Report of the Public Health Department / Western Australia.

1944.

WESTERN AUSTRALIA.

REPORT

of the

PUBLIC HEALTH DEPARTMENT

for the

Years 1939 to 1943

PERTH:

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1944.

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Report of the Public Health Department.

The Hon. Minister for Public Health.

I have the honour to submit herewith a report of the Public Health Department for the five years 1939-1943 inclusive. For various reasons the usual biennial reports have not been printed, but on the eve of my retirement, after thirty years as Commissioner of Public Health, I now present a composite report to December 31st, 1943.

FINANCIAL.

Statement of Revenue and Expenditure.

—	Calendar Year 1939.	Calendar Year 1940.	Calendar Year 1941.	Calendar Year 1942.	Calendar Year 1943.
Revenue.					
License Fees	£ s. d. 153 10 6	£ s. d. 135 1 6	£ s. d. 146 19 6	£ s. d. 44 15 6	£ s. d. 103 2 0
Meat Inspection Fees	5,532 1 2	5,551 6 7	6,570 15 9	7,715 9 4	8,312 3 11
"Village Area" Sanitary Contracts	103 11 8	99 13 4	116 0 8	73 2 8	73 7 0
Pathological Laboratory	377 2 0	356 3 0	688 3 6	835 8 5	1,180 1 5
Sanitations Refunds	155 13 10	137 0 2	130 18 1	135 9 4	137 5 3
Inspection of Plans (Septic Tanks)	415 0 0	436 12 6	496 17 4	174 17 6	118 2 6
Miscellaneous	957 5 0	994 2 10	498 15 7	122 11 6	245 12 0
Nurses' and Midwives' Registration and Examination Fees	405 6 6	382 1 4	404 17 6	453 0 2	351 4 11
Diphtheria Immunisation Recoups	5 14 6	...	...	...	...
Commonwealth Venereal Diseases Grant	...	...	...	...	2,000 0 0
	£8,105 5 2	£8,092 1 3	£9,053 7 11	£9,554 14 5	£12,520 19 0
Expenditure.					
Salaries	16,297 19 0	17,039 10 9	16,763 4 9	16,713 8 7	19,443 9 9
"Village Area" Sanitation	51 14 1	62 16 9	24 8 6	36 14 11	69 1 5
Payment, Local Health Authorities	2,390 15 11	1,459 17 3	1,707 3 2	1,879 2 9	8,172 4 9
School Hygiene	645 4 1	751 0 7	571 18 8	296 8 7	349 6 10
Travelling and Transport	332 4 10	210 8 3	269 6 5	159 0 5	454 16 6
Postages and Telephones	382 11 0	429 17 7	471 2 7	496 11 0	433 14 1
Laboratory	138 12 11	159 5 10	132 17 1	307 1 1	298 17 6
Venereal Diseases	2,901 0 11	2,555 5 7	2,327 18 7	2,952 17 0	8,167 19 6
Miscellaneous	737 2 4	879 2 4	830 0 11	606 3 3	558 16 5
Infant Welfare Centres	2,896 17 5	3,148 7 9	3,190 2 10	3,210 16 6	3,221 11 4
Maintenance and Transport of Lepers	4,134 13 9	6,782 6 6	6,185 17 10	5,074 1 7	7,187 1 7
Medical Officer and School Dentist—Travelling Allowances	555 4 5	602 1 9	753 8 1	559 14 9	616 4 1
Diphtheria Immunisation	523 8 5	374 0 5	738 1 7	421 4 4	611 18 5
Total, Public Health	£31,987 9 1	£34,454 1 4	£33,965 11 0	£32,713 4 9	£49,585 2 2
Sanitation of Government Buildings	9,244 15 11	8,733 9 3	11,102 6 0	8,408 16 4	9,249 1 7
Total, Public Health Branch	£41,232 5 0	£43,187 10 7	£45,067 17 0	£41,122 1 1	£58,834 3 9

VITAL STATISTICS.

Western Australia.

	1939.	1940.	1941.	1942.	1943.
Mean Population—					
Males	244,451	242,011	243,318	242,462	†
Females	220,591	223,303	224,674	227,638	†
Total	465,042	465,314	467,992	470,100	†
Births—					
Males	4,649	4,588	5,108	5,019	5,357
Females	4,387	4,533	5,010	4,882	5,124
Total	9,036	9,121	10,118	9,901	10,481
Birth Rate—					
Per thousand of mean population	19·43	19·60	21·62	21·06	22·07‡
Deaths—					
Males	2,664	2,787	2,888	2,973	2,730
Females	1,672	1,699	1,881	2,103	1,857
Total	4,336	4,486	4,769	5,076	4,587
Death Rate—					
Per thousand of mean population	9·32	9·64	10·19	10·80	9·66‡
Natural Increases—					
Rate per thousand of mean population	10·11	9·96	11·43	10·26	12·41‡
*Infantile Mortality per thousand Births—					
Metropolitan Area	37·98	47·15	35·21	37·52	29·66
Rest of State	42·97	42·03	35·34	36·22	36·22
Whole State	40·84	44·18	35·28	36·86	32·63
Still Births—					
Metropolitan Area	97	120	119	107	159
Whole State	213	242	257	208	278

* Excluding Still Births. † Not yet available. ‡ Preliminary estimate.

BIRTH, DEATH, AND INFANTILE MORTALITY RATES AND NUMBER OF STILL BIRTHS, 1939–1943.

	Birth Rate.	Death Rate.	Infantile Mortality.*			Still Births.	
			Whole State.	Metropolitan Area.	Rest of State.	Whole State.	Metropolitan Area.
1939	19·43	9·32	40·84	37·98	42·97	213	97
1940	19·49	9·59	44·18	47·15	42·03	242	120
1941	21·62	10·19	35·28	35·21	35·34	257	119
1942	21·06	10·80	36·86	37·52	36·22	208	107
1943	22·07	9·66	32·63	29·66	36·22	278	159

* Including Still Births.

COMPARISON OF INFANT MORTALITY AND GENERAL DEATH RATE.

	Infant Mortality.			General Death Rate.		
	1941.	1942.	1943.	1941.	1942.	1943.
New Zealand	29·77	28·71	31·18	9·84	10·60	10·04
Western Australia	35·28	36·86	32·63	10·19	10·80	9·66
New South Wales	43·77	40·17	35·99	9·75	10·32	10·10
Victoria	36·21	41·67	35·76	10·59	11·18	*
Queensland	39·13	34·73	*	9·21	9·30	*
Tasmania	48·98	42·41	40·38	10·76	10·12	10·54
South Australia	32·47	39·72	36·29	10·47	11·03	10·60

* Not yet available.

General Death Rate.

Reference to the Tables will show that as regards the general death rate for 1943, Western Australia, which has usually held an intermediate position by comparison with other States of Australia and New Zealand, appears to head the list with the lowest rate. The figures for Queensland and Victoria are not yet available but on past experience only the former is likely to have equalled or surpassed this State's figures for the year just passed.

Infant Mortality.

West Australia's infantile mortality rate, which represents the deaths of infants under one year of age, per thousand born, has in 1943 surpassed its previous best, being second only to New Zealand, by a small margin. The latter country is reputed to have the lowest infant mortality in the world. So low a figure as 32.63 has not previously been attained here, though in 1938 it was only a little higher.

Birth Rate.

The birth rate which represents the number born per 1,000 of the mean population is also, in 1943, the highest yet attained.

INFECTIOUS DISEASES.

Typhoid Fever.

The table below shows the incidence of Typhoid Fever in the State in each of the years under review, metropolitan and country cases being shown separately:—

Location.	1939.	1940.	1941.	1942.	1943.
Metropolitan	18	17	9	1	21
Country	12	5	10	7	5
Total Cases	30	22	19	8	26
Deaths	6	3	1	6	3

The figures clearly indicate that Typhoid Fever is not now a public health problem of any magnitude in this State. The figures for the year 1942 are the lowest ever recorded and could hardly be surpassed amongst a population of over 400,000. The number of deaths recorded during that year, however, suggests that there has been failure to notify all cases.

Diphtheria.

The table below indicates prevalence of this disease during the past five years and shows the numbers of cases occurring respectively in metropolitan and country districts.

Location.	1939.	1940.	1941.	1942.	1943.
Metropolitan	429	453	556	584	659
Country	181	130	118	164	96
Total Cases ...	610	583	674	748	755
Deaths	27	22	20	41	38
Case Mortality (per cent.)	4·4	3·75	3·00	5·48	5·03

At first sight it is difficult to explain the fact that in spite of immunisation and with no marked increase in child population there has been an increase in the total number of cases recorded during 1941, 1942 and 1943. In two of those years, namely 1941 and 1943, it will be noted that the increase has occurred in the metropolitan area whilst a decrease is noticeable in country districts especially during the year just passed. This may be due to the exodus of a considerable number of children from country to metropolitan areas where the chances of infection are greater than in the more sparsely populated country areas where, moreover, natural immunity has less opportunity to develop. There was a definite increase in case mortality noticeable during 1942 when a more virulent type of the disease appeared.

It must be noted, however, that carriers of the Klebs-Loëffler Bacillus are notifiable to the Health Authorities and are recorded amongst the case notifications. Immunisation does not prevent the carrier state, so that a true index of prevalence is not presented. The presence of carriers in the figures will also vitiate case mortality.

It is now estimated that not less than 65,000 children have been immunised in the State and the actual cases of diphtheria amongst those so dealt with, has been extremely small, and then of mild type only. Still, however, there is a considerable amount of parental apathy to be found which, in too many cases, amounts to antipathy, because faith is placed in the opinions of unqualified opponents of immunisation whose unscientific, misguided and misleading statements are often permitted to turn the scale against the advice of the medical officer of health. No doubt, fear of untoward results from inoculation deters some, though in actual fact no effect of a serious nature from this simple and safe procedure has yet been recorded amongst the 65,000 children already immunised. Moreover, the unimmunised child is being permitted to run an infinitely greater risk of damage and death when left unprotected.

On the other hand, there are many who are so convinced of the value of this protective measure against one of the greatest menaces of childhood, that they are continually urging that legislation be enacted to make immunisation compulsory. Many local authorities in the State, both metropolitan and country are to be congratulated upon the energy and foresight they have displayed in making immunisation available to the children of their districts and it is significant that those districts which have attained most success in this direction have shared most markedly in the reduction of incidence of the disease.

Scarlet Fever.

The relevant figures for this disease are shown in the table below for the years being reviewed and very definitely indicate how a few years of low prevalence may suddenly be followed by an unprecedented flare-up of quite unusual proportions, as occurred in 1943.

——	1939.	1940.	1941.	1942.	1943.
Cases notified	200	142	99	139	1,899
Deaths	...	1	...	...	3

It will be noted that deaths from this disease are few and it is very certain that many cases occur with signs so evanescent and symptoms so mild that cases are unrecognised and unreported—many never consult a doctor.

