week with a view to making citizens conscious of the dangerous nature of flies as vectors of disease and of the necessity of eliminating their breeding places in the city area. By means of suitable lectures, press and radio statements, and a slogan competition much valuable publicity was obtained, and the co-operation of the business section of the community with topical window displays and the exhibition of anti-fly posters, brought the subject prominently under public notice. One result of the activity was reflected in the greatly increased sales of insecticides, but whether or not citizens will remain fly-conscious and eliminate breeding places as well as attempt to control flies in their houses will not be apparent until next summer. It is proposed to conduct a Health Week later in the year, and, no doubt, fly elimination will again be stressed as a major objective.

Toowoomba Show.

General supervision of sanitation was exercised at Toowoomba Showgrounds during the staging of the annual show. Conditions throughout were satisfactory, and apart from a few minor defects, which were quickly remedied, no untoward incidents were recorded.

Pensioners' Homes.

The Toowoomba City Council's plan for providing homes for pensioners at reasonable rental is now well advanced. The site selected has been cleared and terraced and work is now in progress on the conversion of former United States Navy huts, which have been brought to the site, into small semi-detached dwellings, each comprising bedroom, living room, kitchen, bathroom, water closet, and laundry.

General.

During the year the district was, at various times, under the control of three different officers.

The local authorities and their officers have co-operated well in maintaining the standard of sanitation of centres of population in their respective areas, but the time is now opportune for greater attention to be paid to living conditions in the rural areas, which comprise a major part of the district. If this is to be done, a revision of the areas allotted to local authority health inspectors is indicated. Some of these inspectors have as many as five shires to supervise, and their time is fully occupied controlling the various towns and townships in their respective areas.

WEIL'S DISEASE CAMPAIGN.

J. M. KENNEDY, *Inspector in charge.*

GENERAL.

During the year activities extended over the following northern mill areas:—Goondi, Mourilyan, South Johnstone, Tully, Hambledon, Mulgrave, Babinda, Victoria, and Macknade.

In these areas inspection of cane before cutting was carried out during the harvesting period, while during the off season inspection of farms for the purpose of maintaining clean farming methods and control of rat harbourage was actively proceeded with.

Visits to Mossman mill area and that part of Giru area within the Shire of Hinchinbrook were made as considered necessary during the year.

As during the war years, very extensive burning of cane before harvesting was the rule at all mills. Continued shortage of efficient cutters dictated this course and was also responsible for two shifts instead of three being worked at most mills. The crops generally were much below average and all mills, despite loss of shifts, completed crushing operations at or before the normal finishing dates.

The first half of the year until December was extremely dry and in January drought conditions prevailed with the prospects for the 1947 season poor indeed. Since February, however, ideal growing conditions have continued, the cane everywhere has made an amazing recovery, and indications of a nearly average crop are now clearly evident.

Flooding of cane during the recent wet season was light and little material damage was suffered. This aspect is considered important as experience indicates that heavy rat infestation invariably follows lodging of cane after heavy flooding, and fields so affected serve us nuclei for further expansion of infestation and damage and the added risk of infection through deposits of silt and debris.

Materials required by farmers such as fencing wire, cement, &c., are still most difficult to obtain and this, together with continued shortage of field labour, makes clean farming methods difficult to apply.

Despite this, rat infestation to date is light, but with fresh biting on the increase. Should the various pest boards function effectively during the coming months the rat control position will be well in hand.

RODENT CONTROL.

Extremely dry conditions during the harvesting period in all areas assisted materially in the reduction of the rat population.

In January of the present year, during the drought conditions then prevailing, it could be said that rat infestation figures reached an all time low. Farms, roads, creeks, and watercourses had been burned out with some unfortunate destruction of timbered areas.

During February long hoped for rains transformed the position, the resting of the soil over the dry spell made for exceptional growth of vegetation generally, and rat harbourage in the form of grass and weeds again became a feature of importance. These conditions have been maintained to date, but it is hoped that full advantage will be taken by Pest Boards to maintain the favourable position now indicated by a comparatively low rat population.

Cane burned during the season as a precaution against Weil's disease showed a substantial increase in acreage compared with the previous year. The tonnage so burned, however, was markedly less. (*Vide* Table I.)

This is accounted for by the lower average tonnage per acre due to the adverse weather conditions.

In several mill areas large sections yielding under 10 tons per acre were burned with a consequent increase of figures in columns 5 and 6 (Table 1) at particular mills.

Burning of the last tram in a rat infested field under controlled conditions could be a most effective method of rat destruction, but unfortunately the requisite co-operation for this purpose between farmer and gang is at present absent.

Poison for the destruction of rodents, other than zinc phosphide treated wheat, has been difficult to obtain. This raticide, however, appears to be very effective.

During the year distribution of baits was carried out by all pest boards; local authorities proceeded with baiting operations from time to time and have held supplies of bait for the use of householders and others as required.

Baits distributed by pest boards (*vide* Table 3) are substantially less in number than the previous year as poison drives normally carried out from November to February were considered unwarranted because of the low rat population figures during that period.

LEPTOSPIROSIS CASES.

During the twelve months only four cases of Leptospirosis were notified in the northern cane areas from Ingham to Mossman. As per Table 4, only one canecutter was affected during the cutting season. The other three cases were notified during the slack periods between harvests.

One case—that of a worker engaged in the removal of debris from a bridge after flooding—is one of a number reported over the years indicating the especial risk of infection when on work of this nature.

SANITATION.

Sanitation at farm homes and barracks in several mill areas received much needed attention during the slack period from January onwards. This work was carried out by the campaign staff when visiting farms on farm-cleaning duties. It is hoped to continue this work when opportunity offers, probably after the conclusion of next crushing.

During the war years the standard of sanitation deteriorated particularly in country districts where the cesspit system is in use.

In many cases immediate closure of cesspits was called for in the interest of public health.

Recommendations to replace old or defective structures by concrete slab floors with baffles are being acted on, and as material supplies improve an advanced standard of sanitation in these areas will certainly materialise. The protection which concrete gives against termites and wet is being increasingly recognised.

Officers of the campaign inspected a total of 1,154 premises and during their operations co-operated fully with the local authority inspectors.

It may be said that crop prospects for the coming season are excellent and any special problems arising from the settling down process inevitable after the field disorganisation of the war years can be confidently dealt with.

With appreciation, is recorded the high degree of co-operation again received from mill managements and field staffs, local cane growers executives, A.W.U. officers, and farmers.

No harvesting delays or losses due to the application of the relevant Regulations were reported, and it may be said that the functioning of the campaign was generally satisfactory.

TABLE 1.

Mill Area.	Total Area Harvested.	Total Crushed.	Area Burned.	Burned.	Burned under Health Regulations.	
	Acres.	Tons.	Acres.	Tons.	Tons.	Acres.
Johnstone	9,964	166,193	9,810	165,870	8,729	474
Goondi	6,930	119,633	6,896	119,175	6,017	303
Mourilyan	7,671	108,368	7,656	108,159	2,100	150
Mulgrave	10,126	136,140	10,000	135,289	77,754	7,000 most under 10 tons per acre
Babinda	9,800	158,156	9,685	156,312	17,003	1,062 most under 10 tons per acre
Tully	11,490	183,788	11,375	181,851	5,370	365
Victoria	12,568	225,880	12,345	223,214	13,290	1,637 most under 10 tons per acre
Macknade	11,285	238,791	11,208	236,724	11,924	1,074 most under 10 tons per acre
Hambledon	7,773	112,960	7,481	105,887	14,373	2,057 most under 10 tons per acre
Totals ..	87,607	1,449,909	86,456	1,432,481	156,560	14,122

TABLE 2.

Mill Area.	Cutters signed on.	No. of Gangs.	Area of S.O. Cane.	Duration of Crushing.
			Acres.	Weeks.
Johnstone	351	59	60	22
Goondi	185	32	Nil	21½
Mourilyan	260	41	Nil	20½
Mulgrave	280	100	Nil	17
Babinda	280	73	Nil	18
Tully	306	64	22	21
Victoria	320	60	6	25
Macknade	300	53	25	27
Hambledon	219	46	Nil	19
Totals	2,501	528	113	191

TABLE 3.

BAITS DISTRIBUTED BY PEST BOARDS FOR RODENT DESTRUCTION.

Mill Area.	Thallium Sulphate (Wheat).	Zinc Phosphide (Wheat).	Phosphorus (Bread).	Other.
Johnstone	..	800,000	200,300	..
Mourilyan	..	..	8,500,000	..
Goondi	..	280,000	..	..
Tully	500,000	15,000	..	..
Babinda	..	..	1,617,000 (Plus 15 lb. Phos. paste)	..
Mulgrave	..	35,000	1,328,000	..
Hambledon	..	557,056	..	..
Victoria	..	400,000	..	..
Macknade	..	638,000	..	..
Mossman	..	870,000	..	
Totals	500,000	3,595,056	11,645,300	..

TABLE 4.

LEPTOSPIROSIS CASES NOTIFIED.

DISTRIBUTION, OCCUPATION, AND NATIONALITY.

District.	Canecutters.	Farmers.	Timber cutter.	L. A. Employee.	British.	Italian.
Innisfail	..	..	1	1	2	..
Tully	..	1	..	..	..	1
Ingham	..	..	..	..	..	..
Babinda	1	..	..	..	1	..
Gordonvale ..	..	..	..	..	..	..
Cairns	..	..	..	..	..	..
Totals ..	1	1	1	1	3	1

HOOKWORM CAMPAIGN.

S. THOMPSON, *Microscopist-in-charge.*

The staff working for field hookworm control at the beginning of July, 1946, comprised a microscopist and one residential sister at Cairns, and one field inspector at Ingham.

On the 19th August, Sister S. M. Coe commenced duties with the Hookworm Campaign, Cairns, and after completing training in microscopic and routine duties was transferred to Ingham on the 25th November as residential sister. Sister Coe resigned during the month of January, 1947.

On the 3rd February, Sisters A. E. Blyde and G. I. Pollock commenced duties with the Hookworm Campaign, Cairns.

On the 24th February the microscopist opened the Hookworm Campaign office at Innisfail and Sister A. E. Blyde was transferred there temporarily as residential sister. This office had been closed since 1942.

When Sister G. I. Pollock completed training in general school, medical duties, and microscopic and routine duties arrangements were made for her to be transferred to Innisfail and Sister A. E. Blyde to Cairns.

Sister A. E. Blyde completed training in microscopic and routine duties during the month of June.

The present disposition of officers attached to the Hookworm Campaign is as follows:—Cairns —S. Thompson, microscopist-in-charge, Sisters C. A. Vincent and A. E. Blyde. Innisfail—Sister G. I. Pollock. Ingham—J. Bain, field inspector.

During the period under review, the microscopist visited Palm and Fantome Islands and examined all aborigines for hookworm disease. All the positive hookworm hosts found on Palm Island were treated by the microscopist, re-examined, and all but a few treated to a cure. The treatments for hookworm hosts found on Fantome Island were sent over to the matron for administration.

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

The aborigines in the Cairns area found positive for hookworm have all been mass treated. All aborigines in the Daintree area were mass treated at the Mission there. Arrangements were made with the sergeant of police, Mossman, for all aborigines to be rounded up in that area and they were all mass treated by the microscopist at the police station. A few treatments have been sent to the sergeant, who will give them to the aborigines who missed treatment. A report on the sanitary conditions at the Gorge and Daintree Missions has been sent to Brisbane.

In the Cairns and Innisfail areas the sisters have carried out at schools hookworm survey together with general school medical duties.

In the Ingham area the field inspector has carried out house to house intensive survey, delivered all treatments, collected re-examination specimens, and made sanitary inspections.

All defective privies and homes without a sanitary convenience have been brought under the notice of the local authority inspector. The co-operation of these two inspectors has accounted for a good number of new privies and cabinets to be put in at the homes in this area.

Of the 6,309 specimens examined during the year under review, 589 showed positive hookworm results; as shown in the attached table, 361 of the hookworm hosts have been treated to a cure. Also, 1,065 specimens contained ova of other parasitic worms—namely, *Oxyuris vermicularis, Trichuris trichiura, Hymenolepis nana, Ascaris lumbricoides, Taenia saginata,* and *Trichostrongylus orientalis.* Only a few of the last three forms were found.

Arrangements were made with the medical officer of the district hospital in each centre for all hosts heavily infested with hookworms to be treated in hospital and kept under observation. Also, children under three years and adults over sixty years were referred to hospital for treatment.

As mentioned in previous annual reports, several doses of hookworm treatment had to be given to the hosts who are harbouring the Ancylostoma type of hookworm before effecting a cure.

Of the 820 school children examined in all areas, 41 were found positive hookworm and 83 other parasitic worms. Of these positive children 24 have been treated to a cure.

It is worthy of note, that a specimen was received from a child aged two years living in Ingham. The specimen container was full and on examination showed that it contained 25 inches of tapeworm of the *Taenia saginata* type and the head was missing.

With the assistance of a labourer from the Cairns City Council, the microscopist visited the aboriginal reserve and supervised the spreading of lime on the soil, where a full pan of infected hookworm faeces was buried.

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

It was necessary for 19 infested hookworm hosts to be treated in hospital.

A fair number of returned soldiers who have been prisoners of war and in the Pacific islands have submitted specimens for examination for hookworm disease. At least 90 per cent. of these men were found to be harbouring hookworms and have received treatment.

A good number of specimens has been received for examination from the Babinda, Tully, and Mossman hospitals. Also from local practitioners in the Cairns area.

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

During the absence of the microscopist at Palm Island the two residential sisters at Cairns carried out all duties in the office and laboratory.

The microscopist visited each centre and discussed hookworm matters with the residential sister and field inspector. He also interviewed the health inspectors of the local authorities.

Medical practitioners, school teachers, and the local health inspectors have given all possible assistance to the Hookworm Campaign in helping to eradicate hookworm disease.

Attached hereto please find tables giving figures of each area with headings to indicate the nature of the work done.

ENDEMIC AREA UNDER RESIDENTIAL CONTROL.

Name.	Census.	Specimens.					Treatments.			
		Received.	Examined.	Re-examined.	Positive.		Notices.	Delivered.	Posted.	Cured.
					H.W.	Others.				
Cairns Area—										
Schools	708	722	708	14	24	72	72	24	..	9
Port Douglas Area—										
Schools	20	20	20	..	4	6	6	4	..	..
Innisfail Area—										
Schools	63	56	56	..	6	5	5	6	..	..
Tully Area—										
Schools	..	2	..	2	1	..	..	..	1	1
Ingham Area—										
Schools	..	20	..	20	6	..	..	6	..	14
School Total ..	791	820	784	36	41	83	83	40	1	24
Intensive Survey—										
Ingham Area—										
Ingham Town Sub-area	988	953	953	..	16	62	62	11	5	..
Halifax Sub-area	686	690	690	..	12	25	25	12	..	..
Trebonne Sub-area	786	752	752	..	16	19	19	16	..	..
Bambaroo Sub-area	21	21	21	..	..	1	1	..	..	..
Toobanna Sub-area	259	251	251	..	8	6	6	8	..	..
Long Pocket Sub-area	52	49	49	..	2	..	..	2	..	..
Hawkins Creek Sub-area ..	144	144	144	..	9	..	..	9	..	..
Intensive Survey Total	2,936	2,860	2,860	..	63	113	113	58	5	..
Other Hosts in—										
Cairns Area.. ..	..	10	..	10	6	..	..	3	..	4
Innisfail Area ..	..	2	..	2	2	..	..	..	2	..
Tully Area	..	1	..	1	..	..	..	..	..	1
Ingham Area ..	..	81	..	81	29	..	..	25	4	52
Other Hosts Total	..	94	..	94	37	..	..	28	6	57
Miscellaneous—										
Cairns Area.. ..	263	263	263	..	9	23	23	9	..	..
Mossman Area ..	31	31	31	..	4	2	2	4	..	..
Innisfail Area ..	132	132	132	..	2	2	2	1	1	..
Tully Area	25	25	25	..	3	1	1	..	3	..
Ingham Area ..	406	405	405	..	12	16	16	12	..	..
Miscellaneous Total	857	856	856	..	30	44	44	26	4	..
Aborigines—										
Cairns Area.. ..	94	77	76	1	40	38	15	*25	..	1
Yarrabah Mission ..	51	52	51	1	11	50	50	11	..	1
Daintree Mission ..	45	45	45	..	39	38	2	*47	2	..
Mossman Area ..	..	..	..	..	..	..	..	*95	..	..
Port Douglas Area..	6	6	6	..	4	6	6	4	..	..
Innisfail Area ..	20	20	20	..	9	2	2	9	..	..
Tully Area	4	4	4	..	4	4	4	..	4	..
Ingham Area ..	18	20	18	2	7	8	8	5	2	2
Palm Island Area ..	1,022	1,381	1,020	361	284	669	669	*344	..	262
Fantome Island Area	73	74	60	14	20	10	10	10	..	14
Aborigines Total ..	1,333	1,679	1,300	379	418	825	766	550	8	280
All Areas—										
Cairns Area.. ..	1,065	1,072	1,047	25	79	133	110	61	..	14
Yarrabah Mission Area	51	52	51	1	11	50	50	11	..	1
Daintree Mission Area	45	45	45	..	39	38	2	47	2	..
Mossman Area ..	31	31	31	..	4	2	2	99	..	..
Port Douglas Area..	26	26	26	..	8	12	12	8	..	..
Innisfail Area ..	215	210	208	2	19	9	9	16	3	..
Tully Area	29	32	29	3	8	5	5	..	8	2
Ingham Area ..	3,360	3,386	3,283	103	117	137	137	106	11	68
Palm Island Area ..	1,022	1,381	1,020	361	284	669	669	344	..	262
Fantome Island Area	73	74	60	14	20	10	10	18	..	14
Grand Total ..	5,917	6,309	5,800	509	589	1,065	1,006	710	24	361

* These Aborigines were mass treated by the Microscopist.

Hookworm hosts treated in hospital—Cairns 1, Mossman 9, Babinda 7, Ingham 1, Bowen 1.

Hookworm Cultures— Ancylostoma

Cairns 4

Palm Island 6

SANITATION.

HINCHINBROOK SHIRE.

—	Ingham Area.
Number of places visited	1,277
Number of sanitary conveniences inspected..	1,209
Privies no action required	1,097
Number of defective privies	188
Number of places without sanitary conveniencies	3
Number of sanitary re-inspections	203
Action taken	6
No action taken	49
Septic tanks	41

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 516	488	185	3	2
Pits 1	1	1	..	..
Septic 39	1	1	..	1

FOOD AND DRUGS.

During the fiscal period under review inspections under Part IV. of the Health Acts (Pure Food and Drugs), Poisons Regulations, Food and Drug Regulations, Health (Food Supply) Regulations, Milksellers Regulations, and Health (Insecticides) Regulations have been systematically conducted by the officers of the Department.

The headquarters staff has been augmented by the return of officers from the war services to civil occupations, and this has resulted in a greater variety of work being undertaken during the past year. On reviewing the many ramifications of industry and the various commodities covered by the staff in the execution of the manifold duties under Part IV. of the Acts, it will be realised that there is scope for a great amount of valuable work.

Milk (Brisbane Metropolitan Area).—Supervision of the public milk supply continues to be a duty of paramount importance. Officers detailed to such work operate daily on the work of milk sampling and inspection of milksellers' premises and utensils, and reference to the attached lists of prosecutions undertaken by these officers will indicate the efficient manner in which the work has been accomplished.

Milksellers' Vehicles.—A start has been made to retrieve the unsatisfactory conditions pertaining to milksellers' vehicles and premises which were the outcome of wartime restrictions and subsequent building control limitations. It is found that vendors of untreated milk do not exhibit a great deal of interest in the condition of their premises and vehicles until compelled to effect the desired improvement.

Shop milksellers have also received attention and supervision in this direction has resulted in the improvement of conditions under which the milk is handled and stored at this class of premises, and also an increase in the number of milksellers' licenses issued to such traders.

Pasteurised Milk.—Samples of pasteurised milk produced by the three Brisbane factories and by the factories at Southport, Booval, and Caloundra, are regularly examined in the Department's laboratories. The results of such examinations indicate that the pasteurisation technique practised in the respective factories produces a product which reasonably conforms to the requirements of the Health Acts. The high temperature short time system of pasteurisation is now adopted by the larger concerns in the metropolitan area, and the method appears to be proving quite satisfactory. An almost universal appreciation of the disadvantages of the wide-mouthed milk bottle with cardboard wad is now realised, and the trade is gradually changing over to the narrow-necked design of bottle fitted with a metal cap which protects its pouring lip.

As the machinery becomes available pasteurised milk producers are installing modern bottle-washing plants to conform to the mechanical plant requirement of the Department. Every effort to prevent a dirty bottle reaching the public is taken, and a system of sighting bottles after filling has reduced this hazard to a minimum.

Inquiries are received from time to time for information and guidance in the set-up of milk pasteurisation ventures, and exacting conditions in the conduct of such businesses are strictly enforced.

"Milk from a certified dairy" is produced by one dairyman trading in the metropolis, and it has been found that this milk conforms to the specified standards—viz., not more than 30,000 micro-organisms during the summer months and not more than 20,000 micro-organisms for milk produced during the cooler months of the year.

Results of the chemical examination of samples of milk are detailed in the report of the Government Analyst.

PROSECUTIONS FOR MILK ADULTERATION (ADDED WATER) FOR THE YEAR ENDING 30TH JUNE, 1947. (HEADQUARTERS).

Date.	Place.	Percentage of Added Water.	Fines.	Costs.
1946—		Per cent.	£ s. d.	£ s. d.
11th July	Brisbane	6·9	7 0 0	1 7 0
29th July	Roma	11·5	11 0 0	1 7 0
29th July	Roma	16·2	16 0 0	1 7 0
29th July	Roma	9·9	9 0 0	1 7 0
29th July	Roma	12·9	12 0 0	1 7 0
20th August	Mooloolah	8·0	8 0 0	3 9 0
29th August	Brisbane	11·3	11 0 0	1 7 0
12th September	Brisbane	6·8	6 8 0	1 7 0
11th October	Rosewood	4·8	5 0 0	1 7 0
16th October	Nambour	14·8	32 10 0	1 7 0
16th October	Nambour	13·1	32 10 0	1 7 0
24th October	Brisbane	30·0	20 0 0	1 7 0
7th November	Dayboro	9·7	9 0 0	3 9 0
13th November	Harrisville	17·8	17 16 0	1 7 0
13th November	Mutdapilly	4·0	4 0 0	5 4 0
14th November	Bundaberg	8·0	8 0 0	1 7 0
14th November	Bundaberg	28·0	20 0 0	1 7 0
14th November	Bundaberg	11·3	12 0 0	1 7 0
14th November	Bundaberg	6·5	7 0 0	1 7 0
28th November	Worongary	11·4	11 0 0	1 7 0
10th December	Boonah	8·1	8 0 0	1 7 0
1947—				
9th January	Rocklea	11·4	12 0 0	2 8 0
13th January	Booval	4·8	5 0 0	1 18 1
13th January	Booval	8·1	8 0 0	1 18 1
21st January	Southport	11·0	11 0 0	1 7 0
6th February	Hemmant	25·0	20 0 0	1 7 0
6th February	Tingalpa	35·4	20 0 0	1 7 0
14th February	Tewantin	12·6	15 0 0	1 7 0
14th February	Tewantin	10·3	12 0 0	1 7 0
20th February	Dayboro	14·8	14 16 0	1 7 0
24th February	Urangan	18·0	18 0 0	1 7 0
6th March	Laidley	8·1	8 10 0	3 9 0
27th March	Brisbane	19·4	20 0 0	3 9 0
3rd April	Brisbane	12·6	12 0 0	1 7 0
23rd April	Pomona	21·7	20 0 0	1 7 0
23rd April	Pomona	11·5	12 0 0	1 7 0
7th May	Caboolture	17·6	18 0 0	1 7 0
7th May	Caboolture	11·5	12 0 0	1 7 0
23rd June	Beenleigh	6·3	7 0 0	1 7 0
24th June	Benowa	7·6	8 0 0	1 7 0
24th June	Benowa	5·0	5 0 0	1 7 0
24th June	Beechmont	6·0	6 0 0	1 7 0
24th June	Beechmont	14·3	15 0 0	1 7 0
			£546 10 0	£72 9 2

PROSECUTIONS FOR MILK ADULTERATION (FAT DEFICIENCY).

Date.	Place.	Percentage Deficiency.	Fines.	Costs.
1946—		Milk Fat.	£ s. d.	£ s. d.
21st November	Brisbane	36·3	5 0 0	1 7 0
10th December	Boonah	21·2	2 0 0	1 7 0
1947—				
12th February	Caloundra	30·3	3 0 0	4 10 0
18th June	Brisbane	21·2	5 0 0	1 7 0
			£15 0 0	£8 11 0

MISCELLANEOUS MILK PROSECUTIONS.

Date.	Place.	Basis of Prosecution.	Fines.	Costs.
1946—			£ s. d.	£ s. d.
20th August	Landsborough	Refused to sell milk	6 0 0	0 6 0
26th August	Brisbane	Unsatisfactory milk vehicle	2 0 0	2 8 0
1947—				
20th May	Brisbane	Capping milk bottles by hand	3 0 0	2 8 0
30th May	Brisbane	Unlicensed sale of milk	1 0 0	0 6 0
			£12 0 0	£5 8 0

Licensed premises have been visited for the purposes of testing spirituous liquors, bar facilities for glass washing, and a check on the provision made for the preparation and serving of food.

In some instances spirits were found not to conform to the legal standard. Prosecutions launched for the offence of selling adulterated drink are shown in the accompanying table.

The subject of glass-washing appears to have been given valuable consideration by the Licensing Commission, which has resulted in the production of several mechanically operated appliances of good design and which are all that can be desired from the hygienic point of view.

PROSECUTIONS FOR THE SALE OF SPIRITUOUS LIQUORS (ADULTERATED) FOR THE YEAR ENDING 30TH JUNE, 1947—HEADQUARTERS STAFF.

Date.	Place.	Basis of Prosecution.	Fines.	Costs.
1946.			£ s. d.	£ s. d.
22nd August ..	Brisbane	Rum, adulterated (excess water 13·9 per cent.)	10 0 0	3 9 0
12th September ..	Brisbane	Brandy, adulterated (excess water 16·3 per cent.)	4 0 0	1 7 0
1947—				
6th May	Brisbane	Rum, adulterated (excess water 8·7 per cent.)..	20 0 0 (1½ galls. of rum forfeited, premises placarded)	1 10 0
			£34 0 0	£6 6 0

Bread.—Attention has been given to the conditions under which bread is produced, and the quality of ingredients and finished loaf have been closely examined.

A survey of the quality of bread sold in the Brisbane metropolitan area was made, and the result of this work is given in detail in the report of the Government Analyst. With a view to securing some improvement in the quality of bread baked within the State, Mr. F. Galley, a cereal expert, attended a conference convened in Sydney by the Bread Manufacturers' Association of New South Wales. The conference was addressed by Dr. Kent Jones, a recognised world expert in cereals, and Mr. Galley has since made certain recommendations for the betterment of the flour and bread trade generally.

Progress reports submitted by the Department's officers indicate a steady all-round improvement in the conduct of bakeries. In a few instances it was found necessary to require structural alterations, and representations have been made to the Building Control Authority for the issue of building permits to allow of necessary improvements.

"Rope" (*Bacillus mesentericus*) in bread has been encountered on different occasions throughout the year, but the collaboration of this department with the assistance of its laboratory has cleaned up the condition by assisting the baker to apply modern technique in overcoming the incidence. This forms a striking example of the progress of knowledge in this regard, when it is remembered that in earlier years an outbreak of "Rope" in a bakery spelt financial ruin for the baker.

The wrapping of bread sold at the bakery and in retail shops has received attention, but owing to a shortage of suitable wrapping paper the position in this regard is not yet satisfactory.

Public Eating Places.—During the war years it was recognised that a number of the cafes in the Brisbane city did not maintain a high standard of sanitary conduct. With the return to normal conditions a number of these establishments have changed hands, and this has eliminated to some extent the identities responsible for much of the publicity experienced in these matters in the past.

There has been a definite improvement in the conduct of cafes over the past twelve months. Both verbal and written instructions have been given to proprietors to clean and paint premises, protect foodstuffs from contamination, to make structural alterations, or to secure a more frequent removal of garbage. Special attention has been given to dish-washing facilities, and a close watch kept for the use of cracked or chipped crockery. It is anticipated in the near future that a number of cafe leases will expire and the existing structures demolished and replaced with large modern buildings.

Factories.—The return to peacetime conditions has ushered in a mushroom growth of small food factories. In a number of instances the premises utilised for such purpose have been found to be very unsatisfactory, and conditions under which food was being prepared left a lot to be desired. The task of having defects suitably corrected has been difficult, as new premises are unprocurable and building restrictions will not permit extensive alterations. A degree of tolerance has had to be exercised until more suitable premises are available, where an improved standard in the general sanitary conduct was obtained.

Warehouses.—As a result of contact with wholesale general merchants the quality of numerous lines of merchandise has been checked, and a close scrutiny focussed on labelling descriptions and advertising claims.

Wholesale trade in spirituous liquors is included in this category. The Department's officers are associated with this section of the trade for the purposes of supervising bottling operations and checking labels which describe these products.

It has been the practice for many years to encourage local distributors of foods and medicines to collaborate with this Department by submitting any new line for our information before releasing it on the Queensland market. In this way the sale of many preparations which have contravened the Health Acts in some way have been prevented from being offered for sale in this State.

The King's Warehouse of His Majesty's Customs also shares in the services of our officers for the purpose of inspecting stocks of contraband goods which have been seized and are about to be disposed of by public auction. Of late very large stocks of tobacco and cigarettes have been examined.

Markets, Wharves, and Auction Rooms.—The same vigilance that has in the past been applied to the fruit and vegetable markets does not at present appear to be called for. The use of poisonous insecticidal sprays, such as arsenate of lead and nicotine sulphate, appears to have been more or less discontinued and replaced by less toxic preparations. Weak solutions of D.D.T. are now used extensively in this State for the control of pests in the market garden, and laboratory tests have failed to find the insecticide in quantity on vegetables sold at the local markets.

Shipments of dates and other merchandise from overseas were inspected in bond on the wharf before delivery of the goods was accepted by the consignees. It is anticipated that this type of work will call for greater attention with the return to normal of both overseas and interstate shipping.

The Disposals Commission calls for tenders for the purchase of Army and Naval surplus stores, and these goods usually find their way on to the civilian market. A close watch has been kept on the nature and condition of these goods and as a result many tons of canned and other foods of doubtful quality have been destroyed.

Auction room stocks of food and drugs are checked from time to time. This work increased during the year owing to surplus wartime stocks of food, which were no longer saleable in the normal way, being offered by auction. Considerable quantities of these foods were not permitted to be sold, and were subsequently destroyed.

Fish Supply.—Supervision of Brisbane's fish supply at the markets, and the sale of fish by retail shops and hawkers was maintained by two inspectors stationed at the fish market.

One fish inspector was stationed at Townsville for two months during the year to cope with the heavy supplies of mackerel coming to hand at that port.

Approximately 100 tons of different species of fish were condemned and destroyed by these officers on the score of being unfit for human consumption. In addition, 347 crabs, 69½ sacks and 220 bottles of oysters, 11 cwt. of prawns, and one turtle were condemned for the same reason.

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

Class of Fish.	Weight.			
	T.	C.	Q.	L.
Bonito	0	0	2	4
Bass	0	0	0	8
Bream	5	10	1	19
Catfish	0	4	3	25
Cod	0	4	2	5
Darts	0	0	3	15
Drummer	0	0	3	16
Eels	0	0	1	23
Flathead	0	18	3	18
Gar	0	4	1	5
Haddock	0	2	2	20
Herrings	0	1	0	9
Jew	0	3	2	20
John Dory	0	5	3	9
Long Toms	0	1	1	23
Mackerel	0	16	1	22
Mixed Fish	2	3	1	19
Mowong	0	0	0	17
Mullet	69	13	2	13
Parrot	0	5	3	6
Perch	0	6	2	9
Pike	0	1	2	4
Pilchers	0	0	1	19
Red Emperor	0	3	2	8
Salmon	0	1	3	13
Samson	0	0	3	20
Sail Fish	0	0	1	14
Schnapper	1	5	1	4
Shark	0	5	3	17
Skate	0	0	0	9
Squire	0	2	3	2
Stingray	0	16	2	7
Sweetlip	6	5	1	9
Tailer	6	9	1	5
Trevalli	0	4	1	4
Trout	0	1	0	8
Trumpeter	0	0	1	12
Tuna	0	6	3	9
Turrum	0	3	0	7
Whiting	2	3	1	9
Wrasse	0	0	0	8
Yellow Tail	0	10	0	14
	100	2	3	15
Oysters	69½ sacks 220 bottles			
Turtle	1			
Crabs	347			
Prawns	11 cwt. 3 qr. 19 lb.			

Legal Proceedings.—The past year has been a busy one for the Headquarter's prosecuting officers. In all 67 persons were proceeded against for breaches of the Health Acts, the offences being for the sale of adulterated milk and other foods. The Stipendiary Magistrates have dealt severely with offenders who have attempted to become rich at the expense of the consumer. The total fines and costs secured amounted to £742, or an average of approximately £11 per case.

PROSECUTIONS FOR MISCELLANEOUS ADULTERATIONS &c., FOR THE YEAR ENDING 30TH JUNE, 1947. (HEADQUARTERS STAFF).

Date.	Place.	Basis of Prosecution.	Fines.	Costs.
			£ s. d.	£ s. d.
1946—				
4th July	Brisbane ..	Adulterated cloudy ammonia	3 0 0	3 9 0
29th July	Brisbane ..	Mouse contained in loaf of bread	5 0 0	3 1 8
25th November	Brisbane ..	Adulterated wheatmeal bread (60% wheat flour)	1 0 0	2 8 0
25th November	Brisbane ..	Adulterated minced meat (8·4 grs. of SO_2 in 1 lb.)	4 0 0	3 9 0
1947—				
9th January	Brisbane ..	Adulterated sausage meat (6·9 grs. of SO_2 in 1 lb.)	5 0 0	1 10 0
9th January	Brisbane ..	Adulterated minced meat (6·4 grs. of SO_2 in 1 lb.)	5 0 0	1 7 0
9th January	Brisbane ..	Adulterated minced meat (1·9 grs. of SO_2 in 1 lb.)	3 0 0	1 7 0
9th January	Brisbane ..	Adulterated minced meat (6·1 grs. of SO_2 in 1 lb.)	5 0 0	1 10 0
12th February	Maroochydore	Preparation of food in an open place ..	5 0 0	0 6 0
13th February	Brisbane ..	Adulterated minced meat (8·5 grs. of SO_2 in 1 lb.)	6 0 0	0 12 0
			£42 0 0	£18 19 8

Unsound Food.—During the period under review the officers of the headquarters staff certified to the destruction of over 7 tons of foodstuffs as unfit for human consumption, details of which are as follows:—

UNSOUND FOODS DESTROYED, HEADQUARTERS STAFF, FOR THE YEAR ENDING 30TH JUNE, 1947.

Article.	Quantity.	Weight.			
		T.	C.	Q.	L.
Chocolate	26 bars	0	0	0	7
Chutney	101 bottles	0	0	3	7
Condensed Milk ..	97 tins	0	0	2	7
Cordial crystals ..	19 parcels	0	3	2	9
Cornflour	1 pkt	0	0	0	1
Custard powder ..	1 case	0	1	0	20
Calves-foot jelly ..	30 jars	0	0	0	19
Dripping	1 box	0	0	2	0
Dates	5 cases	0	5	0	0
Fish paste ..	6,736 jars	0	9	5	9
Fish canned ..	15 tins	0	0	0	14½
Fruit—					
Apples	9 cases	0	4	2	0
Grapes	60 cases	0	15	0	0
Pears	31 cases	0	15	2	0
Figs	8 cases	0	2	0	0
Tomatoes ..	4 cases	0	0	2	0
Dried pears ..	3 cases	0	2	1	4
Dried apricots ..	15 cases	0	5	0	25
Dried peaches ..	4 cases	0	1	0	10
Prunes	1 case	0	0	3	0
Currants ..	41 cases	1	10	3	0
Sultanas ..	6 cases	0	4	2	0
Fruit and nuts ..	3 cases	0	1	0	7
Honey	27 tins	0	0	1	26
Jam	51 tins	0	0	1	7
Meat paste ..	23 tins	0	0	0	23
Meat extract ..	132 tins	0	0	2	10
Meat rabbits ..	..	0	9	0	21
Malt extract ..	23 tins	0	0	0	23
Pickles	51 bottles	0	0	3	3
Pork and beans ..	13 tins	0	0	0	13
Powdered milk ..	18 tins	0	0	1	8
Tomato juice ..	15 tins	0	0	0	15
Rolled oats ..	22 sacks	0	19	3	0
Sauces	15 cases 67 bottles	6	15	2	11
Soup	63 tins	0	0	2	7
Tobacco—					
Cigarettes ..	258,915				
Cigars	1,628				
Rubbed and plug	..	0	1	0	18
Silver beet	2 tins	0	0	0	3
		7	13	3	19½

Paint.—A representative collection of samples of paint taken by our officers from dwellings have been found in many instances to contain more than 5 per cent. soluble lead in contravention of the Health Acts. Owners of these premises have been ordered to secure the removal of the offending paint.

Every package of paint sold must be labelled with the name and address of the manufacturer, the net weight or volume of its contents, and a statement of the percentage proportion of each ingredient of which the paint is composed. The labelling of all paint has received attention, but manufacturers have complained that it has been impossible to make a product to a fixed formula owing to the short supply of certain paint ingredients resulting in batches varying in composition. In the circumstances it has been difficult to furnish a satisfactory statement of ingredients on all labels.

Toys.—The Health Acts provide a total prohibition of the use of lead and lead paint in the manufacture of toys. A post-war overseas industry recently flooded the Queensland market with a series of very attractive toys made wholly of lead metal. Action taken by this Department resulted in the removal from sale of stock valued at thousands of pounds, the removal from retail stores being carried out by the local wholesale distributor at considerable cost.

Infants' rattles were found to contain lead shot as the rattling medium, and large stocks of these were removed from the local market. Wood toys proved to be coloured with soluble lead paint, and in other instances large dolls were found to be lacquered with a preparation which contained a dangerous proportion of lead.

Sampling.—A total of 4,609 samples of foods, drugs, poisons, paint, toys, &c., was obtained by our officers during the year and submitted to the Government Chemical Laboratory for examination. These samples include:—Aerated beverages, beer pipe, bread, cereals, condiments, confectionery, cosmetics, custard and cake powders, disinfectants, drugs and medicines, essences, fats, fish, fruit and fruit juices, infant foods, jams and jellies, meat, milks, milk products, paints, poison baits, solder, tar, tobacco, toys, vegetables, vinegars.

Bacteriological Sampling.—Four hundred and seventy-six specimens, including the following articles, were collected and submitted by headquarters inspectors to the Director of the Laboratory of Micro-biology and Pathology for examination, viz:—Bakers' meal, bottles, bread, bread improvers, condensed milks, disinfectants, fairy floss, flours, ice cream, lemonade, lettuce, meat, milk, minced meat, mussels (cooked), oysters, pollard, salt, vanilla essence, yeast.

Footwear.—With a view to securing the uniform branding of boots and shoes, the Chief Inspector of Food and Drugs attended a conference of the various States held in Sydney. Agreement among the States was reached and Queensland promptly amended section 126 of the Health Acts along the lines recommended by the conference. The Commonwealth Government has subsequently intimated that the Federal wartime control of footwear would continue for the time being, and, as a consequence, the existing State law remains in abeyance.

Insecticides.—The Health (Insecticides) Regulations, 1946, require, among other things, that the seller shall clearly state in the label describing a household insecticide the percentage proportion of the active ingredient present in the preparation. This law has had the effect of eliminating a number of fly sprays from the market that were useless for the purpose for which they were sold.

Domestic Utensils and Appliances.—The Health Acts require that cooking and other domestic utensils and appliances shall be free of lead. During the year a series of electric kettles was found to contain a quantity of lead solder, and steps were taken to have these articles replaced by kettles in which the use of the solder had been eliminated.

Poisons and Drugs.—Section 130 (1) of the Health Acts, which contained a list of dangerous drugs, was repealed by Proclamation on the 21st June, 1947. A new schedule of dangerous drugs has been drafted and included as Schedule V. of "The Poisons Regulations of 1947," and this provides for a strict control over the sale and use of poisons and dangerous drugs. An officer's duties under these Regulations require visits of inspection to many premises, including the surgeries of doctors, veterinary surgeons, and dentists, and also the inspection of the records of chemists, hospitals, and licensed dealers in poisons and dangerous drugs.

The Investigation Branch of the Commonwealth Department of Customs collaborates with this section in the work of supervising the disposal of imports of narcotics, and in this way there is a reciprocal interchange of information which is to our mutual advantage.

Two pharmacists were proceeded against for having failed to keep a record of the quantity of dangerous drugs (morphia, &c.) obtained and disposed of. Particulars of prosecutions for breaches of the Poisons Regulations are shown below:—

PROSECUTIONS UNDER "POISONS REGULATIONS 1940."

Date.	Place.	Basis of Prosecution.	Fines.	Costs.
1946—			£ s. d.	£ s. d.
4th July	Brisbane ..	Poison packed in food container	3 0 0	2 8 0
25th July	Brisbane ..	Drugs book not kept by chemist	10 0 0	0 6 0
25th July	Brisbane ..	Drugs book not kept by chemist	10 0 0	0 6 0
			£23 0 0	£3 0 0

Apart from inspectorial work carried out in the metropolis, visits by the headquarters staff were made to the following outside centres:—Beaudesert, Beenleigh, Bundaberg, Caboolture, Caloundra, Coolangatta, Cooroy, Crawford, Currumbin, Esk, Eumundi, Gatton, Gin Gin, Goodna, Goomeri, Gympie, Hivesville, Ipswich, Kilkivan, Kingaroy, Laidley, Landsborough, Maroochydore, Maryborough, Mooloolabah, Mount Perry, Murgon, Nanango, Nambour, Noosa, Palm Beach, Pialba, Proston, Redcliffe, Roma, Scarness, Southport, Stanley Dam, Surfers Paradise, Tewantin, Tingoora, Toogoolawah, Torquay, Tugun, Urangan, Woodford, Woolooga, Wondai, Wooroolin.