Measles (Morbilli).

This disease and German Measles (Rubella) were particularly prevalent during 1940, both amongst children and adults and many severe complications, particularly Bronchitis and Pneumonia, occurred with deaths amongst persons of all ages. Some cases in Military Camp were particularly severe.

This disease is not ordinarily notifiable to the Health Authorities, but in view of the many complications met with and the frequent admission of cases to the Infectious Diseases Hospital, the disease was declared notifiable for a limited period.

No true indication of the number of cases which occurred could, however, be obtained, because so many of a mild nature did not seek medical advice. One thousand and thirteen cases were notified in 1940, however, and the number of deaths from various complications was twenty-nine.

Mumps.

During 1939 and part of 1940 this disease showed an unprecedented prevalence amongst both adults and children. A number of cases were complicated by pancreatitis. The disease is not notifiable in Western Australia.

Whooping Cough.

This disease, which is not notifiable, was particularly prevalent in 1939 and was responsible for 35 deaths in that year and nine in 1940. A complicating Pneumonia is usually the cause of death from this disease as in the case of Measles.

Infantile Paralysis.

Following the occurrence in 1938 of 48 cases of Infantile Paralysis in the State, when Australia as a whole experienced its greatest epidemic of this disease, prevalence has fluctuated between a minimum of three cases in 1940 and 16 cases in 1943. Cases have been of a purely sporadic nature and have shown little relationship one with another.

Western Australia has been extremely fortunate in its experience of this disease by comparison with other States.

Cerebro-Spinal Meningitis.

This disease had caused little concern in Australia since the Great War (1914-1918), but, as was predicted, the disease began to make its appearance soon after the present War necessitated the establishment of military camps involving the presence of large numbers of adolescents in close association and undergoing physical and mental strain.

Cases began to occur early in August, 1940, in widely scattered, sporadic, rather than epidemic form, suggesting that at an early date the infection had become broadcast in the community. Although the earliest cases occurred in Service camps, civilian cases, sometimes definitely associated with Military contact, soon appeared and far outnumbered Service cases.

The closest co-operation at all times existed between the Military Authorities and the State Health Department in dealing with cases, contacts and carriers, as a result of which considerable advantage accrued to each. Cases notified to the Health Authorities are shown in the table below which indicates the long drawn-out nature of the epidemic for four of the five years under review. The peak was reached in 1941 and a considerable though diminishing incidence continued during 1942 and 1943.

——	1939.	1940.	1941.	1942.	1943.
Cases	2	64	411	341	159
Deaths	1	13	70	37	16

Previously, the death-rate from Cerebro-Spinal Meningitis has been as high as 60 per cent. but with the introduction of the Sulphanilamide drugs in treatment there has been an astounding and epoch-making redution in the mortality rate of this disease. Experience has shown that, used early in the disease and in sufficiently large doses, the great majority of cases are on the road to recovery in a few days. We find records, in various groups of cases, of mortality rates varying from 3.5 per cent to 11 per cent. depending upon the rapidity with which cases were brought under the influence of this group of drugs. When one recalls that during the last War cases had but an even chance of recovery or death, present results are nothing short of miraculous. The disease, during this outbreak, has attacked all ages from infancy to advanced age and both sexes indiscriminately.

Endemic Typhus (Brill's Disease).

Notified cases of this disease during the five years being reviewed were as under:—

1939	1940	1941	1942	1943
32	45	18	13	123

This disease, which is not transmissible from man to man, is considered to be conveyed, in this country, by the bite of the rat flea. Its prevention, therefore, is to be effected by eradication of rodents against which constant war should be waged. The very considerable increase in cases during 1943 suggests that, for this reason alone, Local Health Authorities cannot afford to neglect the very important activity of rat destruction. It is true that lack of manpower may be a factor in the noted increase, but the greater issue, should plague infected rats gain entry to the State, must constantly be borne in mind and no laxity be permitted in this Department of Public Health work.

Deaths from this disease are rare but convalescence is often very protracted after a very unpleasant illness.

Pulmonary Tuberculosis (Phthisis).

The table below indicates the prevalence of and mortality from this disease during the last ten years:

Year.	Cases Notified.	Deaths.	Deaths per 1,000 of Population.	Percentage of Total Deaths.
1934 ...	287	218	0·49	5·30
1935 ...	270	210	0·47	5·10
1936 ...	338	193	0·43	4·60
1937 ...	239	172	0·38	4·23
1938 ...	247	178	0·39	4·20
1939 ...	262	179	0·38	4·13
1940 ...	231	181	0·39	4·03
1941 ...	154	185	0·39	3·87
1942 ...	113	175	0·37	3·44
1943 ...	273	144	0·30	3·14

It is difficult to explain the low figures for notifications of this disease during the years 1941 and 1942 and so unusual are these figures that laxity in notification must be suspected which may have been, to some extent redeemed by the unduly high notification in 1943. It will be noted that the number of deaths from this disease during 1943 is the lowest recorded.

WOOROLOO SANATORIUM.

I have to record the appointment in 1941 of Dr. Linley Henzell as Superintendent to the Sanatorium in succession to Dr. Robert Mitchell, who had for many years faithfully served the State in that capacity and who will long be remembered as the pioneer of sanatorium control in this State at Coolgardie and subsequently at Wooroloo. A West Australian, with considerable experience of tuberculosis in England, Dr. Henzell, since the day of his appointment has been an inspiration to the Department and has imbued all with whom he has come in contact with an enthusiasm and energy which bids fair to reorganise methods of prevention and treatment of tuberculosis in this State.

His report, which appears in the appendix, is evidence enough of the tremendous amount of reconstruction he seeks to initiate and I feel confident that it needs only the acceptance, by the Government, of the principles he enunciates and the necessary means of putting them into practice, to very much reduce the incidence of the disease in this State, to give greater hope of cure or arrest to the sufferer and an economic status which will largely remove the financial stress which so often retards recovery from this disease.

Whilst paying this tribute to Dr. Henzell and his staff, I desire also to record the appreciation of the department for the very willing and efficient manner in which Dr. Roy Muecke, the Superintendent of the Perth Hospital, has co-operated with Dr. Henzell in extending, at the expense of his own time, clinic facilities and carried out surgical procedures for patients from the Sanatorium.

An honorary Medical, Surgical and Pathological staff has also been appointed to the Sanatorium and to the medical men comprising it, I also tender thanks and appreciation.

Leprosy.

The problem of Leprosy in the State is a very real one, but confined almost entirely to the North-West areas of the State and in the main to the native inhabitants, full-blood or half-caste. The numbers of cases brought to light during the years now being reviewed are shown in the following table:—

1939.	1940.	1941.	1942.	1943.
62	52	43	26	69

The work of discovery of these cases has been very much facilitated since the appointment of a full-time medical officer attached to the Native Affairs Department and to the very active assistance of police officers stationed in the areas concerned.

Cases are segregated at the Derby Leprosarium where they are cared for by the local medical officer and nursing sisters from the Broome Convent and under the able management of a departmental officer and his wife. At the time of writing there are 220 patients housed in the institution which, with financial assistance from the Commonwealth Government is being considerably enlarged. Such assistance from the Commonwealth Government in the control of a problem of such Australia-wide portent is surely only just, when a State of such size with so small a population must deal with a problem of great national importance in which the more populous States of the Commonwealth, with the exception of Queensland, take no part.

Cases of this disease amongst whites are fortunately few, only four being at present under detention and care.

In connection with the discovery of cases of this disease, I desire to express my very great appreciation of the enthusiastic and efficient work done by Dr. Musso, Medical Officer of the Native Affairs Department, who has unstintingly, under difficult and often unpleasant conditions of travel, given of his best and co-operated in every possible way with the Department. Thanks are also due to the Commissioner of Native Affairs who has never failed to assist in this work to the best of his ability.

MATERNAL DEATHS.

The table below presents statistics showing the principal causes of death resulting from the puerperal state for the past ten years. The figures are very illuminating and indicate a marked decline in the deaths of mothers from the causes stated. The decline is evident not only in regard to deaths from Puerperal Septicaemia but also from Abortion and for the four years 1939-1942, inclusive, the death rate per 1,000 live births, from all causes of the puerperal state, has been consistently well below three. These figures are remarkable and probably amongst the lowest recorded anywhere.

Two reasons for this marked improvement suggest themselves. The one, the more general recognition and acceptation of the value of pre-natal examination and care early and continuously during pregnancy, and, secondly, the benefit derived from the sulphanilamide drugs in the treatment of septic conditions.

Year.	Live Births.	Deaths from:							
		Puerperal Septicaemia.		Abortion.		All other causes of the Puerperal State.		All causes of the Puerperal State.	
		No.	Rate per 1,000 Live Births.	No.	Rate per 1,000 Live Births.	No.	Rate per 1,000 Live Births.	No.	Rate per 1,000 Live Births.
1934	7,801	7	0·90	15	1·92	16	2·05	38	4·87
1935	8,119	4	0·49	12	1·48	15	1·85	31	3·82
1936	8,479	5	0·59	18	2·12	20	2·36	43	5·07
1937	8,609	4	0·46	8	0·93	24	2·79	36	4·18
1938	9,141	4	0·44	14	1·53	19	2·05	37	4·04
1939	9,036	1	0·11	7	0·77	14	1·55	22	2·43
1940	9,121	1	0·11	6	0·66	17	1·86	24	2·63
1941	10,118	1	0·10	7	0·69	16	1·58	24	2·37
1942	9,901	3	0·30	8	0·81	17	1·72	28	2·83
1943	10,481	2	0·19	3	0·29	9	0·86	20	1·91

VENERAL DISEASE.

The total number of new cases of Venereal Disease notified during the five years now being reviewed and their differentiation into the various forms of disease are set out in the accompanying table. It will be noted that owing to large numbers of enlistments the total number of cases amongst civilians is very much reduced, but that the relative incidence between the sexes has completely changed its aspect, for, whereas in 1938 there were approximately three male cases to one female case, in 1943 the proportion is 1.33 females to 1 male. Such a change is to be expected when many males have left the civil community, but, on the other hand, the effect of war conditions is seen in the gradual increase in total female cases until, in 1943 they not only out-number the male cases in the civil community but actually show the highest total of cases in females for many years.

A marked increase in Syphilis is noted in both sexes during 1942 and 1943 which had previously been at a very low level. This was undoubtedly due to infection from without the State but was also a measure of increased promiscuity between the sexes due to war conditions.

Thus, we may save much of the misery that results from ignorance or of well-intentioned but imprudent evasion.

It is true also that at no time has an attitude of tolerance been more important than at present, when the world is topsy-turvy in war, with its horrors, its licence and its hysteria, and we must first of all come down to earth and honestly accept certain postulates, namely:—

That sexual intercourse is a normal function of the human race;

That civilised man endeavours to control its promiscuity by moral codes and the sanctity of marriage;

That even in peace-time many do not obey the moral law nor accept sanctity of marriage;

That in war-time, morals, like many other principles, become disorganised and illicit sexual intercourse increases;

That many women, influenced by hero-worship, the glamour of the service uniform, the seduction of celebration and alcohol, and to an extent a desire to reward courage, become prodigal of their favours;

That the man, realising that his future lies upon the lap of the Gods, is apt to become careless and callous and throws caution and principle to the winds.

There are those of us who call these offenders against propriety mentally deficient; others claim that they are wicked or criminal. Are they not rather short-sighted and foolish?

Promiscuous sexual intercourse leads to the transmission of certain diseases, the venereal diseases, caused by the passage of certain germs from person to person, just as promiscuous coughing, or sneezing, transmit other infections such as colds, measles, scarlet fever by very similar germs, but with this difference, that venereal diseases are very difficult to cure, may be of long-standing, may have more serious complications, may be transmitted to the off-spring, and may lead to much domestic infelicity and much physical incapacity and misery accentuated by self-recrimination.

These postulates and these comparisons are not intended to condone promiscuous intercourse, which is definitely anti-social and capable of undermining the nation, but they seek to close the gap which has been set up in the minds of the prudish between venereal and other diseases which result from community life, and to show that they are not "something fundamentally different," nor the sufferer from them a pariah of society and deserving only of scorn and segregation.

It cannot be denied that there is a proportion drawn into this anti-social swirl because they are not of normal balance and control. These it is reasonable to place out of harm's way in their own and the nation's interest, but it cannot be denied that many

are sane and normal individuals, some of high intelligence, intellect and attainment, who fail only in that they will not obey social restriction in this particular.

In the interests of the nation, the same principles of public health must apply as in the case of other preventible diseases, namely, the fullest provision of facilities for treatment and prevention.

Let us, then, approach the subject with tolerance and commonsense. To him who has contracted venereal disease, either through the foolishness of promiscuous relations or innocently, let us urge—nay, beseech him to seek immediate treatment by a qualified medical practitioner who knows and understands the dangers and possible complications. Let him shun self-treatment or unqualified treatment as he would the plague. These can only lead to disaster. And to him who proposes to take the risks of promiscuous associations let us urge that precautions adopted before and after intercourse may prevent many an infection. In other words educate him early and continuously so that, as a parent, he does not neglect his duty to his children in this regard; for much of the damage that has been done has been due to the lack of parental guidance and parental control.

VENEREAL DISEASE IN W.A. (CIVILIAN).

1938–1943 (inclusive).

Disease.	1938.		1939.		1940.		1941.		1942.		1943.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Syphilis—Primary	6	1	8	1	16	4	8	3	35	7	23	7
Secondary	4	1	3	1	3	4	1	2	8	5	7	4
Tertiary	12	9	6	5	7	5	3	3	11	8	5	9
Congenital	...	1	3	1	...	1	12	...	2	2	1	2
Total, Syphilis	22	12	20	8	26	14	24	8	56	22	36	22
Gonorrhoea	596	195	541	134	462	128	288	123	248	252	257	308
Chancroid	1	...	...	...	5	...	6	...	2	...	7	...
Granuloma	5	9	...	2	...	1	...	1	7	1	...	...
Total	624	216	563	144	493	142	318	132	313	275	300	330
Grand Total ...	840		707		636		450		588		630	

SCHOOL MEDICAL AND DENTAL INSPECTION

Both the School Medical and Dental Services have done excellent work during the years under review commensurate with their ability with the staff available. Both staffs are, however, sadly deficient for the work to be accomplished and must be reinforced very considerably if this branch of Public Health work is to pay the dividends it should in the early detection of defects and the subsequent prevention in later life of incapacity and invalidity.

It is in war time particularly that this is brought home by the excessive number of rejections for military service on account of defects which might have been corrected or prevented in early life. No State can afford to lose the opportunity presented during school life for the laying of sound foundations for the health of the adult of the future and money is well spent which makes this possible.

The reports of Dr. Eleanor Stang, of the School Medical Staff, and of Mr. McKenna, the Senior School Dentist, make this abundantly clear.

INFANT HEALTH CENTRES.

Dr. Stang, also Supervisor of Infant Health Centres, presents a report which indicates the increasing scope and value of these educational institutions for mothers which must be regarded as a major factor in the reduction of the infant mortality rate.

PUBLIC HEALTH LABORATORY.

This sub-department carries out pathological, bacteriological and bio-chemical work of both a clinical and Public Health nature, performing a great deal of work for hospitals and private medical practitioners. In addition, routine examinations of water, milk and canned foods are made, together with medico-legal work for the Police Department. Since the war began, a considerable amount of work has been done for the Services also.

Staff: In November, 1941, Dr. W. S. McGillivray, after many years of valuable and conscientious service, retired and for some time it was feared that there might be considerable difficulty in replacing him. However, fortune favoured us and we were able to enlist the services of Dr. A. Neave Kingsbury, who had for many years been Director of the Medical Research Laboratories at Kuala Lumpur and whose known reputation as a Scientist was a sufficient guarantee of his suitability for the post. Dr. Kingsbury was appointed to the position in January, 1942, since when he has given outstanding service. His energy, organising ability and initiative, at a time when these qualities were so essential, have fully justified our choice. Dr. Kingsbury's report, which appears in the appendix, is evidence enough of the great amount of work he has accomplished in spite of considerable staff difficulties during this period of stress.

MEAT INSPECTION.

Tables are submitted in the appendix showing, the food animals slaughtered under the supervision of and inspection by the departmental officers in metropolitan abattoirs and by Local Authority Inspectors in country districts.

The progressive increase in total animals slaughtered indicates the additional war requirements that have had to be met.

VISITING SISTERS.

The Department has upon its staff several qualified nurses whose function it is to supervise practising midwives, to inspect Maternity Hospitals and to visit and advise notified cases of Pulmonary Tuberculosis in their homes.

The work of these nurses is set out in the Schedule below for the years 1939-1943 inclusive.

Year.	Maternity Cases Investigated.	Visits to Maternity Homes.	Visits to T.B. Patients.	Special Enquiries.
1939 ...	201	369	1,815	100
1940 ...	144	356	2,046	83
1941 ...	128	313	1,450	54
1942 ...	78	275	896	40
1943 ...	75	289	966	66

MIDWIVES' REGISTRATION BOARD.

This body controls the training, practice and registration of midwives within the State. The following numbers of candidates satisfied the Board's examiners during the five years 1939-1943 inclusive and were registered:—

Year.	Registrations.
1939	92
1940	80
1941	60
1942	84
1943	66

GENERAL NURSES' REGISTRATION BOARD.

This Board controls the training and registration of General Nurses. During the five years under review the following numbers of nurses were admitted to the Register:—

Year.	Registrations.
1939	233
1940	182
1941	204
1942	217
1943	137

INFANT HEALTH NURSES.

In May, 1941, arrangements were made for the registration of Infant Health Nurses. The following numbers of nurses were admitted to the Register during the years stated:—

Year.	No Registered.
1941	42
1942	55
1943	34

SAMPLES OF FOODS & DRUGS SUBMITTED TO THE GOVERNMENT ANALYST FOR COMPLIANCE WITH THE FOOD & DRUGS REGULATIONS.

Year.	Number of Samples.	Number failing to comply.
1939	50	15
1940	54	9
1941	66	10
1942	61	5
1943	114	31

INSPECTION OF FOODSTUFFS ARRIVING FROM OVERSEAS.

A Departmental inspector gives a certain amount of his time to the inspection of foodstuffs arriving from overseas at the Port of Fremantle. The following condemnations were made in 1939 and 1940; subsequently until the end of 1943, there were no imports of goods submitted for inspection.

Food.	1939.	1940.
Ham	...	60 lbs.
Fish	3,258 lbs.	218 lbs.
Carcase Meat	...	4,300 lbs.
Fowl	...	250 lbs.
Lard	...	175 lbs.
Sausages	...	114 lbs.
Butter	...	750 lbs.
Cheese	...	750 lbs.
Kippers	...	28 lbs.
Bacon	...	36 lbs.
Fat	...	18 4-gallon tins
Lemons	...	2 cases
Apples	...	3 cases
Eggs	...	4,000
Sardines	40,979 tins	...
Tomato Sauce	3 tins	...
Correander Seed ...	3 cwt.	...
Lentils	22 tons	...
Onions	395 tons	...

LEGAL PROCEEDINGS TAKEN BY THE INSPECTION BRANCH FOR THE YEARS 1939-1943 INCLUSIVE.

Year.	Complaints.	Convictions.	Dismissed.	Withdrawn.
1939 ...	13	12	1	...
1940 ...	6	5	...	1
1941 ...	5	3	2	...
1942 ...	19	11	2	6
1943 ...	28	23	2	3

PLANS AND SPECIFICATIONS OF SEPTIC TANKS EXAMINED AND APPROVED DURING YEARS 1939-1943, INC.

Year.	Number dealt with.
1939	706
1940	776
1941	778
1942	275
1943	161

In conclusion, I desire to record my appreciation of the assistance and loyal co-operation I have received from all members of the staff to whom the successful working of the department has been mainly due.

EVERITT ATKINSON, M.A., M.D., D.P.H.,
Commissioner of Public Health.

31st March, 1944.

REPORT OF THE GOVERNMENT PATHOLOGIST AND BACTERIOLOGIST.

The Commissioner of Public Health.

I submit herewith a brief account of the principal activities and developments of the Public Health Laboratories during the five years 1939 to 1943. This period marks the transition from peace to war and to the intensification of war-time conditions that was heralded by the year 1942. These changes have been reflected in the activities of the laboratories; in some sections, as for instance bio-chemistry, there has been a decline while in others, particularly those concerned with the diagnosis of venereal diseases, there has been a very considerable increase in the volume of specimens for examination. The closure of a laboratory in the North-West threw on to the laboratories much extra work connected with the diagnosis of leper cases, the periodic bacteriological examination of inmates of the Leprosarium, etc.

It has been necessary to undertake several new activities such as the bacteriological control of the local canning pack; blood grouping of the population on a large scale when invasion threatened; the identification of Rh negative donors for the Red Cross Transfusion Service; the identification of anophelines and other mosquitos; and the periodic survey of the nutrition of school children in one of our poorer areas to ascertain that the youth of the country is not reacting adversely to present day restrictions.

Certain researches have been instituted. These include the examination of rats to assess the murine infection rate for leptospirosis; the examination of specimens submitted for the Widal and/or Weil Felix reactions, for agglutinins of B. abortus to obtain information regarding the incidence of undulant fever, while experiments to determine the effect of war-time methylated spirit on B pyocyaneus are also in progress.