TOOWOOMBA SUB-OFFICE.

Inspections under the Health Acts and the various Regulations were carried out at Toowoomba, and at the following country places:—Acland, Allora, Amiens, Applethorpe, Ballandean, Bell, Bowenville, Broadwater, Brookstead, Cambooya, Cecil Plains, Cottonvale, Cooyar, Crows Nest, Dalby, Drayton, Emu Vale, East Greenmount, Finnie, Fletcher, Glen Aplin, Goombungee, Goondiwindi, Greenmount, Haden, Hendon, Jandowae, Jondaryan, Karara, Kaimkillenbun, Killarney, Kulpi, Leyburn, Maclagan, Maryvale, Millmerran, Nobby, Oakey, Pechey, Peranga, Pittsworth, Pozieres, Quinalow, Sandy Creek, Severnlea, Southbrook, Stanthorpe, Tannymorel, Tara, Thulimbah, Wallangarra, Warra, Warwick, Wutul, Yangan, and Yelarbon.

The miles travelled on these inspections was 4,766.

Food Premises Generally.—Strict supervision was exercised at all premises throughout the district where food for sale is handled, and, while there are a number of cases in which structural alterations would effect a considerable improvement in conditions, a satisfactory standard of cleanliness and food protection was maintained. A number of notices were served, requiring the correction of faults, but it was not found necessary to institute legal proceedings against any person because of dirty premises or flagrant breaches of the Acts or Regulations.

Particular attention was paid to cafes, milk bars, and other public eating places, and the Regulation requiring the protection of unwrapped foodstuffs on display from contamination was rigidly enforced.

Hotels and Liquor Testing.—Liquor testing at hotels was carried out regularly in Toowoomba and at all centres visited. Twelve samples of spirits not in accordance with the prescribed standards were removed for analysis, and legal

proceedings were instituted in respect of 7 of them. Convictions were obtained in all cases, and fines and costs totalling £97 9s. were imposed. A quantity of rum under seal was forfeited to the Crown.

Particular attention was paid at all hotels to the quality of glassware in use, and to the facilities available for washing purposes. Kitchens and dining rooms were inspected, and, where necessary, faults were reported to the Licensing Commission for rectification.

Wine Production.—The production of wine for sale among Italian settlers in the Stanthorpe area has assumed fairly large proportions. During the year a survey was made of the conditions existing on the various vineyards, and it was found that, with few exceptions, plant and methods of preparation are not consistent with pure food practice according to Australian standards.

All the wines produced are of the light dry type, and the present market is confined principally to Italians in North Queensland and elsewhere. The volume of production is dependent on the season experienced and the prevailing market for grapes sold as fruit. This year there are thousands of gallons of wine now reaching maturity on the various vineyards and, while a good proportion of this is for private consumption, the amount sold will still be considerable. Some early improvement in conditions of production is indicated, and, accordingly, a report and recommendatons were submitted for consideration.

Milk.—Regular supervision has been maintained over the Toowoomba milk supply and checks made at the larger centres visited. In all 63 official samples of milk were obtained for chemical analysis from Toowoomba, Goondiwindi, Dalby, and Stanthorpe. Of these, two contained slight traces of added water and sixteen were found to be below the standard for milk because of deficieneies in butter-fat or solids. The vendors of the two samples showing added water have been called upon to show cause why they should not be prosecuted, and action was taken with the remainder to ensure that an improvement in the quality of the milk sold was achieved and maintained.

The milk pasteurisation plant at Toowoomba continues to operate efficiently under high temperature short time methods, and check samples of the bottled supply have returned satisfactory results. A franchise has been granted at Warwick for the pasteurisation of milk, but the plant has not yet been assembled. Bottling plants at Stanthorpe and Dalby were inspected and found to be in good condition.

Delivery vehicles were inspected regularly and were maintained at a reasonable standard throughout the year.

Bread.—Bakehouses in the district are generally in a satisfactory condition. Some notices requiring structural alterations and repairs were issued. The resumption of household deliveries of bread has largely eliminated the question of storage and wrapping of bread in shops—a matter which engaged much time during recent years.

Toowoomba Show.—The preparation and sale of foodstuffs on the Toowoomba Showgrounds during the staging of the annual show were supervised, and, apart from a few instances of lack of adequate food protection, which were quickly rectified, conditions throughout were very satisfactory.

Lead in Toys.—Inspections at the various stores revealed a number of instances of the display for sale of toys composed of or containing lead, and appropriate action was taken to prevent their further distribution.

A wholesale manufacturer of wooden toys in Toowoomba was made to recall quantities of toys found to have been decorated with lead paint.

Labelling.—Attention was paid to the labelling of packed foodstuffs and patent medicines, &c., and misdescribed or badly labelled articles were reported for correction. Several lines of prepared paint were found to be deficient in labelling requirements and action was taken to secure adjustment.

Poisons and Dangerous Drugs.—The usual inspections were made at chemists' shops, poisons dealers, and stores in connection with the storage and sale of poisons and drugs and the keeping of the necessary records.

Several investigations of transactions concerning dangerous drugs were conducted, and a number of chemists were interviewed because of their failure to cancel properly prescriptions containing dangerous drugs.

PROSECUTIONS.

Date.	Place.	Charge.	Fine.	Costs.	Analysts Fee.
			£ s. d.	£ s. d.	£ s. d.
1946—					
18th September ..	Oakey	Adulterated whisky 12·7 per cent.	12 0 0	0 6 0	1 1 0
18th September ..	Oakey	Adulterated rum 5·7 per cent. ..	5 0 0	0 6 0	1 1 0
18th September ..	Oakey	Adulterated rum 14·6 per cent. ..	14 0 0	0 6 0	1 1 0
18th September ..	Oakey	Adulterated whisky 12·2 per cent.	12 0 0	0 6 0	1 1 0
24th September ..	Toowoomba ..	Adulterated gin, 19·1 per cent. ..	15 0 0	0 6 0	1 1 0
24th September ..	Toowoomba ..	Adulterated rum 44·1 per cent. ..	15 0 0	0 6 0	1 1 0
24th September ..	Toowoomba ..	Adulterated rum 54·4 per cent. ..	15 0 0	0 6 0	1 1 0
		Totals	£88 0 0	£2 2 0	£7 7 0

Total Fines and Costs £97 9 0

ROCKHAMPTON SUB-OFFICE.

Supervision under the provisions of Part IV. of the Health Acts was again accorded the maximum degree of attention consistent with the limits placed on this work by lack of staff, and the time taken up with duties under other sections of the Acts.

Townships beyond the headquarters area visited for inspection purposes on one or more occasions were:—Alpha, Aramac, Arrilalah, Baralaba, Barcaldine, Biloela, Blackall, Bouldercombe, Cracow, Dingo, Duaringa, Emu Park, Gladstone, Gogango, Goovigen, Gracemere, Ilfracombe, Jambin, Jundah, Keppel

Sands, Longreach, Marmor, Mount Morgan, Rannes, St. Lawrence, Stonehenge, Thangool, Theodore, Tocal, Westwood, Windorah, Wowan, Yeppoon. Distances travelled in making these visits totalled 5,695 miles, with greatest distance from headquarters approximately 640 miles.

Milk Supply—One hundred and three 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 61, Barcaldine 4, Blackall 3, Gladstone 4, Mount Morgan 4, and Yeppon 27. Of these, nine were obtained from shops, seven from wholesale vendors, and the remainder from retail milk deliveries.

Retail milk delivery vehicles in general use were practically all fitted with enclosed compartments for carrying the cans of milk and utensils as required by the Regulations. The chief trouble in this respect was the difficulty in replacing old, much worn vehicles with new ones, and the necessity for using substitute vehicles for over-long periods while the regular ones were undergoing much needed repairs.

With supplies of new measures and cans again to hand retail vendors were enabled to replace those which had become the worse for wear.

Legal proceedings instituted against offenders in connection with sale of milk resulted in conviction in each instance.

They were as follows:—Milk, adulterated with added water, 2; defective milk delivery vehicles, 5; milk measures not fitted with lids, 2; milk delivery vehicle not kept clean, 1; name and address not displayed on vehicle, 1. Fines and costs totalled £54 and £7 10s. respectively. In addition proceedings were instituted against a vendor at Blackall in regard to a sample of milk which was found to contain 13.0 per cent. of added water. This case is set down for hearing in the new year.

Pasteurised and Processed Milk.—The company producing pasteurised (bottled) milk and processed (bulk) milk in Rockhampton continued to expand its business. However, there still remain many vendors of raw milk in the city area. The pasteurising plant continues to be housed in an operative butter factory building. Separate premises should be provided as soon as the building industry again becomes stabilised. Pasteurised milk is now regularly distributed to a percentage of householders at Mount Morgan and Yeppoon by retail vendors. This style of milk delivery proved popular with campers and holidaymakers generally at the near seaside resorts throughout the Christmas and Easter recesses.

Five official samples of pasteurised milk were secured at the source of production and submitted to a State Analyst for bacteriological examination. One of these gave a plate count of micro-organisms in excess of the number permitted under the prescribed standard. Thirty-one unofficial samples likewise secured on the company's premises were submitted to the Commonwealth Health Laboratory. Of these five proved to contain micro-organisms in excess of the standard and a similar number failed to comply with the standard respecting the presence of *Bacillus coli*.

Whenever samples did not conform to standard the company was immediately conferred with, a check made to ascertain the probable cause, resulting in early correction of the fault.

Thanks are due to the Commonwealth Health Laboratory for ready assistance and co-operation rendered as required.

Aerated Waters, Cordials.—Inspection visits to factories manufacturing these lines resulted in some improvements to premises being effected, and alterations to the composition and/or labelling of drinks so as to conform with the Regulations.

Alcoholic Liquors.—Testing of alcoholic liquors was carried out at several hotels and also at showground and racecourse booths. A hotelkeeper in one country township was proceeded against in the court for having had in possession, for sale, gin which was adulterated with 5·9 per cent. added water and brandy with 5.7 p.c. added water. Convictions were recorded and a fine of £6, plus costs amounting to £1 7s., was imposed in each case. Proceedings are being instituted against the licensee of a racecourse liquor booth at which a quantity of rum adulterated with 6·4 per cent. of added water was found.

Bread.—With the return of bread delivery to householders, much of the improper handling and wrapping of bread sold by shopkeepers and bakers alike was eliminated. During April of the war year 1942 all bakers in Rockhampton formed a company known as Rockhampton Bread Distributors. From that time delivery of bread to householders ceased, all sales being made from bakehouses and shops until 26th August, 1946, when deliveries were recommenced. All such deliveries have since been handled by the company, whereas formerly each baker undertook distribution of the bread baked by him.

Little fault can be found with the type of motor bread delivery vehicle put into use by the company, and no horse-drawn vehicles are used. The company instructs the operators of the vehicles to comply with the provisions of the Health Acts and Regulations when handling and delivering bread and welcomes the supervision exercised by this Department. Some additional handling occurs with bread brought to the central depot and reloaded for distribution. Delivery from oven to customer in a really hygienic manner will be accomplished only when wrapping of the loaf in a sealed wrapper at the point of production is made enforceable by law.

On the whole the quality of bread sold in Rockhampton would compare favourably with that produced in other cities.

The pool system of handling has, however, some disadvantages. Each baker supplies an allotted quota to the pool. The benefit of a spirit of competition is therefore lost, as there is little inducement for the individual baker to produce a more nutritive or appetising loaf in order to procure a greater share of the trade. Few local bakers now manufacture the standard wholemeal loaf, so that the customer who prefers this type of bread for digestive or other reasons more frequently has to be content with the nearest approach that the carter happens to be carrying on his vehicle.

Comparatively few loaves are marked or labelled so as to distinguish the manufacturer. When, as occasionally happens, a foreign body is found in a loaf of bread it is more than probable that the baker responsible cannot be identified.

It is thus evident that in order to accord the customer the protection to which he is entitled the loaf should be wrapped as stated above, and labelled to distinguish the manufacturer, the class of bread—viz., wholemeal, brown, white, starch reduced, or as the case may be—and the prescribed weight. The cost thereof added to the price of the loaf would represent a negligible additional weekly outlay for the average family and would be more than compensated for by the protection derived therefrom.

Weighing of bread was carried out from time to time without revealing any serious deficiency in the due weight.

Legal proceedings were taken against one baker for having wrapped bread for sale in newsprint. A conviction was secured with the imposition of a fine and costs amounting to £3 6s.

Structural repairs and improvements were effected to several bakehouses. Others await the availability of materials and labour.

At Longreach a bakehouse which had been condemned was demolished and replaced with a new building. Another which had lain idle for some time for a similar reason was reconstructed and again put into operation.

"Rope (*Bacillus mesentericus*) recurred in a few bakehouses during the year during hot, sultry weather. Remedial measures were immediately undertaken with the result that infections were not prolonged.

Biscuit Manufacturers and Pastry Bakers.—There was a noted increase in the number of persons establishing these businesses in spite of the rationing of supplies of certain ingredients. A former bakehouse in the city area was reconditioned and converted to a biscuit factory, and a number of bakers of bread turned to the production of cakes, biscuits, and pies as remunerative sidelines. Not infrequently new businesses were commenced in a small way in unsuitable premises and had become more or less well established before coming under notice. This feature is common to some other classes of business associated with the manufacture and sale of food. Similar conditions occur in country centres. In one country town a cake and pastry manufacturing business had been established since the previous inspection visit in old dilapidated premises constructed chiefly of corrugated iron, with no protection against contamination by flies, dust, &c. Besides having worked up a connection with distant centres the proprietor had secured the patronage of the local public hospital for his wares. Similar dangers to public health from contaminated food supplies will be eliminated only when the inspection staff is increased sufficiently to ensure that supervision in the city area is both continuous and adequate and that inspection visits to country towns are made with the necessary frequency.

Cafes, Milk Bars, Restaurants.—On the whole where inspections were made an improvement in general cleanliness and facilities was noted. Where necessary written notices demanding structural improvements were served.

A cafe in one country town was condemned on account of its generally dilapidated and unsatisfactory condition. The owner was allowed reasonable time in which to replace the building with a new one conforming to standard.

The proprietor of a cafe situated at Biloela who failed to heed warnings previously given with regard to dirty premises and food displayed for sale exposed to contamination by flies, &c., was proceeded against in the court. Two charges were preferred and convictions secured, with the imposition of a fine of £5 and 6s. costs in each case.

Fish, Fish Shops.—There was an increase in the number of shops selling fish, cooked and uncooked. The chief requirement was for the provision of proper rooms for cleaning and cutting up. Improvements along these lines were effected in several instances. Others are listed for attention.

No complaints were received regarding purchase of fish in unsound condition during the year, and none was found on offer or in possession for sale in shops when inspection was made.

A fish shop proprietor requested an inspection of a fairly large quantity of cooked prawns which he had on hand. These were found to be in unsound condition and were destroyed.

Several consignments of fish inspected on behalf of the Rockhampton Fish Board were condemned as unfit for human consumption and subsequently destroyed.

Fruit and Vegetables.—Shops were kept under supervision, particularly in the city area, where a number have open shop fronts. It is an exception to find unsound fruit on offer for sale these times. The chief fault detected was the occasional displaying of fruit and vegetables for sale at street frontages within reach of dogs. These breaches were immediately rectified when the proprietors' attention was drawn to them.

Grocers, Mixed Businesses.—Many of these were inspected, resulting in correction of breaches of the Regulations. During the first two months of the year, whilst the permanent officer was absent on accumulated leave, Inspector R. Elliott of headquarters relieved. The greater part of his time not taken up in attending to regular routine and special duties, and urgent short visits to country centres, was devoted to work under the above heading. Thus many suburban shops which it had not been possible to visit for a considerable time were inspected and much good was accomplished thereby. Normally it is not possible to accord these businesses regular attention.

During the year repairs and improvements were effected to several shops. One was condemned due to its dilapidated condition and remained closed pending substitution with a new building.

A number of new shops opened up chiefly in expanding residential localities.

Hotels.—Much time was taken up by inspections of hotels for the purposes of the Liquor Regulations, with consequential reports and numerous recommendations for improvements to be effected.

Whilst this work deals mainly with structural conditions, accommodation, sanitary conveniences, and drainage, it also concerns the protection of food prepared and served to the public and the provision of proper facilities for the cleansing of drinking glasses, &c.

It will therefore not be out of place to record under this section of the annual report that 53 hotels in the Rockhampton city area alone were similarly inspected and reported on, and a number of hotels in country towns received like attention.

The large amount of time which it was necessary to devote to this duty detracted considerably from supervision accorded to other sections of public health control.

Warehouses.—Official visits paid to these premises were mainly in connection with foods, paints, poisons, and other articles found on sale in retail stores.

Food Deliveries.—Special attention was paid to the handling of food delivered for sale in vehicles, including bread, cakes and pastries, fruit, ice, and milk, in time available. Constant supervision is necessary in order to prevent these articles from being subjected unnecessarily to contamination by careless vendors or their employees.

Showgrounds.—Strict supervision over the preparation and sale of food was exercised throughout show week 1947 at the Rockhampton Showgrounds. As the result of representations made to the Show Committee prior to the show all refreshment booths and soft drink stalls were provided with sinks connected to a drainage system, and with town water supply laid on to the sinks. The persons conducting these were on their part required to provide hot water facilities.

The proprietor of each of the numerous stalls manufacturing and/or selling such show specialities as cream waffles, doughnuts, fairy floss, toffee apples, &c., was required to take prescribed measures to protect the food from contamination before being permitted to commence operations.

Racecourse Refreshment Booths.—At headquarters these were inspected occasionally to ensure that they were conducted in a hygienic manner. No difficulty was experienced in securing the co-operation of people operating them.

During a country inspection tour a brief visit was paid to a racecourse prior to the commencement of the day's sport, resulting in the proprietor of the refreshment booth despatching a vehicle to the township to procure suitable equipment for the cleansing of drinking utensils.

Seaside Resorts.—Duties were undertaken continuously at Yeppoon, Emu Park, Keppel Sands, smaller intermediate resorts and holiday camps from 23rd December, 1946, to 4th January, 1947, during which time work performed included inspections of all food stores, cafes, bakehouses, &c., and food deliveries, and testing of liquors on sale at hotel bars. Samples of milk were obtained from retail milk deliveries and shops and submitted to analysis. Those obtained from shops were mostly found to be deficient in the standard fat content, due to failure of the shopkeepers to stir the milk after it had been chilled. Each offender was warned that a repetition of the offence would be followed by prosecution.

Inspection visits were also made on three days of the 1947 Easter vacation period.

Samples.—Unofficial samples of food and other articles submitted to Head Office for analysis by the Government Chemical Laboratory or the Government Laboratory of Microbiology and Pathology included aerated waters and cordials, bread, flour, ice cream, herbalist's poultice ingredients, pudding mixture, rat baits, powder substances ex cask of rum, rum and toys.

Unsound Food.—Food of a total weight of 16 cwt. 2 qr. 10 lb. 2oz. examined and found unfit for human consumption and subsequently destroyed was made up as follows:—

	cwt.	qr.	lb.	oz.
Canned fish			12	12
Canned meat			8	8
Canned vegetables ..	1	1	6	10
Cured fish		2	0	0
Dried fruit			1	0
Fish	10	2	0	0
Prawns	1	2	18	0
Ham			25	4
Jams and preserves ..	2	0	22	0

With the clearing of stocks of jams and preserves and other lines of food previously held in emergency storage, the quantity of unsound food encountered showed a marked decrease.

Paints.—There was little demand for inspection with regard to the labelling of paints due to the very limited quantities received by distributors.

No time was available for checking up on the nature of paint used for painting veranda railings, gates, fences, &c.

Toys.—Toys composed wholly or partly of lead discovered in both city and country stores were withdrawn from sale and dealt with in a manner to preclude their being again placed on offer.

Poisons and Dangerous Drugs.—Inspection visits were paid to chemists' shops and wholesale and retail premises under this heading. Warnings were issued to several chemists and licensed dealers in poisons with regard to breaches of the Poisons Regulations. Certain poisons were withdrawn from the premises of a few storekeepers who did not hold the necessary licenses and the proprietors warned against committing similar breaches.

Legal proceedings instituted in the latter part of the previous year against a storekeeper at Baralaba for having had in his possession for sale certain poisons without being the holder of the necessary license, and in respect to the packing of a poisonous substance in a food container, were finalised this year. The defendant was convicted, fined £3 and ordered to pay costs amounting to £1 7s. on each charge.

Results of prosecutions conducted are set out in the following table.

PROSECUTIONS UNDER "THE HEALTH ACTS, 1937 TO 1946," ROCKHAMPTON SUB-OFFICE, 1946–47.

Date.	Place.	Nature of Offence.	Fine.	Costs.
			£ s. d.	£ s. d.
1946—				
10th September	Rockhampton	Milk, adulterated	7 0 0	1 7 0
10th September	Rockhampton	Milk, measure without lid	3 0 0	0 6 0
10th September	Rockhampton	Milk, vehicle without enclosed compartment	3 0 0	0 6 0
10th September	Rockhampton	Milk, vehicle without enclosed compartment	3 0 0	0 6 0
10th September	Rockhampton	Milk, vehicle without enclosed compartment	3 0 0	0 6 0
10th September	Rockhampton	Milk, vehicle not kept clean	3 0 0	0 6 0
10th September	Rockhampton	Bread, sold wrapped in newsprint	3 0 0	0 6 0
30th September	Baralaba ..	Poison, sold without license	3 0 0	1 7 0
30th September	Baralaba ..	Poison, packed in food container	3 0 0	1 7 0
2nd December	Rockhampton	Milk, adulterated	20 0 0	3 9 0
10th December	Rannes ..	Gin, adulterated	6 0 0	1 7 0
10th December	Rannes ..	Brandy, adulterated	6 0 0	1 7 0
1947—				
17th March	Rockhampton	Milk, measure without lid	3 0 0	0 6 0
17th March	Rockhampton	Milk, vehicle without enclosed compartment	3 0 0	0 6 0
17th March	Rockhampton	Milk, vehicle without enclosed compartment	3 0 0	0 6 0
17th March	Rockhampton	Milk, name not on vehicle	3 0 0	0 6 0
25th March	Biloela	Cafe, not kept clean	5 0 0	0 6 0
25th March	Biloela	Cafe, food exposed	5 0 0	0 6 0
		Totals	£85 0 0	£13 16 0
		Grand Total	£98 16 0	

MACKAY SUB-OFFICE.

For the period under review inspections were carried out at food premises—e.g., cafes, mixed stores, grocer shops, hotels, wholesale warehouses, &c.—in the city of Mackay, North Mackay, towns of Bowen, Eton, Finch Hatton, Gargett, Koumala, Nebo, Pinnacle, and Sarina.

The general sanitary conditions of the premises were found to be satisfactory.

Inspection of certain lines of foodstuffs at several food premises revealed same to be unsound and unfit for human consumption. Such stocks were destroyed and the usual certificates issued.

Lead Toys.—Stocks of toys were examined, and a number made of lead metal were withdrawn from sale by the vendor and returned to the distributor in a southern state.

Milk Sampling.—Thirteen milk samples were submitted for analysis to the Government Analyst and these conformed to standard. Instructions were issued to several vendors to bring their vehicles into conformity with the Regulations.

Bakehouses.—Bakehouses have been visited in the city and country areas and same were found to be in a clean and sanitary condition. In each instance action was taken to secure the wrapping of bread when sold at the bakery. A visit was made to a bakehouse at a country town regarding the quality of bread. Samples submitted for examination revealed the presence of the "rope" bacillus. The baker was instructed in the method necessary to eradicate the condition.

Cordial Works.—Twelve samples of aerated waters, &c., were submitted for analysis. As these did not conform to their respective standards the manufacturer was required to rectify their quality and defects in labelling.

Liquor Testing—Hotels.—Liquor testing and inspection of bars at several hotels in Mackay and district were carried out during the period under review. General sanitary conditions were found to be satisfactory. Two prosecutions for the sale of adulterated spirits were instituted against licensees in the country area. The first case was in respect of a sample of draught rum found to contain a mixture of rum and wine and 29·3 per cent. excess water. The second case was in respect of a sample of draught whisky, found to contain a mixture of whisky and dry sherry and 6·8 per cent. excess water. In each case the penalty imposed was £10 with £1 7s. costs. Each conviction was recorded in the register of licenses and the premises placarded in accordance with sections 88 and 89 of "*The Liquor Acts, 1912 to 1935.*"

TOWNSVILE SUB-OFFICE.

Milk.—During the year twenty-four official samples of milk were obtained from local vendors and submitted to the Government Analyst. Of this total four were found to be deficient in the minimum proportion of milk fat required to be present, the respective percentages being 6, 15, 24, and 30. None of the samples were found to be adulterated with added water.

Legal proceedings are pending in respect to one vendor who was found to be carrying a quantity of water on a vehicle in which milk was being carried for sale.

Cafes.—Regular attention has been given to this class of business throughout the year and a reasonable standard of cleanliness has been maintained. Generally, the proprietors are found to be co-operative in respect to public health requirements; consequently any verbal instructions which are issued from time to time regarding breaches of regulations are promptly rectified.

Hotels.—At least one visit of inspection was made to each hotel within the city area during the year. No complaints were received regarding the quality of liquors dispensed and the general cleanliness of bars and methods adopted have improved with the more normal trading times.

The protection of foodstuffs in hotel kitchens and dining rooms has also been given attention and many directions have been given for the need to provide flyproof screens to doors and windows to such rooms.

In two instances new kitchens have been ordered to be constructed and at the time of submitting this report one has already been completed.

Bakehouses.—Despite isolated complaints concerning conditions of this class of factory in Townsville and the quality of bread produced therefrom, inspections have revealed that such were without foundation. The impression gained from these inspections has been that in all instances an endeavour is being made to maintain the premises in a clean and sanitary condition.

One bakery which has not been in use for some considerable time has been completely renovated and reopened, whilst a second one in a dilapidated condition—also disused at present—is likely to be dealt with in a similar manner.

With reference to the quality of the bread manufactured it is interesting to report that samples of bread from five different bakeries were submitted to the Government Analyst for examination and his report in respect to each sample was as follows:—"Close and even, well-baked loaf—the samples were all good average quality white breads conforming to the standard."

Unsound Foods.—Inspections of warehouses and other premises resulted in the withdrawal from sale, on account of being unfit for human consumption, of the following foods:—17 cartons cakes and pastry, 235 lb. eschalots, 1,800 lb. fish, 4 bags onions, 118½ lb. tea.

Country.

Visits of inspection were paid to the following towns within the Townsville Sub-Office district:—Ayr (4), Bambaroo, Bemerside, Charters Towers (3), Halifax (2), Hawkin's Creek, Hughenden, Ingham (10), Long Pocket, Lucinda Point (4), Macknade, Magnetic Island, Richmond, Rollingstone (2), Stone River, and Trebonne.

Ayr.—Legal proceedings were instituted, prior to the publication of the previous annual report, against a milk vendor in this town for having sold milk which was adulterated with added water to the extent of 15 per cent. A conviction was recorded by the magistrate and a fine of £15 was imposed together with £1 1s. analyst fee and 6s. costs of court.

A visit to a small township resulted in the local baker being proceeded against for a breach of section 118 of the Health Acts (short-weight bread). He was convicted and fined £3 with 6s. costs of court.

Home Hill.—A baker in this town was also convicted of selling bread in contravention of section 118 of the Health Acts, and was fined £10 10s. with 6s. costs of court.

General inspections, liquor testing, and bread weighing were the duties carried out in each of the other towns visited.

Miles travelled:—Car, 3,481; train, 543; boat, 12. Total, 4,036.

CAIRNS SUB-OFFICE.

During the year under review, a further, though not yet complete, return towards normality was apparent. Certain restrictions still in evidence have militated against large-scale structural alterations—alterations which are desirable in some instances.

Many events worthy of notice occurred during the year and they are dealt with as follows:—

The biggest step forward from a health viewpoint was the commencement of pasteurised milk supplies in the North. In Cairns practically 95 per cent. of domestic consumption milk is pasteurised milk. This milk is secured from T.B.-tested herds on the Tableland and then processed and bottled in Cairns. The premises are of modern construction, the method used being the high-temperature short-time one. The latest improvement at these premises is the installation of an improved automatic bottle-washing machine and steriliser and there should be no worry now as to the cleanliness and sterility of bottles used for this purpose. That the improved milk is appreciated is reflected in a steadily increasing consumption.

A co-operative firm completed modern premises at Innisfail, where milk is pasteurised by the "batch" method. This supply, also from T.B.-tested herds, is available for Innisfail and district and the consumption of this class of milk is also steadily increasing.

A milk factory on the Tableland, in addition to supplying milk from T.B.-tested herds in bulk to Cairns and Townsville, provides milk of first rate quality for Tableland residents.

As a result of these activities, milk of an assured quality is available for residents on the coast from Cardwell to Mossman, whilst a major part of the Tableland is also catered for.

Checking of premises and processes has occupied a good deal of my time, but this work is especially worthwhile. The competition with other grades of milk has been stimulated and has led to a big improvement in their quality, and matters now are a far cry from the old days, when quite a deal of the milk sold in North Queensland could be viewed only with suspicion.

The resumption of bread deliveries, in addition to proving a boon to the housewife, has to a great deal minimised the exposure of bread to the contamination often afforded its carriage by the individual in the days of wrapping shortages. Delivery in dustproof vehicles is practised.

As a result of specific complaints, a visit to Thursday Island was made and revealed the necessity for a deal of improvement in the sale of foodstuffs. The requisite instructions in regard to premises and handling were given.

During the year periodic inspections have been made of all avenues of bread manufacture, storage, handling, serving, and delivery and a steady progress has been observed, although some premises structurally are not as one would desire.

This has necessitated visits to bakers, confectioners, stores, cafes, warehouses, milk premises, and other suchlike premises, whilst the testing of spirituous liquors has not been neglected. A check has been kept on the local beer, samples being forwarded for analysis.

As a result of activities during the year, four official samples and 52 unofficial samples were obtained for analytical purposes, the majority being milk samples for reducing tests. One milk-vendor was prosecuted and convicted on a charge of selling adulterated milk, being fined £10 and £1 7s. costs.

Foodstuffs, comprising bacons, hams, sugar, &c., to the extent of 1 ton 5 cwt. 2 qr. 22 lb., were destroyed as unfit for consumption during the year.

Lead in Toys.—As a result of inspections of toys in Cairns and on the coast quantities of toys with lead content were removed from sale and returned to the manufacturer or agent.

Visits of inspection were paid to the following towns, the number of visits to each town being marked after the town.—Almaden (2) Aloomba (1), Atherton (6), Babinda (3), Barron Crossing (1), Cardwell (1), Chillagoe (1), Cooktown (1), Croydon (1), Currajah (1), Double Island (2), Edmonton (2), Einasleigh (2), El Arish (1), Ellis Beach (1), Euramo (1), Feluga (1), Fishery Falls (1), Forsayth (1), Freshwater (2), Garradunga (3), Georgetown (1), Gordonvale (12), Green Island (2), Hartley's Creek (1), Herberton (2), Innisfail (8), Kairi (3), Kulara (1), Little Mulgrave (1), Lower Tully (1), Machan's Beach (6), Malanda (6), Mareeba (4), Mena Creek (1), Millaa Millaa (5), Mossman (7), Mourilyan (2), Mount Molloy (1), Mount Surprise (1), Palm Beach (1), Port Douglas (6), Ravenshoe (3), Redlynch (1), San Remo (2), South Johnstone (1), Stratford (6), Tarzali (1), Thursday Island (1), Tolga (2), Tully (6), Tully Falls (1), Yorkies Knob (2), and Yungaburra (1).

This has necessitated the travelling of 7,674 miles by truck, rail, and boat during the year.

Poisons.—As far as possible poisons inspections were consistently carried out during the past year, entailing visits of inspection to chemists, hospitals, licensed poisons dealers, &c.

In the main, there would appear to have been a genuine attempt by handlers of poisons to observe the regulations and any breaches detected were more of an accidental nature than of studied intention to flout the regulations.

The appearance of new poisons regulations towards the end of the year will assist in clarifying some existing anomalies and should lead to their better understanding by dealers.

LABORATORY OF MICRO-BIOLOGY AND PATHOLOGY.

E. H. Derrick, M.D. (Melb.), Director; D. W. Johnson, M.B. B.S. (Syd.), Bacteriologist-in-charge Mobile Unit, and from 1st January, 1947, Acting Director; J. I. Tonge, M.B., B.S. (Syd.), Medical Officer (Medico-Legal Pathology); H. E. Brown, (Bacteriologist).

1.—Staff.

This laboratory suffered a very severe loss during the year in the resignation of Dr. E. H. Derrick on 30th May, 1947. He has been Director of this laboratory for the past twelve years, and besides building up this laboratory to its present status has carried out research of international importance. The members of this laboratory wish him all possible success in his new sphere of activity as Deputy Director of the Queensland Institute of Medical Research.

It was a pleasure to welcome back to the staff Dr. D. W. Johnson in September, 1946.

Dr. J. I. Tonge joined the staff in July, 1946.

STATISTICAL SUMMARY.

No. 1.—Examination of Material for Infectious Diseases.

—	—	Specs. Recd.	Pos.
Diphtheria ..	Cultures	4,195	498
	Direct smear ..	1	..
	Virulence tests ..	138	33
Gonorrhoea ..	Smears	13,637	396
	Blood, complement deviation	2,866	95
	Cultures	4,800	330
	Joint fluid	1	..
Syphilis ..	Blood—		
	Wassermann test (B.M.R.C.) ..	5,268	388
	Wassermann test (Eagle) ..	4,496	408
	Wassermann test (Quantitative) (B.M.R.C.) ..	74	74
	Wassermann test (Quantitative) (Eagle) ..	47	47
	Kline test.. ..	4,791	387
	Cerebrospinal fluid—		
	Wassermann test (B.M.R.C.) ..	77	13
	Wassermann test (Eagle) ..	20	7
	Serum—Treponema pallidum	63	17
Leprosy ..	Smears (human) ..	2,114	757
	Rat	1	1
Tuberculosis..	Sputum	341	47
	Pleural fluid ..	8	..
	Urine	2	..
	Gastric contents ..	3	..
	Smears	2	..
	Pus	1	..
	Joint fluid	3	..
	Guinea-pig inoculation	43	..
Typhoid and Paratyphoid	Blood (agglutination)	212	8
	Blood (culture) ..	7	..
	Urine	36	..
	Faeces	40	2
Murine Typhus	Blood (agglutination)	204	8
Scrub Typhus	Blood (agglutination)	200	2
Tick Typhus..	Blood (agglutination)	2	2
Undulant Fever	Blood (agglutination)	199	2
Leptospirosis	Blood (agglutination)	189	3
	Blood (culture) ..	6	..
	Blood (guinea-pig inoculation) ..	15	..
	Urine (guinea-pig inoculation) ..	9	..
Q. Fever ..	Blood (agglutination)	280	32
	Blood (guinea-pig inoculation) ..	16	..
	Urine (guinea-pig inoculation) ..	9	..
	Carried forward ..	44,416	3,557

—	—	Specs. Recd.	Pos.
	Brought forward ..	44,416	3,557
Vincent's Angina	Smears	34	21
Haemolytic Streptococci	Cultures	55	5
Ulcus Molle ..	Cultures	4	..
	Smears	17	1
Granuloma Venereum	Smears	3	1
Lymphogranuloma Inguinale	Complement fixation test	4	1
	Frei test	1	..
Malaria ..	Blood	2,214	1,122
Dysentery, Amoebic	Faeces	12	..
Dysentery, Bacillary	Faeces	3	..
Trichomonas Vaginalis	Pus	112	56
Actinomycosis	Pus	2	..
Various Fungous Infections	Smears	32	7
	Skin	1	..
Filariasis ..	Blood	4	..
Anthrax ..	Smear	1	..
Clostridium Tetani	Tissue	11	6
	Catgut	1	..
	Culture	1	1
	Cerebrospinal fluid ..	1	..
	Guinea-pig inoculation	7	7
	Powder	1	..
	Various articles ..	35	..
Organisms ..	Faeces	11	..
	Urine	174	..
	Cerebrospinal fluid ..	34	..
	Smears	65	..
	Cultures	52	..
	Sputum	4	..
	Pus	8	..
	Pleural fluid ..	2	..
	Blood culture ..	11	..
	Spleen	3	..
	Blood	2	..
	Intestines	1	..
	Peritoneal fluid ..	1	..
	Lung smear ..	1	..
	Fluid..	5	..
	Egg pulp	1	..
		47,347	4,785

No. 2.—Pathological Examination.

—	—	Specs. Recd.	Pos.
Blood ..	Full count	490	..
	Differential count ..	358	..
	Red cell count ..	287	..
	White cell count ..	16	..
	Reticulocyte count..	8	..
	Haemoglobin ..	451	..
	Urea estimation ..	236	..
	Basophilia	483	..
	Grouping	250	..
	Sedimentation rate..	8	..
	Blood sugar ..	168	..
	Coagulation time ..	3	..
	Bleeding time ..	1	..
	Serum protein estimation	2	..
	Plasma protein estimation	40	..
	Fragility of red cells	1	..
	Urea clearance test..	2	..
Serum ..	Paul Bunnell test ..	1	..
Urine ..	Microscopical examination	304	..
	Chemical examination	345	..
	Urea estimation ..	156	..
	Specific gravity ..	10	..
	Urea clearance test..	2	..
	Porphyrins	1	..
Faeces ..	Intestinal worms ..	159	52
	Occult blood ..	8	2
	Parasites	1	..
	Ova of liver flukes ..	3	..
Cerebrospinal Fluid	Globulin	70	..
	Cells	65	..
	Glucose	64	..
	Protein	5	..
	Chlorides	17	..
	Colloidal gold ..	65	15
Smear ..	Presence of spermatozoa	7	..
Seminal Fluid	Presence of spermatozoa	1	..
Sputum ..	Cells	3	..
Fluid ..	Blood	1	..
Pleural Fluid	Specific gravity ..	1	..
	Albumin	1	..
Calculi ..	Chemical examination	2	1
Parasite ..	Identification ..	1	..
Worms ..	Identification ..	3	..
Ticks ..	Identification ..	5	..
Rat	Identification ..	1	..
Hair	Lice	1	..
Tissue ..	Section	415	..
	Section(Post-mortem)	696	..
		5,218	70

No. 3.—Foods, Waters, &c.

Water—	
Bacterial count	468
Colon bacilli	468
Organisms	1
Iron bacterium	5
Milk—	
Bacterial count	122
Colon bacilli	122
Reductase test	97
C. diphtheriae	3
Haemolytic streptococci	2
Guinea-pig inoculation (*M. tuberculosis*)	5
Ice Cream—	
Bacterial count	27
Colon bacilli	13
Sugar Water—	
Bacterial count	1
Organisms	1
Lemonade—	
Bacterial count	1
Colon bacilli	1
Organisms	1
Fairy Floss—Organisms	1
Condensed Milk—Organisms	4
Vanilla Essence—	
Bacterial count	1
Organisms	1
Minced Meat—Organisms	2
Mutton—Organisms	1
Mussels—	
Organisms	2
Colon bacilli	2
Oysters—	
Bacterial count	13
Organisms	1
Lettuce—Organisms	1
Bread—Rope	16
Flour—Rope	6
Yeast—Rope	4
Baker's Meal—Rope	1
Pollard—Rope	1
Bread Improver—Rope	1
Special Formula Bakerine—Rope	1
Coarse Salt—Rope	1
	1,398

No. 4.—Various Materials.

Disinfectant—Co-efficient	18
Fibre—Organisms	15
Flock—Organisms	29
Cotton Wool—Organisms	2
Wool Filling—Organisms	4
Cotton—Organisms	5
Kapok—Organisms	6
Bottles—Sterility	4
Pertussis Vaccine—Sterility	1
One Ampoule of Local Anaesthetic—Sterility	1
Sewage—Organisms	1
	86

No. 5.—Special Investigation.

Guinea-pig—Inoculations	197
Guinea-pig—Post-mortems	100
Rabbit—Inoculations	6
Animal tissue for section	6
Pig kidneys for leptospirae	50
	359

No. 6.—Medico-Legal.

Post-mortem Examinations	386
Clothing—	
Blood	43
Spermatozoa	64
Various Articles—	
Blood	31
Spermatozoa	13
Smears—	
Gonorrhoea	2
Spermatozoa	11
Fluid—Gonorrhoea	1
Faeces—Spermatozoa	1
Hair—Identification	10
Bones—Identification	1
Tissue—Section	8
Skull—Identification	3
Uterus—Spermatozoa	1
	575
Attendances at Courts—	
Supreme Court	17
Police Court	16
Coroner's Court	14
Other Courts	2

No. 7.—Vaccines Prepared.

A. Typhoid-Paratyphoid Vaccine—995 ccs. T.A.B. Vaccine were prepared.

B. Autogenous Vaccines were prepared as follows:—

From—	
Pus	16
Cultures	4
Faeces	1
	21

No. 8.—Examination of Rodents.

Rodents received for examination from Brisbane City Council:—

Classification—	
Rattus norvegicus	19,006
Rattus rattus	488
Unclassified	6,629
Mus musculus	97
	26,220
Special Examinations for Plague—	
Rats fully dissected	5,608
Spleen smears examined	5,608
Rat smears received from other centres—	
Mackay	1,296
Bundaberg	648
Maryborough	494
Gympie	70
Ipswich	1,059
Sandgate	807
Wynnum	903
Meatworks (Brisbane Area)	474
	5,751

No rat was found infected with *Pasteurella pestis*.