CANNING.

With the development of canning in the State, the laboratories took over as a temporary measure the necessary bacteriological control examinations. Cans were received from the Commonwealth Department concerned (and also from the Services). The procedures adopted included preliminary incubation at 37° C. for seven days, followed by the culture of the contents of "blown" cans and of suspicious "springers" on special media at 37° C. and 56° C. Seven hundred and ninety cans were examined during the year 1943.

BLOOD GROUPING.

Early in 1943 it was deemed advisable to undertake blood grouping on a large scale for those members of the public who urgently desired to be grouped. The staff of the Pathological Departments of Perth Hospital and of the Department of Agriculture kindly co-operated and many ex-nurses, school teachers, university graduates and others volunteered to assist. Members of St. John's Ambulance Association undertook much of the clerical work. After some preliminary training of the volunteer staff a clinic was opened to the public on five days weekly. The throng was so large that appointment slips had to be distributed and for many weeks as many as a hundred and fifty persons were grouped at each session. Before the clinic was finally closed a total of 8,500 persons had attended. The following are the percentages of the local population that were found to fall into the various groups:—

AB=2.3% A=40.3% B=10.1% O=47.3%

The Department takes this opportunity of expressing warm appreciation of the ready co-operation of the Press and of the regular attendance and untiring efforts of the many volunteer workers.

Rh GROUPING.

Recent work has indicated that certain recipients of blood transfusion cannot repeatedly receive blood of compatible ABO grouping without reaction. In most of these cases, however, compatible ABO blood can be safely given provided the corpuscles are not agglutinated by anti-Rh serum. The determination as to whether an individual is Rh positive or negative is less simple as is the ABO grouping.

Dr. G. A. Kelsall, the Acting Medical Director of the Red Cross Transfusion Service, invited the co-operation of these laboratories in the identification of Rh negative donors. Thanks to the co-operation of the authorities responsible for the local Zoological Gardens, rhesus monkey blood was made available and a number of guinea pigs were immunised. A batch of anti-Rh-human serum was also received by the courtesy of Dr. F. G. Morgan, Director of the Commonwealth Serum Laboratories. Some 275 tests have been undertaken of which 18 per cent. have proved to be Rh negative. (This figure is not representative of the percentage of Rh negatives among the general population for the series is weighted by the inclusion of a number of members of families in which erythroblastic babies had occurred.)

IDENTIFICATION OF MOSQUITOS.

Among returned men and women from the war there are likely to be many chronic malaria cases which may be overlooked on account of the latency of their infections. Such cases are later liable to recurrences of fever and to produce gametocytes which might infect attacking anopheline mosquitos: thus malarial fever may be spread to the civilian population. A knowledge of the distribution and density of local anophelines particularly those which are known to be vectors of malaria, is therefore a very necessary public health precaution. To this end, health inspectors have been encouraged to catch mosquitos and forward them to the laboratories for identification.

NUTRITIONAL SURVEY.

Towards the end of 1943 it was decided to commence regular surveys of the school children in one of our poorer metropolitan districts in order to assess any retrogression in their nutrition that might result from war-time conditions and restrictions. The examination of each child included the recording of height, weight and haemoglobin and the noting of indications of vitamin deficiencies.

The indications of a lack of vitamin "A" were looked for in the conjunctivae, in the skin over elbows and knees (phrynoderma) and in delayed dark

adaption. For Vitamin "B1," the results of the squatting test, the knee jerks and tenderness along the sciatic nerve were recorded, and for "B2", the condition of the corners of the mouth and the tongue. The skin of the face, neck and backs of the hands was also carefully examined. Observations for "C" deficiency included the gums and the pressure test applied for five minutes to the arm at a pressure half way between the systolic and diastolic blood pressures. The examination for "D" deficiency (rickets) was confined to the spine, costal cartilages, forehead and long bones. The teeth were also examined.

The following table gives the percentages of the children above and below the average weight for height as determined for metropolitan children by the survey undertaken by Dr. E. M. Stang (1940).

AVERAGE WEIGHT FOR HEIGHT.

	No.	Over 10% below.	5·1 to 10% below.	2·1 to 5% below.	Within 2% of	2·1 to 5% above.	5·1 to 10% above.	Over 10% above.
Boys ...	91	% 4	% 13	% 20	% 22	% 14	% 16	% 11
			37				41	
Girls ...	81	4	21	6	21	19	17	12
			31				48	

Haemoglobin findings were as follows:—

Haemoglobin (100% + 12·4 Gms.)

	80-90%.	91-99%.	100-109%.	110% and over.
Boys	% 33	% 16	% 41	% 10
Girls	23	11	40	26

The general average of nutrition was good, particularly among the girls, and no gross cases of vitamin deficiencies were recognised, but slight indications of insufficient vitamin intake were found as follows:—

Deficiency.	Boys.	Girls.
Vitamin "A"	10%	7%
" "B1"	—	—
" "B2"	4%	3%
" "C"	—	—
" "D"	13%	14%

The survey was repeated in 1943 when no significant nutritional retrogression was observed.

"MOTTLED" TEETH.

An interesting result of the survey was the recognition of "mottled" teeth in six children. The condition is caused by the ingestion of fluorine (usually in drinking water in which the content of the element is about one part per million or more). The "mottling" is slightly disfiguring, but it has been established that such teeth are more resistant to decay than non-mottled teeth. Indeed a proposal has recently been put forward in the United States for the purposeful dosage of water supplies with fluorine as a prophylactic against dental caries.

Two of the affected children had resided on the Goldfields: it is of interest that fluorine was used as a preservative for the wooden pipe line that carries the water for many scores of miles. One of the children has recently arrived in the State from Victoria while the others hailed from the North-West and the Perth areas: the superphosphate widely employed as a fertiliser contains much fluorine and it is probable that the water from surface wells in areas so fertilised would contain ample fluorine to cause the mottling of children's teeth. No reference has been found to the previous recording of "mottled" teeth in Australia, except in Queensland.

LEPTOSPIROSIS.

Practically no authenticated cases of leptospirosis have been recorded from this State and it was deemed advisable to collect data of the incidence of this disease among rats, for it is from this source that human infection has its origin. The Perth rat-catcher was accordingly requested to bring to the laboratories recently caught rats. So far 26 rats have been examined and in six instances leptospires were recognised in smears or in cultures from the kidneys. In ten of these rats *Trypanosoma lewisi* were found in smears of the heart blood and in one instance *Rickettsia*, perhaps indicative of typhus infection, were seen in smears from spleen and liver.

UNDULANT FEVER.

For the past 18 months all specimens of blood submitted to the laboratories for the Widal and Weil Felix reactions have also been tested against an emulsion of B. abortus. Among 313 sera so tested positive results to a titre of $\frac{1}{160}$ or above—thus meriting a diagnosis of Undulant Fever—were obtained in four instances. These cases came from Perth, Fremantle, Darlington, and Kalgoorlie. In all instances attempts were made to trace the milk supply and to have the cows of the dairy concerned tested by the Department of Agriculture.

THE RESISTANCE OF *B. PYOCYANEUS* TO METHYLATED SPIRIT.

Two cases have been reported in which infection by *B. pyocyaneus* had occurred following the use of syringes and needles that had been soaked in wartime methylated spirit as a disinfectant. Three strains of that organism after isolation from human and water sources were accordingly tested in regard to the lethal action of the methylated spirit. It would appear that the organism when in a moist condition is readily killed, but after drying it will resist the action of the spirit for at least 24 hours. Experiments are proceeding.

The following is a brief *resumé* of the number of specimens examined under some of the more important items of routine work:—

		1939.	1940.	1941.	1942.	1943.
Wassermann Reactions	Positive ...	398	340	342	442	428
	Negative ...	3,708	4,187	4,012	4,360	5,766
	A.C.	...	...	30	17	15
Gonococcal Complement-Fixations	Positive ...	142	269	286	399	761
	Negative ...	911	892	875	1,547	2,187
	A.C.	...	...	27	21	22
Smears for Gonococci	Positive ...	632	653	627	1,328	1,382
	Suspicious ...	...	...	7	350	301
	Negative ...	4,444	4,665	4,207	5,737	10,295
Diphtheria: Cultures for K.L.B.	Positive ...	391	265	216	279	317
	Negative ...	5,809	5,191	4,097	4,321	5,551
Tuberculosis: Sputa	Positive ...	101	79	75	48	66
	Negative ...	772	678	520	565	567
Tuberculosis: Guinea-pig inoculations	Positive ...	5	2	1	4	1
	Negative ...	63	67	64	27	52
Typhoid: Widal Reaction	Positive ...	10	8	11	16	19
	Negative ...	160	155	135	78	200
Typhus Fever (Brill's): Weil-Felix Reaction ...	Positive ...	41	39	34	14	66
	Negative ...	118	130	112	80	153
Leprosy: Smears	Positive ...	...	...	2	128	226
	Negative ...	5	2	5	198	418
Morbid Histology	Malignant ...	30	37	31	31	47
	Precancerous ...	...	...	5	10	5
	Benign ...	111	98	89	92	130
Medico Legal Cases	... ...	25	9	13	13	20
Bacteriological Examinations of—	Waters ...	763	714	677	878	802
	Milks	12	9	8	44	62

The histological specimens for 1943 show a considerable increase over previous years: for some months sections from Fremantle Hospital were examined in these laboratories on account of illness among the staff of the Fremantle Laboratory.

Mere numbers of the medico-legal cases in which the assistance of the laboratory is sought can convey little idea of the time involved in the examinations. In some cases a dozen exhibits may have to be examined. During the past two years the grouping of blood stains has been undertaken.

With regard to the bacteriological examination of the water supplies, although the sampling of reservoirs has been continued, regular sampling from scattered points on the reticulation was introduced during 1942.

EQUIPMENT.

Electric water baths for the performance of the Wassermann reaction by the Harrison-Wyler technique have been purchased and also an electric incubator and an electric hot air steriliser. The laboratory is in urgent need of an additional binocular microscope and a large electric centrifuge. The purchase of these has been approved and the apparatus is now on order from America.

STAFF.

The loyal and thorough work of the laboratory staff has been worthy of special mention. The assistants have always risen well to the occasion when the laboratories have been almost inundated by unusually heavy demands on the available time and resources.

Mr. C. Flower was posted from the laboratory to the Meat Inspection Branch on April 21st, 1941.

Mr. W. C. Croome was awarded a personal allowance as from January 1st, 1942, in recognition of his good work.

Mr. A. F. Drummond was promoted to Grade XI on August 27th, 1942.

Miss G. A. Pascoe was appointed in a temporary capacity on March 23rd, 1942, and was placed in the permanent establishment on January 1st, 1943.

Miss H. O. Pearce was appointed in a temporary capacity on December 9th, 1943. She will take over many of Mr. Drummond's duties when the latter is posted to the R.A.A.F. early in 1944.

Dr. W. S. McGillivray, Government Bacteriologist and Pathologist, proceeded on leave prior to retirement on November 11th, 1941.

The writer acted in his stead as from November 13th, 1941, and was appointed Government Bacteriologist and Pathologist as from January 5th, 1942.

A. NEAVE KINGSBURY,
M.D., B.Sc., D.P.H., D.T.M. and T.,
Government Bacteriologist and Pathologist.

SCHOOL MEDICAL REPORT.

The Commissioner of Public Health.

I have the honour to submit the following report in connection with the medical examination of school children during the five years 1939-43.

During the depression, the School Medical and Nursing Staff was sadly depleted and unfortunately the losses in staff that occurred then have never been replaced. Not only do we need these replacements but we need even further additions to the staff. At the moment there are only the equivalent of one and a half School Medical Officers and two School Nurses. The School Nurses work in the metropolitan area, but the Medical Officers work in both the country and metropolitan districts.

The School Medical Officer for the country works full time in the country schools, even so, she is able only to visit each individual school about once in three or four years. But the School Medical Officer who does the metropolitan area can devote only part of her time to school work, as the rest of her time is devoted to Infant Health work. In addition to the examination of school children in the metropolitan area, this officer also does administrative and organising work in connection with this Sub-Department. Consequently the examination of the children in the metropolitan area is behind schedule and with every successive year, it must necessarily become more and more so.

In 1925 there were three full-time nurses and two full-time school medical officers working the metropolitan area only. Now, 18 years later, we find that the school medical staff for the metropolitan area has decreased to two full-time nurses and a school medical officer working part-time. This is an impossible position, particularly in view of the fact that the number of schools, and consequently the number of children in the metropolitan area, have increased considerably.

When the figures for the number of children examined in the metropolitan area are noted, it will be wondered that so many children have been examined by an officer working on a part-time basis; but this has been possible because considerably more than half-time has been given to the examination of school children in an endeavour to prevent the work from getting beyond control. To do this the officer has perforce had to do much of her Infant Health work out of the departmental hours. It is, therefore, urgently necessary that the School Medical Staff be brought up to an adequate level as soon as possible; for this two additional school medical officers are needed and at least two more nurses.

The School Medical Staff used to give lectures at the Teachers' College. It is desirable that these lectures be resumed as soon as staff increases permit.

In 1939 the attention was drawn by the School Medical Service to the fact that many children in the schools appeared to be below the normal standard for nutrition. This led to the carrying out of a nutrition survey amongst school children throughout the State. This survey established a "norm" for W.A. children.

The survey produced much interesting and valuable information and this "norm" for our own children will prove of value to those working with school children.

The visits paid by the school nurses to the parents in regard to medical defects of their children, or as we call it the "follow-up" of the nurses, is a very valuable section of the work. Many parents are sent notices of medical defects in their children, but a vast number of them ignore these notifications and it is only when they are visited by a school nurse who points out in simple language what the trouble is, and explains the disabilities that are likely to follow from the defect, that the parent becomes really interested and goes ahead with the necessary treatment. Thus it can be seen that "follow-up" work is of vital importance if the doctor's inspections are to be of any real value to the community. That is why it is so essential to have a large and trained team of nurses for this work. As a matter of fact the treatment received by the children is in direct proportion to the amount of visiting the school nurses can do. In fact, many parents tell the nurse that prior to her visit it had not been their intention to have anything done, which goes to show that the people are learning to depend more and more on home visits as a means of helping in the upbringing of their children. Possibly a certain amount of this results from their association with Infant Health nurses in the earlier days of the child's life. In other words the parents are learning to depend more and more on the nurse for advice and guidance in the care of the child. This is a point which should be borne in mind and catered for if good results are to be attained.

There are no School Tonsil Clinics; consequently, particularly in the case of diseased tonsils or adenoids, children very frequently have to be put on a very long waiting list at the hospitals and wait any time up to two years for their appointment. In fact, in many instances the children have gone to the hospital, been examined, put on the waiting list, and told that they would be notified when to come up for their operation, and this has been the last the parents have ever heard of the matter. Presumably new Resident Medical Officers have come along and the list has been lost, and so for two or three years the child's health has been endangered. Then, again, the next school medical examination is carried out and the condition is once more notified, and so the mother starts the same sorry process over again. It is no wonder the mothers become disheartened and the nurses find it difficult to persuade them to co-operate. Hence a certain amount of the value of the school medical work is unnecessarily lost. Tonsil Clinics have been started in Victoria during the last few years and they have certainly been going in London for a long time. It should not be a very difficult matter to start one here, and it would fill a much-needed gap. It is not the slightest use telling parents what they should have done to their child if we do not also make it comparatively easy for them to get the necessary treatment; particularly is this the case when dealing with large families.

It is interesting to note that eye defects appear to be twice as prevalent in the country as in the metropolitan area, unless, of course, it means that it is more apparent in the country as the children do not easily get the requisite medical attention, whereas they do in the city. Tonsillar defects, on the other hand, are very much higher in the metropolitan area than in the country, even though, superficially at all events, more facilities for their treatment both free and otherwise are available in the metropolitan area.

The Pediculosis figures for the five years under consideration are as follows:—

Year.	State Schools per cent.	Convents per cent.
1939	2.5	3.4
1940	1.9	3.5
1941	4	3.8
1942	2.5	3.5
1943	2.9	3.9

It will be noticed that in 1941 the figures of the State Schools jumped to a higher figure than in either of the preceding or subsequent year. This was due to the fact that during this time one of our nurses was off practically the whole time on sick leave and whilst undoubtedly we did have a reliever from time to time, this reliever was not as familiar with the work as our own trained staff. This little point in itself bears out what has been previously said, namely, how valuable is the work of the school nurses and how necessary it is to keep at the work consistently if good results are to be achieved. It will be noted that these figures, particularly for the State Schools, are very low. It is certainly very gratifying to see this, particularly when it is remembered that it is not so many years ago that the percentage was as high as 15 per cent. for the metropolitan area. However, it is hoped that with dogged perseverance these figures will fall even lower. It is found that when the standard of cleanliness in the heads of school children is improved, the whole general standard of cleanliness is improved. Actually there is reason to believe from conversations with School Medical Officers elsewhere, that these are the lowest figures amongst school children, for Pediculosis, in Australia.

There are still certain aspects of school work which are completely ignored in this State. We have no Holiday Educational Camps or Health Camps for children. This is a much needed activity. It is true that some organisations do endeavour to give some children holidays by the seaside, but this is just a "drop in the ocean," and by no means takes the place of proper health or recuperative camps where delicate children can be sent. There should be camps or homes available in the hills, dry inland areas and at the seaside to cater for the various needs of the children. There is a denominational Preventorium at Kellerberrin, but whilst the work this Preventorium is doing, is excellent, it is very limited in its scope and there appears to be such a long waiting list there that it is virtually impossible to get any child admitted. We have an ideal climate and ideal conditions for establishing such camps, and furthermore they would be of the utmost value to many of our under-nourished and under-developed children. A stay of three, six or twelve months according to the need, would bring about improved physique and engender a more hygienic mode of life. The benefits accruing to children, should one of these camps be established, would be of the utmost value to the State as it would help to raise a better race. At present people are inclined to think that, because we have a good climate and open spaces, all is well, but this is far from the truth.

It will only be well when more consistent school medical work can be done amongst ALL our school children. The care of child health holds a high priority, because neglect now may have serious consequences in later life. Children of school age (6-14 years inclusive) make up approximately 15 per cent. of the population. Therefore, the providing of essential protective and preventive health services for them is a vital part of any national or State health programme. In fact, from every standpoint, child health is the best business investment any Government can make.

E. M. STANG, M.B., B.S., D.P.H.,
Senior Medical Officer of Schools.

24th March, 1944.

SCHOOL CHILDREN EXAMINED DURING 1939-1943.

Metropolitan Area.

Year.	Routines.																Total.
	Number Examined.		Number Notified.		Number referred for Medical Attention.		Number referred for Dental Attention.		Number referred for Home Attention.		Number referred for Pediculosis.		Specials.		Recalls.		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
1939	2,412	2,392	1,663	1,816	351	365	1,174	1,203	942	919	27	22	70	66	314	330	5,568
1940	2,879	2,667	2,155	1,936	550	445	1,416	1,345	1,219	1,058	...	...	50	48	212	154	5,912
1941	3,098	2,883	2,528	2,074	680	595	1,345	1,279	1,679	1,346	...	...	36	26	103	112	6,196
1942	3,938	4,148	3,142	3,320	777	907	2,216	2,204	1,996	1,943	...	...	212	177	171	181	8,438
1943	2,632	2,289	1,990	1,740	466	475	1,383	1,106	1,181	1,029	1	11	...	...	180	188	5,289

Metropolitan Total for 5 years, 1939-1943—31,403.

SCHOOL CHILDREN EXAMINED DURING 1939-1943.

COUNTRY AREAS.

Year.	Routines.																Total.
	Number Examined.		Number Notified.		Number referred for Medical Attention.		Number referred for Dental Attention.		Number referred for Home Attention.		Number referred for Pediculosis.		Specials.		Recalls.		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
1939	4,352	4,006	2,623	2,597	786	733	1,363	1,601	1,867	1,834	37	165	...	...	10	13	8,381
1940	3,837	3,989	2,360	2,377	615	680	1,205	1,321	1,666	1,620	25	198	...	...	6	6	7,838
1941	3,267	3,333	1,947	1,889	500	500	812	915	1,444	1,344	12	116	...	...	16	20	6,636
1942	3,513	3,489	2,135	2,092	568	566	1,143	1,173	1,330	1,347	4	83	...	...	15	14	7,031
1943	2,375	2,226	1,458	1,406	505	421	679	724	834	846	1	70	...	...	15	6	4,622

Country Total for 5 years, 1939-1943—34,508.

REFERRED FOR MEDICAL ATTENTION.

Year.	*Metropolitan Area.*		*Country Area.*	
	Tonsils.	Eyes.	Tonsils.	Eyes.
1939 ...	546	73	794	231
1940 ...	716	115	581	240
1941 ...	1,248	132	532	314
1942 ...	1,445	128	667	237
1943 ...	830	88	567	145
Total ...	4,785	536	3,141	1,167

Tonsils.—Total for State for five years 1939-43 = 7,926.
Eyes.—Total for State for five years 1939-43 = 1,701.

REPORT OF THE SENIOR DENTAL OFFICER OF SCHOOLS.

The Commissioner of Public Health.

I submit my report to you on the activities of the School Dental Staff for the years 1939, 1940, 1941, 1942, and 1943.