Grand total of examinations for year 1946-47 86,975

MATERIAL SUPPLIED.

Two hundred and sixty-four requisitions were supplied during the year to hospitals, private practitioners, and local authorities consisting of 12,387 swabs, 12,099 cultures, 1,132 Wright's capsules, 156 faeces tins, 126 blood bottles, 6 urine bottles, and 12 ampoules of positive Kline serum.

Culture Media Prepared.

	Number of tubes.
Serum Cultures—	
Inspissated serum slopes	13,350
Nutrient Broth Cultures—	
Tubes for disinfectant examination	1,520
Large tubes	50
Nutrient Agar Cultures—	
Vaccine slopes	700
Small slopes	300
Sugars—	
Lactose	750
Glucose	300
Inosite	100
Sucrose	300
Maltose	150
Indol	150
Mannite	100
Dextrin	50
Xylose	50
Levulose	50
Sorbite	50
Salacine	50
Miscellaneous Tubes and Plates—	
Schuffner's medium for *Leptospira*	1,000
Fletcher's medium	100
Sterile distilled water	1,000
Sterile normal saline	1,000
McConkey's medium (plates)	24
Desoxycholate-citrate medium (plates)	200
Endo's medium (plates)	750
Treble lactose	500
Methyl red	150
Sodium citrate	150
Vosges-Proskauer	150
Cooked meat	300
Lactose (20 per cent.)	30
Starch medium	300
	23,674

Material in Bulk—	Litres.
Normal saline solution	130
Miscellaneous reagents	95
Miscellaneous Stains	35
Sterile distilled water	35
Gonococcus medium	30
Nutrient agar	35
Count agar	15
Gonococcus sugar medium	2
Milk medium	5
Dorsett's egg medium	2

3.—Development of the Laboratory.

(*a*) Subdivision of the main laboratory and reorganisation of the media room.

It has been found with the increase in routine work that the present layout of the main laboratory is both inadequate and inconvenient. It is with a view to making the laboratory more efficient and economical as well as to provide extra working space that plans have been drawn up to subdivide the main laboratory into four sections. These sections will be virtually separate units for Bacteriology, Serology, Biochemistry, and Histology, respectively. A senior officer will be placed in charge of each section and these in turn will be supervised by the chief technician and medical officers.

The plan provides for extra bench space and will allow each officer infinitely better facilities as well as a degree of privacy essential for efficient work.

Alterations are also planned for the media and sterilising room. At present the autoclaves are badly placed and ventilation of the entire unit is inadequate, rendering working conditions almost unbearable in summer. It is intended by a simple rearrangement of equipment and a few minor structural alterations to enclose the autoclaves, still, and inspissator in a separate section, which will be adequately ventilated. By this means the present media room will become essentially a separate laboratory and the "washing-up room" will be made more capacious as well as provide badly needed extra storage space.

The animals have been removed from the main laboratory and are at present housed in an additional room in a store contiguous to the laboratory. Their removal from the main laboratory renders it easier to keep the laboratory clean as well as minimising the risk of infection of the technical staff.

(*b*) *Haematology.*

During the year a separate laboratory was obtained for Haematology. This branch of the work has more than doubled in volume in the last twelve months and further expansion in this field is bound to occur. This extra room has proved of immense benefit and has eased the congestion in the main laboratory.

(*c*) *Medico-Legal.*

Through the courtesy of Dr. G. Hayes we have been able to make use of part of his room as a separate unit for medico-legal investigations. Medico-legal work needs further development in this State and this extra laboratory space is a big step towards this end. All medico-legal techniques, both haematological and serological, are being revised and expanded.

(d) Industrial Investigations.

Since the appointment to the Department of a full-time Industrial Hygiene Medical Officer the associated laboratory investigations have been increased greatly. At the moment, through lack of staff, these investigations are not receiving the full attention they deserve, but it is hoped when an extra trained assistant is available that this laboratory will be able to provide all the facilities required by Dr. Gordon.

Sectionalisation of work is essential in any modern laboratory and a big advance has been made towards this end during the year.

4.—Typing of Corynebacterium Diphtheriae.

During the month of June, 1946, a resumption was made of the practice of classifying all "positive" swabs into *Gravis, Intermedius,* and *Mitis* types of *Corynebacterium diphtheriae.* The "positive" swabs had been classed initially as such on the morphology and staining reaction of the mixed throat cultures by various individual members of the laboratory staff.

Subsequent isolation in pure culture and identification were carried out as previously[1] and, as other laboratory workers have shown, some of these "positive" swabs were found to be *Corynebacteria* morphologically indistinguishable from *C. diphtheriae* but of different genus. These strains were then further investigated by fermentation reactions, virulence to guinea-pigs, phosphatase production and classified according to Barratt's grouping of diphtheroids.[2]

Table 1 shows the monthly incidence of types of *C. diphtheriae.*

Table 2 shows the geographical distribution of types of *C. diphtheriae.*

Table 3 shows the classification of all *Corynebacteria* isolated.

Strains isolated from patients in hospital with diphtheria were assumed to be virulent; all other strains were tested for virulence to guinea-pigs and the results are set out in Table 4. With the exception of *C. diphtheriae,* all strains of *Corynebacteria* shown in Table 3 were avirulent.

One hundred and eighty-two strains of *Corynebacterium* were investigated: one hundred and twenty-eight of these were *Corynebacterium diphtheriae,* 96 (or 75 per cent.) being type *Gravis* and 32 (or 25 per cent.) type *Mitis.*

As previously noted,[1] no *C. diphtheriae* type *Intermedius* was encountered.

In four instances (all of which were carriers) both *Gravis* and *Mitis* types were isolated.

Of 73 virulence tests on carrier strains 25 type *Gravis* were virulent, 25 type *Gravis* were avirulent, 6 type *Mitis* were virulent, 17 type *Mitis* were avirulent.

The incidence of type *Gravis* among patients (81·8 per cent.) was higher than that among carriers (70 per cent.).

References.

[1] J. S. Wannan: The Medical Journal of Australia, November 16, 1946, page 698.

[2] J. Bray: Journal of Pathology & Bacteriology 56, 503, 1944.

TABLE 1.

Monthly Incidence of Types of *C. diphtheriae.*

Month.	Cultures from Patients.		Cultures from Carriers.		Total Cultures.
	Gravis.	Mitis.	Gravis.	Mitis.	
1946.					
June ..	2	3	..	..	5
July ..	8	..	3	..	11
Aug. ..	2	..	5	1	8
Sept. ..	4	..	3	1	8
Oct. ..	5	..	3	..	8
Nov. ..	3	..	2	1	6
Dec. ..	3	..	8	4	15
1947.					
Jan. ..	6	1	8	..	15
Feb. ..	1	1	2	4	8
Mar. ..	..	..	8	8	16
April ..	1	..	4	..	5
May ..	6	1	2	1	10
June ..	4	4	3	2	13
	45 (81·8% of patients).	10 (18·2 % of patients).	51 (70·0 % of carriers).	22 (30·0 % of carriers).	128

TABLE 2.

Geographical Incidence of Types of *C. diphtheriae.*

Locality.	Gravis.	Mitis.	Total.
Brisbane Area	35	8	43
Bundaberg	17	3	20
Maryborough	4	3	7
Gympie	17	6	23
Nambour	..	..	..
Kilcoy	..	..	..
Kingaroy	1	1	2
Esk	..	..	..
Ipswich	11	1	12
Boonah	..	..	..
Charleville	..	..	..
Southport Area	1	1	2
Cooktown	1	..	1
Mount Isa	3	..	3
Warwick	6	8	14
	96 (75·0% of all types).	31 (25·0% of all types).	127

TABLE 3.

Barratt's Group.	Glucose.	Saccharose.	Starch.	Galactose.	Phosphatase.	Number of Strains.
I.	A	A	=	A	+	=
II.	A	A	=	=	=	24
III.	A	=	=	=	+	4
IV.	A	=	=	=	=	11
V.	A	=	=	A	+	=
Va. ..	A	=	=	A	+	=
VI.	A	A	=	A	+	=
VII. ..	A	A	=	=	+	=
VIII. ..	A	A	=	A	+	1
X.	A	A	=	A	+	=
XI.	=	=	=	=	=	14
C. diphtheriae	A	=	A	A	=	128
	..	..	..	..	..	182

Barratt's Group IX. (of non-human origin) is omitted.

TABLE 4.

Type.	Patients.	Carriers.	
		Virulent.	Avirulent.
Gravis	45	25	25
Intermedius	..	..	..
Mitis	10	6	17
	55	31	42
		73	

5.—Leptospirosis.

For some time *Leptospira pomona* has not been available in the laboratory due to the organisms having been lost during subculturing.

On the 14th April a specimen of blood received from Beaudesert Hospital taken from patient "S" was injected into a guinea-pig. This animal, after an incubation period of seven days, developed a fever.

The guinea-pig was killed and the organs were examined. Numerous haemorrhages were present in the lungs. Leptospirae were successfully cultured from the heart blood in Fletcher's and Schüffner's media.

The results of the agglutination tests are shown in the following table:—

Culture.	Serum.	1/10	1/30	1/100	1/300	1/1000	1/3000	1/10000	Con.
Patient "S" ..	*L. australis* A. ..	=	=	=	=	..	..	..	=
Patient "S" ..	*L. australis* B ..	=	=	=	=	..	..	..	=
Patient "S" ..	*L. ictero-haemorrhagiae*	=	=	=	=	..	..	..	=
Patient "S" ..	*L. mitis*	=	=	=	=	..	..	..	=
Patient "S" ..	*L. pomona* ..	+++	+++	+++	+++	++	=	=	=
Patient "S" ..	Patient "S" ..	+++	+++	+++	+++	+++	+++	++	=
L. australis A. ..	*L. australis* A. ..	++	+++	+++	+++	+	+	=	=
L. australis A. ..	Patient "S" ..	=	=	=	=	..	..	..	=
L. australis B ..	*L. australis* B ..	+++	+++	++	+	Tr.	=	=	=
L. australis B ..	Patient "S" ..	=	=	=	=	..	..	..	=
L. ictero-haemorrhagiae	*L. ictero-haemorrhagiae*	+++	+++	+++	+++	+++	+++	++	=
L. ictero-haemorrhagiae	Patient "S" ..	++	++	=	=	=	=	=	=
L. mitis	*L. mitis*	=	++	+	+	=	=	=	=
L. mitis	Patient "S" ..	=	=	=	=	=	=	=	=

The results above show that the organism isolated from patient "S" was *L. pomona*. This strain is being maintained for routine agglutination tests.

6.—Tick Typhus.

Reference was made in the previous annual report to the presence of tick typhus in North Queensland.

During the past year two cases of this infection were recognised in South Queensland.

One patient was a farmer living at Montville. Ticks were very prevalent among his pineapples and on 7th December, 1946, he became aware of a tick embedded over his right scapula. It was removed next day and an eschar developed at the site. On 17th December he became ill with a mild fever which lasted about a week. Serum taken on 31st December agglutinated *Proteus OX19*.

The other patient was a housewife from Brisbane who was holidaying at Mount Tamborine. She walked through the scrub on 11th May, 1947, and on 13th May, noticed an eruption on the forehead "like a blind pimple." A febrile illness followed. Although no tick had been seen by the patient, the lesion on the forehead is presumed to have been a tick bite, and it developed into an eschar. Serum taken on 29th May agglutinated *Proteus OX19*.

It is proposed to report in the Medical Journal of Australia these two cases, about which we were consulted by Drs. Streeten and N. M. Gutteridge respectively.

7.—Investigations into the Significance of the Post Mortem Blood Sugar.

In an attempt to evaluate the diagnostic significance of post-mortem blood sugar levels, an investigation has been carried out during the year on 207 autopsies. In 136 of these, estimations of glucose and total reducing substances in blood from the right and left side of the heart have been made: The investigations are still in progress and it is intended to publish these results during the next year.

8.—Survey for Carriers of Clostridium Tetani.

A survey is in progress at present to determine what percentage of women are carrying *Clostridium tetani* in their gastro-intestinal tract. It is thought that this carrier state might have a possible bearing on the occurrence of neonatal and puerperal tetanus. At the moment samples are being taken and examined from patients admitted to three wards of the Brisbane Women's Hospital.

9.—Publications.

Wannam, J. S.: "Typing of Corynebacterium Diphtheriae in Queensland," Med. J. Australia, 1946, 698.

Tonge, J. I.: "Puerperal Tetanus: A Report of Two Cases—one associated with a Pulmonary Embolus Infected with Clostridium Tetani; also a Case Report of Post-abortional Tetanus," Med. J. Australia, 1947, 726.

GOVERNMENT CHEMICAL LABORATORY.

S. B. WATKINS, M.Sc., F.A.C.I., Government Analyst and Chief Inspector of Explosives; A. S. HURWOOD, B.Sc., A.A.C.I., A.R.I.C., Deputy Government Analyst and Inspector of Explosives.

Service.—The laboratory provides an analytical and chemical advisory service for the benefit of all Government Departments, both State and Commonwealth, with the exception of the Queensland Department of Agriculture and Stock, which maintains its own laboratories. The laboratory also performs work for the medical profession and the public in those cases which are considered of sufficient importance to merit attention.

The following State Departments and organisations availed themselves of the services of the laboratory during the past year:—

Department of Health and Home Affairs

Department of Mines, Geological Survey Office, and Machinery

Department of Lands and Sub-Department of Irrigation and Water Supply, and Forestry

Departments of Public Works and Local Government

Department of Justice

Department of Public Instruction

The Treasury, the Portmaster, the Department of Harbours and Marine, and the Bureau of Industry

The Commissioner of Police

The State Stores Board

The Main Roads Commission

The Co-ordinator General of Public Works

The Railways Department

The Division of Secondary Industries

The Brisbane and South Coast and Country Hospitals Boards

Commonwealth Departments concerned were—

Trade and Customs

Commerce and Agriculture

Supply and Shipping

Munitions

Postmaster-General

Works and Housing

Royal Australian Navy

Aeronautical Inspection Directorate

The Army

Crown Solicitor

The Commissioner of Prices

Organisation.—The laboratory is organised under five sections with an officer in charge of each as follows:—

1. Foods and Drugs—Officer in Charge A. S. Hurwood, B.Sc., A.A.C.I., A.R.I.C., Deputy Government Analyst and Inspector of Explosives.
2. Toxicology, and Biochemistry—Officer in Charge, I. L. B. Henderson, B.Sc., A.A.C.I., Senior Analyst.
3. Ores, Metals and Minerals and Industrial Hygiene—Officer in Charge V. R. Cundith, B.Sc., A.A.C.I., Senior Analyst and Inspector of Explosives.
4. Customs, Stores and Roadway Materials —Officer in Charge J. R. Adamson, A.A.C.I., Senior Analyst and Inspector of Explosives.
5. Water—Officer in Charge J. A. Forbes, A.A.C.I., Analyst and Inspector of Explosives.

With the exception of the water section each officer in charge has a competent staff under his direction.

The work concerned with the safety in storage and general control of explosives is undertaken by the Government Analyst, who is also Chief Inspector of Explosives, under the Treasury, assisted by the above four Inspectors of Explosives together with the Harbour Masters at Rockhampton, Townsville, and Cairns, who are also Inspectors of Explosives. The Portmaster is the officer in charge of the Government Magazines and has control, under the Navigation Act, of vessels bringing explosives into the State.

Staff.—The present effective staff includes the Government Analyst and Chief Inspector of Explosives, the Deputy Government Analyst, three Senior Analysts, five Analysts, two Assistants to Analysts, two Cadets, one Clerk, one Typist, one Mechanic, one Furnace-Room Attendant and three Male Assistants.

Two Assistants to Analysts, Messrs. K. A. Glover and J. E. O'Hagan, at present on leave without pay, are attending the University under the Commonwealth Rehabilitation scheme for ex-servicemen.

Mr. L. A. Meston, F.A.C.I., retired from the position of Government Analyst and Chief Inspector of Explosives on 31st December, 1946, and I was appointed in his stead. Mr. Meston joined the staff in 1906 and was intimately associated with the laboratory for the past 40 years. He was appointed Senior Analyst in 1937, having previously been in charge of the Foods and Drugs Section for many years. His appointment as executive head of the Laboratory was made in 1941 on the retirement of Mr. F. E. Connah.

Mr. A. S. Hurwood became Deputy Government Analyst on 1st January, 1947, and Mr. I. L. B. Henderson was appointed on the same date to a consequential vacancy in the Senior Analysts' group. Mr. R. S. Potter was elevated to the position of Analyst, having been accepted as an Associate of the Australian Chemical Institute in consideration of his thesis on the Vitamin C content of Queensland fruits. The basis of this paper was the outcome of a considerable amount of investigation work in connection with the processing of fruit juices for the Services.

The following table indicates the number of samples examined for the respective departments or organisations:—

A. State.		
Department of Health and Home Affairs	5,340	
Police	269	
Department of Mines—		
Geological Survey Office	706	
Machinery and Scaffolding	31	
Department of Lands—		
Irrigation and Water Supply	648	
Others	19	
Department of Justice	60	
The Treasury—		
Portmaster	1,151	
Others	25	
Department of Local Government ..	131	
Main Roads Commission	249	
State Stores Board	86	
Queensland Government Railways	59	
Others (5)	30	
	——	8,804
B. Commonwealth.		
Customs	1,880	
Commerce and Agriculture	1,140	
Royal Australian Navy	85	
Others	143	
	——	3,248
C. Brisbane and South Coast and other Hospitals Boards	179	
Medical Profession	128	
Public	475	
	——	782
Grand Total		12,834

This represents an increase of 959 samples over the corresponding figure for last year.

Section I.

Staff.—A. S. Hurwood, B.Sc., A.R.I.C., A.A.C.I., Deputy Government Analyst, Officer in Charge; I. L. B. Henderson, B.Sc., A.A.C.I., Analyst; H. G. Dunstan, B.Sc., A.A.C.I., Analyst; R. S. Potter, A.A.C.I., Analyst; K. H. Deasy, Assistant to Analysts; K. A. Glover, Assistant to Analysts (on leave).

The samples examined by the section showed an increase of 722 samples on last year's figures and were as follows:—

Department.	Number of Samples.
Health and Home Affairs	4,609
Other State Departments	124
Commerce and Agriculture (Commonwealth)	1,140
Other Commonwealth Departments ..	105
Public	33
Total	6,011

TABLE I.

Summary of Samples Examined for the Department of Health and Home Affairs.

Nature of Sample.	Number of Samples.	Passed.	Failed.
Beverage or cordial	297	142	155
Bread	152	119	33
Cereal	54	26	28
Condiment	24	11	13
Custard or cake powder ..	70	20	50
Disinfectant	94	48	46
Drug or medicine	68	38	30
Essence	27	24	3
Fruit or fruit juice	67	33	34
Jam or jelly	29	11	18
Meat	42	14	28
Vegetable	25	15	10
Milk	2,864	2,107	757
Milk product	62	46	16
Paint	245	98	147
Tobacco	122	93	29
Toy	104	45	59
Miscellaneous	263	152	111
	4,609	3,042	1,567

Those samples classed as failed include samples not conforming with the prescribed standards and those falsely described and incorrectly labelled.

The miscellaneous samples include confectionery, fish, fat, infant food, soap, cosmetic, vinegar, bedding and upholstery filling material, tar, poison bait, printers' ink, beer pipe and solder.

TABLE II.

Details of Legal Samples taken by Inspectors in Accordance with the Provisions of the Health Acts.

Nature of Sample.	Number Examined.	Passed.	Failed.
Milk	2,166	1,634	532
Paint	132	45	87
Spirituous liquor	32	4	28
Meat	24	8	16
Beverage	14	6	8
Ice cream	11	10	1
Bread	2	1	1
Headache powder	2	..	2
Shampoo powder	1	..	1
Date	1	1	..
Flock	1	..	1
	2,386	1,709	677

TABLE IV.

Summary of Table III.—See Page 54.

	Percentage of Total Samples.
Adulterated with water	4.4
Deficient in fat only	2.4
Below the standard in total solids and/or solids not fat	17.7
Passed the standard	75.5
	100.0

TABLE V.

Samples Taken in Greater Brisbane.

Year.	Number of Samples.	Proportion of Total Milk Samples.	Proportion Adulterated with Water.
1943-44	1,575	78·5	2·1
1944-45	1,666	79·4	2·9
1945-46	1,411	66·7	1·1
1946-47	1,358	62·7	2·

TABLE III.

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. Per Cent.	Average Proportion of Added Water. Per Cent.
Greater Brisbane	1,358	1,056	25	247	30	2	10·5
Barcaldine	4	4	..	..	..	..	..
Beaudesert	27	22	..	5	..	..	..
Blackall	3	1	..	..	2	66	7·5
Boonah	6	..	..	4	2	33	6·5
Bundaberg	34	19	..	8	7	21	13·0
Cairns	4	3	1	..	..	..	..
Dalby	7	4	..	3	..	..	..
Gladstone	4	3	..	..	1	25	2·4
Goondiwindi	10	8	..	..	2	20	2·5
Harrisville	2	..	..	..	2	100	10·9
Ipswich	107	71	2	23	11	10	8·6
Mackay	13	13	..	..	..	..	..
Maryborough	17	17	..	..	..	..	..
North Coast	105	76	..	7	22	21	11·4
Redcliffe	53	46	1	6	..	..	..
Rockhampton	62	44	16	1	1	2	28·5
Rosewood	25	8	..	17	..	..	..
South Coast	228	173	2	38	15	6	7·0
Stanthorpe	4	3	..	1	..	..	..
Toowoomba	42	30	1	11	..	..	..
Townsville	24	20	..	4	..	..	..
Yeppoon	27	13	5	9	..	..	..
	2,166	1,634	53	384	95	4·4	10·0

TABLE VI.

SHOWING THE AVERAGE FAT CONTENT OF THE LEGAL SAMPLES OF MILK IN WINTER AND SUMMER BOTH IN THE GREATER BRISBANE AREA AND IN THE REST OF QUEENSLAND.

Number of Samples.	Greater Brisbane or Country.	Season.	Months.	Average Fat Content.
				Per cent.
2166	Both	Overall	January–December ..	3·83
743	Brisbane	Summer	October–March	3·77
300	Country	ditto	ditto	3·71
1043	Both	ditto	ditto	3·75
409	Brisbane	Winter	July–September	3·60
184	Country	ditto	ditto	3·54
593	Both	ditto	ditto	3·58
226	Brisbane	ditto	April–June	4·28
304	Country	ditto	ditto	4·29
530	Both	ditto	ditto	4·29

NOTE.—"Country" in this table means outside the Greater Brisbane Area.

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. (average.)
		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
1946–1947	2,166	2·4	17·7	4·4	10

Milk.

The several brands of pasteurised milk in Brisbane were regularly examined and invariably gave the phosphatase test for correct pasteurisation and almost invariably conformed with the prescribed standard in milk constituents.

There was considerable trouble with dirty milk bottles throughout the year. Lack of manpower was usually the excuse offered, but lack of supervision would probably be nearer the mark.

One vendor was prosecuted for selling raw milk in pasteurised milk bottles.

The capping of milk bottles with cardboard discs leaves much to be desired. Frequently the discs are loose and leaking and at times when pressed hard down on the milk are veritable dust traps. Aluminium caps are more effective and hygienic.

The position relative to visible dirt in milk was satisfactory. Seldom was any dirt evident and when present never exceeded one half grain to the gallon.

The following observations are made from a survey of Tables III., IV., V., VI., and VII.

Of the official milk samples 62.7 per cent. came from the Greater Brisbane area and only 37.3 per cent. from the rest of Queensland.

The proportion of milks adulterated with water was 2.2 per cent. in the Greater Brisbane area and 8 per cent. outside this area.

No watered milks were obtained from Cairns, Mackay, Maryborough, Toowoomba, and Townsville and few milks were submitted from these centres.

The proportion of watered milks in the Greater Brisbane area (2.2 per cent.) was considerably higher than last year (1.1 per cent.).

The exceptionally high proportion (17.7 per cent.) of naturally poor milks was apparently due to drought conditions, which prevailed throughout Queensland in the early months of the year under review.

The proportion (2.4 per cent.) of milks deficient in fat was a distinct improvement on last year's figure of 3.2 per cent.

The proportion (4.4 per cent.) of watered samples was high, but much the same as in past years. The position as regards the adulteration of milk does not improve with the years.

The average fat content of the 2,166 legal samples of milk examined was 3.83 per cent. The legal minimum for fat in milk is 3.3 per cent.

There was little difference in fat content between the milks obtained from the Greater Brisbane area and those obtained from the other centres of the State.

The lowest average fat content (3.58 per cent.) was recorded over the July-September period and the highest (4.29 per cent.) over the April-June period.

Milk Products.

Ice Cream.—With ice cream the position was satisfactory. Out of 28 samples examined 25 samples conformed with the prescribed standard.

Malted Milk Powder.—A number of samples obtained locally of a product manufactured in a southern State claiming to be malted milk powder was a skim milk preparation, devoid of milk fat and misdescribed as malted milk powder. Its sale in this State as malted milk powder was of course stopped.

Bread.

Of the 152 samples submitted 33 failed to conform with the standard either in composition or quality.

In a white bread survey of the Brisbane area made in the late summer months of this year 75 samples of bread from different bakehouses were examined. Briefly the results obtained were as follows:—

(*a*) Quality.—

Good quality	8,	equivalent to 10.6 per cent.
Average quality	42,	equivalent to 56.0 per cent.
Poor quality	25,	equivalent to 33.4 per cent.
	75	100.0 per cent.

(*b*) Weight.—

Of the 75 samples examined 49 were short weight in proportions varying from 1 to 15 per cent., the average deficiency in weight being 4 per cent., or approximately 3/5 oz. to the 2lb. loaf.

(*c*) Water Content.—

Seventy-two out of the 75 samples conformed with the prescribed standard of not more than 45 per cent. water in any part of the loaf. The other 3 samples were only slightly (0.5 per cent.) in excess of this figure.

Mould in Bread.—There has been much talk and some reference in the press in recent months to mould in bread and quite a number of mouldy samples of bread were submitted for examination.

Common moulds readily grow on bread. *Mucor mucedo* forms a white mycelium from which grow the spore-bearing heads having a dark brown or black colour; *Aspergillus niger* is a black mould commonly growing on stale bread; *Penicillum glaucum* is a sage green or blue mould also growing on stale bread; *Oidium aurantiacum* is a red fungus which may grow throughout the bread and produce in it an orange colour. These and most other moulds are destroyed at the temperature of the baking oven.

A few uncommon moulds survive this temperature, but usually, as far as mould is concerned, the loaf of bread as it leaves the oven is sterile. From then on, however, it can acquire mould in many ways, but more often than not the householder's own bread crock is the chief source of infection. The crock should be kept scrupulously clean and given an occasional wash with a strong warm aqueous solution of a chlorine compound such as bleaching powder to destroy any mould spores. This chlorine treatment should be followed by a wash with hot soapy water and then thorough drying. Regular cleaning of the household bread crock would reduce the incidence of mould in bread considerably.

Meat.

Preservative in Minced Meat.—Minced meat is regarded as an invalid food and the addition of preservative to such meat is not permitted.

Of the 18 samples submitted 14 contained a preservative substance—namely, sulphur dioxide —in proportions varying from 0.5 to 8.5 grains to the pound.

Past prosecutions for this offence have had little effect in improving the position.

Luminescent Meat.—An uncooked shoulder of mutton, normal in colour, odour and appearance, was received with the complaint that it exhibited a marked "phosphorescence" in the dark.

When observed with dark adapted eyes it was strongly luminescent in large patches due to the presence of luminous micro-organisms. It is interesting to note that Luciferase, the enzyme responsible for the luminescence, occurs in moulds, bacteria, and in about 40 species of lower animals.

The bacteria which most commonly cause luminescence in meat are *Photobacterium sarcophilum*, *Micrococcus plugeri*, and *Pseudomonas fluorescens*. The luminescence is usually bluish or greenish white and appears on either raw or cooked meat. It disappears on the onset of putrefaction and sponging the meat with acetic acid of vinegar strength is sufficient to remove it.

The storage room that contains meat contaminated with these luminous micro-organisms should be thoroughly cleaned and treated with acetic acid to prevent further contamination of meat subsequently stored there. Luminous or "phosphorescent" meat is not dangerous to human health. It is, however, a deteriorated foodstuff and consequently is not of the nature, quality, or substance demanded by the purchaser of first quality meat.

Quality Stripes on Meat.—Two complaints were received of the presence of excessive amounts of dye in meat. In one instance a piece of meat on stewing assumed a brilliant bluish violet colour, much to the astonishment of the housewife. The cause of the colour was the presence of undissolved powdered dye in the quality stripe.

Dye solutions used for marking meat should be properly mixed prior to use and then should be applied only lightly to the meat.

Beverages and Cordials.

A record number of 297 samples was examined of which 155 were either incorrectly labelled or below the standard. Most of the trouble was associated with labelling requirements.

Synthetic Vitamins in beverages.—One aerated summer drink examined claimed the presence of added Vitamin B1.

The addition of synthetic vitamins to foodstuffs, more especially to those consumed in quantity by children, should not be encouraged.

Caffeine in Summer Drink.—Several samples of an aerated summer drink of American origin, popular in Queensland of recent years, were examined. This drink contains caffeine at the rate of one-quarter of a grain to the 7-oz. bottle and no declaration as to the presence of caffeine appears on the bottle.

The drink is consumed in considerable quantity by children, many of tender years.

Caffeine, no doubt, is an admirable drug in a headache powder or in a racehorse dope, but as an ingredient in a summer drink consumed regularly and in large amount by children its use might well be questioned.

Vitamin C in Fruit Cordials.—A number of fruit juice cordials contained no Vitamin C owing to poor storage conditions of the fruit juice at the factory.

As the value of a fruit juice cordial lies chiefly in its Vitamin C content consideration must soon be given to including minimum requirements of Vitamin C in the standard.

Scarcity of Genuine Fruit Drinks.—It is a surprising fact that in a great fruitgrowing State like Queensland most of the summer drinks manufactured are imitation fruit drinks. Practically the only soft drinks procurable in Brisbane during last summer were lemonade, kola, creaming soda, hop beer, ginger beer, ginger ale, and sarsaparilla, none of which contains fruit juice. Certainly these drinks are refreshing, but from a nutritional angle they are only pleasant but expensive ways of consuming cane sugar.

Fruit and Vegetables.

Arsenate of lead is still used as an insecticide on apples and pears, but to a lesser extent than in past years. Most of the fruit examined was free of spray residues. Seven samples of apples were contaminated with lead arsenate and contained lead and arsenic considerably in excess of the permitted tolerances of these metals in fresh fruit—namely, 3/100ths and 1/100th grain to the pound respectively.

With vegetables also the position was satisfactory and for the first time in many years the cabbages and cauliflowers examined were free of lead arsenate. The practice of spraying cabbages with lead arsenate was first commented on in the anuual report of 1928 and yearly since then there have been many instances throughout this State of excessive use of lead arsenate on vegetables of the Brassica family. This laboratory has always held that lead arsenate is a highly poisonous substance and that its use on fresh fruit and vegetables constitutes a serious menace to health.

Today the position is changed as far as vegetables are concerned, and as an insecticide on cabbage, cauliflower, beans, and tomatoes lead arsenate has been almost entirely replaced by DDT, and most farmers now report better results with less applications of the spray.

It should be remembered, however, that DDT has definite toxic properties which are to a certain extent cumulative in effect, and consequently its use as an insecticide on green vegetables should be carefully controlled.

Samples of celery from a southern State contained excessive quantities of copper compounds due to the use of Bordeaux mixture as a fungicide during the growth of the plant.

One sample of tomatoes was condemned owing to the presence of an excessive amount of DDT on broken surfaces of the tomatoes.

Spirituous Liquors.

Thirteen out of the 14 legal samples of spirituous liquor examined were below strength in proof spirit. In the routine examination of hotel stocks of whisky, brandy, rum, and gin the liquor is first tested on the bar counter with a Sikes hydrometer by a health inspector. When the hydrometer reading suggests excess water, a sealed sample of the doubtful liquor is submitted to a State analyst for further examination.

At times the correction for "Obscuration" will save the publican from prosecution, but almost invariably the findings of the analyst confirm those of the inspector and a prosecution ensues.

Beer.

Both the bottled and draught beers from the breweries in Brisbane were examined with results as outlined in Table VIII.

The four samples examined were sound fermented beverages conforming with the prescribed standard for beer.

There was little difference in quality from the respective pre-war brews.

TABLE VIII.

—	Number 1 Brewery.		Number 2 Brewery.	
	Bottled Beer.	Draught Beer.	Bottled Beer.	Draught Beer.
Proof spirit (per cent.)	8·7	7·4	8·5	7·8
Alcohol by volume (per cent.)	5·0	4·2	4·9	4·5
Extract (per cent)	3·5	3·3	3·6	3·3
Ash	0·2	0·2	0·23	0·22
Sodium chloride (grains per gallon)	12	12	20	20
Sulphur dioxide (grains per gallon)	3	2	Nil	Nil
Metallic contamination	Nil	Nil	Nil	Nil
Condition	sound	sound	sound	sound
Flavour and odour	normal	normal	normal	normal
Appearance	clear and bright	clear and bright	slightly opalescent	clear and bright

Paint.

The number of paint samples was a big increase on previous years and of the 245 samples examined 147 contained more than the permitted limit of 5 parts per centum of soluble lead. Most of the samples were powdered paint scrapings from old homes, painted in many cases before there was any restriction on lead paint.

Most of the new paints submitted were free of lead.

Toys.

Lead in any form is not allowed in children's toys sold in Queensland.

Out of 104 samples examined 59 contained lead in some form or other.

As regards the paint on the toys, the yellow and green colours frequently contained lead chromate, but more often than not the other colours were free of lead.

In a number of celluloid rattles the rattling material was lead shot.

Among the metal toys examined a number were composed of lead metal or lead-antimony alloy and a lesser number of lead-free metals, including hardened aluminium, zinc-coated iron, and zinc-aluminium alloy.

Drugs and Medicines.

Of 68 samples of drugs and medicines examined 30 samples failed to comply either with specified standards or with labelling requirements.

A number of proprietary medicines were examined, chiefly in a search for restricted drugs and poisons. Few of these medicines had any great therapeutic value and in general their claims were extravagant and at times false and misleading.

An "antidote for snake bite" proved to be essentially an aqueous solution of sodium nitrate and was quite useless for the purposes claimed.

An expensive pill claiming to be a "cure for gastric ulcers" was a simple mixture of bismuth carbonate and bicarbonate of soda.

One proprietary line of pills with claims somewhat more exaggerated than usual claimed *inter alia* to be absolutely harmless. It contained along with other ingredients 1/100 grain of arsenic to the pill. There were 48 pills of 7 grains each to the bottle with a total arsenic content of ½ grain. The pills were pink coloured and sugar coated and could easily have been mistaken by a child for lollies with possibly dangerous results. The presence of arsenic was not even declared on the label.

Ten samples of medicine dispensed by chemists from doctors' prescriptions were examined. A complaint was associated with each sample. With one the colour was not quite the same as in past medicines from the same script. With another there was a "strange" sediment present; another tasted bitter and yet another caused vomiting. With one more serious than others a baby died soon after taking the medicine and the composition of the medicine was questioned.

All the samples had to be carefully checked and all were found to be correctly dispensed.

Slight differences in colour and flavour and traces of sediment in medicines, although usually of no therapeutic significance, do at times cause considerable concern to sick people.

As regards differences in colour, probably Extractum Glycyrrhizae Liquidum, the liquid extract of liquorice, is the greatest offender. Used freely in medicine this extract varies considerably in colour between brands.

DDT Insecticides.

Most of the DDT insecticides on the market —35 in all—were examined. Nearly all were correctly labelled in regard to the proportion of DDT present. Under "The Health (Insecticides) Regulations, 1946" where any insecticide contains dichloro diphenyltrichlorethane (DDT) or gamma-hexachloro cyclo hexane (666) their presence must be declared in the label and also the label must contain the following statement printed in red letters.

CAUTION.
Keep away from cooking and eating utensils and avoid contact with foodstuffs.

Mosquito Repellents.

Of eight proprietary lines examined half contained oil of citronella as the active repellent and the other half dimethylphthalate. This latter synthetic organic substance has marked mosquito repellent properties and was extensively used by our armed forces during the recent war. It is now appearing in proprietary lines on the market either as the straight chemical—a water-white heavy viscous liquid—or emulsified in lotion and cream form.

New Rat Poison.

A proprietary line of rat poison examined was composed of a 6 per cent. aqueous emulsion of alpha naphthyl thio urea. This synthetic substance is an effective rat poison and is also known under the names of R.P. 109 and A.N.T.U.

Blown Cans of Honey.

A number of cans of honey examined were blown and the product fermented, through the action of osmophilic yeasts. These yeasts tolerate high concentrations of sugar and can cause spoilage in products like honey, in which the sugar content is frequently over 80 per cent.

Usually sugar products are safe from fermentation by common yeasts when the sugar content reaches 60 per cent.

Shark Liver Oil.

A sample of liver oil from a shark caught in North Queensland waters gave a Vitamin A value of about 35,000 International Units per fluid ounce.

The average shark liver oil has a higher medicinal value than cod liver oil.

An enormous variation is given between the potencies of the oils from different species of sharks and a marked seasonal variation occurs in the oil from the same kind of shark.

Of sharks caught in Australian waters the snapper shark produces the most potent oil with an average Vitamin A value of about 500,000 I.U. per fluid ounce.

Candle Nuts.

A sample of candle nuts was received for opinion as to suitability for sale. Nuts from the candle-nut tree (*Aleurites moluccana*) are edible at certain times and at other times are dangerous to health. Many instances are known of the nuts having been eaten without any apparent ill-effect, but again serious illness has frequently resulted from their consumption. The nuts are related closely to the well-known and poisonous nuts from the tree *Aleurites fordii*. From these nuts is extracted the tung oil of commerce. The sale of candle nuts for human consumption should not be permitted, and on the existing evidence it is safest to regard the nuts as poisonous and inedible. The candle nut contains a high proportion of a first-class drying oil and a valuable substitute for linseed oil. The candle-nut tree grows extensively in Northern Queensland and the oil is now being produced on a commercial scale, although at present adequate quantities are not available.

Tobacco.

Of 122 samples of cigarettes, cigars, and tobacco received for examination from the King's warehouse, 29 samples were unfit for smoking, the spoilage being due principally to mould and insect attack.

Misdescription.

Of the many examples of misdescription noted during the year the following were among the worst:—

- Peroxide tooth paste without any peroxide.
- Malt and sugar vinegar without any malt extractives.
- Banana custard powder without any banana.
- Strawberry ice cream without any strawberry.
- Fruit saline without any fruit.
- Butter Scotch dessert without any butter.
- Tapioca dessert without any tapioca.
- Lemon soap without any lemon.
- Olive oil lotion without any olive oil.
- Cochineal colouring without any cochineal.
- Lemon juice rinsing powder without any lemon juice.
- Glucose barley sugar without any glucose.
- Butter mints without any butter.
- Kola drinks without any kola extractives.
- Sarsaparilla drinks without any sarsaparilla extractives.

Miscellaneous Complaints.

The following miscellaneous collection is a few only of the many complaints investigated during the last twelve months:—

- Glass fragments in tomato sauce.
- Iron scale in a prepared breakfast cereal.
- Dead mouse in beverage.
- Cigarette fragments in bread.
- Dirt in bread crust.
- Bitumastic material in bread.
- Dirt in dates.
- Boric acid in flour.
- Naphthalene odour in tomatoes.
- Foreign flavours in tea.
- Dirty milk bottles.
- Mould in smoked fish.
- Sugar mites in prunes.
- Brown colouration in condensed milk.
- Weevils in flour.

Return of restricted foodstuffs to the civilian market.

It is pleasing to note some movement at least in the return of rice, sago, tapioca, tinned fish, mustard, prunes, olive oil, and tinned fruits to the civilian market. All these lines, which were in short supply or unprocurable on the civilian market during the war, have passed through the laboratory during recent months.

Action of some common foodstuffs on aluminium.

The results shown in Table IX. were obtained from experiments in connection with the action of common foodstuffs on aluminium.

An aqueous mixture of the foodstuff was boiled in a 250-mil. glass beaker for two hours. An aluminium strip of 24 square inches surface area was immersed in the liquid and the change in weight of the aluminium noted after the 2-hour boil.

TABLE IX.

Foodstuff.	Change in weight of Aluminium Strip in milligrams.		Reaction (pH).
	Loss.	Gain.	
Acetic Acid (6 per cent.)	55	..	2·7
Acetic Acid (6 per cent.) + 0·25 per cent Sodium Phosphate	1	..	..
Vinegar (6 per cent. acetic acid)	1	..	3·4
Citric Acid (1 per cent.)	30	..	2·5
Citric Acid (1 per cent.) + 0·25 per cent. Sodium Phosphate	29	..	..
Citric Acid (6 per cent.)	10	..	..
Lemon Juice (6·6 per cent. Citric Acid)	6	..	2·5
Apple	4	..	..
Bacon	..	2	..
Cabbage	..	..	..
Peas and Salt	..	1	..
Peas, Salt and Sodium bicarbonate	..	1	9·9
Rhubarb	54	..	4·2
Rosella	..	1	2·3
Tomato	20	..	4·4
Water (tank)	..	1	..
Water (tap)	..	6	..
Water (distilled), salt and sodium bicarbonate	31	..	9·1

These results would indicate that—

1. Acetic acid (6 per cent.) has a marked solvent action on aluminium, but 6 per cent. acetic acid in the form of vinegar has practically no action.
2. Alkali phosphates in small proportions inhibit the action of acetic acid on aluminium.
3. The phosphates naturally present in vinegar influence the action of vinegar on aluminium.
4. One per cent. citric acid has a more marked effect on aluminium than 6 per cent.
5. Alkali phosphates have little influence on the action of citric acid on aluminium.
6. Lemon juice has a much more marked action on aluminium than vinegar.
7. Apple products exert a mild action, but cabbage, peas, bacon, and rosella products have practically no action on aluminium.
8. Rhubarb has a marked solvent action on aluminium, as also has tomato.
9. An aqueous solution of water, salt, and soda has a marked solvent action on aluminium and this action is inhibited on addition of peas, cabbage, or other green vegetable to the mixture.
10. The small increase in the weight of the aluminium strip on boiling with cabbage, peas, bacon, and rosella is probably due to the formation of an oxide or phosphate film on the metal.
11. There is no direct relationship between the acidity of the product and the solvent action on aluminium.

Bedding and Upholstery Filling Material.

The results shown in Table X. were obtained from 47 samples of flock, fibre, kapok, and other filling material.

TABLE X.

—	Chlorine present as Chloride (parts per 100,000).	Turbidity (parts per 100,000 of wash water).	Four hours oxygen absorption (parts per 100,000 of wash water).	Free and Saline Ammonia (parts per 100,000).
Cotton flock (18 samples)	28–156 (90)	10–55 (28)	2·6–16·8 (8)	0·8–12·0 (5·1)
Cotton linters (2 samples)	68–80 (74)	16–18 (17)	18·1–22·3 (20·2)	2·4–2·4 (2·4)
Fibre (12 samples)	44–240 (140)	10–31 (20)	4·8–15·5 (9·6)	3·2–28 (11·6)
Kapok (5 samples)	16–112 (68)	10–33 (19)	5·3–17·2 (9·8)	4–16 (8·8)
Wool flock (9 samples)	12–344 (84)	10–65 (32)	1·1–7·6 (4·9)	0·8–24 (7·2)
Wool (virgin) (1 sample)	1·6	26	8·2	2·4

NOTE.—Average figures shown in brackets.

Forty-two out of the 47 samples exceeded the prescribed limit of 30 parts per 100,000 for soluble chlorides.

One of the samples was definitely dirty and a number were of doubtful cleanliness. The majority, however, were clean and suitable for use as filling material.

The State Bedding and Upholstery Regulations of 1943 should be amended. The soluble chloride figure could with safety be increased provided satisfactory limits were fixed for turbidity, oxygen consumed, and ammonia.

Commerce and Agriculture.

A large volume of work—1,140 samples in all—was done for the Federal Department of Commerce and Agriculture.

Briefly it covered—

1. Examination of fruit juice, canned meat, sauce, honey, baked bean, and jam in connection with export standards.
2. Examination of foodstuffs, including emergency ration, tinned fish, dehydrated mutton, concentrated butter, liquid whole egg pulp, biscuit, ghee, and tinned vegetable in connection with army contracts.
3. Examination of foodstuffs of many kinds from various army depots in Brisbane in connection with the disposal of surplus service stock.

Forty-three inspections in all were made by an officer of the section to the following depots:—

	Times.
(*a*) Clapham Junction	14
(*b*) Perry Park	11
(*c*) New Farm	7
(*d*) Hamilton (K.2)	3
(*e*) Meeandah	3
(*f*) Toombul	2
(*g*) Cannon Hill	1
(*h*) Rocklea	1
(*i*) Hamilton (Waterside Workers' Canteen)	1
	43

Work for Other Departments.

Finally a further 262 samples, mostly foodstuffs, were examined for the Australian Navy, the Inspector of Supplies, Victoria Barracks, the public, and for other State Departments outside Health and Home Affairs.

SECTION 2.

Staff.—I. L. B. Henderson, B.Sc., A.A.C.I., Officer in Charge; M. J. Guyder, B.Sc., Analyst; and J. E. O'Hagan, B.Sc. (on leave).

Total number of specimens submitted for examination, 770.

Police Department.

Of the above total, the Police Department accounted for 269 specimens. One hundred and twenty-nine of these were connected with 29 post-mortem examinations. Strychnine was found in the visceral submissions concerned with six of these autopsies, arsenic in three and barbituric acid in one, whilst 19 proved negative.

It is interesting to note that the incidence of strychnine poisoning exceeded that of arsenic, a state of affairs which was general in the pre-war years. During the war years the number of strychnine cases was approximately equal to that of arsenic, strychnine being difficult to secure because of war-time shortage. It is used throughout the country for the poisoning of dingoes.

With regard to animal poisonings 7 cases were investigated involving 33 specimens. Arsenic was the only poison which played any part in the relevant deaths. One sample in a suspected horse doping case proved to be atropine sulphate in a petroleum jelly base.

The balance of the samples are classified as follows:—Drugs, 17; suspected abortion, 45 (all in connection with one case); alcoholic liquids, 10; dog baits, 4; foodstuffs, 13; miscellaneous, 15.

In connection with a case where in the possibility of death due to the self-administration of ethyl chloride had to be considered, the laboratory undertook an investigation to ascertain the minimum quantity of ethyl chloride which could be detected with certainty by the Radsky method and the persistency of ethyl chloride in the body after death. It was found that quantities of the order of 1/40,000th of a grain of ethyl chloride could be detected with certainty. In the persistency experiments, several guinea pigs were killed by the administration of ethyl chloride and an examination of the organs showed the presence of a volatile organic chloride in—

(1) The organs removed immediately after death and exposed to the air in an open vessel on the laboratory table for 24 hours;

(2) The organs removed 24 hours after death, the guinea-pig having been kept at room temperature for that time;

(3) The organs removed and placed in a refrigerator for seven days.

A control experiment carried out on the organs of a guinea-pig killed by other means gave no positive result immediately after death or within 24 hours of death.

It appears that ethyl chloride, which is, *per se*, a highly volatile organic chloride, persists in visceral matter for many days after death because of its lipophilic (fat loving) properties. This investigation was necessitated by the absence of any records in literature bearing on the problem.

Biochemistry.

The following table indicates the nature, significance, and number of specimens submitted by the Department of Health, hospitals, and medical practitioners.

Nature of Specimens and Significance.	Number of Specimens.
Blood and urine for alcohol, ether, or other drugs	129
Urine for lead	186
Urine, hair, and nails for arsenic	42
Ether and ethyl chloride for conformity to British Pharmacopoeia	41
Miscellaneous	104
Total	502

The miscellaneous group includes drugs and surgical sutures, foodstuffs suspected of being poisoned, body calculi, faeces, stomach washouts, and plant products.

The normal for lead in urine adopted by the laboratory is .07 milligram per litre.

Mushroom Poisoning.

Two instances of poisoning by the mushroom *Panaeolus ovatus*, involving in each case two persons, came to the notice of the laboratory. The symptoms were similar in each case—pupils widely dilated, mental confusion, and light hallucinations (coloured designs). One victim, in one instance, described the sensations as intensely pleasurable, the other victim of the same incidence was not so impressed. The symptoms commenced within a quarter of an hour after eating and the patients returned home about six hours after hospital treatment without any serious after consequences. The mushrooms in this case were gathered on Mount Tambourine. The second case occurred through the consumption of mushrooms gathered in Northern New South Wales by two motor tourists. Reference was made to poisoning by this mushroom in the 1943-44 annual report by the Government Analyst and Chief Inspector of Explosives. The several cases therein referred to occurred on the North Coast of Queensland.

Potency of Strychnine.

On several occasions the quality of strychnine distributed to station-owners has been questioned, but examination of several supposed ineffectual samples has disclosed no grounds for such complaints. The preparation of baits should be carried out with care to avoid direct contact with human hands. Some dingo poisoners claim a more rapid result with a mixture of strychnine and baking soda in place of straight strychnine. This might be explained by the rapid expulsion of the poison from the deep-seated pocket of the bait when the acid stomach juices come in contact with the baking soda. The generation of carbon dioxide gas within the pocket would cause this expulsion.

Section 3.

Mining, Mineralogy, Metallurgy, Industrial Hygiene, and Explosives.

Staff.—V. R. Cundith, B.Sc., A.A.C.I., Officer in Charge; D. Mathers, M.Sc., A.A.C.I., Analyst; H. Dunstan, B.Sc., A.A.C.I., Analyst; T. R. Lowth, B.Sc., A.A.C.I., Assistant to Analysts; J. C. Yule, Cadet; F. Esdale, Cadet.

Samples examined—2,463.

The table 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 ..	705
Portmaster (Explosives)	1,151
Commonwealth War Services	39
Justice	60
Other Departments	88
Industrial Hygiene	209
Public	211
	2,463

The total does not include work for the Forestry Department, the Main Roads Commission, and the Allied Works Council.

The major portion of this work, which was formerly done by this section, has been transferred elsewhere in the laboratory.

In reference to the Forestry Department, laboratory facilities continue to be made available to the Forestry Investigations Officer for analytical work associated with the treatment of timber and veneer against attack by borer (*Lyctus*).

A considerable amount of investigational work outside the laboratory in coalmines, industrial hygiene, and explosives has been executed.

Reference is made to these activities under their respective headings.

Mines Department and Geological Survey Office.

The advent of this fiscal year marked a change in the character of the work performed and the renewal of interest and activity in mining created by buoyant metal prices is reflected in the increase from 377 for 1945-46 to 705 in samples of ores for gold, copper, tin, lead, and zinc assay from the Mines Department and Geological Survey.

The examination of 119 samples for soluble alumina indicates the continued search for aluminium ore reserves.

Ilmenite concentrates from South Coast beach sands contained 1·9–4·3 chromic oxide (Cr_2O_3).

A specimen from Irvinebank of white fine-grained massive tin oxide with quartz possessing schistose structure assayed 62·5 per cent. tin.

Coal.

In regard to coal, a number of samples from the coalfields were examined for calorific value, approximate analyses, fusion point of ash, and washability tests.

The ash content of some Ipswich coal deliveries is excessive, and to encourage coal cleaning prices paid for coal should preferably be proportionate to quality.

Laboratory tests (washability) were made during the year on Ipswich and Rosewood coals. Whilst these give useful leads their significance is limited by the small sample being taken as fully representative of the seam.

A pilot washing plant set up on the field capable of handling tons would be the more rational approach to the problem of coal beneficiation.

At the request of the Mines Department, a systematic survey bearing on hazards associated with coalmining was completed. The survey included—

(1) Report on Roadway Dust
(2) Report on Ventilation Survey
(3) Report on Dust Exposure of Miners

} In Queensland Collieries

Mines Examined.

Ipswich District.	1. Caledonian No. 3 2. Rosewood No. 2 3. Rothwell Haigh 4. Aberdare Extended 5. Blackheath 6. Southern Cross 7. Rylance No. 3 (New Chum) 8. New Ebbw Vale No. 3 9. Rhondda 10. Bonnie Dundee
Howard District.	11. Burgowan No. 7 12. Victory 13. Jubilee
Dawson Valley	14. Baralaba
Bluff	15. Windsor
Ogmore ..	16. Styx State Coal Mine
Collinsville ..	17. Collinsville State Coal Mine
Scottville ..	18. Bowen Consolidated
Mt. Mulligan ..	19. State Coal Mine 20. King Cole

Extracts.

1. *Ventilation.*—The air conditions obtaining at working places in Southern Queensland collieries were found to be generally satisfactory although an all-round improvement in air movement is warranted.

November recordings at the Styx, Scottville, Collinsville, and Mount Mulligan Mines indicate that higher velocities (air movement) should obtain than those found in some working places.

At Mount Mulligan higher readings included—

	At face.	Shade readings at Pithead.
Wet bulb ..	83-84 deg. F.	72-73 deg. F.
Dry bulb ..	86-87 deg. F.	91-93 deg. F.

2. *Dust exposure of miners.*—

(1) Only a minor proportion of the hundreds of dust counts (obtained by Bausch and Lomb dust counter) showed concentrations in excess of accepted safe limits.

(2) The following have helped to create a heartening picture in respect of possibilities in conforming to limits:—

(*a*) Wet, damp seams, or sections;

(*b*) Where air velocities exceed 30 feet per minute;

(*c*) General appreciation of importance of watering by management and men.

(3) Elimination of roadway dust and dust prevention methods are complementary on the effect produced.

Dust precaution practice could be intensified. Field data, recommendations, and summaries were included in these reports.

An appreciation of the assistance of Messrs. Mathers, Dunstan, and Lowth in this work is recorded.

During May Professor David Jones, British authority on coal mining, inspected Aberdare No. 1, Rhondda, New Ebbw Vale No. 3, and Howard collieries.

Mr. Mathers accompanied the official party.

Examination of Mine Air.

A fire (unfortunately with loss of life) occurred at Aberdare Extended No. 1, Ipswich, on 28th September, 1946.

Subsequently, at the request of the Mines Department, several visits were made to the mine to check air conditions obtaining in working sections and return, as well as compositions obtaining behind the stoppings which had been erected to seal off the fire area.

Comparatively small quantities of carbon dioxide were used by the management in fighting the fire. In the early stages the analyses revealed defective stoppings against intake ventilation. Decreasing oxygen content indicated the successful issue to further work on the seals and subsequent absorption of the remaining oxygen by the coal.

Aberdare Extended No. 1, Ipswich.
Exhaust Pill Box.

—	Examined.				
	8-10-46	15-10-46	22-10-46	6-11-46	7-5-47
Carbon dioxide ..	9·0	9·0	9·0	10·0	9·8
Carbon monoxide ..	0·15	0·15	0·14	0·26	0·01
Methane	1·3	1·0	1·3	2·2	2·0
Oxygen	10·0	3·0	3·0	2·0	Nil

Industrial Hazards.

Some tankers and petrol wagons were examined to determine the presence of toxic, explosive, or inflammable vapour-air mixtures.

A point overlooked in the "gas freeing" of petrol wagons is the steaming of pipelines, pump, and filter.

A tank is rendered gas free, but the opening of the valves to untreated feed lines allows residual petrol or petrol vapour to flow into the bulk tank and form explosive mixtures with air.

Calibrating the tanks with water which has been pumped through unsteamed pipelines to a "gas freed" tank is also productive of trouble in the event of welding work being done.

Two officers of the laboratory—Messrs. Mathers and Guyder—have been associated with the Department's Industrial Hygiene Officer, Dr. D. Gordon.

As a result 209 specimens were examined to determine hazards (if any) associated with—

(1) The mixing of asphalt;

(2) Preparation of hypo-chlorite;

(3) Bread making;

(4) Lead smelting—battery assembly;

(5) Painting;

(6) Sulphuretted hydrogen in sewers;

(7) Ammonium sulphide in hair-waving salons;

(8) Grinding and polishing (silica);

(9) Working conditions at Railway Workshops, Ipswich.

These examinations not only involve the use of equipment on the job but considerable laboratory work as well.

During the month of June, Mr. Mathers visited the Industrial Health Section of the New South Wales Department of Health and

furnished a report on dust-counting methods, whilst Mr. Guyder spent about two weeks with Dr. Gordon investigating industrial conditions in the Rockhampton and Mount Morgan areas.

Visits to ships or examination of bulk chemicals to determine inherent risks in the handling thereof by waterside workers were made.

Reports are furnished to the Industrial Magistrate and to the Union concerned.

In regard to the importance of this work the co-operation of engineer, analyst, and medical officer is essential. The efficiency of remedial measures recommended by the medical officer and effected by the engineer in respect of ventilation is checked by the analyst.

Miscellaneous.

During the year a joint report by Messrs. Morley (State Mining Engineer) and Cundith covering their investigations into the Herbert River pollution was submitted to the Chairman, Herbert River Water Resources Investigation Committee.

An ozonator was submitted for test with a view to its use to combat deterioration in bananas and to be used in conjunction with the artificial ripening process with gas.

Although the ozonator failed to ignite an explosive mixture of gas and air, its use was not recommended as the ozonator has no beneficial effect on the fruit and the breakage or use of defective apparatus represents a serious risk if an explosive atmosphere were present.

Cotton waste impregnated with oil was found to be the cause of fire. Exposure of waste saturated with linseed oil initiated a fire on a launch on exposure to direct sunlight.

Sixty rubber discs to be used in a new Golden Casket machine were received for calibration from the Justice Department.

Explosives.

Samples examined—1,244.

INDUSTRIAL EXPLOSIVES IMPORTED INTO QUEENSLAND DURING THE YEAR ENDED 30TH JUNE, 1947.

—	Australian.	Overseas.
	Cases	Cases
Blasting Gelatine	402	..
Atlas Giant Gelatin 60%	..	4,003
A.N. Gelatine Dynamite "75"	401	..
60% Gelignite S.N.	2,850	..
A.N. Gelignite "60"	4,260	2,805
50% Gelignite S.N.	1,400	400
A.N. Gelignite "50"	6,021	1,114
Polar A.N. Gelignite "50"	..	1,086
Ajax	3,507	..
Polar Ajax	..	3,400
Quarry Monobel	2,446	..
Polar Quarry Monobel	67	..
Dynobel No. 2	1	..
40% Ligdyn S.N.	2,687	..
A.N. Ligdyn "40"	502	..
	24,544	12,808
	Cases	Feet
Blasting Powder	750	..
	Feet	
Safety Fuse	4,824,000	..
Plastix Cordtex	..	18,000
	Only	
No. 6 Detonators, Aluminium	1,750,000	..
E.D. Fuses No. 6 x 72"	125,000	..
E.D. Fuses No. 6 x 120"	12,000	..
E.D. Fuses No. 6 x 144"	18,000	..
E.D. Fuses No. 8 x 12" Submarine	5,900	..
Fuse Igniters	43,500	..

Condemned Explosives.

1¼" A.N. Gelignite "60" British Manufacture .. .. .. 7 cases

Licences in Force.

—	1945–46.	1946–47.
Bulk Magazine	8	6
Retail Magazine	409	463
Rackarock	2	1

Inspection of Explosives.—A shortage of explosive was experienced during the year because of a strike at Nobels explosive factory, at Deer Park, Melbourne.

At the request of the Commonwealth Disposals Commission inspections were made of surplus army stocks at Dinmore and Nundah. Some tropic packed gelignite was released to industry.

To relieve the shortage of explosives, supplies were sent by rail from Sydney, and American as well as British explosives were imported.

Examinations of Australian Ajax and gelignite were made at Clapham prior to dispatch to the coal mines at Ipswich.

British Explosive.—1,232 cases of 1¼ inch A.N. gelignite "60" were landed and magazined at Brookhill.

Examination of this explosive at Brookhill in November, 1946, and March, 1947, showed evidence of moisture absorption and sogginess in some of the cartridges. No free nitro-glycerine was present.

The paper wrappings were proofed with an oil-wax mixture which caused the cartons and cartridges to be firmly gummed together.

Mr. Cundith was present at the testing of this explosive at the Mount Isa Mines by Mr. F. Bennett, Nobels technical representative.

The tests were satisfactory and with the exception of seven broken cases in which the explosive was badly affected by exposure, the whole shipment was released to Mount Isa Mines Ltd., Mount Isa, where dry weather and excellent storage conditions prevail.

American Explosive.—6,500 cases of Atlas 1¼ inch Giant Gelatin 60 per cent. were landed at Pinkenba on 26th September, 1946. 4,003 cases were railed to Dakabin. 2,497 cases were railed overland to Broken Hill.

Inspections and sampling of this explosive were made at Pinkenba and Dakabin.

Reconditioned Explosive Australian Manufacture.—An examination of 203 cases of 1 inch S.N. gelignite 60 per cent. at Brookhill in November, 1946, showed its general condition to be subnormal, due to moisture absorption. Apparently the presence of a little ammonium nitrate in the sodium nitrate had accelerated this absorption. The explosive was inspected by Mr. Lewis, Nobels technical representative, then reconditioned by Mr. T. M. Barber (Elder, Smith and Co. Ltd.), agents for Nobels, in February and March, 1947. Examination of the reconditioned explosive by Mr. Cundith in March, 1947, showed it to be suitable for use.

Magazines for Explosives.—One bulk explosive magazine was examined at Palmwoods and two magazines for fireworks were examined at Brisbane, one of which was condemned.

Surplus Army Explosive.—During the year the Department of Munitions approved the release of surplus T.N.T., gun cotton, ammonal, and cordtex from military magazines free of charge.

In March, 1947, Mr. Cundith visited Melbourne to obtain first-hand information concerning the packing, storage and testing of this material.

Whilst there on behalf of the Co-ordinator-General of Public Works, Brisbane, inquiries were also made at munitions supply laboratories, Melbourne, into certain aspects bearing on the proposed use of the explosive in the preparation of earth water dams along stock routes.

Section 4.

Customs, Stores, and Roadway Materials.

Staff.—J. R. Adamson, A.A.C.I., Senior Analyst, Officer in Charge; H. B. Cribb, A.A.C.I., Analyst; J. Yule, Diploma Industrial Chemistry, Cadet.

The total number of samples examined was 2,251.

Of this total 1,880 were submitted by the Commonwealth Customs in connection with the determination of import and excise duty.

The remaining samples are accounted for as follows—

Main Roads	242
State Stores	51
Railways	20
Public	20
Commonwealth Services	38
Total	371

The Main Roads samples consist principally of bitumens, tars, and emulsions, whilst those from the State Stores include textiles, carbon papers, inks, and disinfectants.

Section 5.

Water.

Analyst in Charge, J. A. Forbes, A.A.C.I.

The work of this section was again heavy, the number of samples submitted approaching the record annual total of 1,407 for 1943.

The following table indicates the number of samples received:—

Department.	Number of Samples.
Health and Home Affairs	324
Irrigation and Water Supply	648
Local Government	127
Machinery	29
Other Departments (Commonwealth 3, State 7)	28
Public	168
Total	1,324

In every instance the above figures are an increase on the corresponding figures for last year.

The Department of Irrigation and Water Supply requires analyses in connection with artesian waters, including their fluorine content, and underground waters for irrigation purposes. The Department of Local Government is concerned wih suitable supplies of water for town services.

It would appear that the care exercised by the military authorities to ensure safe waters for the troops has awakened the country people to the importance which a good water plays in every-day life. The service to the public in this regard is carried out free of cost as it is considered to be an important aspect of the individual health of the community. This is the only all-round free of cost service accorded the public.

At the instance of the Engineer in Charge of the Department of Local Government and in collaboration with Mr. Engineer O'Brien of his staff, investigations and experiments for the improvement of artesian bore waters were carried out. Western bore waters usually contain a high proportion of sodium bicarbonate and sodium chloride (common salt), and whilst generally suitable for human consumption and stock watering are in many cases (except under certain sandy soil conditions) unsuitable for use on kitchen and flower gardens and fruit trees whose crops are considered necessary to the health of Western people.

By the use of sulphonated coal and synthetic resins considerable reduction in the mineral content of the waters was effected, including the lowering to an acceptable level of the fluorine in those waters which, because of their fluorine content, are regarded as unfit for human consumption. As a specific example the following figures were obtained with Longreach bore water:—

	Before treatment.	After treatment.
	Grains per gallon.	
Total solids	74.0	4.4
Sodium bicarbonate ..	56.5	3.0
Sodium chloride ..	14.5	0.8
	Parts per million.	
Fluorine	6	0.7

These results are regarded as satisfactory, and while the economics of the method have not been so far determined it is hoped that something will be done in the near future in this regard.

At present the laboratory recommends the addition of gypsum to the soil, which procedure is known to be of great value in counteracting the harmful effect of dissolved sodium bicarbonate. It is understood that requirements of gypsum for these and other purposes are imported from the South, but supplies are not always available. In parts of Western Queensland large deposits of kopai or gypsum exist and it should be possible to have the kopai crushed in these areas for agricultural use.

The Laboratory and the War.

At the outbreak of World War II. the facilities and services of the laboratory were placed at the disposal of the fighting and associated services. Until the entry of Japan into the conflict, the demands made upon the laboratory were limited, but as the Australian war effort developed the pressure of work became increasingly heavy. The laboratory not only continued to serve the fighting services but was called upon to meet heavy demands occasioned by the establishment of the Commonwealth Food Control as a division of the Commonwealth Department of Commerce and Agriculture, the Rocklea Munitions Factory, and subsequently the Salvage and Disposals Commission.

The centralised chemical service provided by the laboratory, which has no parallel elsewhere

in the Commonwealth, was capable of a co-ordinated effort towards solving the many and varied problems presented and the experience gained by the professional staff in this regard was of great value. A cordial relation was established between representatives of the various organisations concerned and officers of the laboratory as a result of the many problems which required investigation.

An important impress was given to the laboratory when it was recognised by the Commonwealth Munitions Supply Laboratory as an approved test house for general and metallurgical analyses. This made possible the submission of samples by such establishments as the Aeronautical Inspection Directorate and the Munitions Department in place of sending these to Melbourne.

Many and varied problems concerning the storage and transport of explosives were referred to the Government Analyst, who is also the Chief Inspector of Explosives. A State Operational Safety Committee consisting of the Government Analyst and Chief Inspector of Explosives and the Deputy Government Analyst was set up by the Commonwealth Ministry of Munitions to report on hazards and accidents associated wth the manufacture of munitions in this State.

Very early after the entry of Japan, the Third Chemical Company of the U.S.A. Army was accommodated in the laboratory. Subsequently the company established its own quarters.

The following table details the total number of samples examined to 30th June, 1947:—

U.S.A. Services	2,662
Other Allied Services	79
Commonwealth Department of Commerce and Agriculture	7,395
Other Commonwealth War Services and Organisations	5,844
Total	15,980

Samples submitted by the U.S.A. services included battery acids and waters, foodstuffs, lubricating oils, paints, fabrics, drugs, alcoholic and embalming fluids, rifle barrels, and engine and tank deposits. Problems associated with corrosion and rotproofing were investigated and frequent inspections of submarine and ships' oil and fuel storage tanks undertaken to determine the presence of explosive atmospheres therein.

Service foodstuffs accounted for the greater part of the samples from the Commonwealth Food Control, and with the subsequent establishment of Disposals a considerable number of samples were examined in connection with the quality of the large accumulations of foodstuffs in various service stores. A very interesting part of this work was associated with the processing of a new product by the Queensland Butter Board. This was known under the name of Tropical Spread, essentially a hardened butterfat for use under tropical conditions. Subsequently an improved product under the name of Butter Concentrate replaced Tropical Spread. The presence of air and copper play an important part in the spoilage of these preparations and considerable assistance was given to the Queensland Butter Board in their control.

A large volume of work in connection with air-raid precautions was performed by the laboratory, including the preparation of thermite bombs, Molotov cocktails, and phosphorus incendiaries for use in the training of A.R.P. personnel.

Included under Commonwealth War Services was a wide range of samples for the Inspector of Supplies, mostly regarding quality and conformity with specification. A satisfactory mirror polish for searchlight reflectors was prepared in the laboratory. Investigations relating to the corrosion and fatigue of metals and industrial hazards in war industries were undertaken, in addition to which many hundreds of samples of ferrous and non-ferrous alloys, propellor metals, corrosion inhibitors, platings, hydraulic fluids, and cleaning preparations were analysed.

General.—On Thursday, 19th June, the laboratory was open during the evening to members of the Queensland Branch of the Australian Chemical Institute and their friends. Every officer of the laboratory volunteered his assistance and the visitors in five parties inspected, in rotation, the work of the various sections. The members of the staff of the Department of Health and Home Affairs were invited during the afternoon and the laboratory staff was grateful to have the Honourable A. Jones, M.L.A., Minister for Health and Home Affairs; Mr. J. A. Turner, M.L.A., Member for Kelvin Grove; and Mr. R. H. Robinson, Under Secretary, Department of Health and Home Affairs, make a tour of inspection which occupied one and a-half hours.

I desire to record my appreciation of the ready co-operation and assistance of all members of the staff in the work of the laboratory.

SECTION OF INDUSTRIAL HYGIENE.

DOUGLAS GORDON, M.B., B.S. (Qld.), Medical Officer in Industrial Hygiene.

DUSTY TRADES.

Foundry Survey.—As time has permitted, this section has worked steadily through foundries in the State on a routine survey of silicosis hazards in that type of work. The work can be done only when more urgent matters permit; in consequence time must elapse before the survey is completed. At all events, the majority of the 170 men clinically and radiologically examined for signs of pneumoconiosis came from foundries, and 16 out of the 32 firms investigated for dust were engaged in making castings. Results will be submitted when the survey is finished.

The rest of the work was varied and interesting; it included such diverse trades as electroplating, bakeries, mines, fertiliser works, sawmills, and peanut silos. An intermittent silica hazard was observed in a sawmill. Owing to some structural defects, the sawdust containing free silica from the sanding plant was being emptied from a chute into the room in which firemen worked stoking fires. At the same mill rotting sawdust in a basement was producing hydrogen sulphide in appreciable but not hazardous quantities. At an electroplating works articles prior to plating were being buffed with "Tripoli." It was found that dust in the air breathed by the operators contained 43 per cent. of free silica under 10 microns in particle size, and that at the same time the Owen's sampler gave a count on an average of 277 particles per c.c. of air (80 per cent. of the particles were under 2μ in size and almost a 100 per cent. under 5μ). Dust in a bitumen plant was a hazard to certain men working there, as well as being a nuisance to surrounding householders. In most of the places examined for dust the Owen's or Bausch and Lomb dust samplers were used to obtain a count of the particles of dust in the air, and at the same time the Greenburg-Smith impinger was employed to collect sufficient dust from the atmosphere for chemical analysis. An endeavour was then made to correlate these findings with the medical history and present physical condition of the men working for the firm being investigated.

Metal Mining.—Mining has always presented certain dust problems, but in Queensland we are lucky in this regard, for, with the exception of one district, our problems are light. The old metal miner, who worked in mines long since closed, still provides odd cases for compensation, but, generally speaking, the glories of most metal fields have departed, and in mines of this class that are still operating, an alert Mining Inspectorate enforces measures which the engineering profession have found to be effective for dust suppression. Wet drilling, improved ventilation, and the use of sprays where dusty material is handled have completely altered the picture. Should metal mining happily undergo a revival, there is no reason to suppose that the present reasonably safe conditions should not continue.

Coal Mining.—For the most part, nature favours us on the coalfields as far as dust is concerned. Compared to Wales and the South Coast of New South Wales, we do not really know what a dust problem is. In one small field, however, employing some 245 men below ground, effects of this scourge of the industry have been felt. Figures extracted from the Miner's Pension Tribunal records over a period from January, 1942, to May, 1947, show 36 cases from this one district and the same number exactly from all the other fields in Queensland put together—*i.e.*, from approximately 2,000 other workers below ground. Prior to the period considered, the field that now has a heavy incidence had been rather free from pneumoconiosis, whereas various other districts had supplied odd cases fairly regularly but at a low rate. Naturally the psychological effect on the men in this field has been bad. From compensation records alone, it is extremely difficult to say whether, on medically scientific criteria, a given case really suffered from a pneumoconiosis or not. In Queensland we are liberal in awarding compensation in cases of doubt, and I would not say that in other parts of the world every one of these men would be considered as suffering from a pulmonary dust disease, but the majority of them, however, would have shown reasonable signs indicative of that condition. Also, in a small field where dust consciousness appeared for the first time during the period surveyed, the initial rush to diagnostic facilities would tend to give a somewhat falsely high rate of incidence, which we can expect will not be sustained. However, the fact remains that this area is definitely a problem field whose occurrence of pneumoconiosis is much higher than that in the rest of the State, though probably the present ratio (8 to 1) will be later somewhat reduced. It is hoped that in the coming year problems associated with this field will be more fully investigated.

The very helpful visit of Prof. T. David Jones publicised the fact that in recent years coalmining engineers have solved the dust problem in their mines. It is not now so much a matter of how to suppress dust as to convince all in the industry that it can be done and that it is worth doing. A medical graduate must needs leave to his mining betters discussion of the economical effects of the application in Queensland coal mines of the more costly methods of dust suppression such as mechanisation with wet cutting, water infusion, &c. And I also understand that the technical difficulties in using such procedures in our seams are many and various, and it is obvious that such discussions will go on for a long time. But it is also obvious that several simple measures, which used even alone would go a long way towards reducing dust to safe concentrations, are often neglected by all sections of the industry. That habit which Prof. Jones colourfully termed "greybounding"—*i.e.*, rushing back to the face before dust from shot-firing has died away—could well become part of the cherished but no longer practised traditions of the industry; and in fact, where practical, firing would be best left to the end of the shift. These ideas are nothing new. The Mining Inspectorate has been preaching these principles for a long time. When the

handling of coal raises dust, there are obviously indications for use of the fine hand water spray before the coal is disturbed. Such methods entail very little capital outlay (the main obstacle these days is probably shortage of supply of water piping, and even this difficulty is not insurmountable), but take constant diligence and a certain amount of time, and are in consequence not popular.

Dust "Neurosis."—The mental outlook of men in the dusty trades is seldom or ever mentioned, but dust neurosis becomes a very real entity to any medical man who passes a good deal of his time in these industries. Dust, no matter what its nature, may be and, no matter how small its concentration, is invariably associated with those dread words "miner's phthisis" and apparently conjures up pictures of the emaciated metal miner sitting spitting and coughing his life away. A medical attendant may tell his patient that the sawdust at work is aggravating his sinusitis or the flour is causing his bronchitis, and the diagnosis is accepted cheerfully and without any great mental upset; but if, to explain in simple language the same lesions, the doctor uses the words "you are slightly dusted," then the mental anxiety which may arise in the patient and in some of his fellow-workers doing the same job is often very great and the industrial repercussions rather startling. I know of few things so productive of sullen resentment and industrial unrest as the man who is spiked on the horns of mental dilemma—on the one hand, that conditions at work, brought about by "the boss," will eventually cause his death in a particularly nasty manner and, on the other, that it is the only trade that he knows and at which he can earn more than the basic wage. At a rough estimate, in this State for every half-dozen men whose mental processes now run in the above fashion only one is in any great danger of developing a pneumoconiosis. In certain individuals, however, the constant anxiety and expectation cause more suffering than the actual disease, and the continual gnawing grudge is very bad for industrial contentment. The only thing that will help in such circumstances is factual and scientific evaluation of the conditions of work, with the results available to all parties. Where hazards or grave nuisances exist, their abolition, if at all possible, should be forced, and compulsion should apply to the employee as well as the employer, for, in some cases, the former is as much at fault as the latter. If conditions are in no ways dangerous to health, then reassurance should be given; and provided that the men have observed that the investigation has been thorough and provided that they have no evidence to suggest that the investigators are prejudiced, then it is my experience that such reassurance is very fruitful. In this regard, the idea gaining a little ground in this State that pneumoconiosis can be freely diagnosed without definite radiological evidence is to be deprecated. It may be a brave adventure into the unorthodox, but it will also produce a whirlwind of functional disease and needless invalidism. A physician taking an over-pessimistic view of alleged cardiac symptoms may cause his patient to develop a cardiac neurosis; his counterpart dealing with industrial disease may do even worse, for not only the patient may become neurotic, but some of his fellow-workers on the same job.

Furnace Repairs.—Recently at least three cases of silicosis have occurred in bricklayers or furnacemen who have spent an appreciable part of their working life knocking out highly siliceous bricks in the relatively confined space of ovens, furnaces, and convertors. One bad case with complete disability had spent one and a-half to two hours almost every week-end for fifteen years repairing furnaces in the blacksmith shop of an engineering firm. During the week he was not exposed to dust.

Abrasive Cleaners and Abrasive Soaps.—An interesting case which well illustrated the benefits of interstate co-operation was that of a man aged thirty-three who claimed that exposure to chlorine in the making of a sodium hypochlorite cleansing solution had caused his breathlessness on exertion. Apart from dyspnoea increasing over some eight years, he also suffered from a peculiar Raynaud-like syndrome of his hands and feet. This latter (as far as I know) has never been satisfactorily explained. However, though the process on which he was engaged in Brisbane was tested on several occasions, the staff of the Government Chemical Laboratory were never able to obtain anything but negligible quantities of chlorine in its vicinity. At no time had the patient shown any signs of chronic exposure to chlorine—such as blepharitis, chloracne, &c. He did, however, give a history of some short acute exposures to chlorine when pipes in the plant broke from time to time. His X-ray, however, was hardly consistent with such brief exposures, for it showed definite fine and nodular fibrosis suggestive of silicosis. It was known that the patient had first developed his symptoms while working in Sydney and that his firm there made an abrasive soap as well as a hypochlorite solution. The patient, however, though repeatedly questioned about exposure to silica dust in the former process, always emphatically denied that he had worked near it. He was himself convinced that chlorine had caused his condition and seemed to have forgotten any other work that he had done. In view of these denials, other medical conditions were considered—Boeck's sarcoid, pulmonary arteritis associated with Raynaud's disease, &c. However, the more the X-ray and the history were considered, the more it seemed that some investigation in Sydney was indicated. Dr. G. C. Smith, Director, Division of Industrial Hygiene, New South Wales, kindly carried this out. His report stated that the patient had been exposed to chlorine gas at various times over thirteen years, in an old-type plant; intermittently one month per year for thirteen years to fine ground quartz in the manufacture of a sand soap, and for four to five years was exposed under reputedly very dusty conditions to gross amounts of free silica in the manufacture of a dry abrasive cleaner. One other employee from the same firm had been diagnosed as "pulmonary fibrous." A diagnosis of silicosis does not in any way completely explain the patient's clinical condition, but it is, in view of the industrial history and the radiological findings, strongly suggested.

The patient complained mainly of effects from the Raynaud-like syndrome, and, to give him symptomatic relief, bilateral dorsal sympathectomy was performed—first on one side and then, later, on the other—by Professor Sutton. Relief at first was good, but when last seen the patient stated that his condition was the same as before,

except that absence of excessive sweating was a much appreciated improvement. He is, however, now relinquishing compensation and is making a trial of light work in a dust-free job provided by his old firm. This description of the case is used through the courtesy of Dr. Ellis Murphy, who has treated the patient right throughout at the Brisbane General Hospital.

EXAMINATIONS FOR LEAD POISONING.

Trade.	Total Number of Individuals Examined.	Signs of normal or only slightly raised lead absorption.	Signs suggesting absorption of lead in dangerous amounts but without symptoms.	Signs suggesting absorption of lead in dangerous amounts plus symptoms compatible with lead poisoning.	Patients with chronic sequelae of lead poisoning.
Accumulator Manufacture	82	61	17	4	..
Lead Reclaiming	39	25	13	1	..
Accumulator Agencies	5	5	..	..	..
Lead Moulding as a hobby	1	1	..	..	..
Petrol Distribution	1	1	..	..	..
Wooden Boat Building	1	1	..	..	..
Motor Trade (Panel Beating)	8	6	..	1	1 (?)
Engineering (Occasional use of lead spray painting)	4	4	..	..	..
Ship Building	7	7	..	..	..
Painter	2	1	..	..	1
Printing (Lead Reclaiming)	1	..	..	1	..
Copper Welders	7	7	..	..	..
Adventitious	2	2	..	..	..
Brass Furnace man	1	1	..	..	..
Totals	161	122	30	7	2

Note: All the above have been examined at least once and many who are included in the routine examinations of the first two trades listed have been checked up to a dozen times each.

LEAD HAZARDS.

(i.) *Accumulator Manufacture and Lead Reclaiming.*—These two trades are linked together by that highly toxic agent, the lead battery plate, which, both in its manufacture and its destruction, has in all parts of the world probably proved the greatest industrial lead hazard in modern times and incidentally the most difficult lead hazard to completely remove by measures of prevention. During the year a survey was made of approximately 90 per cent. of these trades in this State, and a full report, with recommendations, submitted. When it is considered that here only one small firm employing two lads now undertakes the very hazardous operation of "pasting" and yet for the industry as a whole the incidence of plumbism is high—an incidence which hitherto has been masked from publicity by reason of the small numbers employed in these trades, the present state of affairs leaves much to be desired. On the other hand, an impression was gained that "group burning," "separating" and "trimming" are more dusty and therefore more dangerous to the trade here, because the single plates already pasted are brought from New South Wales and have ample time to dry out thoroughly before they are handled here. It was also noticed that when the wooden packing cases containing battery plates were being opened and the plates removed, much fine dust arises, and though the time for this operation is short, the concentration of lead dust in the atmosphere is high. (Lead oxides present measured as metallic lead =4.1 mgm. per cubic metre of air.) Since this operation takes only a short time, it could be overcome without much discomfort by wearing an efficient mask. Unfortunately the two firms which have supplied masks for this purpose are unable to persuade their men to wear them.

The three largest battery manufacturers have also recently installed mechanical exhaust systems. This is a step in the right direction. However, the determination with which some few employers resist all efforts to effect improvement is only equalled by the lengths to which some employees will go to render void procedures introduced to lessen the danger to their own health. There are faults on both sides. The greatest need is to convince all sections of the trade that the one single measure that will effect the greatest improvement in reducing the lead hazard is constant care in effecting not only personal cleanliness but cleanliness and good housekeeping in the battery factory. Human nature is ever wont to pin its faith to complicated pieces of mechanical apparatus costing much money or bottles of medicine to which are attributed prophylactic virtues to which no drug in the pharmacopoeia has ever attained, and in the meanwhile the frequent daily routine with the hose or other damp cleaning methods is scorned. The housewife frequently wipes down the kitchen work bench with a damp cloth and takes fine care that junk, dust and debris do not accumulate under the kitchen table. Until the battery worker is prepared to take a leaf from his wife's book, we will get nowhere.

With the co-operation of the Director of the Laboratory of Pathology and Microbiology, this section has instituted regular examinations—at least monthly—of men making accumulators and engaged in handling old battery plates. The full benefits from such routine procedures are not being obtained, because if the employer cannot be persuaded to remedy the hazard there is nothing that can be done for a man gradually showing increasing signs of lead poisoning—but without disability—than to advise him to leave his job. This is not a very practical solution and is a most unjust one. To an employee who has spent some years in a battery factory, time often brings some little skill, some responsibility, and some extra pay. He does not, therefore, think it fair that he should sacrifice these advantages to throw himself once again on the general labour market because conditions at his work are proving detrimental to his health. Since he has little hope that conditions will alter, he demands a "bottle of medicine." I have

little faith in drugs while the man remains exposed to dangerous concentrations of lead dust. The only logical solution is in removing the hazard as far as possible.