At the end of 1940 at your request I made out my report for the previous two years; owing to the exigencies of the moment it was not printed so I would like to repeat the opening paragraphs of that report. They are as follows:—

The staff consists of four, one of whom was engaged late in 1938 to drive the new Travelling Dental Van. This has proved a success and numerous parents in out of the way places have reason to be thankful for its appearance in their particular districts. Its value lies in the fact that it is self-contained, and can be used at very small schools which were previously debarred from receiving a visit by a school dentist. It is very seldom at these places that a parent will refuse to take advantage of the facilities offered, and we are continually receiving enquiries from all parts of the country asking when the van is to visit them. Now there are so many small schools in the State that our one vehicle cannot do more than a small fraction of the work, so we have to advise the people to be patient and to hope for the day when there will be enough travelling surgeries to cope with the work offering.

It is, in fact, my earnest hope that some time in the future there will be complete nationalisation of all essential health services, including dentistry, because it is only in such a way that every person will get the chance of being kept in a healthy condition; as things are nowadays many people are unable to pay the cost of the necessary service.

Since the above words were written, the Commonwealth Government as you know has had under active consideration the establishment of salaried health services for the whole of Australia; so that it is quite likely that in the not too distant future our school service will be absorbed in, or made an adjunct of, a national service.

By the way, the experience Mr. Cole has had in using our van inclines me to the belief that a trailer fitted as a surgery and drawn by an ordinary car would be preferable to the present one-piece arrangement for use in remote areas.

The duties of the staff have been interfered with to a great extent by military duties; I myself spent a couple of months in the Army while Mr. Turnbull after having several spells of duty in a combatant unit was released in January, 1942, in order to join an A.I.F. dental unit, and he is at present serving in New Guinea. It was hoped to find someone to temporarily replace him, but we were unable to get anyone suitable. Mr. Cole has also tried to join the forces, but they would not accept him when it was known that he was attached to the Public Health Department.

During the period under review, the number of small schools visited by the travelling van was 114. Other country schools visited by members of the staff numbered 64, while there were 25 country convents; 120 metropolitan and suburban schools were attended and 65 visits were made to institutions. The latter were done during school vacations and they included the West Subiaco Boys' Home, Seaforth Boys' and Girls' Homes, Tardun Farm School, Swan Boys', Clontarf, Victoria Park Methodist Home, Parkerville, Castledare, Lady Lawley Cottage for Crippled Children, Sister Kate's Homes for Quarter Castes, Werribee Home, Presbyterian Children's Home, Byford, and the Native Settlements at Moore River, New Norcia, Carrolup and Gnowangerup.

At Seaforth a number of the boys attended were subnormal, and it is interesting to record that the Manager of the Institution has mentioned that several of the boys have shown a distinct improvement mentally since they have had their mouths put in order.

The number examined at the above schools and institutions was 19,908. Of these 2,988 needed no treatment, 13,509 agreed to have the necessary work done at the schools, while the balance were those who were to be done by private dentists, or whose parents did not believe in having the mouths attended at all. There are, fortunately for the children, not many of these people.

The actual operations performed were as follows:—

Silver Amalgam fillings	9,561
Copper Amalgam fillings	8,500
Cement fillings	5,446
Porcelain fillings	2,194
Substitute Gold inlays	98
Extractions	31,941
Root treatments	181
Silver Nitrate treatments	11,527
Other treatments	7,551
Cleaning and Scaling of Teeth	2,434

In order to demonstrate the need of a much larger staff not only to do treatment but to undertake research work, I give you the following facts to compare with the above figures. There are approximately 58,000 school children in this State and they average six decayed teeth each so there are about 348,000 teeth awaiting attention. These can be roughly subdivided into 220,000 which should be filled and 128,000 which should be extracted.

Regular Saturday morning visits were made to the Claremont Mental Hospital and its allied institutions. The number of patients seen was 2,236 and for them the following work was done:—

New Dentures	138
Repairs to Dentures	196
Extractions	1,801
Cleaning and Scaling Teeth	58

A. G. McKENNA,
Senior Dental Officer of Schools.

22/12/43.

REPORT OF THE MEDICAL SUPERVISOR OF INFANT HEALTH CENTRES.

The Commissioner of Public Health.

I have the honour to submit my report upon the Infant Health Centres and their activities for the five years 1939-1943.

The number of centres and sub-centres now under the control of the Infant Health Association has again substantially increased since my last report. The following seven new centres have opened on a full-time basis:—Norseman, Dowerin, Beverley, Bridgetown, Manjimup, Harvey, Victoria Park East; and the following sub-centres in connection with these and other centres have been started:—Carlisle, Queen's Park, Kenwick, Dalkeith, Floreat Park, Bassendean, Brookton, Aldersyde, York, Quairading, Dangin, Goomalling, Wyalkatchem, Jennacubbine, Boyup Brook, Balingup, Waroona, Pinjarra, Mandurah, Mornington Mills, Coolup, Pemberton, Broome Hill, Yealering, Wickepin, Bruce Rock, and Cunderdin.

Throughout Western Australia there are now thirty-two full-time nurses working at main centres and in addition, between them they run sixty-one sub-centres, making in all ninety-three centres and sub-centres. These sub-centres are favoured because by means of them the radius of our activities is extensively widened, the principle being to take the centres to the mothers rather than expect the mothers to come to the centres.

Building committees have been very active during the last five years with the result that fine buildings have been erected at eleven centres, viz.: Kelmscott, Victoria Park East, South Perth, Como, Gosnells, Midland Junction, Inglewood, Victoria Park (re-modelled and modernised); and in the country more elaborate buildings have been put up at Narrogin, Geraldton and Albany. The country buildings have had nurses' quarters incorporated so that the nurse has a furnished flat provided for her. In some instances the Committees charge rent, in others the quarters are free, according to the centre's finances.

There are still other centres, metropolitan particularly, which need proper housing. For example, one centre has been moved into a galvanised iron room near a boiler. This should be remedied, particularly in view of the fact that it is in this room that all trainee nurses receive their training in Infant Health Clinic Work. It gives them a bad impression to start

with and it is to be hoped that this Local Committee may see its way clear to build a new centre in the near future.

The war has held up a great number of activities in this regard, but nevertheless now is the time for committees to be working to raise money for future projects, at a time when people are giving freely.

Lectures were given to Infant Health nurses during 1939-40, but these have largely discontinued during recent years owing to the fact that doctors have been so heavily engaged in other work.

Educational propaganda work continues as much as possible through the medium of wireless talks and the Correspondence Nurse contributes weekly health articles to over thirty country newspapers. This educational work is looked upon as a very important feature.

It is extremely difficult to obtain weighing scales for Infant Health Centres and whilst we have been fortunate in getting new centres opened during this time of stress, one of our difficulties has been the procuring of suitable equipment.

Attention should be drawn to the fact that some of our centres are far too big for one nurse to work satisfactorily. Large attendances at a centre do not necessarily mean that the centre is doing good work for the baby; often the reverse; but merely show the need of another Centre. Where attendances are too large, the nurse can do very little more than weigh the baby—she certainly hasn't time to talk progress and problems with the mother, nor has she the time to teach the mother how to re-establish lactation (as our figures show) or to help the mother, as she otherwise would.

When the war is over, it is to be hoped that the Government will be able to accept the full financial responsibility for the support and continuance of all Infant Health Centres in the same manner as they have done for the school medical and dental services.

It is often a very hard matter indeed for the local committee to raise sufficient money to meet their persistent and yearly commitments, and this difficulty is becoming more and more marked with each succeeding year, because all the various war activities are monopolising public money and sympathy. Particularly is this so in the country districts.

This is quite understandable but at the same time it is very necessary that a social service such as Infant Health work should not be neglected, as it is of much value to mothers at all times and particularly in this very difficult period that they are now called upon to face. From a State standpoint, also, it is very desirable that these centres should continue to do the work they are now doing, as more than ever shall we need strong and healthy children to become the strong and healthy men and women of the next generation.

Another great need is for at least one Nurse Inspectress whose duty it would be to keep in constant touch with nurses at the Centres and supervise their work. She would keep them abreast of new ideas and maintain uniformity throughout the whole service in feeding methods, recording, etc. At present we have nurses from many different training schools, with correspondingly different ideas. Whilst in many ways this is all to the good, it may without proper control lead to misunderstanding and confusion amongst the mothers. This could be quite overcome by means of tighter supervision and control of the nurses' work through the medium of a Nurse Inspectress. The Medical Supervisor's work would then be priniepally administration and organisation. With the limited time at present available it is practically impossible to keep as close a supervision on the work as is desirable. Again, new nurses going to centres often find the position very difficult, because they take over a new centre without, perhaps, having run a centre before, and there is nobody to show them all the many things they need to know which make for the satisfactory running of a centre. Here again, a Nurse Inspectress would be able to go with a new nurse, particularly to a country centre, and stay with her for at least a week and show her how to run it. Such assistance would be repaid over and over again in the more efficient running of the centre.

One is very conscious of the fact that there are many ways in which the Infant Health work can be improved if there were more time to give to it or if there were a larger staff available to put improvements into effect, such as—refresher courses for nurses; regular series of lectures; and a monthly conference. Again we should have a permanent reliever on our staff who could relieve the sisters when on holidays.

Even with the difficult conditions brought about by the war, it is remarkable to be able to report that we still have a full and very efficient team of nurses working in our service. It is more difficult to get a nurse for the country than for the metropolitan area owing, in many instances, to the difficulties experienced in getting suitable living accommodation. In those centres, however, where we have our own building with a furnished flat available for the nurse, then the problem is not so acute. Even so, the country nurses have more travelling to do than the city nurses, and, speaking generally, unless there is some possibility of a nurse getting a metropolitan centre in the future, it is very difficult to keep them in the country centres for more than two or three years.

The Infant Health nurses by agreement between the Nurses' Union and Infant Health Association have had their Award altered, with the result that they are receiving a considerably better salary and better conditions than previously.

The figures for the Infant Health Centres, excluding the correspondence section, are as follow:—

ANNUAL SUMMARY OF WORK DONE BY INFANT HEALTH CENTRES 1939–1943.

Total for year ended	Total No. of individual cases dealt with.	Total attendances of babies.	Total No. of effective visits to houses.	Total No. of Consultations.
30–6–39 ...	9,332	95,406	17,970	120,908
30–6–40 ...	10,253	93,509	19,891	117,093
30–6–41 ...	13,831	104,694	18,312	129,379
30–6–42 ...	15,798	114,998	17,103	138,542
30–6–43 ...	11,686	115,244	17,730	135,691

It will be noticed that the figures of individual babies for 1942 show a very considerable jump to 15,798. These figures are not a true indication of the number of such babies dealt with because there was a great amount of re-duplication of figures owing to the evacuation of mothers and babies that took place. The figures for 1943 (11,686) are probably the most correct figures that we have ever had because during this year a new system was put into force whereby the sisters were asked to send on the cards of the babies to any new centre to which the child transferred and to ensure that each child only had one card during its first year of life.