The compensation rate in the past of workers in these trades has been high; only the smallness of the industry has prevented these facts from becoming more generally known. Another factor which has masked the true position is the large labour turnover that many firms experience, so that often a man leaves the occupation before he has had time to develop symptoms. Considering the hazardous nature of the calling, far too many adolescents are working in it, and legislation should be introduced to bring us into line with other places in regards to youth and the lead trades. The number who have received compensation are not the sole record left by lead's hand on the pages of the State's health ledger. There is a large group—thirty in number in Table 2—whose signs suggest absorption of lead in dangerous quantities. We cannot be dogmatic as to what chronic sequelae may result if this is continued over many years, but in the light of past experience we have good grounds for suspecting much shortening of life's span due to renal and vascular involvement masking itself in the guise of ordinary non-industrial arterio-sclerotic degeneration.

The examination of lads seeking employment in these lead trades seems to reveal an unduly high number who give a history of long periods of hospitalisation for "kidney trouble" and/or have signs indicative of renal and vascular disease. These are persuaded to seek employment elsewhere. The numbers examined are too small for any conclusions to be drawn from them (six out of approximately 20 entrants). This incidence may be entirely fortuitous or it may be that some other selective factor is at work. The chronic nephritic may be constitutionally handicapped in life, and in these days of fairly plentiful employment jobs in these lead industries are not regarded as prizes and so receive more than their fair share of applicants from the less efficient labour market.

Figures supplied by the Government Statistician relating to deaths from nephritis are interesting in this regard. Prior to 1931, deaths from chronic nephritis were not listed separately from deaths from "chronic and unspecified nephritis." However, a perusal of the data from 1931 onwards reveals that the number of deaths from "unspecified nephritis" alone is very small compared with the number of deaths from chronic nephritis alone, so that the combination of the two causes will still serve to illustrate the general trend.

DEATHS FROM "CHRONIC AND UNSPECIFIED NEPHRITIS" IN QUEENSLAND.

(Average yearly death rates per 100,000 of population in the age groups considered).

Years.	10–39 Years.		40 Years and over.	
	Males.	Females.	Males.	Females*
1925 to 1930 inclusive	31·5	40·1	129·6	105·8
1940 to 1945 inclusive	23·8	30·3	125·8	102·6

The Government Statistician is of the opinion that the average decrease in the 10–40 age groups can be regarded as statistically significant, while the smaller decrease in the over 40 groups at least tends to suggest that no factor such as improved treatment is operating, tending to transfer the time of death from under 40 to over 40, even though it may be hard to accurately assess the statistical significance of this decrease in the older age groups. This trend confirms clinical impressions gained by the State's medical profession over recent years. To ascribe the improvement, however, wholly to the State legislation in regard to the use of lead paint would be wishful thinking. Dr. L. J. Jarvis Nye has adequately covered the other important factors operating in his book, "Chronic Nephritis and Lead Poisoning."

(ii.) *Panel Beating.*—Compensation was paid for lead poisoning to a panel beater employed in a large motor-body building works. In this trade, dints and depressions in body work are efficiently filled up by melting into them large quantities of solder and then the latter is ground smooth by the application of a rapidly rotating grinding buff. It is this latter operation which creates the main hazard. In both New South Wales and South Australia, at least, hand filing is now used in its place, and in New South Wales, at any rate, the change has been made for health reasons. Seven other panel beaters working with the same firm were also examined. All showed indications of increased lead absorption, but not to dangerous limits. One man suffered from chronic nephritis, but in his case the history of industrial exposure to lead was so vague that it was difficult to state whether his condition had in any way been influenced by lead.

ARSENIC.

During the period under review, three patients suffering from arsenical poisoning were encountered. One, who has used an arsenical weed spray in large quantities carelessly and often, was a weed sprayer on a banana farm, and in the days of prickly-pear eradication such a hazard was so well known as to need no further mention. The other two cases were of some interest if only to stress the factors which may lead to industrial poisoning in firms whose records in the past in this regard may have been quite blameless. The management of the business in question—a hide and skin store—usually hand paints its skins with an arsenical solution for purposes of preservation. This was done with various simple and effective precautions to avoid skin contact. However, over and above their ordinary run of business, a contract was taken to handle a large consignment of hides for the Commonwealth controlling body. The weather was hot, and to ensure preservation they were instructed to spray the hides.

This was duly done, indoors, and to tide them over this rush period an employee who normally was their clerk and a casual hand were put on. These were the two men affected. Thus were introduced several elements contributing to industrial poisoning:—

(i.) A new process, the hazards of which were not realised.

(ii.) New workmen unfamiliar with the hazards of arsenic in any form and in whom no tolerance whatsoever had developed.

(iii.) An extremely busy period of rush work with a store full of goods.

For their medical adviser, who made a very shrewd diagnosis the difficulty of picking the cause of their symptoms was increased, because by the time the patients came to him they had forgotten all about their unusual exposure to arsenic and gave their occupations as labourer and clerk, respectively.

"White Spirit."

Owing to a variety of reasons, mainly very definite complaints from officials of the Union concerned, an investigation was made of the behaviour of what was popularly termed "White Spirit," but which technically was a petroleum distillate with a boiling point ranging from 40 degrees to 150 degrees C. It should therefore be regarded as a type of "petrol" termed Industrial Spirit. Occasionally this had been used as a thinner for interior paints where a very "flat" quick-drying surface was desired, though the trade as a whole do not regard the substance as necessary or its use a particularly good painting practice. We were interested to discover what concentrations of the substance might build up in the air of a confined space under summer conditions in Queensland, for it is obviously readily volatile at room temperatures. Readings taken on a fairly typical unpleasant summer's day in February in the vicinity of two painters working in a small cell at the Police Courts gave readings of concentrations of "petrol" vapour all less than 0.01 per cent. This was regarded as fairly typical of the more confined class of interior painting during a Queensland summer. The dry bulb was 83 degrees F. and the normal effective temperature 79 degrees F. Conditions were uncomfortable, but no dangerous concentrations of Industrial Spirit were obtained.

Professor Lee of the Physiology School then allowed us to use the Hot Room and the Works Department placed at our disposal a professional painter. Numerous sheets of ply were painted in a completely confined though fairly large room, in which the same air was continually circulated. The dry bulb temperature was maintained at 102 degrees F. and the normal effective temperature was 90.5 degrees F. Conditions were most unpleasant and in practice would not be tolerated without frequent rest periods. After approximately an hour's painting—by which time the odours and fumes rendered the job too uncomfortable to continue—readings in the vicinity of the painter gave concentrations of "petrol" vapour of 0.12 to 0.15 per cent. The maximum permissible concentration of this "gasolene-petrol" group is usually given at 1 part in 1,000 parts of air or 0.1 per cent. Before any marked symptoms would occur, concentrations in the order of 0.3 per cent. to 0.5 per cent. would be required, whereas a perceptible odour is noticed at concentrations of 0.03 per cent. From our experience, we concluded—taking into consideration the rarity of the substances used in paint and the exceptionally high temperature of our experiment—that in extremely rare circumstances in Queensland concentrations of "petrol" vapour while *painting* might rise above maximum permissible limits, but that these concentrations would never be exceptionally and dangerously high. However, it also seemed probable that in places where this might occur the heat and the fumes would be such that no painter could stay very long in the atmosphere.

Other Chemical Hazards.

The following matters were investigated, usually with the help of officers of the Government Chemical Laboratory:—

Alleged hazards arising from:—H_2S in hairdressing salons and in sewers, aniline dyes in the photographic trade, SO_2 in a tannery, DDT in connection with men using it constantly, chromium in electroplating, butyl acetate in lacquer spraying, fumes in confined spaces from bitumastic paints, lead in spray painting, arsenic, lead and nitrous fumes in copper welding, nicotine sulphate in a rebottling process, chlorine and sodium meta-silicate in the manufacture of various cleansing agents, zanthates and corrosive alkalis in wharf work, leather causing dermatitis, and alkaline residues irritating the skin in dismantling old plumbing fixtures.

From time to time the State Government Insurance Commissioner has honoured this Section by asking it to examine various patients and their conditions of work in order to determine whether the hazards of their occupation have been consistent with the diseases attributed to their work. Such cases include further investigation of alleged Q fever, typhus and plumbism. In most of these patients the claim for compensation, in my opinion, was justified by the conditions of work and confirmed by laboratory procedures. The occurrence of sudden, complete unilateral blindness in a man who had used carbon tetrachloride for a short period could not, in my opinion, be attributed to his work, because the industrial history and clinical signs and symptoms were contrary to the usual sequelae arising from poisoning with this toxin, and the patient's medical adviser had stated that he was already suffering from cardiac valvular lesions. Similarly, an aboriginal slaughterman suffering from tuberculosis, who claimed that he had contracted his disease from the animals slaughtered, was eventually proved —thanks to the painstaking work of the Laboratory, taking in all seven months—to be infected with the human and not the bovine type of Myobacterium tuberculosis.

Sewer Workers.

A complaint was made that work on the Brisbane City Council sewerage system was conducive to chronic ill-health. This system handles all of the city's liquid and semi-liquid wastes, except water from the street surfaces which is removed in a system of stormwater drains. The maintenance gangs supervising the cleaning of these sewers were found to consist in all of some 50 men. Their average age was 53 and clinically they were particularly hale and hearty, even if somewhat elderly. An effort was made to compare absenteeism in this group with the absenteeism in a similar number of manual workers of a similar age group who had been working for the Council for a similar period of years. The figures, for what they are worth —for such comparisons are notoriously full of pitfalls—gave 5.05 per cent. absenteeism among the men from the maintenance gangs and 6.38 per cent. from the control groups. The incidence of hyperkeratoses and skin neoplasms were investigated without finding anything of importance; the rate at first seemed high, and such leads as oil in the sewers and alleged arsenic from tannery effluents were followed up without any reasonable connection being found. A radiotherapeutist who was consulted pointed

out that in this climate it would be more the exception than the rule to discover an elderly, manual, outdoor worker without some evidence of hyperkeratoses. Members of the only gang who, since the subsidence, actually enter a main sewer, occasionally suffer pharyngeal and conjunctival irritation from the presence of H_2S. The only other chronic lesion of any significance was some minor dermatitis due, in my opinion, to the use of a highly alkaline liquid cleansing soap. Some men had already realised this and avoided the use of this soap.

However, the most alarming matter unearthed was the risk of accidental death from asphyxiation and explosion. As far as very indifferent records would allow, it was found that over a period of 20 years, from this small group of maintenance men three had been killed by explosion and two by asphyxiation. A history was given of several "near misses" as well. The chief gaseous hazards are at present H_2S and various "petrol" vapours. We found combustible gases in explosive concentrations when manholes were opened on the main sewers. The chief reasons commonly alleged for the presence of the large quantities of petroleum distillate now in the sewers are the sewer subsidence at Pinkenba and the situation of bulk storage tanks at Newstead close to the main sewerage system. As far as could be ascertained, the main safety precaution at present observed is to note the presence or absence of cockroaches when a sewer manhole was opened.

A survey was also made of the sewer construction gangs. Their perils, common to all shallow mining, includes in addition the danger of explosion of petrol leaking into the drives from nearby garage bowsers. However, the Mines Inspectorate keeps a close check on all their activities and maintains the usual safety regulations applicable to mines. The Brisbane geological formations are such that the risk of silicosis is very small, and absenteeism rates among this group compares well with that of a group of controls.

Accidents.

The most fruitful field of activity for the practice of preventative medicine in industry lies in accident reduction. It is also, however, probably the hardest. For the year ended 30th June, 1945, compensation payments awarded to workers were very close to £600,000. Premiums for the same period amounted to £843,661. As against this, English and American firms that have gone in for accident prevention in an efficient manner claim 30 per cent. to 50 per cent. reduction in their compensation payments. If industry—and by this I mean both employer and employee— is not interested in the humane aspects of accident prevention, they could perhaps with profit pay attention to the economics of the subject. It is not a matter of whether industry can afford accident prevention, but whether it can afford to do without it, the more especially since it has been computed that the indirect cost of an accident to the employer actually equals the direct cost of money paid in compensation, and most employees suffer financially as well as physically from accidents.

An industrial accident usually results from the component in degrees which vary from case to case of an unsafe place or practice and an unsafe act. In other words, there is the material factor and the personal factor. It has been found that if the former is corrected efficiently the accident payments are reduced by approximately 10 per cent. only, but if, as well as this, an efficient campaign is inaugurated to win the co-operation of both employer and employees——especially the latter—then a reduction of a further 20 to 40 per cent. will be effected. In other words, stress is laid on co-operation of all sections of industry in the one anti-accident campaign. This aspect of the matter has already received attention from the Chief Inspector of Machinery and Scaffolding in his report for the year ending 30th June, 1946. His officers are continually endeavouring to make the places of work safe, but they are as voices crying in the wilderness unless industry as a whole co-operates with them. In one large engineering works visited I took out some figures for the last year for injuries to eyes due to particles of matter entering them. 2,654 men had reported to the first aid station to have a foreign body removed from an eye, and of these, 167 had required further attention from a medical practitioner. One lad was completely blinded in one eye. As against this it is commonly stated overseas that 80 to 90 per cent. of such eye accidents are readily preventible.

While a medical man is in a position to assess the results of any anti-accident campaign, the actual work of prevention is more the province of the safety engineer, the publicity officer, and the educationalist. Help from members of such professions in an organised manner would do much to relieve the present heavy burden resting on the Inspector of Machinery and Scaffolding. Such a campaign would bear most fruit if commenced first of all in a few of the larger firms and then gradually extended. Primary industry is, however, obviously a more difficult field to till than secondary industry, though in America some rural States are already tackling that particular problem.

Work and Climate.

A subject in which this writer is particularly interested is the physiology of work in tropical and sub-tropical climates. Pioneer research in such matters has already been done at the Physiology School here under the guidance of Professor Lee; as a result, our school and its head have gained much credit and renown in many parts of the world. Up to the present a good deal of data has been amassed from laboratory experiments on human and animal subjects in "hot" rooms; and as well as this some knowledge has been gained of the physiological reactions of white troops in the South-west Pacific and South-east Asia Commands during the recent war. To a part of this work staff and graduates of our own Medical School made important contributions. However—as others have already pointed out—we as yet know very little of the physiology of white men doing their ordinary work in their normal place of living in the tropics.

The problem is of peculiar interest to Queenslanders and is a problem by no means academic. It concerns every citizen of this State. Queensland is the only place in the world where large numbers of white men continually perform hard manual labour without any coloured help whatsoever in a tropical climate; and there must be

very few other places in the tropical world where the womenfolk do all their household chores unaided by native servants and under conditions which are often primitive. What facts that we have obtained from experiments suggest that we need not worry unduly about the efficiency of the human machine in the tropics, but we just do not know for certain. As against this, we do know that in other places where the summer temperatures are not nearly as high as ours industrial output falls appreciably during summer months. An official of a very large firm in a hot part of Queensland recently told me that during hot weather their production graph fell alarmingly, so much so that he personally thought that the expenditure of a very large sum of money on air conditioning would be more than justified by increased summer production. We have reason, however, to believe that the acclimatisation of our population more than offsets our uncomfortable summer conditions, so that our summer inefficiency is no worse than the summer inefficiency in more temperate climates. But these are obviously subjects about which we should have definite facts before industrial undertakings will be inclined to settle here and enter into economic competition with industry in southern States.

This Section from time to time has made measurements of atmospheric and lighting conditions in industry. As time will permit, we are in a small way endeavouring to determine, by taking comfort votes, an equable range in terms of effective temperature for Queenslanders acclimatised to various parts of the State doing various types of work. Such data, when obtained, would be most useful for arriving at industrial standards of atmospheric conditions and would serve as a guide for air-conditioning practice in this State. It might also serve some purpose as a rough guide for more erudite research students bent on solving the mental and physical mechanisms of acclimatisation, about which very little is known. The magnitude of this investigation is such, however, that I feel our efforts as yet are but scratching the surface of deep untilled soil.

SCHOOL HEALTH SERVICES.

(Leslie St. Vincent Welch, M.R.C.S. (Eng.), L.R.C.P. (Lond.), Chief Medical Officer —retired 9th June, 1947; P. R. Patrick, M.B., B.S. (Qld.), Medical Officer, and from 9th June, 1947 Acting Chief Medical Officer; E. W. Haenke, L.D.Q., Chief Inspector, School Dental Services.)

The year 1946-47 has been notable for important staff changes. Dr. Leslie St. Vincent Welch resigned the position of Chief Medical officer on 9th June, 1947. During Dr. Welch's control of some twenty-one years the School Health Services have expanded considerably and the school children of Queensland are greatly indebted to him for his continued efforts on their behalf. The Wilson Ophthalmic School Hostel stands as a monument to his work. Dr. P. R. Patrick was appointed Acting Chief Medical Officer.

The nursing staff has increased and during the year nurses commenced duty at the additional centres of Cloncurry, Longreach, Charleville, Emerald, Innisfail, and Southport. During the year nurses have visited schools at Camooweal, Dajarra, Augathella, Thargomindah, and Quilpie, to mention only a few of the far-distant schools.

The dental staff increased by two during the year. This included one British dentist. Three more British dentists are expected to join the staff in July, 1947.

At the end of the year 1946-47 the staff consisted of:—Acting Chief Medical Officer, 1 part-time ophthalmic officer, 1 part-time medical officer, 1 senior sister and 22 school sisters, Chief Dental Inspector of Schools, 16 school dental inspectors and 1 part-time dental inspector, 1 driver attached to road dental clinic, 1 handyman attached to rail dental clinic No. 2, 1 attendant attached to rail dental clinic No. 3. Clerical staff:—1 clerk in charge of the office, 2 clerks, 1 clerk-typist.

Wilson Ophthalmic School Hostel.

The number of children in the Hostel varied to a maximum of 59 in December, 1946.

In September and October, 1946, Dr. E. O. Marks, ophthalmologist, made a tour of Western schools, visiting nearly all Far-western schools from the southern border of Queensland up to Camooweal.

Of 4,473 children examined, 200 were diagnosed as being trachomatous. This is a very great improvement on the former incidence, and it is hoped that with continued care trachoma will be eliminated.

Defects of School Buildings and Sanitation.

Despite the shortage of material and labour, the Public Works Department is continuing to build new schools and effect repairs. There is still a large leeway to make up, but it is hoped that this will be gradually overcome. School health nurses include in their reports conditions of overcrowding, defects of sanitation, &c., and when these reports are passed on they have always been considered by the Works Department.

Where practicable, a school health services room has been included in plans for new schools and alterations to existing buildings. These rooms are of great advantage in the work of the medical officer, dentist, and nurse.

Examination of Teacher Trainees.

During the year 256 teacher trainees were examined. The general physical standard was good, and it was found necessary to reject, on medical grounds, only one student teacher.

Lawes Agricultural College.

As in former years, visits were made by the medical and dental staffs to examine new students. Medical examination, dental inspection, and immunisation against typhoid fever and tetanus of 126 students were performed.

Rubella.

A survey is being made of school children born in 1941 with reference to rubella in pregnancy. In June, 1947, all the nursing staff, both metropolitan and country, commenced work in this survey, on which preliminary work was commenced in 1946. Valuable information is being collected and it will be possible to furnish a report on this important problem in a very short time.

Hookworm Campaign.

Three nurses in the Cairns area are assisting in the important work of eradication of infestation with hookworm.

Immunisation Against Diphtheria.

School health services sisters have again worked with the City Council health authorities in immunising children at schools in the metropolitan area with satisfactory results.

Dental Services.

This service continues to perform admirable work amongst school children. The small increase in staff, with the promise of more, and the approval for the construction of another rail dental clinic will enable a further expansion.

However, there are several centres still not visited under existing conditions, and in those centres where school dentists work it is not possible to inspect children as often as is considered necessary. More dentists and better transport in remote areas are required.

The Staff.

The changes of staff, both medical and clerical, have not greatly altered the smooth running of the service, and it is hoped that, as the new members become more conversant with the finer points of administration, the already fine cooperation between this service and other Departments will be even improved.

Table of Findings—School Health Services—School Year, 1946.

Number of children examined by school sisters—	
Metropolitan	27,601
Country	39,571
Number of children referred to private medical practitioners by metropolitan school sisters	846
Number of children treated by private medical practitioners	579

Apparent physical defects discovered by metropolitan school sisters and recommended to private medical practitioners for diagnosis and treatment—	
Tonsils and adenoids overgrowth ..	370
Vision	234
Affections of eyelids	1
Squint	7
Hearing	5
Otorrhoea	2
Skin diseases	131
Hernia	35
Other complaints	91
Number of children referred to private medical practitioners by country school sisters	2,171
Scabies in metropolitan area (treated by school sisters)	182
Number of cases of diphtheria in school children—	
Metropolitan	9
Country	137
Number of cases of scarlet fever in school children—	
Metropolitan	78
Country	121
Inspection and treatment performed by school dental inspectors—	
Number of children dentally treated	11,566
Number of extractions	15,797
Number of fillings	21,579
Number of other treatments ..	8,389
Total number of teeth treated ..	33,582
Treatment at Brisbane Dental Hospital—	
Number of children treated ..	4,960
Number of extractions	11,646
Number of fillings	17,273
Number of other treatments ..	7,211

School Dental Service.

Inspection.

The subjoined table details the total findings revealed at the different inspections of the full staff of dental officers during the year.

Number Examined.	Number with Sound Mouths.	Condition of Mouth.			Use of Tooth Brush.			Permanent Teeth.			Carious Teeth.		Permanent Carious Teeth.		Percentage of Children with Dirty Mouths.	Total No. of Carious Teeth.	Average No. Carious Teeth Per Child.
		Clean.	Fair.	Dirty.	A.	B.	C.	Lost or Extracted.	6-Year Molars Extracted.	Filled.	Permanent.	Temporary.	Savable.	Unsavable.			
32,451	4,001	6,976	20,473	5,002	10,165	14,085	8,201	7,965	6,876	41,956	65,106	30,121	59,863	5,243	15	65,106	2

Clinical Phase of Service.

Tabulated hereunder are particulars of the total treatment which was performed through the application of 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.
19,621	33,275	44,347	16,334

Wilson Ophthalmic School Hostel.

Report of Dr. E. O. Marks, Ophthalmic Officer (Part-time).

	Boys.	Girls.	Total.
Number of children on roll 1st July, 1946	13	19	32
Number admitted during the year ..	16	26	42
Number discharged during the year	17	20	37
Number on roll, 30th June, 1947 ..	12	25	37

The number of children in the Hostel varied to a maximum of 59 in December.

All the children now in the Hostel have been admitted since October.

Some of them are nearly fit to return home.

While the children on admission had rough trachomatous eyelids, only one of two had any corneal scarring or slight pannus. None of them could be regarded as an acute or severe case. Most of them are mild cases with roughened lids but clear corneae.

The continuing mildness of the disease in the cases coming to the Hostel, and also their fewer numbers as compared with the pre-war years, was referred to in my last annual report and a suggestion made that an inspection of the Western schools was desirable to ascertain the position in the West in regard to trachoma as well as to select suitable cases for admission to the Hostel. The suggestion was approved of by the Minister and accordingly in September and October I visited nearly all the far western schools from the southern border up to Camooweal. Travelling by car (one of the Department's school dentist's cars) 4,314 miles, 4,473 children were examined for trachoma in 55 State and Convent schools, the tour taking eight weeks. A detailed report has been submitted.

The incidence of trachoma was found to vary greatly from place to place. It is most prevalent in the north-west, but is also prevalent in the Dirranbandi and Cunnamulla areas, though some of the large centres such as Charleville and some of the small schools such as Hebel are free or almost free of the disease. Even at Mount Isa the difference between the Mount Isa school with 15 trachomas out of 120 children and the Isa Mines school with no trachoma out of 162 children is very striking. Of the total of 4,473 children examined, I diagnosed 200 as being trachomatous. There is no doubt that this is a very great improvement on the former incidence. In 1932 I visited some of the schools in the south-west and in these schools the trachoma incidence has been reduced by one-third. The figures, however, by no means indicated the whole of the improvement, for the severity of the disease has also greatly lessened. Of the 200 cases diagnosed, most of them are mild. Not one of them could be regarded as a severe case, such as we were accustomed to get some years ago.

The disease is now more prevalent amongst the coloured children than amongst the white children and more prevalent in those centres with a larger proportion of coloured children. This is, no doubt, due to a lower general standard of hygiene.

In many of the schools visited the children had healthy eyelids which would compare well with those of children in any part of the State.

The tour has given me considerable optimism that with continued care trachoma will be eliminated.

SECTION OF MATERNAL AND CHILD WELFARE.

Director: T. Henry R. Mathewson, M.B., Ch.B.
Deputy Director: H. C. Murphy, M.B., B.S.
Superintendent: D. Bardsley, A.T.N.A.

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Introduction.

General.

To all those engaged in Maternal and Child Welfare work it is highly gratifying to review the progress which has been made during the last quarter of a century. Maternal mortality has been reduced to half and infantile mortality to less than half. For the year ending 31st December, 1946, the maternal and infantile mortality rates were the lowest on record for the State. While there is no doubt that physical disorders of childhood as well as those associated with childbirth are gradually yielding to improved preventive and therapeutic measures, can it be claimed that psychological disorders of childhood have followed a correspondingly satisfactory trend? So many behaviour difficulties have come under notice during the year that grave doubts exist as to whether the emotional needs of the young child are being adequately met and the question arises as to how the staff of this Service might render greater assistance to parents in meeting these needs.

Sharing of houses due to the housing shortage, leading inevitably to divided control, has affected the progress of many children; broken and divided homes have been responsible for creating many problems in regard to management. Difficulties have also come under notice in homes where good conditions appeared to prevail.

One of the commonest difficulties encountered is the child's refusal of food, which may occur soon after birth, but more often at the age of three or four months, the baby being frequently a bright, alert, precocious, underweight little girl who appears much more interested in her surroundings than in her feeding. The mother will often volunteer the information that her baby feeds best when half asleep. The use of a sedative before feeds in such cases often relieves or overcomes the difficulty. In some cases the baby has been in the habit of taking large feeds, is overweight, and without apparent cause suddenly refuses his food.

The condition is usually made worse by the efforts of an over-anxious mother to forcibly feed her baby. Whatever the difficulty is, parent education is an essential part of the treatment. Many emotional disturbances in the child are due to parental attempts to interfere with his natural development, causing him to experience a sense of frustration and insecurity. In the management of these cases it is necessary to reassure the mother and to discard all routine methods as long as they are found to impose undue emotional strain upon the child. It is better that a mother should have a contented baby than try to insist on a routine which is beyond his capacity to follow at the time. To tell her that her child's failure to make satisfactory progress is due to "bad management" without instructing her in appropriate methods of good management is only to aggravate the situation. A generous attitude towards and a sympathetic understanding of mother and child are essential.

The problem of behaviour disorders in children is one that those engaged in Child Welfare work by training and experience are eminently qualified to handle. The difficulties which arise in connection with them require the same kind of approach for their solution as those which arise in connection with physical disorders. For, just as children vary in their capacity to deal with certain kinds of food, so do they vary in their capacity to respond emotionally to certain situations. Child Welfare workers, also, have opportunities of recognising emotional disorders early and at a time when they may be relatively easy to handle.

In general, it may be stated that Child Welfare workers are aware of their responsibilities in regard to the supervision of the child's total development, physical and mental. It is true that in a busy Child Welfare Centre the sisters have not the time to devote to the full investigation of many of the behaviour difficulties encountered. But the sisters do become expert in "knowing" the mothers with whom they have to deal and, although in many cases they may not be able to alter the conditions responsible for the child's behaviour, they are at least aware of them.

The attitude of a mother towards her child has a marked influence on his development and behaviour. There are mothers who seem absolutely incapable of taking any responsibility in regard to the management of their children. A mother will say that the baby "gets her down." There are quite a few who appear indifferent to their children's welfare and others who show an actual disinclination to care for them and are glad to avail themselves of opportunities of placing them in institutions or even of having them adopted. Over-anxiety on the part of the mother also has a bad effect on the development of a child who is frequently "cross" and difficult to feed and this in turn reacts upon the mother. Many behaviour difficulties are produced by mothers who are emotionally unstable themselves. One of the most difficult types of mothers with which the sisters have to deal is the mother who is not willing to be advised but attends the

centre, often irregularly, merely to have her baby weighed, follows her own ideas and wishes to hold the sister responsible for anything that goes wrong.

In face of all the problems with which the staff has been faced the sisters at the centres and those in the homes under the control of this service have been the means of helping large numbers of mothers who have attended in increasing numbers and as a result the health of many infants has been improved and the lives of some saved.

Ante-natal.

In September, 1946, the Ante-natal Clinics were taken over by the Deputy Director, Dr. Murphy, and in order to bring the work into line with modern teaching a reorganisation of the service was made. This took time to effect and came into operation in February, 1947.

Innovations made were as follows:—

1. New case cards were printed.
2. Leaflets of Instructions for Expectant Mothers were printed. These contain a description of a well-balanced diet adequate for pregnancy, together with general rules for the hygiene of pregnancy.
3. Arrangements were made with the laboratory of the Department of Health for a complete haematological examination of each mother. At the first visit a full blood count, blood grouping, Wassermann, Kline and Eagle tests are done. About the 28th week the blood count is repeated and a plasma protein estimation is carried out. Owing to the limited supply of testing serum, Rh blood groupings are done only if indicated. Arrangements are now being made to introduce this as a routine test.
4. Relevant details are written on the mother's ante-natal attendance card, including all investigations and the result of examinations. This gives valuable information to the hospital and each mother is instructed to hand this card to the sister in charge when admitted. As a number of mothers forget their cards, it is proposed to have a separate card printed and delivered to the hospital some short time before the expected confinement.
5. Through the co-operation of Professor Shedden Adam a weekly visit to the Women's Hospital has been arranged to follow up mothers who have attended the clinic and have been confined at the hospital.
6. Mothers are taught the importance of post-natal care and are instructed to return to the clinic or to their doctor six weeks after the confinement for a post-natal examination.
7. The illustrated booklet containing illustrations and descriptions of ante-natal and post-natal exercises is in course of revision. This booklet was referred to a senior physiotherapist at the Brisbane Women's Hospital and criticism was invited. As a result it was decided to revise the booklet.
8. The Ante-natal Clinic at Caboolture is personally attended by Dr. Murphy.

Significance of Blood Investigation of Expectant Mothers.

"It is generally concluded that figures as low as haemoglobin 10 grams per cent. and red cells over 4,000,000 per c.mm. constitute the physiological anaemia of pregnancy and should not be regarded as pathological. A reduction of haemoglobin below 10 grams constitutes an anaemia." (Whitby 1946.)

The incidence of iron-deficiency anaemia varies from 10 per cent. to 30 per cent. English figures vary from 10 per cent. (Mackintosh and Reid, 1937) to 22 per cent. (Boycott, 1936). McGregor in New Zealand in 1935 found 18 per cent. Of 91 cases examined at the clinics of this Service, 7 had a haemoglobin value below 10 grams, giving a percentage of 7.7. This compares more than favourably with the above figures after due allowance has been made for the relatively small number of cases.

Of these 7 cases showing iron-deficiency anaemia, 2 were multiparae and 5 primiparae. The multiparae were aged 36 and 31 and the anaemia was evident at the 20th and 16th week respectively. The primiparae were aged 19, 20, 23, 24, and 26, and in each case the anaemia developed in the last trimester.

Sixty-two of the 91 cases examined were multiparae with an average red cell count of 3,960,000 per c.mm. and a haemoglobin value of 12 grams per cent. The remaining 29 primiparae had an average red cell count of 3,700,000 per c.mm. and a haemoglobin value of 11.4 grams per cent. In all cases the physiological anaemia was present, in some cases as early as the 12th week.

Bethell *et al* (1939-1943) emphasise the importance of a good reserve of iron before pregnancy begins and have produced impressive evidence showing a positive co-relation between the occurrence of hypochromic anaemia and diet deficient in iron. The same authors have shown a relation between the macrocytic anaemia in pregnancy and a diet deficient in protein.

The importance of adequate iron- and protein-containing foods is stressed at the first visit and if the diet is found inadequate it is supplemented by an iron preparation.

Although the number of cases is admittedly too small from which to draw any far-reaching conclusion, a start has been made and as time goes on and some hundreds of cases will have been examined, valuable data as to the incidence of anaemia in pregnancy will have been collected.

Premature Infants.

For statistical purposes, infants (with the exception of those of full-time multiple births) weighing 5½ lb. or less at birth are regarded as premature. The incidence of premature births in Queensland is not known because premature births are not notifiable as they are in the majority of the States in the United States of America.

Information compiled from returns received from most of the public hospitals in Queensland discloses that of the 16,140 live births occurring in them during 1946, being approximately 60 per cent. of the total live births in the State, 531 were premature, and of these 147 premature babies died. Returns from the Brisbane Women's Hospital alone show that of the 6,561 live births occurring in this hospital 324 were premature, and of these 64 premature infants died. Of the 1,906 live births occurring in the public section of the hospital 118 were premature, and of these 24 premature babies died. Of the 4,655 live births occurring in the intermediate section 206 were premature, and of these 40 premature babies died.

SUMMARY.

—	Live Births.	Premature Babies.	Percentage of Live Births.	Deaths of premature Babies.	Percentage mortality of premature Births.
Public hospitals in Queensland (including Brisbane Women's)	16,140	531	3·3	147	27·7
Brisbane Women's Hospital	6,651	324	4·9	64	20·0
Brisbane Women's Hospital (Public section)	1,906	118	6·2	24	20·0
Brisbane Women's Hospital (Intermediate section)	4,655	206	4·4	40	19·4

Of a total of 307 infants dying under the age of one month in Queensland whose deaths were attributed to prematurity, 251 (81.8 per cent.) died under the age of 3 days and 56 died aged 3 to 22 days. It is reasonable to assume that the lives of most of these 56 babies would have been saved if adequate expert care had been available from birth, and this would have reduced the neo-natal or first month's mortality rate to almost 20 and the infant mortality rate to approximately 27 per 1,000 live births.

The figures available indicate that the infant mortality rate from prematurity (deaths per 1,000 live births), is definitely higher amongst children born outside the public hospitals of the State.

The care of premature infants is mainly a nursing problem and the nurses in attendance require to be specially trained and skilled in their feeding and management. The lives of premature babies are often jeopardised by allowing them to be chilled and handled too much.

Iron-resistant anaemias.

During the year there have come under notice a number of children in early and later infancy sufferng from anaemia, who, according to their blood counts, failed to respond to the administration of iron in spite of the fact that they were receiving adequate doses of iron and sufficient protein. Consideration has been given therefore to the question as to whether there has been a deficiency of other nutritional substances in the diet, particularly ascorbic acid, or a failure to elaborate, digest, or absorb a substance or substances from an adequate diet due to an interference with the functions of digestion and absorption. The conclusion has been reached that the subject of anaemia in childhood is one that deserves still wider investigation.

An interesting observation made by a matron in charge of one of the Homes of this service is that when iron is given in orange juice it appears to be tolerated better and the motions are not so dark in colour.

Diarrhoea.

Whilst the incidence of diarrhoea in Queensland has been reduced to a marked degree since the inauguration of the Maternal and Child Welfare Service, as indicated in the appendix to this report, the recent outbreak amongst infants has served as a reminder of the need of vigilance on the part of all those engaged in infant feeding, not only the mothers but all who are responsible for advising them. Providing the mother exercises ordinary care in her personal hygiene, breast-fed babies are relatively safe. The growing tendency to wean babies as soon as difficulties arise in connection with breast-feeding is to be deplored because most of them can be overcome by patient and skilled nursing.

Many babies are weaned before they leave hospital. There is only one legitimate medical reason for weaning an infant in the early months and that is consideration for the mother's health. This is a good reason, but may be made a bad excuse when the mother and attendant do not realise the risks associated with artificial feeding.

The sister in charge of a large metropolitan centre has drawn attention to the increase in the number of artificially-fed and partly artificially fed babies who attend for the first time. In view of the serious risk of digestive upsets and infections which accompany the artificial feeding of infants in the first weeks of life, this is a matter of considerable importance. Shortage of experienced nursing staffs in hospitals to instruct inexperienced mothers in the technique of breast feeding may be responsible for the failure to establish breast feeding in a number of cases.

VITAL STATISTICS.

Queensland vital statistics for the year 1946 show the following outstanding features:—

(i.) The same crude birth rate (24·8 per 1,000 mean population) as in 1945, which was the highest for over twenty years.

(ii.) The lowest rate of infantile mortality ever recorded. The rate of 29.3 infant deaths per 1,000 live births is less than half the rate recorded just after the 1914-1918 war, and only one-third of the rate at the beginning of this century.

(iii.) A high general death rate of 9.8 per 1,000 mean population, following two years with the low rate of 8·6 per 1,000 population.

(iv.) A marriage rate of 10·7 per 1,000 mean population, which, with the exception of 1942 (11.3), is the highest recorded since the late eighteen-sixties.

Births.

During the year 1946, 27,024 births were registered in Queensland, an increase of 311 on 1945 and the greatest number of births ever recorded in the State. The crude birth rate, 24.8, was the same as in the previous year, which 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.

In 1946 there were 13,888 males and 13,136 females born, equivalent to 105.7 males per 100 females. Usually male births are about 5 per cent. more than female births, but the infantile mortality rate for males (32.9 in 1946) is higher than for females (25.4 in 1946), thus tending to equalise the proportion of each sex in the population.

The natural increase (excess of births over deaths) of 16,376 for 1946 was equal to an increase of 1.5 per cent. of the population, compared with 1.6 per cent. for 1945.

Marriages.

Marriages during 1946 numbered 11,666, and very nearly reached the record figure of 1942 (11,722). The marriage rate was 10.7 per 1,000 mean population, and with the exception of 1942 was the highest for about eighty years.

Of bridegrooms married in 1946, 654 were minors, while 3,321 of the brides were minors. During the war years the proportion of minors married increased slightly for both sexes, and in 1946 the proportion of bridegrooms who were minors was 5.6 per cent. compared with 4.3 per cent. in 1939, while brides who were minors were 28.5 per cent. compared with 24.3 per cent.

Deaths.

Maternal.

For the State the number of deaths of women due to diseases associated with childbirth and the puerperal state was 61 during 1946 compared with 66 in 1945, 74 in 1944, 89 in 1943 and the mortality rate (maternal deaths per 1,000 live births) 2·26, which constitutes a record for Queensland. The corresponding mortality rate was 2·47 in 1945, 3·02 in 1944, 3·83 in 1943, 3·97 in 1942, 4·28 in 1941, and 4·65 in 1940.

Of the 61 deaths which occurred during 1946, 30 followed childbirth, the mortality rate being 1·11; 24 were due to diseases and accidents of pregnancy (excluding abortion), the mortality rate being 0·89.

The causes of the 30 deaths following childbirth were as follows:—

Haemorrhage of childbirth and puerperium	5
Infection during childbirth and puerperium	9
Puerperal toxaemias	5
Other accidents of childbirth including Caesarian section	4
Other diseases of childbirth	7

The causes of the 24 deaths due to diseases and accidents of pregnancy were as follows:—

Ectopic gestation	4
Toxaemia of pregnancy, including eclampsia, acute yellow atrophy, &c.	17
Other diseases and accidents of pregnancy	3

During the year ending 30th June, 1946, the latest date for which figures are available, there were 18,798 women admitted to public maternity hospitals and maternity wards in general hospitals in Queensland, and in these hospitals there were 16,856 living children born and 307 children stillborn. This represents a stillbirth rate of 17·89 per 1,000 births (live and stillbirths), compared with a rate of 25·86 in 1945, 27·20 in 1944, and 25·84 in 1943.

Deaths.

Infantile.

In Queensland during the year 1946 791 children died under the age of one year. The infantile mortality rate (deaths of children under the age of one year for 1,000 live births) was 29·27, which constitutes a record low rate for this State. Of the 791 infants who died 603 died under the age of one month and 188 betwen the ages of one month and one year, the corresponding mortality rates being 22·32 and 6·95 respectively.

The chief causes of deaths during the first month of life were as follows:—

Prematurity	307
Injury at birth	93
Malformations	60
Atelectasis	48
Icterus gravis neonatorum	17
Haemorrhagic disease of the newborn	10
Bronchitis, broncho-pneumonia	17
Debility	10

The chief causes of deaths of infants between the ages of one month and one year were as follows:—

Bronchitis, broncho-pneumonia	45
Malformations	38
Diarrhoea	29
Whooping cough	10
Accidents	10

In the metropolitan area 251 children died under the age of one year, which represents a mortality rate of 25·67, which constitutes a record low infantile mortality for Brisbane, the previous record low being 28·15 in 1945. One hundred and eighty-nine infants died under the age of one month and 62 between the ages of one month and one year, the corresponding mortality rates being 19·33 and 6·34 respectively.

Deaths of children aged one year and under five years.

Of the estimated population of 25,265 children aged one year and under two years, 97 died, representing a mortality rate of 3·84 per 1,000 living at this age. The chief causes of death were as follows:—

Bronchitis, broncho-pneumonia, &c.	23
Malformations	10
Accidents	13

Of the estimated population of 63,404 children aged two years and under five years, 113 died, representing a mortality rate of 1·78.

The chief causes were as follows:—

Accidents	27
Diphtheria	11
Bronchitis, broncho-pneumonia, &c.	10

The Year's Work.

Child Welfare Centres.

For the year ending 30th June, 1947, the total attendances at the 181 centres throughout the State numbered 370,946 compared with 352,726 the previous year. 23,611 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 149,223 compared with 148,464 last year.

Extensions.

During the year the following sub-centres were opened:—Rocklea Temporary Housing Establishment on 4th November, 1946 and Holland Park Temporary Housing Establishment on 11th February, 1947, both of which are visited from Woolloongabba; Thangool on 3rd May, 1947, Goovigen on 17th May, 1947, Wowan on 3rd June, 1947, and Baralaba on 24th June, 1947, all of which are visited from Biloela, which was itself opened on 10th March, 1947; Capella on 7th May, 1947, which is visited from Emerald; Imbil on 13th September, 1946, which is visited from Gympie; and Buderim on 18th December, 1946, which is visited from Nambour.

By inaugurating a service for mothers resident in the Callide-Dawson Valley an innovation was made by providing the sister with a utility truck carrying equipment. From her headquarters at Biloela, the sister has visited Thangool, Goovigen, Wowan and Baralaba and a regular itinerary has been arranged.

Requests for the establishment of centres have been received from a number of country areas.

With the exception of a period of five weeks when it was laid up for its annual overhaul and repair, the Maternal and Child Welfare railway car covered its regular three-weekly itinerary during the year, visiting Winton, Cloncurry, Dajarra, Julia Creek, Hughenden, Kajabbi, Mount Isa, and Richmond. Many mothers were advised by the sister in charge at various stations and sidings en route.

Lady Cilento, who has been Visiting Medical Officer to the Woolloongabba Centre since January, 1942, and previously to the West End Centre, ceased attendance on 12th December, 1946. Since then the Deputy Director has attended. It is desired to place on record the valued service rendered by Lady Cilento.

THE DEPUTY DIRECTOR'S ITINERARY.

Leaving Brisbane on 3rd June and returning on 1st July, the Deputy Director (Dr. H. C. Murphy) made a tour of the State, visiting centres at the following places:—Townsville, Hughenden, Cairns, Mareeba, Atherton, Innisfail, Ayr, Bowen, Mackay, Sarina, Rockhampton, Barcaldine, Gladstone, Miriam Vale, Bundaberg, Kingaroy, Dalby, Toowoomba, and Warwick.

The mileage travelled was approximately 3,800 miles.

During his tour, Dr. Murphy formed the following impressions:—

(i.) The universal popularity of the Maternal and Child Welfare service.

(ii.) The large number of children who are artificially fed after two or three months breast-feeding. This applies particularly to the area serviced by the Clinic rail car, also Bowen, Gladstone, Miriam Vale, Kingaroy, and Bundaberg.

(iii.) Unless there is a good season, the cow's milk supply is generally poor and there is a great demand for dried milks such as Full Cream Milk, Lactogen and Vi-Lactogen. This applies particularly to Western towns, with the exception of Barcaldine.

(iv.) Medical co-operation with the clinics is, on the whole, good.

(v.) The general atmosphere in the clinics themselves, as reflected by the staff, is one of cheerfulness and enthusiasm. The clinic sister is regarded with great esteem by the community and those sisters who have to do a great deal of train travelling do so quite cheerfully. Every sister who was interviewed seemed imbued with the idea of maintaining the high standards of the clinics and of extending them.

(vi.) Accommodation for sisters in charge of clinics in business premises or rooms is unsatisfactory and oftentimes the sisters have to rely on the generosity of hotelkeepers for accommodation.

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 sisters at the centres have done what they could to assist mothers whose babies were not making satisfactory progress by getting them to attend for a whole day or part of a day.

Infants admitted to the home included those who were born prematurely, and those suffering from malnutrition and digestive upsets due to various causes. In addition, several babies suffering from pyloric obstruction were admitted for observation and several infants who were being badly managed as the result of home conditions were admitted for readjustment of feeding and management. Mothers were admitted in order to receive treatment for restoration of breast milk and instruction in regard to the feeding and handling of their babies.

Total admissions:—Mothers, 62; babies, 89. Test feeds, 6,491; complementary feeds, 2,862; artificial feeds, 9,642.

ST. PAUL'S TERRACE TRAINING SCHOOL.

During the two terms of four months each, 65 nurses completed their training, and of these 58 passed their examinations and each received a certificate of the Nurses and Masseurs Registration Board.

The course of training is very intensive and entails much concentrated study and work on the part of the students. In order to give successful students a sense of achievement it was decided to hold a formal graduation ceremony at the end of each term to which parents and friends of graduands as well as teaching and nursing staff of homes and centres could be invited.

The first ceremony was held on 26th November at St. Paul's Terrace Home and certificates were presented by the Hon. D. A. Gledson, Acting Minister for Health and Home Affairs. At the ceremony on 28th May, held at the A.T.N.A. Nurses' Club, certificates were presented by the Hon. A. Jones, M.L.A., newly appointed Minister for Health and Home Affairs. The nurses expressed great appreciation of the innovation.

The trainees, almost without exception, showed interest in the work, and those who subsequently kept in touch with this service, whether person-

ally or by letter, expressed appreciation of the value of the training. The nurse whose training and practice are confined to the wards of a hospital has relatively little opportunity of understanding the problems of the mother and her family and the effect these problems have on the mother's health and that of her baby. It is important that every nurse, in whatever branch of nursing she may be employed, should have a knowledge of these difficulties in order that she may be in a position to appreciate those human relationships which have such a practical bearing on all nursing activitives.

During the year four discharged members of the A.A.N.S. completed a post-graduate course. Two of the trainees who received their certificates were candidates for the mission field; one of these subsequently left for New Guinea.

The position has improved in regard to teaching equipment. A projector has been purchased and an epidiascope has been lent to the school pending the delivery of one on order.

Clayfield Home.

During the year improvements which were necessary for the efficient working of the home were effected. These included additional rooms for mothers and comprised a bedroom for two mothers, sitting-dining room and kitchen. The increased accommodation has provided greater comfort and privacy for the mothers.

Although every effort is made to limit the period of residence to the actual needs of the individual baby and mother, it is still not possible to admit all who are referred by medical men and nurses.

There are usually eight, sometimes ten, artificially fed babies and six mothers with their breast-fed babies in residence. The number of babies who present problems in feeding and the number of mothers who need help appear to be increasing. It would seem that there are many mothers to-day who are not prepared to make sacrifices in the interests of their offspring. While the shortage of staff in hospitals may have led to the failure to establish breast-feeding in a number of cases, the mother's attitude has often been responsible.

A number of toddlers presenting feeding and other behaviour problems have been admitted.

Total admissions:—Mothers, 99; babies, 196. Test feeds, 10,469; complementary feeds, 6,128; artificial feeds, 16,720.

Clayfield Training School.

During the year 21 young women completed their training and gained certificates, making a total of 51 since the home was opened in 1943. Of the 21, 9 have commenced their training in nursing, 6 intend to undertake their training within the coming year, 2 are engaged in work in private homes, 2 others plan to do the same, 1 has married, and the remaining 1 began her training in nursing but did not continue. There are 10 in training at present and a new group is being enrolled.

Since the appointment of a tutor sister there has been greater efficiency in the work of the trainees. In the training of these young women more is required than the ability to give instruction in the special subjects connected with child welfare, including the handling of behaviour problems in the children under their care; discipline needs to be kept, dignity preserved, the trainees taught the importance of being conscientious in their work as well as to uphold the honour of their training school. The work of each trainee is personally supervised.

During the year improved accommodation has been provided. These include dining room, dormitory, bathroom, and locker room. The accommodation, however, is still inadequate.

Eleven of the trainees graduated in November, 1946, and 10 in June, 1947. On each occasion parents and friends of the graduands attended when certificates were presented to them by the former Minister for Health and Home Affairs (Hon. T. A. Foley, M.L.A.) in December, 1946, and by the present Minister for Health and Home Affairs (Hon. A. Jones, M.L.A.) in June, 1947.

Toowoomba Home and Training School.

Owing to shortage of staff and the difficulty in securing equipment, some delay has been experienced in beginning the work at the home.

On 9th April, 1947, a sister who has been on the staff of the Maternal and Child Welfare Service since 1935 and has had wide experience in Child Welfare methods was placed in charge of the Home. Recently a trained nursing staff has been employed, and it has been possible to undertake the care of a small number of delicate and undernourished babies and those who were not making satisfactory progress, the purpose for which the home was established.

It is proposed to enrol untrained girls of 16 years of age and over and institute a course of training on the lines of that carried out at the Clayfield Home.

During the year necessary alterations were made to the building, and as adequate staff becomes available it will be possible to undertake the care of more babies who require specialised and skilled nursing. The home is excellently situated for this type of work, and when in full operation will serve the needs, not only of Toowoomba itself, but also the whole south-western area of the State and make it unnecessary to bring delicate babies to Brisbane for special observation and care.

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, 441 children were received into residence during the year, representing 171 families. This is an increase of 163 over last year. Six families returned during the year and several families who had made use of the home in previous years. The ages of the children admitted ranged from 1 year to 14 years—228 between 1 and 5 years, 173 between 5 and 10 years, and 40 from 10 to 14 years. Two hundred and thirty-five were boys and 206 were girls. The total number of days spent in residence numbered 8,595. The children appear happy, and those who have been in residence seem glad to return when necessity arises. Most children admitted between the ages of 1 and 3 years are in the habit of drinking their milk from bottles. 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 other children. A few children who have been in residence for a long period have attended school. All children are examined by the Medical Director before admission.

Staff difficulties have been experienced most of the year and many changes have taken place. Assistants in nursing have been added to the staff to help look after the children. These assistants, mostly young girls, are very kind to the children and are doing a good job.

Improvements to the home and grounds have made conditions for working and recreation easier and more pleasant. Sand for sand pits and slippery slides have added to the enjoyment of the children.

The matron arranged special Christmas festivities for the children. A local resident provided a Christmas cake and toys were presented by the Department as well as a local resident.

Centres for Expectant Mothers or Ante-natal Clinics.

Improved financial position of many mothers appears still to be responsible for the increased numbers who are attending private medical practitioners, from whom they receive antenatal care and advice, and enter private hospitals or intermediate wards of other hospitals to be confined. Total attendances for the year numbered 1,691.

The attendances at Caboolture have increased by about 80 per cent. since Dr. Murphy has visited the centre with a sister. At the request of the local progress association an ante-natal clinic was established at Redcliffe in February, 1947. Although the response has not come up to expectations, it is hoped that the attendances will improve as the centre becomes more widely known.

One hundred and twenty-two have attended the centres to hear talks given by the sister. As a result of these talks opportunities are provided for individual interviews and the expectant mothers are very appreciative of this personal service, which enables nervous mothers and especially those expecting first babies to explain their problems and receive helpful advice. Patterns of baby clothes, a diet chart, and a copy of a booklet entitled "Care of the Expectant Mother," and another illustrating ante-natal and post-natal exercises are made available to each mother free of cost.

The need of education for parenthood and particularly for motherhood is widespread. It should begin in the home and be continued through home, school, and adult life. The sisters, both in the centres and in the Homes, frequently meet with cases of ignorance, negligence, and indifference on the part of mothers.

Attendances for the year ending 30th June, 1947, were as follows:—

Fortitude Valley	636
Woolloongabba	700
Caboolture	139
Redcliffe	10
Herschell Street	42
Nundah	11
West End	31
Talks to mothers	122
Total attendances	1,691

Correspondence Service for Expectant Mothers.

This service, which was established at the end of 1944, has proved an unqualified success and the work in connection with it has considerably increased. Country mothers are most appreciative of the serial letters forwarded to them at appropriate periods of their pregnancies. Many letters are received from mothers stating that they have learnt much of which they were previously ignorant.

A number of requests have been received from Papua for copies of the book, "Care of the Expectant Mother," as well as for serial letters.

Circular letters forwarded to expectant mothers	3,317
Response to circular letters	1,166
Circular letters forwarded to expectant mothers (other than above) *re* "The Expectant Mother" book	2,441
Serial letters to expectant mothers	5,764
Special letters of advice sent on request	151
Copies of "The Expectant Mother" sent on request	2,111
Copies of baby patterns sent on request	129
Copies of other patterns sent on request	41
Copies of special exercises sent on request	169

Director's Consultant Centre.

During the year 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 by sisters in charge of centres and also by private medical practitioners. In addition, children for admission to the Sandgate Maternal and Child Welfare Home were examined and throat swabs taken.

In February, 1947, arrangements were made with the Red Cross Aid to Mothers Service to examine children for admission to the Red Cross Home, Margate.

Attendances for the year ending 30th June, 1947, were as follows:—

Number of children examined for admission to Sandgate Home	506
Number of children examined for admission to Red Cross Home, Margate	81
Attendances at Director's Consultant Centre for advice	1,545
Total number of children examined or advised at Centre	2,132

Toddlers' Centres for the Periodic Examination of Children Between the Ages of 1 and 5 Years (Pre-school Age).

There are now 17 centres at which children from 1 to 5 years of age are examined periodically by the Director and the Deputy Director. The total examinations made during the year numbered 3,229, of which 1,392 were first examinations and 1,837 were subsequent examinations. The total examinations made during the previous year numbered 2,038.

Owing to the increasing amount of work, an additional sister has been appointed to the Toddlers' Health Section.

During the year the Toddlers' Health Service was extended to include a monthly visit to Ipswich and Wynnum. The mothers of children attending these centres have expressed their appreciation of the service.

A large number of children over three years of age had chalky or decayed teeth, a fair number had teeth extracted, and a small number teeth filled.

Enlarged tonsils were found to be present not infrequently. A number of children under two years of age were found to have bow legs. It has been observed that most of these correct themselves by the age of two and a-half years. Various degrees of knock knees were found and a number referred for treatment. Flat feet were found in a large number of children under two years of age. Poor posture was frequently found, good posture being relatively rare.

Correspondence Service.

Compared with the previous year there has been an increase of 310 birth notices received. The responses to circular letter No. 2 have also increased and a number of mothers to whom circular letters had been sent by the sister in charge of the ante-natal section have continued to correspond after their babies have been born. An increased number of letters of advice in regard to feeding and management have been sent and a number of letters in reply to newspaper articles have been received. Numerous letters of appreciation have also been received from mothers in response to birthday cards forwarded to children on reaching the age of one year. Mothers who have come to Brisbane have called on the sister who supervises this work and many of them have been seen by the Director. When necessary, arrangements have been made to bring children to Brisbane for specialised treatment.

In some cases the sister, at the request of mothers, has arranged for commodities which were in short supply in the country to be sent out from Brisbane. In one case she was authorised to select a perambulator and a cot and have them forwarded. The mother, who had recently arrived in Queensland from the South, expressed her appreciation.

The greater proportion of mothers who correspond are breast-feeding their babies. At the request of several mothers arrangements were made for the hiring of scales.

"Snaps" of the babies are frequently received and this enables the sister to follow their progress.

Numerous requests have been received for copies of the book, "Care of Mother and Child," which is issued free of cost, and mothers have frequently expressed appreciation of the valuable information contained therein and the help it has been to them. These requests have come from other States of the Commonwealth as well as from various parts of New Guinea and the Northern Territory.

Mothers have asked for leaflets on posture exercises and patterns of toddlers' clothes, and fathers for advice in regard to the purchase or making of suitable toys as well as books on the management of children.

Every effort is made to make each individual mother realise that Sister is personally interested in her and her child and that she is pleased to have the opportunity of advising her in regard to his care and of helping her to overcome any difficulties which arise.

Number of birth notifications received ..	3,895
Number of circular letters posted—	
(1) Within reach of centre	1,855
(2) Not within reach of centre	2,120
Number of follow-up circular letters posted to mothers who did not respond to circular letters No. 1 and No. 2	2,366
Visits to centres in response to circular letter No. 1	789
Letters to Correspondence Section in response to circular letter No. 2	690
Letters of advice in regard to feeding and management sent on request	1,777
Number of "Care of Mother and Child" sent on request	1,035

Social Welfare or Home Visiting Service.

Valuable work continues to be done by the sister in charge of this section, who visits mothers in the Women's Hospital soon after their babies are born and also visits in their homes mothers who, because of multiple births, prematurity of their babies, or because of certain disabilities temporarily cannot attend centres for the regular weighing of their babies and the general supervision of their progress. For example, a mother who is blind has been visited and is successfully breast-feeding her baby.

Many of the difficulties which arise in connection with the care and management of a baby are due almost entirely to overcrowded accommodation. A mother who is living under unsuitable conditions and often with no one to assist her cannot be expected to adopt methods that can be applied by a mother living comfortably in her own home. When the baby is artificially fed, as so often happens, her difficulties are increased. In cases in which the mother returns home from the hospital with a baby fully breast-fed and a complement subsequently becomes necessary, or in cases in which the baby is discharged on a complement, early weaning frequently results.

The sister finds that it is unusual these days to visit a mother who has not attended a centre with a previous child or one who has not some knowledge of the work of the Service.

A number of medical men undertake to supervise the feeding and care of babies during the first six months of life. One disadvantage of this practice is that mothers not having attended centres during the early months fail to do so during the later months of infancy and preschool life and are deprived of the regular supervision of their children's progress by nurses who confine themselves to and are specially trained in this work.

Brisbane extends over too large an area for one sister to cover. In cases in which a mother is visited in her own home and the baby is not making satisfactory progress the sister may have to spend an hour or longer at her first visit in order to investigate the cause, and this often entails the carrying out of a test feed. Two mothers living at opposite sides of the city may require to be visited during a morning or an afternoon.

There is still much to be done if this section of the Service is to be adequately developed. At present its progress is being retarded by shortage of staff and the need for a second car. The work requires to be undertaken by sisters who are specially qualified and have had considerable experience in Child Welfare work.

Number of newborns visited in hospital ..	7,046
Number of newborns visited at home	551
Number of cases visited for test feeds and advice	522
Number of test feeds—cases	66
Number of test feeds—feeds	105

Lecture Demonstrations to Schoolgirls.

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. Scrapbooks 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 12 schools in the metropolitan area and in one school in Ipswich. In all 824 girls attended, and of these 696 sat for the examination, 639 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.

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 Pre-school Child Health 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. During 1947 these clinics have been conducted by the Director, who has been appointed Lecturer in Mothercraft at the University of Queensland.

Newspaper Articles.

During the year a copy of an article on some aspect of maternal and child welfare has been sent each month to 62 newspapers in the State for publication. The titles of the articles were as follows:—"Before Baby is Born," "Care of the Expectant Mother," "Baby's Sleep Is Important," "The Baby Who Cries Too Much," "How Much Does Your Baby Weigh?" "The Child Who is Underweight," "Ill-Health of Emotional Origin," "Your Child's Play Things," "How Much Do You Spend on Food?" "Economical Housekeeping," "Does Your Child Walk Well?" and "Don't Treat Children's Colds Lightly."

Publications of the 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 and India have been received for these books.

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 is a member of the Professional Advisory Committee for Nursing under the Universities Commission, Ministry of Post-war Reconstruction, and attends meetings of that committee as required.

Publicity.

Two major advertising mediums were used to publicise the Service, besides miscellaneous propaganda in the nature of pamphlets, showcards, &c. The most important was the production of a film titled "Cradle Building Time." This film was produced in conjunction with the Queensland Health Education Council. The film makes a bid to encourage expectant mothers to commence regular visits to the clinic.

A large exhibit was placed in the last Royal National Show, in 1946. Although only 88 unsolicited inquiries are recorded their nature of advice sought included teeth, clothing, diet, sleep, exercises for posture, immunisation, toddlers' centres, &c.—an indication of the complete service that is demanded by the public.

Staff.

To replace sisters resigned, retired, &c., nine permanent sisters were appointed, the total nursing staff now numbering 92.

During the year a badge specially designed for members of the nursing staff of the Maternal and Child Welfare Service was presented to each sister by the Superintendent at a meeting held on 25th June, 1947.

Retirement.

Sister R. Brown, who was in charge of the Rockhampton centre, with subcentres at Mount Morgan, Ogmore, St. Lawrence and Yeppoon, and who had completed over twenty-one years in the Service, retired on 30th June, 1947.

Staff Position.

While the nursing staff position has improved in certain respects, it is still far from being satisfactory. The permanent staff consists mainly of a number of sisters who have been in the service for a long period and are due to retire within a comparatively short time and a number of younger sisters who have been appointed during recent years and have not had time to become experienced in handling and advising mothers.

It is appreciated that the sisters on the permanent staff and a number of sisters on the temporary staff with several years' experience have continued to give of their very best to the needs of the Service.

An effort is made to retain newly-appointed sisters in assistant positions in Homes and centres in Brisbane until they become thoroughly proficient in the work before they go to country centres, where they are often called upon to undertake considerable responsibility in dealing with problems in regard to the feeding, care, and general management of babies and young children. If a high standard of work is to be maintained centres must be staffed by sisters who are not only well trained but who are temperamentally suitable, show an aptitude for the work, and are able to secure the confidence of the mothers.

Staff Meetings.

Meetings, attended by the Director, Deputy Director, Superintendent, and the nursing staff, were held during the year. These were addressed by visiting lecturers, including Dr. N. Gutteridge, who spoke on "The Background of Human Nutrition," Dr. F. Arden, who spoke on "Cyanosis in the New-born," Lady Cilento, who spoke on "Nutritional Anaemia of Infancy," Miss Faddis, Principal of the Kindergarten Training College, who spoke on "Play in Relation to the Development of the Child," and Dr. Basil Stafford, Director of Mental Hygiene, who spoke on "The More Nervous Child."

At the invitation of the Council of the Queensland Branch of the British Medical Association, the members of the nursing staff resident in the metropolitan area were present at the Bancroft Oration delivered by Dr. F. W. Clements, Director of the Institute of Anatomy, Canberra, his subject being "Clinical Manifestations of Deficiency States in Infants and Children."

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, Professor Shedden Adam of the Women's Hospital, Professor S. F. Lumb of the School of Dentistry, the 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 loyal co-operation and for unfailing devotion to the work of the Service during the year.

APPENDIX.

Infant Deaths from Diarrhoea and Enteritis in Queensland in Respect of each year 1914–1946.

Year.	Number of Deaths.					Death Rate per 10,000.				
	Under 1 year.	1 year.	2 years.	3 years.	4 years.	Under 1 year.	1 year.	2 years.	3 years.	4 years.
1914	329	87	28	7	3	172	49	17	5	2
1915	371	116	44	16	8	192	64	25	10	5
1916	358	110	29	12	8	190	59	16	7	5
1917	240	72	13	13	2	129	40	7	7	1
1918	244	81	29	9	7	128	45	17	5	4
1919	406	148	43	17	8	219	80	23	10	5
1920	360	137	36	20	9	192	77	20	11	5
1921	195	75	22	6	8	99	42	12	3	4
1922	291	91	26	10	4	149	48	14	6	2
1923	235	93	35	12	10	121	49	19	6	5
1924	166	93	20	12	10	87	50	11	6	5
1925	95	40	28	11	5	49	22	15	6	3
1926	86	33	17	8	2	44	17	9	4	1
1927	209	34	15	10	7	108	18	8	5	4
1928	111	54	17	7	6	58	29	9	4	3
1929	82	36	18	14	6	44	19	10	8	3
1930	46	27	11	5	4	25	15	6	3	2
1931	33	22	11	6	1	18	12	6	3	1
1932	34	24	7	6	4	20	14	4	3	2
1933	38	13	13	5	1	23	8	7	3	1
1934	25	7	5	4	1	15	4	3	2	1
1935	25	25	5	5	4	15	15	3	3	2
1936	29	23	8	..	..	16	14	5	..	..
1937	43	15	4	1	2	23	9	2	1	1
1938	39	12	5	2	1	21	7	3	1	1
1939	25	12	6	1	1	13	7	3	1	1
1940	44	10	9	3	4	22	5	5	2	2
1941	20	17	3	..	2	10	9	2	..	1
1942	46	18	6	6	4	22	9	3	3	2
1943	67	16	10	5	5	31	8	5	3	3
1944	45	16	7	2	..	19	8	3	1	..
1945	24	12	3	3	..	10	5	1	1	..
1946	37	8	1	1	..	14	3	0·5	0·5	..

NUTRITION.

Miss J. E. McNae, B.Sc., Nutrition Adviser.

The chief activity in the field of nutrition for the period under review was a series of surveys to determine the existing level of nutrition in hospitals and other institutions. This information was then used as a basis for suggesting improved dietary standards wherever necessary.

Surveys were made of the nutritive value, preparation, and service of food at the Brisbane, Ipswich, and Toowoomba Mental Hospitals. The results of the survey revealed that the food supplied was sufficient in quantity to meet the energy demands of the patients, but that the selection of foods was faulty in that it did not supply sufficient proteins, minerals, and vitamins in all cases to provide a well-balanced diet. Survey figures revealed considerable variations in the type of diet provided by the three institutions, and the diet provided at the Toowoomba Mental Hospital came closest to requirements for a well-balanced food intake. But while variations did exist, all three institutions showed the same general tendencies in food selection. A very high proportion of the daily food intake was provided in the form of refined cereal products such as white bread and flour, and from sugar, with too little of the "protective" foods —milk, eggs, vegetables, and fresh fruits—and in all cases recommendations were made that these latter foods be supplied more liberally. It is hoped that a follow-up survey will be made before long to estimate the improvement of the diet following on adoption of these recommendations. Food service was in all cases hampered by lack of suitable equipment and staff, and it is feared that this fault in the diet will take longer to remedy than the alterations in food selection to provide a more satisfactory nutrition.

Surveys of other institutions included the Epileptic Home at Toowoomba, the Westbrook Farm Home for Boys, the Wilson Ophthalmic School Hostel, and the Diamantina Receiving Depot and Infants Home, Wooloowin. In each case recommendations were made for dietary improvements, accompanied by menu-plans suitable for the institution if they so desired. A visit was made to Dunwich Benevolent Asylum and, after its removal to the mainland, visits were made to "Eventide," Sandgate, to offer suggestions in placing equipment and in planning food service to meet the needs of the new institution. While continued improvements are being made, food preparation and service facilities are very much better than those available at Dunwich.

The majority of institutions visited were the public hospitals in the larger towns. Some of the hospitals in outlying northern and western districts have still to be visited, but a clear picture of nutrition in hospitals in the larger coastal centres has been obtained. The hospitals visited have included those in Brisbane, Ipswich, Toowoomba, Warwick, Dalby, Gympie, Maryborough, Bundaberg, Gladstone, Rockhampton, Mackay, Ayr, Townsville, Cairns, Atherton, Barcaldine, and Longreach. The visit to the Brisbane Hospital was a follow-up survey, survey and recommendations having been made in the previous year. It revealed a gradual improvement in some aspects of the diet.

The surveys of hospitals included the food for staff as well as patients, and took in all the normal groups in the hospital population—i.e., staff, general adult patients, children, and maternity patients. No work was done on special therapeutic diets in the hospitals.

Figures for the hospitals surveyed show a considerable variation in the nutritional level of the diets supplied. There are a number of factors responsible for this variation, among them the amount spent on food, the type of equipment available for food preparation and service. One factor of special importance is the hospital's geographic position. Country hospitals in northern and western districts suffer food shortages during summer months which can only be overcome by better transport, and ordering, better refrigeration and storage facilities in the hospitals themselves. Another factor of major importance is the interest in the food taken by those of the hospital staff who are responsible for its supervision, ordering, and preparation. There was considerable variation noticeable between hospitals with the same equipment and buying facilities, depending on the ability and interest of the housekeeper. One of the larger variables in the nutritional standards of Queensland hospitals could be overcome by making sure that the person in charge of food has a sound knowledge of nutrition and dietetics.

The general impression gained during hospital surveys was that there was very little recognition of the importance of good nutrition in the treatment of patients and in shortening the period of convalescence. The diet provided for the nursing staffs of the hospitals was generally satisfactory in most respects; but the diet of the patients was generally based on a household diet with the assumption that sick people needed rather less food than well people, and consequently there was little effort made to supply foods containing the nutrients specially required for hospital patients. In particular, there was not enough recognition of the special food demands of patients in the maternity wards. Most of the recommendations made to hospitals were for the inclusion of more milk, eggs, fresh vegetables, and fruit in the diet, these foods supplying considerable amounts of the needed proteins, minerals, and vitamins.

Wherever a hospital so desired, the report of the survey and recommendations were accompanied by a menu-plan to fit in with the hospital facilities for handling food and incorporating all the proposed changes to raise the nutritional standard of the food to a satisfactory level. It is hoped that further follow-up surveys of these hospitals will be made as soon as preliminary studies are completed of hospitals which have not yet been visited.

The work of the Nutrition Adviser has gradually extended over other fields during the year. In co-operation with the Health Education Council, material has been supplied for radio scripts and publications for distribution to the public. Through newspapers and the radio the public has been informed that advice on nutritional problems can be obtained from this Department, and there is a gradually increasing number of requests for information by letter, telephone, and personal calls. Also at the request of the Health Education Council, several addresses on nutrition have been given, particularly to parents' associations, on nutrition for children. Some advice has been given in drawing up plans for new institutions with regard to the kitchens and the food service areas.

SECTION OF MENTAL HYGIENE.

B. F. R. Stafford, M.B., B.S. (Melb.), Director of Mental Hygiene and Medical Superintendent, Brisbane Mental Hospital.

In my last annual report I outlined, as further development, that there should be a greater distribution of mental hygiene facilities in the State and, towards this end, that a mental hospital should be established in North Queensland. This has been implemented, in that preliminary steps have been taken to have the preparatory work in connection with this northern Mental Hospital commenced forthwith. The establishment of this Hospital will be a distinct comfort to the relatives of patients in providing for their care and treatment in their own locality.

During the past year there were 44 men and 30 women, a total of 74 patients, admitted to the Brisbane Mental Hospital who had formerly been residents in the northern areas of the State. It would facilitate visits by their friends and relatives, which in many cases is a distinct psychological benefit to the patient concerned, if these people were treated for their mental illnesses near the centres where they formerly resided.

Further development has also been taken to provide for the more effective classification of mentally sick patients in that an area of land is being resumed in the western suburbs of Brisbane for the establishment of an intermediate hospital for the care and treatment of incipient and transient cases of mental illness and for the treatment of private and voluntary patients.

The Psychiatric Clinics at Brisbane and Toowoomba continue to function satisfactorily. A definite step forward was taken by the appointment of a full-time psychologist, Mr. J. Winship, to the staff of the Brisbane Clinic and a full-time administrative officer is now available there.

A clinic has also been established in association with the Toowoomba Mental Hospital and there the services of Dr. Boyce and Dr. Henderson are available.

Pending the establishment of an intermediate hospital, voluntary patients have been referred to the Brisbane and Toowoomba Mental Hospitals. This has been followed with an increase in the number of voluntary admissions to each of these hospitals, thus resulting in early treatment to the considerable benefit of the respective patients.

No further progress has been made, however, towards providing special accommodation for the aged and infirm who incidentally show deterioration of their mental capacities. The necessity for such special accommodation is more fully appreciated when it is realised that during the past year there were 79 male and 45 female, total 124, patients admitted to the Brisbane Mental Hospital who were aged 70 years and upwards. Many of these were naturally also declining in their physical health and 16 men and 14 women died within three months following their admission and an additional 17 men and 10 women within nine months following their admission. There were resident in the Brisbane Mental Hospital 97 men and 111 women, total 208, patients over the age of 70 years, whilst there were an additional 100 men and 105 women, total 205, over the age of 70 years residing in the Toowoomba Mental Hospital at the end of last year.

It would appear to me that these aged and infirm people would be more effectively accommodated in an aged persons' home, since the only cause for their certification as being mentally sick is the infirmity caused by their advancing years. This inability to fend for themselves owing to their age is comparable to and no greater than their inability to fend for themselves in their early infancy. It must be distressing to the relatives of these aged people in that they should be required to be certified as mentally sick before they can be afforded the adequate care and protection which their age necessitates.

The provision of this home would also allow a much better classification of the patients in the mental hospitals as determined by their mental sickness and this better classification would be further considerably helped when the separate accommodation for the criminal mentally sick patients is provided. A still greater step forward in this direction will be attained when the Backward Persons Act is implemented and the necessary accommodation required under that Act is made available.

The special wards for children at the Ipswich Mental Hospital are now becoming fully taxed, and during the past year there were a total of 32 children under the age of 15 years admitted to the mental hospitals and a total of 93 of this age were in residence at the close of the year. The provision of a separate hospital for mentally sick children is desirable, and this would be another avenue by which the better classification of adult mentally sick patients would be effected.

During the year the service was fortunate in securing three additional medical officers and, with the return to duty of the honorary consultant until then remaining on military duty, this more than counterbalanced the loss of Dr. S. Baumatz, Director of Psychiatry, who resigned during the year. Notwithstanding the loss of Dr. Baumatz's services, the work of the clinics has developed considerably by utilising the services of medical officers from the staff of the Brisbane Mental Hospital on three afternoons per week at the Brisbane Psychiatric Clinic.

During the past year meetings of the Queensland branch of the Australian Association of Psychiatrists have been attended by medical officers of the Mental Hygiene Service, which meetings were held at Brisbane and Toowoomba. Already several members of the staff are registered specialists in psychiatry, and the experience gained at the Psychiatric Clinics would be of considerable benefit to those other medical officers on the staff who intend to seek their diploma in this specialty.

The serious shortage of female nurses continues throughout the Mental Hygiene Service. A number of male nursing assistants has been employed in the female sections of the hospitals and their services have been of considerable benefit in alleviating this acute shortage of female staff even though their services could not be utilised in the intimate nursing of female patients. No untoward incidents have occurred in any of the hospitals resulting from the employment of male nurses in the female sections that would tend to detract from the benefit of the service rendered by them.

The construction of occupational therapy blocks at Toowoomba and Ipswich Mental Hospitals has been approved and this form of specialised treatment will then be available to both the male and female sections of these hospitals.

It has been decided to erect a new canteen building at the Brisbane Mental Hospital to provide for the better comfort of patients and their visiting friends or relatives. It is intended in this new canteen building that separate provision should be made for a staff dining room in addition to that provided for the patients and public. Incorporated with this project is the provision of a hairdressing salon for the better personal grooming of patients, particularly the womenfolk, by whom this service would undoubtedly be appreciated. It is intended that this salon should contain all modern facilities and render all modern hairdressing services to both male and female patients.

The reorganisation of the administration whereby the business management of the hospitals was delegated to the managing secretaries is now becoming more fully apparent, since goods formerly in short supply are more readily available. This is very noticeable in the much better dietary provided for the patients resulting from the better appointments in the several kitchens and the wider variety of supplies being available, whilst the attire of patients has also considerably improved by the better variety of clothing now on the market. The personal appearance of the patients is considerably enhanced too by the better laundering of clothing following the installation in the laundries of new and better drying and steam pressing machines. It cannot be gainsaid that a considerable help in this regard has been the close co-operation of the State Stores Board.

The area of the reserves at each of the three hospitals has been increased mainly by additional grazing areas. The Government-tested dairy herds at each hospital continue to provide a steady production of fresh milk, and a pig herd is maintained at each hospital for the profitable disposal of unavoidable food wastes, and from this source supplies of pork are occasionally made available for the patients' menu.

The Repatriation Pavilion at Wacol is almost completed and will undoubtedly provide a very high standard of treatment and accommodation for ex-servicemen patients. During the construction of this block regular visits have been paid by the officers of the Repatriation Commission, who continue to take a paternal interest in the welfare of those ex-servicemen patients whose maintenance is the responsibility of the Commission.

During the past year the Honourable the Minister for Health and Home Affairs, the Under Secretary, and the Director-General of Health and Medical Services have visited the hospitals.

My duties have frequently brought me into consultation with the Under Secretary and the Director-General, who have always evinced keen interest in any plans tending for the better administration of this Sub-department. I have interviewed various officers from the Public Works Department and other departments regarding building plans, whilst on staff matters I have frequently conferred with officers from the Public Service Commissioner's Department. I would like to express my appreciation of the courtesy and consideration that has been extended to me by these and the officers of the other Government Departments with whom my duties have brought me in contact.

A statistical table showing the movement of patients in the four mental hospitals is shown hereunder.

QUEENSLAND PSYCHIATRIC HOSPITALS.

ADMISSIONS, READMISSIONS, DISCHARGES, AND DEATHS DURING THE YEAR ENDED 30TH JUNE, 1947.

—	M.	F.	T.	Males.	Females.	Total.
On the books of the Hospitals on 1st July, 1946				2,010	1,771	3,781
Admitted for the first time	344	286	630			
Readmitted	82	56	138			
				426	342	768
Total under care during the year				2,436	2,113	4,549
Discharged—						
Recovered	131	154	285			
Section 49	28	38	66			
Relieved	27	13	40			
Not improved	7	2	9			
Voluntarily left	13	7	20			
Died	175	118	293			
Total discharged and died				381	332	713
Remaining on Books of Hospitals on 30th June, 1947				2,055	1,781	3,836
Average number daily resident				1,983	1,688	3,671
Number on leave of absence on 30th June, 1947				55	73	128
Proportion of mentally sick to each 1,000 of population as at 31st December, 1946				3·63	3·32	3·49
Proportion of admissions per 10,000 of population for year ended 31st December, 1946				7·01	6·02	6·53

BRISBANE MENTAL HOSPITAL.

There were a total of 2,674 patients treated at the Brisbane Mental Hospital during the twelve months ended 30th June, 1947. The numbers of male and female patients were approximately equal, comprising 1,370 male patients and 1,304 female patients, and there was an average of 1,927 patients daily resident during the twelve months under review. There were 304 male, 266 female, total 570, patients admitted during the year and among these was an equal number of male and female voluntary patients, 17 of each. There were also 39 male and 20 female patients transferred from the Townsville Mental Hospital who in the statistical tables furnished are treated as direct admissions.

The work of the Hospital proceeded smoothly during this period and notwithstanding the serious shortage of female nurses the requisite standard of treatment for the patients was maintained.

The various forms of specialised treatment have been continued and were facilitated considerably by the return to duty from military service of the ear, nose, and throat specialist, Dr. L. T. Jobbins, in April, 1947, and by the appointment of three other medical officers—namely, Dr. J. V. Hynes, on 28th October, 1946, Dr. J. A. Hede on 25th November, 1946, and Dr. L. L. Grimmett on 7th April, 1947. The loss of the services of Dr. S. Baumatz, Director of Psychiatry, who resigned in October, 1946, was keenly felt, but the work of the Psychiatric Clinic has since been continued and, in fact, extended by utilising the services of the additional medical officers appointed to the Brisbane Mental Hospital.

The bacteriological laboratory has been functioning efficiently since the appointment of Mr. K. Sowden on 30th July, 1946, and the various investigations carried out by this officer are of considerable assistance in the skilled treatment of the patients.

The shortage of female nurses was alleviated somewhat by the employment of a large number of male nurses assisting in the female Hospital, although, of course, the services of these male nurses could not be utilised in the intimate female nursing. With that qualification the services of the male nurses have been very helpful; nothing untoward has happened following their employment, and, on the contrary, it is felt that, in some psychological aspects, a distinct benefit might have accrued.

Schizophrenia was the most common type of mental sickness suffered by the patients admitted during the past year, which affected 80 male and 59 female patients, whilst senile cases comprised 76 males and 46 females. Mental deficiency was present in 37 male and 20 female patients.

There was a total of 309 patients discharged recovered during the twelve months, giving a recovery rate of 49 per cent. on the total number of admissions. There was a large number of aged patients admitted during the twelve months; and, if these patients over the age of 70 years and the mental defectives were excluded, the recovery rate assessed on the remainder would average 64 per cent. on the admissions.

The general health of the patients was good and there were no serious outbreaks of illness or epidemics. Of the total of 196 deaths which occurred during the year, 100 were aged 70 years and upwards, 4 patients were aged between 90 and 95, whilst 2 were over 95 years of age. Fourteen of the patients who died had been resident in the hospital over 20 years, 5 over 30 years, 1 over 40 years, and 1 over 50 years.

During the period under review, one male patient met a violent death, apparently being accidentally killed by a train. He had absconded from the hospital early one evening, and during the latter part of the night had apparently been killed by a train whilst he was walking along the railway line. In the female hospital two suicides occurred by hanging, in each of which two cases a coronial inquiry was held.

There were two female children born in the hospital during the year. The births in both these cases resulting from pregnancies conceived before the admission of the mothers.

There were 17 male patients who absconded during the year, several of whom were convalescent and were members of parties occupied about the Hospital grounds. Some of those who absconded returned to their homes and were allowed on leave in care of the relatives; one unfortunately met with apparently accidental death while walking along the railway line; two were discharged; and the remainder returned to the hospital.

The accommodation of both the male and female hospitals continues to be fully taxed, and to ease this condition 85 patients were transferred to the Toowoomba Mental Hospital and 22 to the Ipswich Mental Hospital during the past year to fill vacancies occurring at those hospitals.

The dental treatment of patients has been continued and it is intended to amplify this service when the new dental surgery is occupied within the next few months.

An X-ray plant has been delivered to the Hospital and the benefit of this will be available in the treatment of patients as soon as the necessary fittings come to hand, when the services of a technician will be sought.

The visiting optometrist, Mr. H. G. McPhail, visited the Hospital regularly and frequently and his services were freely availed of by many patients needing spectacles.

The honorary chiropodists visited the Hospital during the year and their services added considerably to the comfort of those patients whom they treated.

The kitchen appointments have been enhanced during the past year by the provision of an additional electric cake-mixer, and with the increase in our staff this enables the patients' dietary to be further varied and improved. The services of the Departmental Dietitian, Miss McNae, were made available for our guidance and benefit in this connection. Milk continues to be supplied from the tested dairy herd, pork was provided on several occasions from pigs grown on the Hospital reserve, and there were 100 tons of green vegetables produced from our market gardens.

Efforts are continually being directed to bring the wearing apparel of the patients in keeping with modern customs, and close co-operation in this regard is extended by the Management of the State Stores Board. We are helped considerably, too, by the installation of a steam press

during the current year, and two more presses are about to be installed. The resultant benefit from an aesthetic point of view is immeasurable.

During the past year Dr. F. C. Turnbull and Mr. J. J. Leahy were appointed official visitors to the Hospital and made regular visits of inspection. They made a close study of the various phases of the working of the Hospital and expressed their assurance that the well-being of the patients was safeguarded and that modern methods of treatment were accurately pursued.

The area of the Hospital reserve was increased by the resumption of adjoining land, and the total area of the Hospital reserve is now 1,368 acres.