The Nurse-in-Charge of the "Correspondence Infant Health Centre for Country Mothers" reports as follows:—

	1939.	1940.	1941.	1942.	1943.	Total.
Individual Mothers	1,792	1,778	1,848	1,626	1,394	8,438
New Mothers	1,209	1,308	1,420	1,227	1,072	6,236
Total consultations re Expectant Mothers	542	591	529	448	462	2,572
Total number of letters received	5,157	4,877	4,748	4,484	4,504	23,770
Total number of letters written	5,417	5,121	4,912	4,642	4,604	24,696
Mothers who have visited the centre	1,255	1,125	1,503	1,000	1,061	5,944

It will be noticed, in connection with the Correspondence Nurse's figures, that in 1942 and 1943 the numbers have dropped quite markedly, particularly in 1943. This is due to the fact that a certain number of new country centres have opened which have taken away a great number of babies from her list. This is only to be expected and, as a matter of fact, one of the purposes of the Infant Health Correspondence Centre was to show us where the babies were in the country districts and so enable us to urge the people in those districts to establish a centre for themselves.

As will be seen by the above figures, the Correspondence Centre is continuing to do all that was hoped for it, and more than ever it is proving to be a great boon to all outback mothers, particularly those mothers whose husbands are away at the war.

Whilst it is not part of the Correspondence Nurse's duty to do so, nevertheless she has been instrumental in sending many outfits of baby clothing to the country babies, so that this, and many other services that she has voluntarily performed for country mothers have been of the utmost help and comfort to them. Thus we are finding that it is, as a result of the realisation of the benefits that mothers can obtain from properly trained infant health nurses, that we have been successful in getting so many new centres opened. We have found again and again that many of the most ardent workers to this end have been those who have themselves benefited by the Correspondence Centre.

The infant mortality rate in Western Australia for the last five years is as follows:—

1939	40.84
1940	44.18
1941	35.28
1942	36.86
1943	32.63

The reduction in mortality of infants during the last few years is very striking and definitely leads one to believe that it has to a considerable extent been occasioned by the education and practical help given to mothers in the feeding and care of their babies at Infant Health Clinics and as the scope of these activities has progressively increased.

Skilled care during infant life is the foundation of healthy adult life and on the foundation of any building depends its future. So it is with human beings—build wisely in infancy and a healthy future is assured.

Child health should not be a charity and precarious as it is at present, but should be a permanent and Governmental responsibility.

E. M. STANG, M.B., B.S., D.P.H.,
Medical Supervisor of Infant Health Centres.

23rd March, 1944.

REPORT OF THE CHIEF RESIDENT MEDICAL OFFICER, WOOROLOO SANATORIUM.

The Principal Medical Officer, Perth.

I assumed my present office in August, 1941, so that this report deals mostly with the period following that date.

Anti-tuberculosis work is divisible into two main activities.

1. Curative treatment in the Sanatorium.
2. After-care and supervision of cases after discharge from the Sanatorium and their contacts, with case-finding, or search in the general population for persons suffering from tuberculosis.

1. *Sanatorium Treatment.*

At present up to 230 cases are usually in the Sanatorium, where there is accommodation for 220. To minimise overcrowding it has been found necessary to admit approximately 20 civil cases to the Edward Millen Home. At the Perth Hospital there are usually about 15 cases receiving specialised surgical treatment. In August, 1941, there were 150 cases in the Sanatorium. The increase in the number of cases receiving Sanatorium treatment is due partly to the increase in surgical treatment given, and partly to the necessity for treating Service cases, both our own and Allied, and Repatriation cases from the 1939 war. These number about 60, but it should not be forgotten that many of our men would have contracted the disease had they remained in civil life.

Unfortunately the premises and equipment at at Wooroloo are out of date and inadequate for modern surgical methods of treatment; a typical instance is that in 1941 there was no running water in the room used as a theatre. This defect has, of course, been remedied. The only surgical measures possible

with the present premises are artificial pneumothorax and pneumo-peritoneum treatment. All other more major methods (internal pneumolysis, thoracoplasty, phrenic nerve operations, etc.) have to be done at the Perth Hospital, where the cases are transferred for this purpose. At the end of 1941 I was given charge of beds at the Perth Hospital. Close and cordial relations have been established with Dr. Meucke, the Medical Superintendent of the Hospital, and with other members of the Honorary Staff, and this has rendered collaboration much more intimate.

The increase in volume and scope of the work at the Sanatorium has necessitated an expansion of the staff and plans for the renovation and modernisation of the buildings. Briefly these changes are:

1.—STAFF.

(a) *Medical—Resident.*

Dr. Dalla Torre was appointed in October, 1941, as a part-time Assistant Medical Officer. He has proved extremely valuable.

Dr. Borbidge was appointed in October, 1942, as a whole-time Assistant Resident Medical Officer. She has proved a highly efficient and conscientious assistant.

In December, 1943, we were fortunate in securing the release of Squadron Leader Alan Penington from the R.A.A.F. He has had considerable experience in the treatment of tuberculosis and will commence duty as Deputy Medical Superintendent early in 1944.

In England and the United States of America it is recommended that, excluding the Medical Superintendent, there should be one Resident Medical Officer for every 60 patients or fraction thereof. On these standards the Sanatorium is still understaffed.

Our visiting dentist, Mr. Kelly, visits once weekly and gives the patients excellent and unstinting service.

In addition, Dr. Muecke has kindly arranged to send each of the Resident Medical Officers of the Perth Hospital to Wooroloo for one month each when the numbers available permit. This arrangement is an aid to the Sanatorium and provides valuable experience to the doctors, but there are not sufficient residents to maintain a constant supply.

Consultant.

The following consultant appointments were made early in 1942:

Mr. J. P. Ainslie, as Honorary Consulting Surgeon;

Dr. R. LeP. Muecke, as Honorary Consulting Physician;

Dr. A. N. Kingsbury as Honorary Consulting Bacteriologist.

(b) *Nursing.*

In December, 1940, Miss Dunne, the former Matron, resigned and was succeeded by Miss Lochhead, formerly Matron of the Albany Hospital, who has not spared herself in working for the benefit of, and improving the training of the nurses.

The increase in the number of occupied beds has necessitated an increase in the nursing staff. This could be done only by increasing the period of training of the probationer nurses from nine months to 15 months. This was reluctantly recommended as this prolonged stay in the Sanatorium is in the interests of neither the training nor the health of the nurses. Further, more trained nurses have had to be appointed. In August, 1941, the numbers of trained and untrained nurses were nine and 48 respectively. These have risen to 11 and 57.

It is estimated in England that in a Sanatorium where full surgical treatment is carried out the proportion of patients to nurses should be in the ratio of 2.5 to 1. It will be seen that the Sanatorium is understaffed. The number of new applicants for training are steadily declining and if the position is not improved the shortage will become critical.

(c) *Secretarial.*

In October, 1943, Mr. J. Knox-Peden, the Secretary and Dispenser, resigned and went into private business. He was succeeded by Mr. C. J. G. Stansfield, formerly Secretary of the Kalgoorlie Hospital, who is already doing excellent work. Mr. Kempin was appointed in December, 1941, to the Staff at the Medical Department in Perth and his place was taken by Mrs. Mitchell. In June, 1942, Miss Lethby was appointed as stenographer. With the revised arrangements of pension payments and fees collections, further clerical assistance is urgently needed in the office in order to release Mr. Stansfield from routine work. Mr. Bruce Mitchell has continued to give very good service in the store.

(d) *Laboratory.*

In January, 1944, Miss Bothwell will commence duty as laboratory assistant. The great increase in the scope of the laboratory work rendered it too time-consuming for the medical officers and help is needed in routine examinations such as sputa and blood sedimentations.

(e) *Engineering.*

The services and ability of Mr. Longwill, our engineer, are in increasing demand at other Government Hospitals, and in July, 1941, Mr. C. Roberts was appointed assistant engineer. He has given excellent service.

(f) *Domestic and Orderly.*

The increase in the number of patients has caused an increase in the domestic and orderly staff. In August, 1941, the numbers were 25 and 8, and in December, 1943, they were 30 and 10, respectively.

(g) *Renovation and Modernisation of Sanatorium.*

In 1943 the Red Cross Society very kindly allowed us the services of Miss Burge to inaugurate handicraft work for service and repatriation cases. This included felt toys, leather goods, hand weaving, etc. After three months of excellent and pioneering service Miss Burge's place has been taken by Miss Latimer Jones, who is continuing the work efficiently. It is handicapped by lack of a good room in which to store material and to instruct patients.

Soon after I commenced duty in August, 1941, proposals for urgent renovations and alterations were made to the Medical Department. Ready approval

was obtained for the expenditure of the money required but war difficulties of labour and material have prevented much being done. Further, the proposals approved covered only the more urgent sanitary necessities and considerable work needs to be done before the Sanatorium can be said to be of a "world standard."

New equipment already installed includes a new Watson Victor X-ray plant, with converter, four-valve rectification, impulse-timer and rotating-anode tube. The Lotteries Commission has supplied the money for a new shock-proof screening table with Bucky, and delivery is expected early in 1944. A new 45 h.p. diesel engine is also expected early in 1944. Electrically heated food trollies have also been obtained. In the kitchen new vegetable steamers have been installed.

The ward accommodation generally is poor and lacking in privacy and dressing rooms and general comfort. The present 10-bed wards should be altered to one-, two- and four-bed rooms, and some wards adapted to provide patients' day rooms, washing and drying rooms for patients, a handicraft room, new duty rooms and ward pantries, and medical officers' examination rooms. All the existing premises need a regular programme of maintenance including painting, plumbing and joinery.

The wards are too widely dispersed for efficient nursing and quite unsuited for major surgical treatment. After the war an expansion in accommodation may be expected if a programme of mass radiography of the population is carried out. Plans for this expansion are being made now. A 100-bed treatment block is projected, to include an operating theatre and refill room. More female beds are required and this need could be met by building cottages, each to house women patients for the last few months of their stay, where they could housekeep and cook for themselves and receive instruction in housewifery and dietetics.

The kitchen is dilapidated and needs extensive alterations and the patients' dining rooms require alteration and renovation.

The shortage of staff accommodation, male and female, is acute and further building is necessary. The cottages for married male staff are primitive and dilapidated and although a programme of renovation is in progress the question of rebuilding will have to be considered after the war. There is no accommodation whatsoever for sick staff, and the isolation ward was adapted for staff quarters some years ago. Serious difficulties were, therefore, encountered early in 1943 to cope with an epidemic of measles among the nursing staff.

Farm.