With the growth of the Hospital population, considerable anxiety has been felt in the past regarding the sufficiency of our water supply. This has been remedied during the past year by the construction of an additional low-level reservoir with a capacity of 250,000 gallons and by cement lining the main supplying the Hospital.

The road surfaces within the Hospital grounds have been bitumenised during the past year, which considerably enhanced the panorama of our grounds. This aspect will be further accentuated with the services of the Acting Superintendent of Institutional Gardens, who has made several visits to this Hospital.

A new canteen building is under construction and it will be fitted with modern appointments which will add greatly to the comfort of the patients and more particularly of their visitors who often come some distance. The new building will be situated in a scenic setting in the park. In addition to providing desirable and necessary little comforts to patients, visitors and staff, this building should blend picturesquely with the adjoining Hospital buildings.

Staff changes during the past year, in addition to the professional officers already referred to, resulted in Mr. E. Wolf, head male nurse, being transferred on promotion to "Eventide," Sandgate, and as a result Mr. Owen Smith resumed duty, as head male nurse, in the Mental Hygiene Service. Charge Male Nurse C. G. Collins was retired during the past year on account of ill-health and Male Nurses E. Pinner, A. Russell, G. Seeley, and W. Whyte, and Mattress-maker J. L. Harvey were retired after periods of long and meritorious service with the Hospital.

Entertainments are held regularly and frequently in the recreation hall, comprising picture shows weekly throughout the year, dances during the cooler months, whilst concert parties frequently visit and provide much appreciated entertainments.

The religious interests of all patients are guarded and services of the various denominations are held regularly, whilst some patients attend divine services in the nearby church.

The Red Cross Society continues to supply extras of fruit, cake, sweets, and tobacco weekly to the returned soldiers from both wars, whilst the local sub-branch of the R.S.S.A.I.L.A. also provides for the comfort and entertainment of these patients. The local branch of the Country Women's Association provides regular entertainments for the female patients in the Hospital, whilst the Silver Shield Hut continues to pay regular visits to a number of the ex-servicemen patients.

The daily newspapers and periodicals are provided to the various wards throughout the Hospital 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 and bagatelle tables. Several of the male and female wards have ping-pong tables. The ward libraries are kept replenished.

The canteen continues to function satisfactorily in temporary accommodation until the new canteen building is provided.

TABLE I.—BRISBANE MENTAL HOSPITAL.

ADMISSIONS, READMISSIONS, DISCHARGES, AND DEATHS DURING THE YEAR ENDING 30TH JUNE, 1947.

	M.	F.	T.	Males.	Females.	Total.
On the books of the hospital on 30th June, 1946				1,019	1,018	2,037
Admitted for the first time	243	219	462			
Readmitted	61	47	108			
Transferred from Toowoomba	5	..	5			
Transferred from Ipswich	3	..	3			
Transferred from Townsville	39	20	59			
				351	286	637
Total under care during year				1,370	1,304	2,674
Discharged, died, transferred—						
Discharged recovered	100	131	231			
Discharged under section 49	22	36	58			
Discharged relieved	12	8	20			
Discharged not improved	2	..	2			
Voluntarily left	13	7	20			
Transferred to Toowoomba	40	45	85			
Transferred to Ipswich	15	7	22			
Transferred to Townsville	1	..	1			
Died	112	84	196			
Total discharged, died, &c., during year				317	318	635
Remaining on the books of the hospital on 30th June, 1947				1,053	986	2,039
Average number daily resident				1,001	926	1,927
Number on leave of absence on 30th June, 1947				44	55	99

TABLE II.

ADMISSIONS, DISCHARGES, AND DEATHS WITH THE PROPORTIONS OF RECOVERIES AND DEATHS PER CENT. DURING YEAR ENDED 30TH JUNE, 1947.

—	Admitted (including transfers from Townsville).	Re-admitted.	Discharged.			Died.	Remaining on 30th June, 1947.	Average Number Daily Resident.	Percentage of Recoveries on Admissions.	Percentage of Patients Relieved.	Percentage of Deaths on Average Number Resident.
			Recovered.	Relieved.	Not Improved.						
Females ..	239	47	174	8	..	84	986	926	60·83	2·79	9·07
Males ..	282	61	135	12	2	112	1,053	1,001	39·47	3·51	11·18
Total ..	521	108	309	20	2	196	2,039	1,927	49·20	3·18	10·17

TABLE III.—BRISBANE MENTAL HOSPITAL.

FORMS OF MENTAL DISORDERS IN PATIENTS ADMITTED DURING THE TWELVE MONTHS.

—	Male.	Female.
1. AFFECTIVE REACTION TYPES—		
(*a*) *Mania*	5	7
Mania (Puerperal)	..	1
Recurrent Mania	..	2
Acute mania	1	1
Agitated Depression	1	3
Simplia Mania	..	1
Chronic Mania	..	1
Depression	21	17
Paranoia	2	..
(*b*) *Involutional Psychosis*	..	13
Involutional Depression	..	10
2. SCHIZOPHRENIC REACTION TYPES—		
(*a*) *Schizophrenia*	80	59
Schizophrenia Dementia	..	1
Katatonic Schizo	..	2
(*b*) *Paraphrenia*	31	36
3. ORGANIC REACTION TYPES—		
(*a*) *Organic Psychosis*	..	1
Organic Psychosis (associated with Huntington's Chorea)	..	1
Organic Psychosis (Parkinsonianism Post Encephalitis)	2	1
Organic Psychosis (Thyroid)	..	1
Organic Dementia (Secondary Cerebral Degeneration)	3	1
Disseminated Sclerosis	2	..
(*b*) *Toxins*—		
Alcoholic Psychosis	15	4
Alcoholic Hallucinosis	1	..
Alcoholic Psychosis (Korsakoff) ..	2	1
Alcoholic Dementia	3	1
Alcoholic and Mental Subnormal ..	1	..
Confusional Psychosis	..	2
Dementia Paralytica	11	1
Tabo-paresis Congenital	..	1
Thyrotoxic Psychosis	..	1
Malarial Encephalopathy	1	..
(*c*) *Degenerative Brain Changes*—		
Senile Dementia and Epilepsy ..	1	..
Senile Dementia	48	37
Pre-senile Dementia	5	1
Senile Psychosis	22	8
Pre-senile Psychosis	..	4
Arterio Sclerosis Dementia	17	13
Arterio Sclerosis Psychosis	12	9
4. EPILEPTIC REACTION TYPES—		
Epileptic Psychosis	5	5
Epileptic Dementia	1	3
5. PSYCHONEUROTIC REACTION TYPES—		
Psychoneurosis	6	13
6 MENTAL DEFICIENCY—		
Mental Deficiency	20	13
Mental Deficiency with Epilepsy ..	7	2
(*a*) *Mental Deficiency with Alcohol* ..	1	..
Mental Deficiency with manic depressive	..	1
Mental Deficiency with Schizophrenia	5	1
Mental Deficiency with petit mal ..	1	1
(*b*) *Idiocy*—		
With Epilepsy	1	1
Without Epilepsy	..	1
(*c*) *Imbecility*—		
Mongolism	1	2
(*d*) *Moral Deficiency*	6	1
7. Traumatic Psychosis	2	..
	343	286

TABLE IV.—BRISBANE MENTAL HOSPITAL.

CAUSES OF DEATHS DURING THE TWELVE MONTHS ENDED 30TH JUNE, 1947.

	Females.	Males.
GENERAL DISEASES—		
Suicide (hanging)	2	..
Drowning	1	..
Abscesses	1	..
Acromelagy	..	1
Acute Parotitis	..	1
Cachexia	..	2
Diabetes	2	1
Mammary Carcinoma	1	..
Vaginal Carcinoma	1	..
Carcinoma of cervix of uterus	1	..
DISEASES OF NERVOUS SYSTEM—		
Acute Mania	1	2
Mania	1	..
Cerebral Hæmorrhage	4	..
Epilepsy	2	..
Senility	1	..
Dementia Paralytica	2	1
Juvenile Tabes Dorsalis	1	..
Cerebral Thrombosis	..	2
Exhaustion of Mania	..	3
Hemiplegia	..	1
DISEASES OF CIRCULATORY SYSTEM—		
Arterio-sclerosis	1	9
Coronary Occlusion	1	4
Cardio Vascular Degeneration	21	17
Myocarditis	13	38
Congestive Cardiac failure	1	..
Cardiac Vascular Disease	7	..
Chronic Cardiac Disease	..	1
Disseminated Sclerosis	..	3
Coronary Thrombosis	..	1
Hypertension	..	1
Suppurative Pylephlebitis	1	..
DISEASES OF RESPIRATORY SYSTEM—		
Broncho-Pneumonia	8	6
Bronchial Influenza	1	..
Pulmonary Oedema	1	..
Bronchial Asthma	1	..
Acute Lobar Pneumonia	1	2
Pulmonary Tuberculosis	2	6
Hypostatic Pneumonia	..	1
Bronchogenic Carcinoma	..	1
DISEASES OF ALIMENTARY SYSTEM—		
Colitis	3	..
Carcinoma of Aesophagus	..	1
Perforation of Gastric Ulcer	..	1
Ulcerated Ileum	..	1
Bacillary Dysentery	..	1
Carcinoma of Colon	..	1
DISEASES OF GENITO-URINARY SYSTEM—		
Uræmia	1	..
Nephritis	..	1
Bilateral Pyonephrosis	..	1
Subject to Coronial Inquiry	..	1
	84	112

TABLE V.—BRISBANE MENTAL HOSPITAL.

BODILY HEALTH AND CONDITION OF PATIENTS ADMITTED DURING TWELVE MONTHS.

	Male.	Female.
In apparently good health and condition	160	168
In indifferent health and reduced condition	145	84
In bad health and exhausted condition	38	34
Total	343	286

TABLE VI.—BRISBANE MENTAL HOSPITAL.

BIRTHPLACES OF PATIENTS ADMITTED DURING THE YEAR.

	Female.	Male.
Queensland	200	198
New South Wales	21	30
Victoria	9	10
South Australia	..	3
Western Australia	..	1
Tasmania	..	..
Latvia	..	1
Timor	..	1
China	..	2
India	..	1
New Zealand	4	4
Palestine	..	1
England	21	43
Wales	2	..
United States of America	..	1
Scotland	9	11
Ireland	10	12
Italy	4	3
Java	..	1
Germany	2	2
Canada	1	..
Norway	..	3
Denmark	..	1
Russia	..	1
Poland	..	1
South Sea Island	..	1
South Africa	..	1
Unknown	3	18
	286	351

TABLE VII.—BRISBANE MENTAL HOSPITAL.

DISTRICTS WHENCE PATIENTS WERE RECEIVED DURING THE TWELVE MONTHS.

	Female.	Male.	Total.
Northern and north-western districts	30	44	74
Central Districts	16	32	48
Southern and south-western Districts	240	275	515
	286	351	637

TABLE VIII.—BRISBANE MENTAL HOSPITAL.

AGES OF PATIENTS WHOSE ADMISSIONS, DISCHARGES OR DEATHS OCCURRED DURING THE YEAR, AND OF THOSE WHO REMAINED IN THE HOSPITAL ON 30TH JUNE, 1947.

Ages.	Admissions.			Discharges.						Deaths.			Remaining.		
				Recovered.			Relieved and not Improved.								
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
Under 5 years	2	..	2	1	..	1	..	..	..	..	..	..	..	..	..
5 years and under 10 years	..	..	..	2	..	2	..	..	..	..	..	..	2	..	2
10 years and under 15 years	2	2	4	..	2	2	1	..	1	1	..	1	10	1	11
15 years and under 20 years	9	5	14	4	3	7	..	..	..	1	..	1	31	14	45
20 years and under 30 years	68	40	108	32	34	66	2	..	2	1	1	2	132	105	237
30 years and under 40 years	54	44	98	24	36	60	4	2	6	4	7	11	207	180	387
40 years and under 50 years	49	44	93	26	33	59	5	2	7	16	5	21	226	227	453
50 years and under 60 years	55	59	114	31	34	65	..	1	1	11	9	20	202	214	416
60 years and under 70 years	33	47	80	8	22	30	1	1	2	24	15	39	146	134	280
70 years and under 80 years	50	29	79	4	9	13	1	1	2	38	25	63	71	75	146
80 years and under 90 years	18	15	33	1	1	2	..	1	1	12	19	31	23	29	52
90 years and over	3	..	3	..	..	..	..	..	..	3	3	6	2	7	9
Unknown	8	1	9	2	..	2	..	..	..	1	..	1	1	..	1
	351	286	637	135	174	309	14	8	22	112	84	196	1,053	986	2,039

TABLE IX.—BRISBANE MENTAL HOSPITAL.

PREVIOUS OCCUPATIONS OF PATIENTS ADMITTED DURING THE TWELVE MONTHS.

—	Male.	Female.	—	Male.	Female.
Apiarist	2	..	Meatworker	3	..
Bank manager	1	..	Medical student	1	..
Blacksmith	1	..	Medical practitioner	1	..
Boot repairer	1	..	Messenger	1	..
Butcher	4	..	Miner	4	..
Cabinet maker	2	..	Motor mechanic	3	..
Cane cutter	5	..	Munition worker	..	1
Cane farmer	2	..	Night watchman	1	..
Carpenter	9	..	Nurse	..	6
Chemist	2	..	Packer	4	..
Child	3	..	Painter	3	..
Cleaner	..	2	Pensioner	39	19
Clerk	12	2	Poultry packer	..	1
Comptometrist	..	1	Pottery hand	1	..
Commercial traveller	2	..	Plumber	2	..
Carrier	2	..	Policeman	2	..
Coppersmith	1	..	Printer	1	..
Domestic duties	..	66	Postman	1	..
Draper	1	..	Riding school instructor	1	..
Dentist	1	..	Railway employee	7	..
Coachbuilder	1	..	School teacher	2	1
Dressmaker	..	1	Seaman	5	..
Drover	2	..	Shop assistant	3	3
Electrician	4	..	Sawmiller	1	..
Engine driver	5	..	Seamstress	..	1
Factory hand	..	3	Shearer	2	..
Farmer	26	..	Sheetmetal worker	1	..
Fettler	1	..	Saddler	1	..
Fisherman	1	..	Salesman	2	..
Freezer	1	..	Station hand	6	..
Gem cutter	1	..	Storekeeper	7	..
Gardener	4	..	Student	1	..
Grazier	3	..	Timber worker	4	..
Grocer	1	..	Typist	..	2
Garage proprietor	1	..	Train conductor	1	..
Hotel owner	..	1	Truck driver	1	..
Housewife	..	148	Welder	1	..
Journalist	1	..	Waitress	..	2
Kitchenman	1	..	Wharf labourer	5	..
Laundress	..	3	Yardman	1	..
Labourer	98	..	Unknown	20	2
Machinist	..	2	Nil	8	19
Milk vendor	1	..			
Mechanic	1	..	Total	351	286

TABLE X.—BRISBANE MENTAL HOSPITAL.

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, 1947.

Condition as Regards Marriage.	Admissions.			Discharges.						Deaths.			Remaining.		
				Recovered.			Relieved and Not Improved.								
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Single	203	84	287	68	56	124	12	1	13	47	26	73	809	480	1,289
Married	107	126	233	58	90	148	2	4	6	44	21	65	195	362	557
Widowed	27	71	98	1	26	27	..	3	3	18	36	54	28	131	159
Divorced	5	3	8	3	2	5	..	..	..	..	..	..	11	9	20
Unknown	9	2	11	5	..	5	..	..	..	3	1	4	10	4	14
	351	286	637	135	174	309	14	8	22	112	84	196	1,053	986	2,039

TABLE XI.—BRISBANE MENTAL HOSPITAL.

LENGTH OF RESIDENCE IN THE HOSPITAL 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, 1947.

Length of Residence.	Discharges.									Voluntarily Left.			Deaths.			Remaining.		
	Recovered.			Section 49.			Relieved and not Improved.											
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
Under 1 month ..	5	1	6	..	..	..	1	1	2	6	2	8	15	10	25	22	21	43
1 month and under 3 months ..	19	19	38	..	..	..	2	..	2	5	2	7	15	14	29	45	54	99
3 months and under 6 months	27	37	64	2	5	7	3	4	7	1	..	1	15	7	22	48	40	88
6 months and under 9 months	19	23	42	3	7	10	1	1	2	1	2	3	17	7	24	52	33	85
9 months and under 12 months	12	19	31	4	3	7	1	..	1	..	..	..	1	3	4	35	23	58
1 year and under 2 years ..	10	12	22	5	12	17	2	..	2	..	..	..	10	13	23	88	113	201
2 years and under 3 years ..	5	5	10	3	2	5	2	..	2	..	..	..	4	7	11	73	70	143
3 years and under 5 years ..	2	8	10	3	3	6	2	1	3	..	1	1	7	8	15	108	122	230
5 years and under 7 years ..	1	2	3	..	2	2	..	..	..	..	..	..	6	5	11	92	105	197
7 years and under 10 years ..	..	2	2	..	2	2	..	1	1	..	..	..	5	1	6	104	136	240
10 years and under 12 years ..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	3	67	56	123
12 years and under 15 years ..	..	..	..	..	..	..	..	..	..	..	..	..	1	4	5	76	64	140
15 years and under 20 years ..	..	3	3	..	..	..	..	..	..	..	..	..	2	2	4	94	68	162
20 years and over	..	..	..	2	..	2	..	..	..	..	..	..	11	3	14	149	81	230
	100	131	231	22	36	58	14	8	22	13	7	20	112	84	196	1,053	986	2,039

TABLE XII.—BRISBANE MENTAL HOSPITAL.

QUANTITIES OF VEGETABLE AND FARM PRODUCE.

	Tons.
Chaff	60
Ensilage	150
Green vegetables	43
Green feed	430
Maize	6
Potatoes	29
Pumpkins and turnips	25
Lucerne and hay	165

TABLE XIII.—BRISBANE MENTAL HOSPITAL.

EXPENDITURE TABLE.

Average number of daily residents during the twelve months 1927

	£	s.	d.
Total expenditure	216,400	18	6
Maintenance collected by Public Curator	31,269	7	2
Sales	2,150	16	11
Net expenditure	182,980	14	5
Gross cost per patient per annum ..	112	6	0
Net cost per patient per annum ..	94	19	2
Gross cost per patient per week ..	2	3	2
Net cost per patient per week	1	16	6

TOOWOOMBA MENTAL HOSPITAL.

C. R. Boyce, M.B. (Syd.) Medical Superintendent.

General.—The past year has seen a slow but sure improvement in the living conditions of the patients at this Institution.

All phases of their lives come into this consideration and more itemised details hereunder will reveal—

1. Improved and more varied diet and preparation of food;
2. Better facilities for exercise and entertainment;
3. Better sleeping accommodation and clothing generally;
4. Increases in staff for special and necessary work;
5. Better equipment and machinery for performing this work.

The comfort and convenience of the staff has not been overlooked, and wherever possible they have been provided with the opportunities for organised sport, for safe parking of vehicles, and more modern equipment to make their work easier and more efficient.

Many repairs are being effected to the Institution's numerous buildings, and the grounds under the direction of the Acting Superintendent of Institutional Gardens are rapidly assuming a park-like aspect of beauty and order.

Serious staff shortages are still evident, but the many young ex-servicemen employed are doing excellent work, and the staff shortage is not reflected in any neglect of or discomfort to the patients.

The establishment of the Psychiatric Clinic has proved of value, and gratitude has been expressed from the Toowoomba General Hospital and from general medical practitioners in the town.

A feeling of harmony and full co-operation now exists between these two public bodies and ourselves, and both are able to send border-line and pre-psychotic patients to us for special treatment and care.

Magisterial Inquiries.—No magisterial inquiries were held during the past twelve months concerning the death of any patient.

Births.—No births took place in the Institution during the year.

Escapes.—There were 11 escapes—8 male and 3 female patients—during the year; 5 were recaptured on the day of escape, 4 the following day, 1 on the fifth day, and 1 was discharged under section 49 (3) of "*The Mental Hygiene Act of* 1938."

Recreation.—Weekly talkie entertainments and fortnightly orchestral dances during the winter months have been provided the patients. Radio entertainment has been provided in all wards, including the hospital block. A wireless set has also been installed in the sewing room. Band concerts have been provided by the Toowoomba Salvation Army and Toowoomba Municipal Bands. Cricket, football, tennis, and basket-ball matches have been held on the recreation ground, providing the patients with outdoor entertainment. The Willowburn Branch of the C.W.A. entertained the female patients on various occasions. The R.S.S.A.I.L.A., Toowoomba, entertained the returned soldier patients with concert parties, Christmas dinner, and a picnic in the country. The Red Cross Society provided regular supplies of lollies, tobacco, and fruit for returned soldier patients.

Religious Services.—Religious services have been held regularly during the year.

Dental Treatment.—A short weekly visit was regularly made by the Visiting Dentist during the year. It is anticipated that a more efficient service will be provided for the patients in the near future with the provison of a full-tme dentist. The Toowoomba Dental Clinic greatly assisted in the provision of dentures and denture repairs for our needy patients.

Chiropody.—Mr. Gillett, visiting chiropodist, paid regular monthly visits.

Optometry.—Mr. McPhail, optometrist, provided various patients with spectacles during the year.

Honorary Consulting Surgeon.—The honorary consulting surgeon has not been required to visit the Institution, but several patients during the year attended his surgery for diagnosis and/or operation.

Honorary Consulting Physician.—This officer has rarely been required to visit us and not more than once during the past year. Some patients, at our request, and in an Institution vehicle have attended at his consulting rooms.

Official Visitors.—Dr. J. G. Hulme paid regular monthly visits during the year.

TABLE I.—TOOWOOMBA MENTAL HOSPITAL.

Admissions, Readmissions, Discharges, Deaths During the Year Ended 30th June, 1947.

—	Males.	Females.	Total.
On books of hospital on 30th June, 1946	619	591	1,210
Admitted for the first time	31	34	65
Readmitted	20	9	29
Transferred from Brisbane	38	45	83
Transferred from Ipswich	..	..	..
	89	88	177
Total under care	708	679	1,387
Discharged, died, transferred—			
Discharged—Recovered	22	19	41
Discharged—Relieved	10	5	15
Discharged—Not improved	3	2	5
Discharged—Section 49	5	2	7
Transferred to Ipswich	..	..	..
Transferred to Brisbane	3	..	3
Died	37	24	61
Total discharged, died, &c.	80	52	132
Remaining on books on 30th June, 1947	628	627	1,255
Average number daily resident	611	595	1,206
Number on leave of absence on 30th June, 1947	10	17	27

TABLE II.—TOOWOOMBA MENTAL HOSPITAL.

FORMS OF MENTAL DISORDERS IN PATIENTS ADMITTED DURING THE TWELVE MONTHS.

—	Males.	Females.	Total.
1. AFFECTIVE REACTION TYPES—			
(a) *Acute Melancholia*	4	7	11
Simple Melancholia	2	..	2
M.D. with Alcoholism	2	..	2
Acute Mania	3	1	4
Chronic Mania	..	2	2
M.D. with Chronic Alcoholism	3	..	3
Simple Mania	..	2	2
Mixed State	..	1	1
Reactive Depression	..	1	1
2. SCHIZOPHRENIC REACTION TYPES—			
(a) *Schizophrenia*	1	9	10
Schizophrenia with Mental Deficiency	1	..	1
(b) *Paraphrenia*	1	1	2
3. EPILEPTIC REACTION TYPES—			
Epilepsy with Mental Deficiency	1	..	1
Epileptic Psychosis	4	3	7
Hysteria with Epilepsy	..	1	1
4. ORGANIC REACTION TYPES—			
(a) *Huntington's Chorea*	..	1	1
(b) *Chronic Alcoholism with Epilepsy*	2	..	2
Arteriosclerosis	..	4	4
Chronic Alcoholism	3	1	4
Acute Alcoholism and head injury	1	..	1
Alcoholic Acute Hallucinosis	2	..	2
Alcoholic Acute Hallucinosis with schizoid personality	1	..	1
(c) *Degenerative Brain Changes*—			
Senile Psychosis	5	1	6
5. PSYCHONEUROTIC REACTION TYPES—			
Anxiety Neurosis	4	5	9
Anxiety Neurosis with Alcoholism	1	..	1
6. MENTAL DEFICIENCY—			
(c) *Imbecility*—			
Imbecile	1	..	1
Imbecile with Psychosis	1	..	1
(d) *Feeble minded*	2	2	4
(h) *Spastic Paraplegia with Psychosis*	1	..	1
EPILEPSY	1	..	1
PSYCHOPATHIC PERSONALITY	1	1	2
SCHIZOID PERSONALITY WITH ALCOHOLISM	2	..	2
PERSONALITY DEFECT WITH ALCOHOLISM	1	..	1
Total	51	43	94

TABLE III.—TOOWOOMBA MENTAL HOSPITAL

CAUSES OF DEATHS DURING THE TWELVE MONTHS ENDING 30TH JUNE, 1947.

—	Males.	Females.	Total.
GENERAL DISEASES—			
Carcinoma (Liver)	1	..	1
Epithelioma of the Face	..	1	1
Pulmonary Embolus	1	..	1
Senility	1	..	1
DISEASES OF NERVOUS SYSTEM—			
Cerebral Hæmorrhage	..	1	1
Cerebral Thrombosis	1	1	2
Epilepsy	1	..	1
Hemiplegia	..	1	1
DISEASES OF CIRCULATORY SYSTEM—			
Acute Endocarditis	1	..	1
Acute Myocarditis	3	1	4
Chronic Myocarditis	1	..	1
Coronary Occlusion	..	1	1
Exhaustion	1	..	1
Myocardial Degeneration	2	2	4
Myocarditis	8	10	18
Ruptured left Ventricle	1	..	1
DISEASES OF RESPIRATORY SYSTEM—			
Acute Miliary Tuberculosis	1	..	1
Broncho Pneumonia	4	4	8
Pneumonia	..	1	1
Pulmonary Tuberculosis	4	..	4
DISEASES OF ALIMENTARY SYSTEM—			
Acute Intestinal Obstruction	..	1	1
Carcinoma of the Stomach	1	..	1
Peritonitis	1	..	1
Peritonitis (Ruptured Duodenal Ulcer)	1	..	1
Schirrhous Carcinoma of the Bowel	1	..	1
DISEASES OF GENITO-URINARY SYSTEM—			
Acute Nephritis	1	..	1
Uraemia	1	..	1
	37	24	61

TABLE IV.—TOOWOOMBA MENTAL HOSPITAL.

BODILY HEALTH AND CONDITION OF PATIENTS ADMITTED DURING THE TWELVE MONTHS.

—	Males.	Females.	Total.
In apparently good health and condition	29	24	53
In indifferent health and reduced condition	13	12	25
In bad health and exhausted condition	9	7	16
	51	43	94

TABLE V.—TOOWOOMBA MENTAL HOSPITAL.

BIRTHPLACES OF PATIENTS ADMITTED DURING THE YEAR.

—	Males.	Females.	Total.
Queensland	26	29	55
New South Wales	6	12	18
Victoria	4	..	4
South Australia	4	1	5
England	5	..	5
Ireland	3	..	3
Italy	1	..	1
Unknown	2	1	3
	51	43	94

TABLE VI.—TOOWOOMBA MENTAL HOSPITAL.

DISTRICTS WHENCE PATIENTS WERE RECEIVED DURING THE TWELVE MONTHS ENDING 30TH JUNE, 1947.

—	Males.	Females.	Total.
Northern and north-western Districts	..	..	..
Central Districts	..	..	..
Southern and south-western Districts	29	24	53
Toowoomba District	22	19	41
	51	43	94

TABLE VII.—TOOWOOMBA MENTAL HOSPITAL.

AGES OF PATIENTS WHOSE ADMISSIONS, DISCHARGES OR DEATHS OCCURRED DURING THE YEAR, AND OF THOSE WHO REMAINED IN THE HOSPITAL ON 30TH JUNE, 1947.

Ages.	Admissions.			Discharges.						Deaths.			Remaining.		
				Recovered.			Relieved and not Improved.								
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
Under 5 years	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5 years and under 10 years	..	..	..	..	..	..	..	..	..	..	..	..	2	2	4
10 years and under 15 years	3	..	3	..	..	..	..	..	..	..	..	..	6	2	8
15 years and under 20 years	2	..	2	..	..	..	1	..	1	1	..	1	10	1	11
20 years and under 30 years	7	8	15	4	3	7	1	2	3	4	..	4	30	23	53
30 years and under 40 years	7	14	21	7	4	11	3	1	4	2	1	3	83	72	155
40 years and under 50 years	14	5	19	6	3	9	6	1	7	2	1	3	114	110	224
50 years and under 60 years	10	10	20	5	7	12	2	4	6	5	5	10	162	180	342
60 years and under 70 years	2	5	7	..	2	2	2	1	3	8	5	13	121	132	253
70 years and under 80 years	5	1	6	..	..	..	2	..	2	6	8	14	78	85	163
80 years and under 90 years	1	..	1	..	..	..	..	..	..	9	4	13	19	15	34
90 years and over	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2
Unknown	..	..	..	..	..	..	1	..	1	..	..	..	3	3	6
	51	43	94	22	19	41	18	9	27	37	24	61	628	627	1,255

TABLE VIII.—TOOWOOMBA MENTAL HOSPITAL.

PREVIOUS OCCUPATIONS OF PATIENTS ADMITTED DURING THE TWELVE MONTHS.

——	Males.	Females.	Total.	——	Males.	Females.	Total.
Bicycle manufacturer	1	..	1	Postmaster	1	..	1
Bookmaker's clerk	1	..	1	Plumber	3	..	3
Carpenter	1	..	1	Remittance man	2	..	2
Cook	1	..	1	Salesman	1	..	1
Dairy farmer	2	..	2	School teacher	1	1	2
Domestic duties	..	9	9	Scrub cutter	1	..	1
Factory worker	..	1	1	Shearer	1	..	1
Farmer	2	..	2	Shop assistant	2	2	4
Gardener	2	..	2	Station hand	1	..	1
Grazier	1	..	1	Storeman	1	..	1
Housekeeper	..	1	1	Unknown	1	..	1
Housewife	..	21	21	W.A.A.A.F.	..	1	1
Labourer	8	..	8	Wardsman	1	..	1
Machinist	..	1	1	Wool and skin merchant	2	..	2
Mechanic	1	..	1	Yardman	1	..	1
Nil	7	3	10				
Painter	1	..	1		51	43	94
Pensioner	4	3	7				

TABLE IX.—TOOWOOMBA MENTAL HOSPITAL.

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, 1947.

Condition as Regards Marriage.	Admissions.			Discharges.						Deaths.			Remaining.		
				Recovered.			Relieved and Not Improved.								
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Single	29	15	44	13	6	19	13	5	18	24	15	39	503	327	830
Married	20	21	41	9	8	17	5	3	8	10	6	16	87	240	327
Widowed	1	7	8	..	5	5	..	1	1	..	2	2	16	44	60
Divorced	..	..	..	..	..	..	..	..	..	..	..	..	2	11	13
Unknown	1	..	1	..	..	..	..	..	..	3	1	4	20	5	25
	51	43	94	22	19	41	18	9	27	37	24	61	628	627	1,255

TABLE X.—TOOWOOMBA MENTAL HOSPITAL.

LENGTH OF RESIDENCE IN THE HOSPITAL 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, 1947.

Length of Residence.	Discharges.									Deaths.			Remaining.		
	Recovered.			Section 49.			Relieved and Not Improved.								
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Under 1 month ..	8	5	13	..	..	..	2	..	2	5	..	5	3	13	16
1 month and under 3 months ..	9	5	14	..	..	..	3	1	4	..	1	1	5	6	11
3 months and under 6 months ..	..	3	3	1	..	1	3	2	5	2	..	2	17	7	24
6 months and under 9 months ..	2	2	4	..	..	..	..	..	..	..	..	..	24	12	36
9 months and under 12 months ..	1	2	3	2	..	2	..	..	..	2	..	2	3	30	33
1 year and under 2 years	..	1	1	..	..	..	2	2	4	3	1	4	48	21	69
2 years and under 3 years	1	1	2	..	..	..	1	..	1	..	..	..	15	11	26
3 years and under 5 years	..	..	..	..	1	1	2	2	4	..	..	..	55	44	99
5 years and under 7 years	..	..	..	..	..	..	..	..	..	5	3	8	62	25	87
7 years and under 10 years	..	..	..	1	..	1	..	..	..	1	3	4	58	64	122
10 years and under 12 years	..	..	..	..	..	..	..	..	..	..	3	3	20	62	82
12 years and under 15 years	1	..	1	..	..	..	..	..	..	3	..	3	58	65	123
15 years and under 20 years	..	..	..	1	1	2	..	..	..	1	3	4	61	64	125
20 years and over ..	..	..	..	..	..	..	..	..	..	15	10	25	199	203	402
	22	19	41	5	2	7	13	7	20	37	24	61	628	627	1,255

TABLE XI.—TOOWOOMBA MENTAL HOSPITAL.

QUANTITIES OF VEGETABLES AND FARM PRODUCE.

Turnips	6	tons
Pumpkins	9¼	tons
Maize (grain)	175	bags
Ensilage	300	tons
Sorghum (green fed)	120	tons
Lucerne	6	tons
Maize (green feed)	8	tons
Garden vegetables	55¾	tons

TABLE XII.—TOOWOOMBA MENTAL HOSPITAL.

EXPENDITURE TABLE.

——	Males.	Females.	Total.
Average number daily resident during the twelve months ..	611	595	1,206
		£ s. d.	
Total expenditure		122,707 3 1	
Maintenance collected by Public Curator		11,520 16 10	
Sales		435 18 2	
Net expenditure		110,750 8 1	
Gross cost per patient per annum ..		101 14 11	
Net cost per patient per annum ..		91 16 5	
Gross cost per patient per week ..		1 19 1	
Net cost per patient per week		1 15 3	

IPSWICH MENTAL HOSPITAL.

W. P. H. Parker, L.R.C.P. & S.(Irel.), Medical Superintendent.

The general health of the patients has been satisfactory and there were no serious epidemics.

Patients have been entertained with dances, talking pictures, band and concert parties.

The members of the local sub-branch of the R.S.S.A.I.L.A. have continued their hospitality to the returned soldier patients.

The Red Cross Society continues to donate gifts to the returned soldier patients weekly.

The staff orchestra supplied the music for the patients' fortnightly dances.

The clergy of the various denominations visited our sick patients and religious services were held regularly.

The visiting dentist (Mr. McKenna) attends to the patients each fortnight.

The visiting magistrate and the Director of Mental Hygiene have visited the institution regularly.

No magisterial inquiries were held during the twelve months.

There were no actual escapes during the year, but one male patient who was absent on leave, and who failed to return at the expiration of the leave, was deemed to have escaped, and was discharged under section 49 of the Mental Hygiene Act.

There is still a shortage of female nurses, but the situation has been relieved by employing male assistants in the wards who assist in routine ward duties.

I regret to record the death of Male Nurse R. H. Wood on the 14th June, 1947, and my sympathy is extended to his widow.

The various statistical tables have been compiled and are shown hereunder.

TABLE I.—MENTAL HOSPITAL, IPSWICH.

Admissions, Readmissions, Discharges, and Deaths During the Year Ending 30th June, 1947.

—	Males.	Females.	Total.
On books of Hospital on 30th June, 1946	371	162	533
Admitted for the first time	18	6	24
Readmitted	1	..	1
Transferred from Toowoomba	..	..	..
Transferred from Brisbane	15	7	22
Transferred from Townsville	..	..	..
	34	13	47
Total under care	405	175	580
Discharged, died, transferred—			
Discharged, recovered	..	..	..
Discharged, relieved	5	..	5
Discharged, not improved	2	..	2
Discharged, Section 49	1	..	1
Transferred to Toowoomba	..	..	..
Transferred to Brisbane	3	..	3
Transferred to Townsville	..	..	..
Died	24	8	32
Total Discharged, Died, etc.	35	8	43
Remaining on the books on 30th June, 1947	370	167	537
Average number daily resident	369	165	534
Number on leave of absence on 30th June, 1947	1	1	2

TABLE II.—MENTAL HOSPITAL, IPSWICH.

Forms of Mental Disorders in Patients Admitted during the Twelve Months.

—	Males.	Females.	Total.
Congenital Mental Deficiency with Epilepsy	1	..	1
Congenital Mental Deficiency—Idiocy	4	..	4
Congenital Mental Deficiency—Imbecility	14	5	19
Congenital Mental Deficiency—Mongol	..	1	1
	19	6	25

TABLE III.—MENTAL HOSPITAL, IPSWICH.

Causes of Deaths during the Twelve Months ending 30th June, 1947.

—	Males.	Females.	Total.
Acute Colitis	2	..	2
Broncho-Pneumonia	5	2	7
Carcinoma of Stomach	1	..	1
Cerebral Hæmorrhage	..	1	1
Chronic Colitis	1	..	1
Chronic Interstitial Nephritis	1	..	1
Chronic Nephritis	1	..	1
Coronary Thrombosis	1	1	2
Epilepsy	1	1	2
Hemiplegia	1	..	1
Malignant Disease of Stomach	1	..	1
Myocarditis	7	2	9
Posterior Basic Meningitis	..	1	1
Status Epilepticus	2	..	2
	24	8	32

TABLE IV.—MENTAL HOSPITAL, IPSWICH.

Bodily Health and Condition of Patients Admitted during Twelve Months.

—	Males.	Females.	Total.
In apparently good health and condition	18	5	23
In indifferent health and reduced condition	1	..	1
In bad health and exhausted condition	..	1	1
	19	6	25

TABLE V.—MENTAL HOSPITAL, IPSWICH.

Birthplaces of Patients Admitted during the Year.

—	Males.	Females.	Total.
Brisbane	9	4	13
Charleville	1	..	1
Clifton	1	..	1
Nambour	1	..	1
Rockhampton	2	..	2
Toowoomba	..	1	1
Townsville	1	..	1
Tully	1	..	1
Winton	1	..	1
Unknown	2	1	3
	19	6	25

TABLE VI.—MENTAL HOSPITAL, IPSWICH.

DISTRICTS WHENCE PATIENTS WERE RECEIVED DURING THE TWELVE MONTHS ENDING 30TH JUNE, 1947.

—	Males.	Females.	Total.
Northern and north-western Districts	..	..	..
Central Districts	..	..	..
Southern and south-western Districts	19	6	25

TABLE VII.—MENTAL HOSPITAL, IPSWICH.

PREVIOUS OCCUPATIONS OF PATIENTS ADMITTED DURING THE TWELVE MONTHS.

—	Males.	Females.	Total.
Nil (children)	18	6	24
Schoolboy	1	..	1
	19	6	25

TABLE VIII.—MENTAL HOSPITAL, IPSWICH.

AGES OF PATIENTS WHOSE ADMISSIONS, DISCHARGES OR DEATHS OCCURRED DURING THE YEAR, AND OF THOSE WHO REMAINED IN THE HOSPITAL ON THE 30TH JUNE, 1947.

Ages.	Admissions.			Discharges.						Deaths.			Remaining.		
				Recovered.			Relieved and not Improved.								
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
Under 5 years	7	4	11	..	..	..	1	..	1	6	2	8	9	5	14
5 years and under 10 years	5	1	6	..	..	..	5	..	5	3	1	4	25	7	32
10 years and under 15 years	6	1	7	..	..	..	1	..	1	1	..	1	10	12	22
15 years and under 20 years	1	..	1	..	..	..	..	..	..	..	1	1	3	10	13
20 years and under 30 years	..	..	..	..	..	..	1	..	1	1	..	1	13	16	29
30 years and under 40 years	..	..	..	..	..	..	..	..	..	..	..	..	40	17	57
40 years and under 50 years	..	..	..	..	..	..	..	..	..	2	..	2	68	30	98
50 years and under 60 years	..	..	..	..	..	..	..	..	..	..	..	..	89	27	116
60 years and under 70 years	..	..	..	..	..	..	..	..	..	4	2	6	60	31	91
70 years and under 80 years	..	..	..	..	..	..	..	..	..	3	2	5	39	8	47
80 years and under 90 years	..	..	..	..	..	..	..	..	..	4	..	4	13	3	16
90 years and over	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Unknown	..	..	..	..	..	..	..	..	..	..	..	..	1	1	2
	19	6	25	..	..	..	8	..	8	24	8	32	370	167	537

TABLE IX.—MENTAL HOSPITAL, IPSWICH.

CONDITIONS AS TO MARRIAGE OF PATIENTS WHOSE ADMISSIONS, DISCHARGES AND DEATHS OCCURRED DURING THE YEAR, AND THOSE WHO REMAINED IN THE HOSPITAL ON 30TH JUNE, 1947.

Condition as Regards Marriage.	Admissions.			Discharges.						Deaths.			Remaining.		
				Recovered.			Relieved and Not Improved.								
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Single	19	6	25	..	..	..	8	..	8	19	7	26	290	103	393
Married	..	..	..	..	..	..	..	..	..	3	1	4	60	49	109
Widowed	..	..	..	..	..	..	..	..	..	..	..	..	7	8	15
Divorced	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3
Unknown	..	..	..	..	..	..	..	..	..	2	..	2	13	4	17
	19	6	25	..	..	..	8	..	8	24	8	32	370	167	537

TABLE X.—MENTAL HOSPITAL, IPSWICH.

QUANTITIES OF VEGETABLES AND FARM PRODUCE.

	T.	C.	Q.	L.
Bush hay	65	16	0	0
Chaff	—	—	—	—
Ensilage	57	5	0	0
Garden vegetables	17	17	3	15
Green feed	81	0	0	0
Potatoes	0	11	1	19
Pumpkins and turnips	8	8	0	18

TABLE XI.

MENTAL HOSPITAL, IPSWICH—EXPENDITURE TABLE.

Average number daily resident during the twelve months			534
	£	s.	d.
Total expenditure	80,086	19	4
Maintenance collected by Public Curator	4,670	19	3
Sales	527	16	11
Net expenditure	74,888	3	2
Gross cost per patient per annum	149	19	6
Net cost per patient per annum	140	4	10
Gross cost per patient per week	2	17	8
Net cost per patient per week	2	13	11

TABLE XII.—MENTAL HOSPITAL, IPSWICH.

LENGTH OF RESIDENCE IN THE HOSPITAL 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, 1947.

—	Discharges.									Deaths.			Remaining.		
	Recovered.			Section 49.			Relieved and Not Improved.			Males.	Females.	Total.	Males.	Females.	Total.
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.						
Under 1 month ..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
1 month and under 3 months ..	..	..	..	..	..	..	1	..	1	4	..	4	3	..	3
3 months and under 6 months ..	..	..	..	..	..	..	2	..	2	1	..	1	9	5	14
6 months and under 9 months ..	..	..	..	..	..	..	1	..	1	..	..	..	11	1	12
9 months and under 12 months ..	..	..	..	..	..	..	1	..	1	1	1	2	3	5	8
1 year and under 2 years	..	..	..	..	..	..	..	..	..	5	1	6	25	11	36
2 years and under 3 years	..	..	..	..	..	..	..	..	..	1	..	1	28	4	32
3 years and under 5 years	..	..	..	1	..	1	1	..	1	1	2	3	47	43	90
5 years and under 7 years	..	..	..	..	..	..	..	..	..	2	..	2	29	5	34
7 years and under 10 years	..	..	..	..	..	..	1	..	1	1	..	1	42	20	62
10 years and under 12 years	..	..	..	..	..	..	..	..	..	..	..	..	11	5	16
12 years and under 15 years	..	..	..	..	..	..	..	..	..	1	..	1	41	16	57
15 years and under 20 years	..	..	..	..	..	..	..	..	..	..	1	1	23	10	33
20 years and over ..	..	..	..	..	..	..	..	..	..	7	3	10	97	42	139
Totals	..	..	..	1	..	1	7	..	7	24	8	32	370	167	537

TOWNSVILLE MENTAL HOSPITAL.

Two deaths occurred at the Townsville Mental Hospital during the year, both from natural causes. There were no untoward incidents. One patient absconded from the ward yard, but he was returned to the hospital within one hour. The general health of the patients was good.

The visiting medical officer, Dr. L. Halberstater, was regularly in attendance and the official visitor, Dr. W. B. Chapman, visited the hospital monthly.

Of the 80 patients admitted to the Townsville Mental Hospital 59 were transferred to the Brisbane Mental Hospital during the course of the year. Patients are accommodated at the Townsville Mental Hospital only temporarily and if their mental sickness endures they are then transferred to the Brisbane Mental Hospital for treatment. The average length of residence in the hospital of the patients admitted during the past year was 20 days for the men and 19 days for the female patients.

The implementation now under way of plans for the construction of a northern mental hospital should considerably ease the minds of the relatives of mentally sick patients in Northern Queensland as well as provide scope for the better classification of patients in the existing mental hospitals in Southern Queensland.

TOWNSVILLE MENTAL HOSPITAL.

—				Males.	Females.	Total.
On the books of the hospital on 30th June, 1946				1	..	1
	M.	F.	T.			
Admitted for the first time	52	28	80			
				52	28	80
Total under care during year				53	28	81
Discharged, died, transferred—						
Discharged from hospital	9	4	13			
Died	2	2	4			
Transferred to Brisbane Mental Hospital	38	21	59			
Total discharged, died, &c., during year				49	27	76
Remaining on the books on 30th June, 1947				4	1	5
Average number daily resident				..	..	..

PSYCHIATRIC CLINIC—BRISBANE.

The Psychiatric Clinic has continued to function in "temporary and inadequate accommodation" (vide 1946 report) so that no real widening of its activities has been possible. The existence of the Clinic is not widely known and it is desirable that this should continue until suitable premises are available.

In all, 106 new patients were dealt with as compared with 100 for the previous year. Types of cases, where referred from, where referred to when further treatment, &c., was considered advisable, are given in the tables appended. The number given does not include those people interviewed by the Director of Mental Hygiene in his administrative capacity. Such information is considered more relevant to the Mental Hospital statistics even though the Clinic rooms have served in this added capacity, that of a temporary central office.

Since the resignation from the service of Dr. Baumatz in October, 1946, the actual case work of the Clinic has been carried out by visiting medical officers from the Brisbane Mental Hospital. Each of four officers attends one half-day per week. It is suggested that no matter how keen and efficient such officers may be the development of the Clinic must be retarded until it becomes the interest and the responsibility of one person—namely, the psychiatrist appointed as Director.

Since the appointment in February of its first full-time officer, a psychologist, the Clinic has been open throughout the week to deal with inquiries, the making of appointments, &c. So far this officer's activities have been somewhat circumscribed by an inability to obtain the type of test most useful in clinical work, such tests being published only overseas and up to the present remaining unavailable. Nor has favourable consideration been given to the proceeding further with an inquiry into the incidence and the problem of the backward child as defined in "*The Backward Persons Act of* 1938," although some contact has been made with those more directly concerned with the mentally deficient child in the Opportunity School and Classes. Although the demand for institutional care of this type of child is not a vocal one, due no doubt to the reticence on the part of parents to advertise their child's affliction if not their own, the need is a very real one. If, as is forecast, the State becomes industrialised the adequate training of the moron and the dull child may well prove an economic necessity apart from any justification it may have on social grounds.

As will be seen from the table showing the sources of referral of patients liaison has been made and/or maintained with the various organisations in and around the City—Red Cross, Juvenile Employment Bureau, Commonwealth Social Services, &c.

It is again stressed that the Clinic stands urgently in need of more adequate accommodation. Only the smallest fraction of those requiring its services have so far benefited.

1. Forms of Mental Disorders and Age of Patients.

	0–4		5–9		10–14		15–19		20–29		30–39		40–49		50–59		60+		Totals.		Totals.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Psychotic Depressive	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	1	..	..	..	3	3
Schizophrenic	..	..	..	..	1	..	1	..	4	1	..	..	1	1	..	..	..	..	7	2	9
Paraphrenic	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1
Neurotic Anxiety and Depression	..	..	..	..	..	..	1	..	8	4	5	2	2	3	3	4	..	1	19	14	33
Hysteria Obsession-Complex	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	1
Organic Epilepsy	..	..	1	..	..	..	..	..	..	1	..	..	..	1	1	..	..	..	2	2	4
Chronic Alcoholism	..	..	..	..	..	..	..	..	1	..	1	..	1	..	..	..	1	..	4	..	4
Senility	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2	..	2
Various Organic	..	..	1	..	..	1	..	..	..	1	2	..	..	..	..	..	..	1	3	3	6
Mental Deficiency	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Idiocy	..	..	..	..	1	..	..	..	2	..	..	..	..	..	..	..	..	..	3	..	3
Imbecility	..	..	..	..	1	..	..	1	1	1	..	..	..	..	..	..	..	..	2	2	4
Moron	..	..	..	..	2	1	4	..	..	..	..	..	..	..	..	..	..	..	6	1	7
Speech Disorder	1	..	1	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	4	..	4
Social Delinquency	..	..	..	..	..	1	..	1	2	..	2	..	..	..	..	..	..	..	4	2	6
Sexual Delinquency	..	..	..	..	..	..	..	..	2	..	2	..	..	..	..	..	..	..	4	..	4
Behaviour Problem	..	..	3	..	1	..	1	1	1	..	..	..	..	..	..	..	..	..	6	1	7
Testing Guidance	..	..	..	..	2	1	3	1	1	..	..	..	..	..	..	..	..	..	6	2	8
	1	..	6	..	9	4	10	4	22	9	12	3	5	5	5	5	3	3	73	33	106

2. Patients Referred from—

University	13
Ex B.G.H.	2
Ex. B.M.H.	11
Ex. Epileptic Home	4
Health and Home	3
Justice Department	7
Maternal and Child Welfare	5
Juvenile Employment	6
Commonwealth	3
C.R.T.S.	1
From Medical Practitioners	14
Red Cross	6
Other Sources	31
	106

3. Patients Referred to—

B.G.H.	3	
B.M.H.	10	
Epileptic Home	2	
Juvenile Employment	3	
	—	18
Treated at Clinic		88
		106

EPILEPTIC HOME, WILLOWBURN.

PATIENTS AT 30TH JUNE, 1946: Males, 40; females, 55; total, 95.
FOR YEAR ENDED 30TH JUNE, 1947.

Age.	Admitted.		Discharged.		To Mental Hospital.		Deaths.		Remaining 30th June, 1947.		
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Total.
Under 5 years	..	..	..	..	..	..	..	..	..	..	..
5 years and under 10 years	2	..	1	..	..	..	..	..	2	1	3
10 years and under 15 years	1	4	..	..	1	..	..	..	3	8	11
15 years and under 20 years	..	..	2	1	1	..	..	2	5	2	7
20 years and under 25 years	1	1	..	1	..	..	..	..	4	7	11
25 years and under 30 years	1	..	1	1	..	..	..	..	6	3	9
30 years and under 35 years	1	..	..	..	..	..	..	..	4	5	9
35 years and under 40 years	..	2	..	..	..	1	1	..	3	7	10
40 years and under 45 years	..	2	..	..	..	..	..	..	6	9	15
45 years and under 50 years	..	..	..	..	..	..	..	..	..	7	7
50 years and under 55 years	..	..	..	..	..	..	..	..	2	..	2
55 years and under 60 years	..	..	..	..	..	..	..	..	2	4	6
60 years and under 65 years	..	1	..	..	..	..	..	..	..	4	4
65 years and under 70 years	..	..	..	..	..	..	..	..	..	1	1
70 years and under 75 years	..	..	..	..	..	..	..	..	1	..	1
75 years and under 80 years	..	..	..	..	..	..	..	..	1	..	1
80 years and under 85 years	..	..	..	..	..	..	..	1	..	..	..
85 years and under 90 years	..	..	..	..	..	..	..	..	..	..	..
90 years and under 95 years	..	..	..	..	..	..	..	..	..	..	..
95 years upwards	..	..	..	..	..	..	..	..	..	..	..
	6	10	4	3	2	1	1	3	39	58	97

PATIENTS RESIDENT—

Under 5 years	26
5 years and under 10 years	29
10 years and under 15 years	22
15 years and under 20 years	7
Over 20 years	13

CAUSES OF DEATH—

(1) Cardiac Failure, Status Epilepticus, Ch. Epilepsy.
(2) Acute Myocarditis, Status Epilepticus.
(3) Cardiac Failure, Senility, Epilepsy.
(4) Asphyxia, Acute Epilepsy, Ch. Epilepsy, Congenital Feeblemindedness.

AGES AT DEATH—

35, 18, 83, and 17, respectively.

Patients.—As a result of close contact, observation and care a high degree of confidence has been established between the patients and the administration, which is reflected in the comparative happiness and well-being of those concerned. The relatives and friends of patients have been studied, with resulting co-operation helpful to the patient.

It is wise to enlarge on problems and methods so that authority may be informed. There are many difficulties and anxieties, as may be expected with such a wide variety of mentality, age, and physical capacity in the patients. The individual also varies a great deal and there is need for a special watchfulness.

It has to be realised that epileptic patients can be most difficult people. They can recover quickly from a seizure or go into a series of fits and require continued attention. They can suffer injury and exhibit violence.

The Visiting Medical Officer attends bi-weekly and in emergency. There is co-operation and attention to his directions with mutual good intention. The problem of the patient is discussed with the Director of Mental Hygiene from every angle, and it can be agreed that progress has been made.

Every method applied is intended to improve or maintain the mental state, to prevent tension, to keep the patient happy and occupied, and, in perhaps the most difficult of all cases, to remove the fear of "fitting."

Education, suitable employment, recreation, praise or correction, removal of minor worry or obsession, listening to personal affairs, meeting requirements when reasonable and possible, &c., are contributory factors which, added to medication, treatment, and care when ill, and care in the domestic sense, make for the best results.

In effect, very good care is being taken of a most unfortunate class of person and, very importantly, relieving parents and relatives enormously. Cures cannot safely be claimed, but great improvement has resulted in many cases, and in others a more stable mental state.

Within the limits imposed by necessity, as free a life as possible is provided. Environment is being improved and visitors are made welcome and given completely free access. Clergy are encouraged and a number of concert parties are attending. Our own regular dances, parties, card and games evenings are the happiest occasions. Practically every patient attended the Toowoomba Show—ample staff were in attendance and such "fitting" as occurred was discreetly handled. A few opportunities have been made for outside entertainment and religious observance in suitable cases.

The behaviour of patients is good, and many cases reported as doubtful in character have responded in the best sense. The mixing of patients at recreation has removed an unnecessary prohibition.

The institution is practically full—completely so on the female side. The best possible classification is carried out, but it is considered that children should be housed separately. It has been increasingly obvious that there is an awareness on the part of the public in this institution which meets a very special requirement, and it is considered that added accommodation is necessary. Suggestions have been made for enlarging the scope of the work, and this can be done providing all administrative necessity now lacking is met, and the numbers catered for do not exceed a certain limit.

Occupation is followed under the guidance of the staff, and a general all-round improvement in the material side of the institution can be observed. Naturally some of the patients are enthusiasts and others are laggards who have to be gentled along.

Negotiations have been in progress with the Country Women's Association for instruction to the patients in several directions. When the recreation ground is complete there will be greatly improved facility. Some patients still attend the "pictures" at the Mental Hospital.

The school is very indifferently housed at present, but the new one, which is to be situated in the recreational area, should materialise before long and be ideal for our type of child. No great heights in educational standards are attained, but it should be realised that most of the children could only go to school intermittently or not at all prior to admission. It is especially interesting to note that children who were completely unmanageable in their own homes improve amazingly here, and in this process the school plays an important part.

Dietary has been improved in variety and quality. It is good, and there are no complaints. General health has been excellent.

There is a considerable advantage in that the majority of adult patients are invalid pensioners. After payment of maintenance charges the patient has ample reserve for pocket money, better clothing, and personal requirements. Child Endowment provides adequately for the children. A minor canteen has been established and will be improved as circumstances permit.

Maintenance charges collected at the institution and paid to the Public Curator amounted to £4,296 7s. for the year.

Dentistry.—The arrangements for obtaining attention to patients' dental requirements is not good, especially for urgent work. Present practice is to send patients to the Mental Hospital on the one-day-a-week attendance by the Dental Surgeon, and to send patients requiring denture work to the Toowoomba Dental Clinic. On occasion the Clinic has assisted with extractions, fillings, &c. The matter requires careful consideration.

Kitchen.—A great improvement was made by the installation of the "Aga" Cooker. A cutting machine for bread, meat, bacon, &c., is a most useful addition. The order for the large mixing machine with slicing and chopping attachments had to be deferred, but it is expected to be able to install this valuable component shortly; the kitchen will then be on sound lines.

Laundry—Boiler, &c.—Conditions are very primitive at present. Recent information indicates action has already been taken towards the provision of an up-to-date laundry. This matter, and the question of steam supply, &c., has been well discussed with the Supervising Mechanical Engineer, who has shown a good understanding of requirements.

Heating of Wards.—This matter is also under consideration. It is an important necessity which will probably be met by an electrical installation.

Building Works.—In common with most institutions, building and maintenance work is in arrears and the buildings have deteriorated seriously. The position has been discussed with the Chief Inspector of the Public Works Department, who agrees that unless work is carried out—painting, guttering, timber work, &c.—the position must worsen before long. The housing and supply position is appreciated, also that works are in progress and organisation is being stepped up, but a good deal remains to be done.

New staff quarters and alterations and additions to nurses' quarters are well on the way to completion. A frontage fence has been erected with new gates. Repairs to tiled roofs are expected to commence shortly.

The erection of a new stores block has been recommended and when completed it is intended to use the existing store as a staff dining room—a requirement under the award.

The enclosure of ward verandas and corridors by casements or glass louvres has also been recommended. Under present conditions in cold, wet, foggy, or windy weather both patients and staff suffer in an unreasonable manner. In addition, the open verandas and corridors are meshed in by heavy wiring. This has a bad psychological effect on patients and visitors alike.

A building on the property recently purchased will be suitable for staff quarters if altered as necessary. The work has been listed for the current year.

Land—Gardens, &c.—Altogether 15 acres of land surrounding the Home have been acquired recently in addition to the recreational area opposite. The land will be available for extension and cultivation. The best advice possible is being obtained with the object of restoring the land and the use of reasonable machinery. The gardens have been improved and extended, and this work will proceed.

Staff.—Although a shortage of female staff still remains, the position is better than a year ago. Under present conditions male staff are adequate.

Miss Evelyn Martin was appointed Matron during the year. She is proving a loyal colleague and co-operative in every respect.

The appointment of a clerical officer has relieved the Superintendent considerably, and permits better attention to other aspects of the administration.

Conclusion.—As already suggested, there is an awareness of the institution by the public, and it is observable by members of the medical profession. Extra demands will no doubt be made on the institution and it is suggested that everything possible should be done to meet same. In administrative planning the Superintendent is endeavouring to be as far-seeing as possible.

The work of the Home is a good work. It is not easy and frequently very demanding and wearying.

The Director of Mental Hygiene and his officers are helpful and considerate, as have been the Under Secretary and his officers. It is hoped that the Hon. the Minister will visit the Home on some convenient occasion. The State Stores Board continue to do a good job in meeting requirements.

SECTION OF SOCIAL SERVICES.

Welfare Officer, Mrs. V. Wills.

The Welfare Officer continued to visit and interview inmates of the Venereal Isolation Hospital until October, 1946, when, as mentioned elsewhere in this report, that institution ceased to function as such. She has, throughout the year, assisted in the rehabilitation of wayward girls, and has secured homes and obtained layettes for unmarried mothers.

Reported cases of neglected children have been investigated and the matters brought under the notice of the State Children Department. Investigation was also made of complaints received regarding private hospitals.

Accommodation was arranged for families through the State Housing Commission, and arrangements were also made for children of expectant mothers to be admitted to the Maternal and Child Welfare Home at Sandgate during the period of the mother's confinement. Children were conveyed for medical examination; medical attention at the Brisbane General Hospital or the Children's Hospital was also arranged in instances requiring it. In cases where sisters of the School Health Services had recommended children for medical attention and the recommendations had not been acted on by parents, the mothers of such children were interviewed by the Welfare Officer.

Claimants for invalid, old-age, and widows' pensions have been assisted in filling in the necessary forms, and the sick in hospital have been visited, as have also sick people in their homes.

A service of considerable benefit has been performed in respect of tuberculosis sufferers; the contacts have been interviewed in their homes and advised as to the desirability of X-ray examination. The patients have been instructed in hygiene, and inquiries were made to determine whether financial assistance for the family was necessary.

LEGISLATION.

During the year the Health Acts have been amended in two particulars. "*The Health Acts Amendment Act*, 1946 (*No.* 1)" was published in the *Government Gazette* (No. 40) on 20th November, 1946, and prohibited the use of leaded metal for structural purposes in certain buildings; it also prohibited the conservation of water contaminated by lead. "*The Health Acts Amendment Act*, 1946 (*No.* 2)" appeared in the *Government Gazette* of 31st December, 1946 (No. 196). It deals with the branding of footwear and shall come into force upon a date to be fixed by the Governor in Council by Proclamation published in the *Gazette*.

Section 4 of "*The Health Acts Amendment Act of* 1941" was proclaimed in the *Government Gazette* of 21st June, 1947, bringing into force the repeal of section 130 (1) of the Principal Act, dealing with dangerous drugs. Dangerous drugs are now included under the "Poisons Regulations of 1947," which were published in the *Government Gazette* of 21st June, 1947.

"The Milk-Sellers' Regulations of 1946" were published in the *Government Gazette* of 14th December, 1946. Regulation 9 contains new provisions concerning pasteurised milk and processed milk.

The work done during the year has been up to the high standard of previous years, and I desire to express my gratitude to all members of the staff for their unfailing and conscientious attention to duty. Thanks are also given to Government Departments, Local Authorities, and other outside bodies who have assisted by their ready co-operation.

ABRAHAM FRYBERG,
M.B., B.S. (Melb.), D.P.H., D.T.M. (Syd.),
Director-General of Health and Medical Services.

Appendix A.

"REPORT ON CONCEPTS AND TREATMENT OF POLIOMYELITIS," BY THOMAS VICTOR STUBBS BROWN, M.B., B.S., F.R.C.S.Ed., SENIOR ORTHOPAEDIC SURGEON, BRISBANE HOSPITAL; AND ABRAHAM FRYBERG, M.B., B.S., D.P.H., D.T.M., DIRECTOR-GENERAL OF HEALTH AND MEDICAL SERVICES.

Conclusions.

After due consideration of all the available evidence we are of the opinion—

1. The Kenny concept of poliomyelitis is not proven—

(*a*) There is no evidence of peripheral invasion by the virus.

(*b*) In our opinion there exists a clinical entity in poliomyelitis which has been termed "spasm" by Sister Kenny. This has long been recognised as an early diagnostic sign and was termed meningismus. It is a most variable condition from patient to patient and epidemic to epidemic as regards severity, extent and duration, and in our experience is much more severe and persistent in the age-group 12 and over; and presents a much greater problem than in the younger age-group. We regard this as a phenomenon of complex origin. The clinical importance of this condition in its more severe and persistent forms was first stressed by Sister Kenny. We consider it a major factor in the initiation of contractures and deformities. The Kenny concept denies the existence of muscle imbalance. We consider this condition exists and that it does play a part in producing contractures and deformities.

(*c*) Alienation: In our opinion the majority of cases termed alienation by Sister Kenny are examples of varying degrees of anterior horn cell damage; not, as Sister Kenny suggests, the direct involvement of a muscle by virus invasion which causes spasm while the opposing muscle is normal, but non-functioning because of alienation. This has been substantiated by electrical investigations of so-called "alienated" muscles in poliomyelitis. There does occur in a small number of cases a clinical phenomenon when muscle recovery is rapid and the term "alienation" may be applied to this.

(*d*) Inco-ordination: While this does occur it is rarely so marked as to be of any practical importance.

2. The essential basic lesion of poliomyelitis is damage in varying degrees to the anterior horn cells of the spinal cord and the motor nuclei of the cranial nerves. It is generally accepted that these lesions do not account for all the phenomena observed in poliomyelitis—for example, spasm.

3. Various theories have been advanced on the basis of findings in sites other than the anterior horn cells. In our opinion these do not offer a satisfactory explanation of the clinical condition.

4. From the evidence available we are of the opinion that the essential lesions will be found in the central nervous system rather than the periphery.

Treatment.

It must be stressed here there is no cure for poliomyelitis. When the anterior horn cells are permanently damaged recovery of the associated paralysed muscle cannot take place.

The important requirements in treatment are:

(*a*) The treatment of muscles which are capable of varying degrees of recovery;

(*b*) The relief of the condition of muscle spasm or shortening;

(*c*) The prevention of contractures and deformities which may occur as the outcome of the above two conditions;

(*d*) The maintenance of the circulation in the limbs;

(*e*) The maintenance of the general bodily health of the patient;

(*f*) The maintenance of the morale of the patient.

We consider that a form of treatment based on that of Sister Kenny should be adopted, consisting of —

Early stage:

(*a*) Active treatment beginning on admission to hospital, this to include hot packs when indicated.

(*b*) Early movement within the limits of pain.

(*c*) No rigid splinting.

Later stage:

(*a*) Continuation of hot packs when specifically indicated in combination with baths in a tank of the Hubbard type. This bathing we have in the past found most satisfactory in the climate of Queensland and see no reason to discontinue this practice.

(*b*) Movement is continued up to the limit of pain.

(*c*) Muscle re-education.

(*d*) Adequate control of the affected extremities with positioning as outlined in the report.

(*e*) Splinting of the affected part when specifically indicated, as detailed earlier.

When walking is begun, each case should be reviewed in the light of existing muscle power, safety factor, and work requirements and, when specifically indicated, a support supplied.

Organisation.

In order to achieve the best results it is essential to have full and adequate facilities. The epidemic nature of the disease with the occurence of large numbers of cases over a short period renders all the more difficult the provision of these essential facilities. The main difficulties encountered are—

1. Hospital accommodation.
2. Nursing staff.
3. Physiotherapists.

In the recent epidemics in the United States of America and Canada these difficulties were quite evident. Methods of overcoming these difficulties included—

(*a*) In children's hospitals, restriction of admissions to a minimum, as many beds as possible being reserved for the poliomyelitis patients.

(*b*) Utilisation of unoccupied army hospitals.

(*c*) Utilisation of a crippled children's school as an acute hospital.

(*d*) Enlistment of voluntary and paid-help for both nursing purposes and general duties.

(*e*) Transference of physiotherapists to the affected areas. (In U.S.A. co-ordination of physiotherapists was carried out by the National Foundation for Infantile Paralysis, Inc. This was a commendable feature in the provision of treatment during the epidemic.) The co-ordination of available physiotherapists in the various States of Australia is recommended so that their services could be made available in epidemic areas.

Our recommendations for organisation in future epidemics are considered under the following headings:—

1. *Accommodation.*—Early centralisation to base hospitals when adequate facilities are available. In large epidemics, when accommodation is being taxed severely, we emphasise the continuation of this course rather than establishment of subsidiary centres. We are of the opinion that this will achieve the maximum results from the relatively limited staff available during epidemics.

Furthermore, we are strongly opposed to any widespread distribution of convalescent patients in many different wards throughout any one hospital, as we are convinced of the importance of aggregation of patients both as regards treatment and maintenance of morale.

If necessary, we would recommend the equipping and staffing of any available buildings in the same city as the base hospital, to be worked from and in conjunction with the associated base hospital.

To overcome accommodation difficulties some centres send home on frames and in splints patients who are not yet ambulatory. In one centre there is no hesitation in sending these patients home to rural areas where they are treated by the mother who has had a few days of instruction in elementary physiotherapy. These patients are brought back every three months.

There are two main methods employed—

(*a*) Home visitation by physiotherapists.

(*b*) Attendance at hospital out-patients two or more times weekly for physiotherapy.

We regard these methods as expediencies to be avoided, and would suggest hospitalisation as seen at the Kenny Institute, Minneapolis, where patients are retained until satisfactory ambulation is achieved or until a final assessment is made in the several grades of disability.

Should suitable buildings be unavailable we consider that hutted or tented accommodation is preferable to having cases scattered widely throughout the State or even throughout one hospital.

2. *Nursing Staff.*—In any epidemic of poliomyelitis difficulty is experienced in providing adequate nursing staff. This difficulty will be increased if the treatment suggested is adopted. We suggest that the plan followed in the United States of America be adopted. This includes the use of partly trained helpers, who may be on a voluntary or paid basis. We consider that existing organisations such as Red Cross, V.A.D., and church organisations might be co-opted in the formulation of any plan. In an epidemic there is ample time to institute a short course of instruction to make these helpers reasonably competent in their duties of hot packing and general assistance. The shortage of trained staff is a world-wide difficulty.

3. *Physiotherapists.*—We are of the opinion that physiotherapists should supervise and carry out the treatment from the admission to hospital. While not disputing the skill acquired by some experienced technicians who are nurses trained only in the Kenny method, we consider it undesirable in a State such as Queensland, which sponsors a university course in physiotherapy, to build up a group of technicians whose interests are confined to only one aspect of physiotherapy. From the viewpoint of becoming conversant with treatment employed in the United States of America, at the present time, from the earliest stages of the disease onwards, we recommend a physiotherapist who has already had some experience in poliomyelitis be sent to the Elizabeth Kenny Institute, Minneapolis, for a period of twelve months, or if there is no vacancy at the Institute to some other centre of which we approve.

Summary.

1. The Kenny concept of poliomyelitis in its entirety is not proven, but the clinical importance of some aspects of the concept as first stressed by Sister Kenny is accepted.

2. All the clinical phenomena of the disease cannot be explained on the basis of known pathology, but we are of the opinion the essential lesions will be found in the central nervous system rather than the periphery as stressed by Sister Kenny.

3. It must be emphasised there is no cure for poliomyelitis.

4. We recommend a form of treatment based on that of Sister Kenny be adopted in the early stages; in the later stages we recommend variations such as baths and splinting in selected cases where specifically indicated. We are prepared to apply braces on a more liberal scale than does Sister Kenny. This form of treatment recommended above approximates closely to the so-called "modern" treatment of infantile paralysis, which is used widely in the United States of America.

5. In future epidemics early centralisation to base hospitals where adequate facilities will be made available is recommended.

6. Suggestions are made to supplement nursing personnel during the stress of an epidemic.

7. We have recommended the co-ordination of available physiotherapists in the different States of Australia to provide adequate staffing in epidemic areas.

8. We further recommend an experienced physiotherapist be sent to the United States of America for twelve months to the Kenny Institute, Minneapolis, or to some other hospital of which we approve.

Appendix B.

REPORT OF AN INVESTIGATION OF THE SANDFLY PROBLEM AT GLADSTONE DISTRICT HOSPITAL (JANUARY, 1947).

By

Elizabeth N. Marks, M.Sc., Graduate Research Assistant, Mosquito Control Committee.

At the request of the Department of Health and Home Affairs, acting on a report that the Gladstone District Hospital was infested with sandflies to such an extent as to make it unsuitable for the nursing of sick patients, a visit was made to the hospital in an endeavour to find out the actual breeding place of the sandflies in the vicinity.

The hospital authorities provided all facilities for the investigation, and their assistance is gratefully acknowledged.

The species responsible for the infestation was found to be *Culicoides ornatus* (Taylor) (Fam. *Ceratopogonidae*), which is the common coastal sandfly in Queensland. The life history of none of the Australian species of *Culicoides* has been worked out.

Description of the Area.

(See sketch map and photographs I., II., III.)

The hospital is situated on the western outskirts of the town of Gladstone, on a hill overlooking the tidal creek, known as Auckland Inlet. To north and north-west of the hospital the creek banks form extensive tidal mud flats. These are mainly bare of vegetation, except along the edge of the creek itself and its small tributaries, which are bounded by mangroves (*Avicennia*, *Ceriops* and *Rhizophora*) and patches of *Suaeda*, a plant growing about 1 foot in height. To west and south-west, the hospital is separated from the creek by a hill clothed with open timber and bush, but cleared within about 200 yards of the hospital, except at the southern end, where there is bush to within about 30 yards. This portion of Auckland Inlet winds between extensive and dense, almost impenetrable, forests of mangroves, mainly the spider mangrove, *Rhizophora*.

Investigation of Possible Breeding Places.

In spite of every endeavour, the breeding place of the *Culicoides* sp. was not located. A brief account of the methods used and sites examined may, however, be useful. These were adapted from accounts given in the available literature of similar investigations in other parts of the world.

Water, mud and organic debris were collected from the following sites:—

1. Pools and puddles, particularly amongst short tufts of grass, left by receding tide at edge of wide, exposed tidal mud flats and also along banks of tidal creek.
2. Around base of mangroves, occurring as isolated trees or scattered clumps, the mangroves concerned being *Avicennia*, *Ceriops* and *Rhizophora*, the latter occurring also in dense forests. Mud, also mud-coated bark and lichen, was taken actually against the base of the trees and mud and water from pools, crab holes, &c., beneath the trees, also from around the pneumatophores or "cobblers pegs" of *Avicennia*.
3. Mud and debris from crevices in the mangrove trees, or in their dead stumps.
4. Bottom mud coated with green alga from a large, semi-permanent, shallow sunlit pool left by very high tide at landward edge of tidal mud flat. Larvae and pupae of unidentified species of *Ceratopogonid* (not *Culicoides*) were found here.
5. Mud round the roots of the small low-growing plant, *Suaeda*, which occurred on the tidal mud flats.

The samples were examined by breaking up the mud, &c., in water, either in a jar or in small quantities in a white enamel pie dish or glass petri dish, and examining it a little at a time for larvae, pupae, or pupal skins. Description and figures of *Culicoides* larvae and pupae were available, but the only specimens found which nearly resembled them were those of the *Ceratopogonid* mentioned above and, in fact, insect life of any kind was uncommon in the samples. Numerous representative samples were taken for laboratory examination, and many others were examined in the field.

All sites examined lay between the levels of the highest and lowest tides. Conditions at the time of the visit were exceedingly dry and no other damp situations affording potential breeding places were apparent.

Adult Infestation.

Adults were most numerous at the hospital when conditions were humid and there was no wind, and were practically absent when the wind was from the east or south-east. Infestation appeared to be worst during the night and early morning.

They were stated to be particularly troublesome in the nursery, and the walls of this room were examined, but no resting *Culicoides* were observed.

On the open mud flats adults were not taken biting. Amongst scattered mangroves on the mud flats they were present on still days in moderate numbers. Along the banks of Auckland Inlet, amongst scattered mangroves and open timber, they were very numerous on still days, but rare on windy days. In the dense forests of *Rhizophora* which lined the south bank of Auckland Inlet, near the Sanitary Depot,

they occurred in tremendous numbers. It was observed that in such places adults were apparently resting either on or close to the ground, rather than on the foliage, as feet and legs were the first parts of the body to be attacked.

Whether or not *Culicoides ornatus* will subsequently be found breeding amongst the mangroves, there is no doubt that the shade, shelter and humid atmosphere of the dense forests of mangroves make them ideal resting places for tremendous numbers. From these areas, particularly during the night, the sandflies will emerge in search of a blood meal. The hospital is separated from these areas by ⅜ mile or more, mainly of open timber and, with nearby houses, would afford the first site where abundant blood meals were available.

The occurrence of the worst infestation in the nursery is probably accounted for by the fact that this is situated at the south end of the hospital building and nearer than any other part to the bush.

Notes on Culicoides Infestation in America.

The following information is taken from the literature cited below.

The Atlantic and Gulf Coast littorals of the United States are faced with a similar problem due to *Culicoides* and the species concerned there favour shaded places for breeding. The adults require 3-4 blood meals before they deposit eggs. Drying out of breeding places destroys larvae and methods suggested for control are the use of drainage or the cutting or trimming of trees on the edges of marshes.

It is considered likely that most of the marine species live within the tide zone.

Culicoides furens, a pest species in Honduras, is reported to fly at least 630 yards in search of blood. Remedial measures adopted, apart from the treatment of breeding places, include removal of bush and weeds that provide shelter for the adults.

Culicoides adults are attracted to lights. Paris green and oil films, as used for mosquitoes, appear to have no effect on the larvae.

Conclusions.

Sandfly infestation caused by *Culicoides ornatus* is a serious problem at the Gladstone Hospital. As the breeding places of this species are still undiscovered, control measures cannot be directed against the larval and pupal stages, and attention must be directed to reducing the adult population.

Infestation is severest in the nursery. This could probably be reduced to the level of the rest of the hospital by clearing the bush and undergrowth within 200 yards.

The United States Department of Agriculture reports that D.D.T. residual sprays are effective against sandflies and "Considerable relief from *Culicoides* can be obtained by the treatment of window screens with a heavy oil containing 5 per cent. of D.D.T., as well as by application of a residual spray inside of quarters."

Application of D.D.T. to outdoor resting places should be effective, but might not be practicable in the dense areas of mangroves within the tide zone.

The dense forests of mangroves to the west of Gladstone Hospital, along Auckland Creek, form an ideal harbourage for sandflies and it is most likely that those infesting the hospital come from this site. Though the range of flight would be partly determined by the proximity of sources of blood meals, and by the prevailing breeze, the fact that the main portion of the town of Gladstone is stated to be relatively unaffected by sandflies suggests that the range of flight may be not much more than the distance from the mangroves along Auckland Inlet to the hospital —i.e., under a mile. It therefore appears unlikely that, if these harbourages were destroyed, serious infestation might come from further afield.

References.

1946: "D.D.T. and other Insecticides and Repellents developed for the Armed Forces."—U.S. Depart. Agric. Misc. Publ. No. 606.

Chandler, A. C. 1945: "Introduction to Parasitology."

Curran, C. H., 1934: "North American Diptera."

Dove, W. E., Hall, D. G., and Hull, J. B., 1932: "The Salt Marsh Sandfly Problem (Culicoides)". Ann. Ent. Soc. Am., 25: 505. (Extract in Rev. App. Ent. (B) 20, 1932.)

Hull, J. B., Dove, W. E., and Prince, F. M., 1934: "Seasonal Incidence and Concentrations of Sandfly Larvae *Culicoides dovei* Hall, in Salt Marshes (Ceratopogoninae: Diptera)"—J. Parasit, 20: 162. (Extract in Rev. App. Ent. (B) 22, 1934.)

Kieffer, J. J., 1917: "Chironomides d'Australie conservés au Musée National Hongrois de Budapest" Ann. Mus. Nat. Hung., 15: 177.

Matheson, R., 1932: "Medical Entomology."

Painter, R. H., 1927. "The Biology, Immature Stages and Control of the Sandflies (Biting Ceratopogoninae) at Puerto Castilla, Honduras."—15th Rep. Med. Dept. United Fruit Co., 1926. (Extract in Rev. App. Ent. (B) 16, 1928.)

Patton, W. S., and Evans, A. M., 1929: "Insects, Ticks, Mites and Venomous Animals of Medical and Veterinary Importance—Part I.—Medical."

Skuse, F. A. A., 1889: "Diptera of Australia. Part VI.—The Chironomidae." Proc. Linn. Soc. N.S.W., 4 (2): 215.

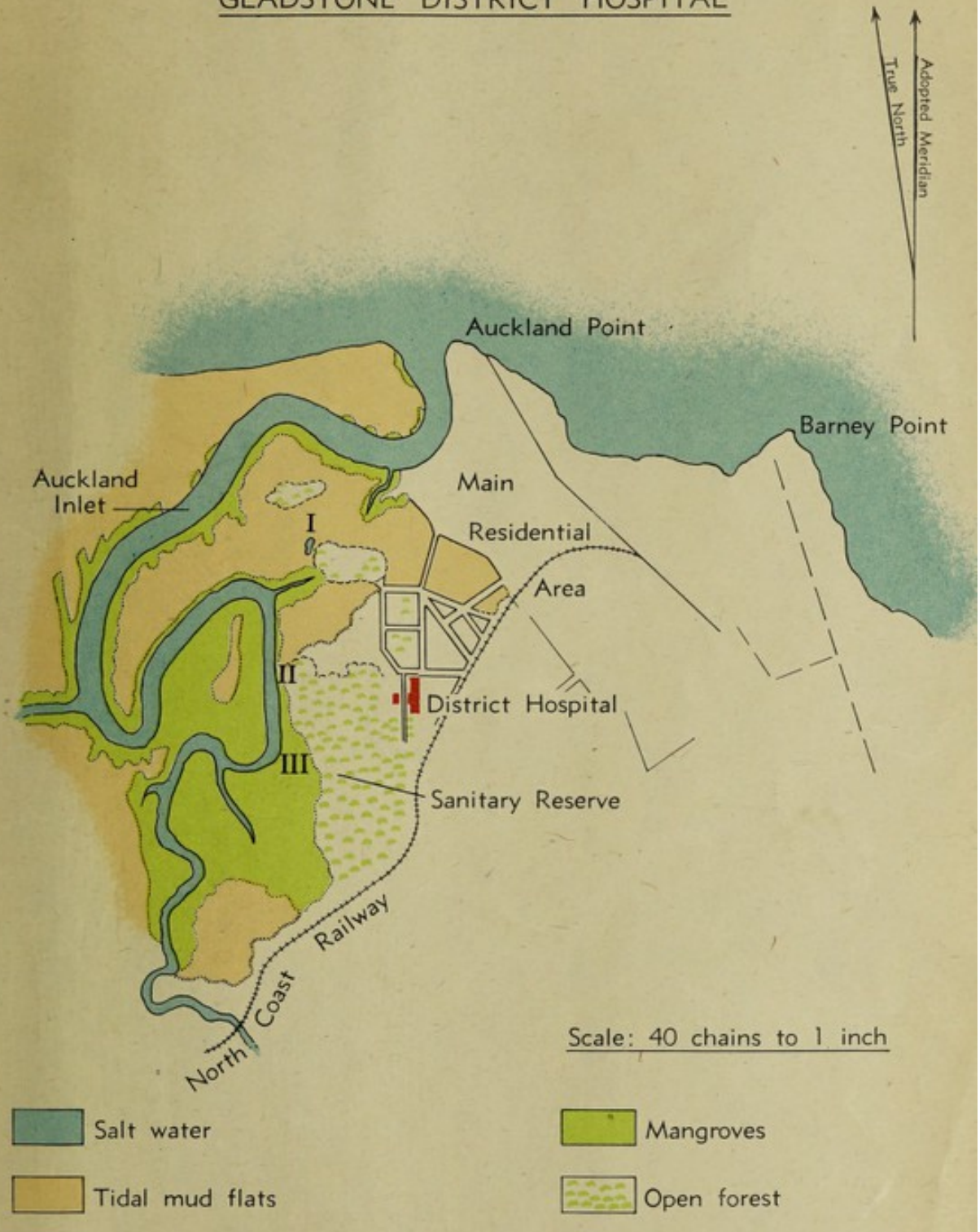
A. H. Tucker, Government Printer, Brisbane.

Tidal mud flats to north-west of Gladstone District Hospital, looking westward, showing the shallow brackish pool in which larvae of a *Ceratopogonid* were found. The small plants bordering the pool are *Suaeda*. The low line of trees in background are mangroves along the west bank of Auckland Inlet.

The east bank of Auckland Inlet, at a point due west of Hospital, showing muddy bank with scattered mangroves, and in background dense mangroves on west bank.

Dense mangroves (Rhizophora) on east bank of Auckland Inlet, at a point south-west of Hospital. The bare mud in foreground is a small area which has been cleared of mangroves.

SKETCH MAP OF THE AREA SURROUNDING GLADSTONE DISTRICT HOSPITAL



This map is based on Parish of Gladstone map (40 ch. to 1 in.), published November, 1940, and Military map of Gladstone (Australia 1 : 63360; 1 mile to 1 in.), reproduced December, 1942; also on aerial photographs of the area loaned by Geology Department, University of Queensland.