The Sanatorium Farm is efficiently managed by Mr. Wallace, the manager, who has a co-operative staff. In 1942 a new house was built by patient labour for the manager. An increase in the Sanatorium population has led to an increase in the milk required, with a proportionate increase in acreage under crop. Early in 1943 an old tractor was bought with good results. A new tractor is required. Machine milking was installed early in 1943 and is operating satisfactorily.

Poultry Farm.

Extensive additions to the hen houses and a new feed shed were built in 1942 and 1943 by Mr. S. Roberts with the assistance of patient labour. The operations of the farm are satisfactory.

2.—AFTER-CARE AND SUPERVISION OF CASES AFTER DISCHARGE.

Case-finding and clinic work needs to be greatly expanded and reorganised. It has been the practice in the past to hold one clinic weekly at the Perth Hospital; owing to the great increase in the number of attendances it has been necessary to ask Dr. Muecke if he would assist at this clinic, and he is also conducting a second on another day. It is advisable to conduct the clinics in the out-patient department at the hospital, and arrangements should be made with the hospital for more adequate filing facilities. Clerical assistance is also needed. An appointment of a whole-time tuberculosis physician for the metropolitan area is a necessity. For some years a pneumothorax refill clinic has been conducted at the Perth Hospital by Dr. Muecke. The services of this clinic have been utilised with very satisfactory results for the giving of refills to those patients discharged from the Sanatorium with an artificial pneumothorax.

We possess a lens for miniature radiography (5in. x 4in.). It is urgently necessary to make the installation of the radiographic unit at an early date to place this State in line with other States in the Commonwealth. We are greatly handicapped by the shortage of health visitors, of whom we have only two. More should be appointed. Experience in other countries proves that health visitors do much more work if provided with cars for travelling instead of relying on public conveyances. Attendances of "contacts" are rising, but many more should come than already do so.

A clinic was commenced in December, 1942, at the Fremantle Hospital. Dr. Dalla Torre attends twice monthly, and is doing good work. It is desirable to open a clinic at the Children's Hospital in Perth.

Negotiations are in progress with the Commonwealth Government to utilise the services of Dr. Outhred, of the Commonwealth Laboratories to establish a clinic at Kalgoorlie. He conducts the radiological examinations of the miners and already comes into contact with many cases of tuberculosis in that area.

The possibility of commencing clinics at the larger centres of rural population, such as Geraldton, Northam, Albany and Bunbury is also being considered. It is also proposed to purchase a mobile unit for mass miniature radiography for country areas. This seems to be the only way to give this scattered population that service for which it is paying taxes.

The economic and social factors of tuberculosis cannot be too strongly stressed. In spite of glib assumptions to the contrary it is strongly suspected that housing conditions are not what they should be in this State. This is certainly true in country areas and there are districts in the metropolitan area that would pay investigating. The same remarks also apply to nutrition; the partial destruction of wheat by our modern processes of milling in order to produce white flour is contrary to common sense and this country

is the biggest consumer of sugar per head in the world. It is interesting to note the improved health of the population in Great Britain as a result of war-time food rationing and undoubtedly this is clue to a qualitative improvement in the nation's diet, although quantitatively the diet might be thought poor. The importance of diet in tuberculosis is well known.

The economic aspect of the disease is of vital importance and will be dealt with in the comments on colonisation.

Mention should be made of tuberculosis infection among nurses. All nurses training in Government Hospitals commence their training at the Wooroloo Sanatorium where they spend 15 months and are exposed to a heavy risk of infection. All nurses have radiographs of their chests taken on entering and leaving and are screened every six weeks. Mantoux tests are made on entering and, if negative, are repeated every six weeks until they become positive, when another radiograph is taken. A similar procedure is carried on at the Kalgoorlie Hospital. It is thus hoped to control the infection to a greater degree in our nursing staff.

An interesting survey into the frequency of a tuberculosis infection in the aboriginal population by means of Mantoux testing has been carried out by Dr. Musso, the Medical Officer to the Department of Native Affairs. It is hoped to publish the full results later, but interim findings are that about 30 per cent. of the adult aboriginal population have positive Mantoux reactions.

Occupational Therapy and Colonisation.

This important part of tuberculosis treatment and control needs special mention. In 1941 the patients who were fit for work were engaged in cultivating flower gardens and several worked in the small carpenter's shop. This work did not bring them any financial return. The financial embarrassment facing the household with a tuberculous member is of an importance which cannot be exaggerated, especially if the patient is the breadwinner. The family income immediately ceases. If the financial circumstances are sufficiently low, the right to an invalid pension is earned. Until July, 1943, this varied up to 26/6 weekly, of which over half went to the State in payment for treatment if the patient was in the Sanatorium. If the economic position of the family is higher so that the patient does not qualify for the invalid pension the results are catastrophic. The family must live on savings and by realising what little capital may be possessed. In both groups the incentive is to cut short treatment too soon and to return to work, with the inevitable result of a relapse and return to the Sanatorium.

In July, 1943, the pension was liberalised for married men by allowing 15/ weekly for the wife and 5/ for the first child and all the pension was made payable to the patient, the State collecting from him that portion of his still meagre pension which they thought fit. If there are children, who have perhaps already received a tuberculous infection, it is the responsibility of the State to adopt every measure possible to protect them, and this cannot be done by allowing the household to exist on a sub-basic wage standard. The tuberculous family requires a higher standard of living, and not a lower, in comparison with the rest of the population. In order to preserve the health of the family, the pensioner should retain the whole of his pension while in the Sanatorium.

Tuberculous patients are introspective and idleness is bad for them. Therefore when the patient is fit, work of some kind is ordered for him in the Sanatorium as a necessary part of his treatment. Work of varying grades of severity is ordered according to the stage of his disease and this requires careful and experienced medical control. Fifty years' experience have proven that this graduated work helps him to heal his disease.

The aim of Sanatorium treatment is to make the patient fit enough to return to his usual work. In too many cases this is not possible and the country is faced with the problem of those permanently unfit for any work and those fit, either temporarily or permanently, for part-time work only. Those permanently unfit can be given an adequate pension; the partially unfit require a smaller pension and suitable work to increase their income to a good living wage. In the past these men have been given an inadequate pension, either invalid or service. and told to "find a light job in the open air." The futility of this advice is apparent to all who have had any experience of the problem.

This work could be given in the community as is being done in England and Russia, for instance, where men fit for part-time work are employed in industry and the balance of their wage made up as a pension.

In other cases the work is best provided in or near the Sanatorium. To solve this problem the colony system has been evolved. The best known example is Papworth in England.

The principles of the Colony system are as follows:

(1) To provide men with work for which they are capable and for which they are suitable.

(2) To pay them for the work done and thus enable them to supplement their pension.

(3) Thus the labour of those partially incapacitated by tuberculosis is utilised and not lost to the community.

(4) To provide them with living accommodation, e.g., a hostel for single men and cottages for married men and their families. They thus enjoy the benefits of a community life.

(5) The men work under chosen conditions and under continuous medical supervision.

(6) It has been shown that the incidence of tuberculosis among the other members of families living in tuberculosis colonies is no higher than that of the rest of the population, compared with the many times greater incidence of the disease in families containing a tuberculous member, which are living in the rest of the community. The colony is therefore a valuable public health measure.

(7) Not all men are suitable for colonisation. The observation of the man at his occupational therapy in the Sanatorium is of great value in selection.

(8) The labour of the tuberculous is not economic labour and cannot compete in the open market with that of fit men. He can therefore earn only a partial wage which must be supplemented by a pension.

On commencing duty in August, 1941, I was immediately impressed with the need for occupational therapy and the colony system in use in other countries has always appealed to me. In April, 1942, beginnings were made in establishing such a scheme at Wooroloo.

It was first necessary to raise money. Men cannot work without tools and materials and a colony requires buildings and instructional and managerial personnel. Further, experience elsewhere (such as Papworth in England) shows that the labour of the tuberculous is not economic labour. Successful colonies for tuberculous men elsewhere have been heavily subsidised from public and private sources. Working on the principle that the Lord helps those who help themselves, the patients and staff of the Sanatorium set to work to raise as much money as they could by their own efforts. They dipped their hands into their own pockets (already parlously empty in most instances) and by their enthusiasm and energy organised concerts, dances, sales-of-work, raffles, collections, etc. Between April 1st, 1942, and the present date over £1,000 has been raised by this means.

The Minister for Health (Mr. A. H. Panton), the Under Secretary (Mr. Huelin), and the Assistant Under Secretary (Mr. Wilson) have taken a warm interest in the work and induced the State Government to make an initial contribution of £750, and a further one of £1,000. The Lotteries Commission also made a generous response with £500. A street appeal organised by the Wooroloo Welfare Committee last year raised £1,700. These sums, together with the £1,000 raised by local effort, making a total of £4,250 which has represented the Colony Capital.

The following is an epitome of the various activities:

Carpenters' Shop.

This was extended by the patients who used scrap material lying about the premises. It can now house four patients who do maintenance work on furniture and fittings. At present two men are paid a small wage by the Department as "handymen." It is hoped to obtain for the Colony a contract from the Health Department for the repair and maintenance of the buildings and premises. Extensions to the carpenters' shop are needed to house another 10 men, and it is planned to commence furniture making.

So far £30 has been spent on tools—more are required.

Hostel.

The building of a hostel is almost completed. This will accommodate nine guests, with quarters for a caretaker and his wife, who will act as housekeeper, together with a flat for two resident medical officers. Willing help has been obtained from the Public Works Department and its Principal Architect (Mr. Clare), who designed the building. It should fill the long-felt need of providing accommodation for friends and relatives of patients and staff who are visiting the Sanatorium, and should be run at a good profit.

Estimated cost	£2,500
Furnishings	£500

It is being built by patient labour, with some recent assistance from a Public Works carpenter. In 15 months, it has employed continuously up to eight men.

Tinsmiths' Shop.

Extensive work is being done in the Tinsmiths' Shop. War conditions, with resulting absence in the markets of tinware and toys, have provided a good opportunity for this class of work. State-wide appeals through the radio and press have enabled us to collect large quantities of scrap tinware such as old jam tins, fruit tins, egg pulp tins, etc. These are fabricated and converted into the following articles:

Toys.—Engines with trailer, railway engines, aeroplanes, buckets, kitchen sets, dolls' bath tubs, motor cars.

Household Utensils.—Buckets, kettles, saucepans, wash bowls, babies' baths, canisters, scoops, funnels, cake tins, baking dishes, pastry cutters, meat safes, meat dish covers, watering cans, dippers, billies, dust pans, dust bins.

Hospital Utensils.—Sterilisers, X-ray viewing boxes, slop buckets.

Nine men and two women are continuously employed.

Purchase of machinery has been a heavy item. So far £204 8s. 3d. has been spent and no more men can be employed with the existing machinery, as it is all used to capacity. Mass production methods are now in operation. Up to the present articles of a total value of over £600 have been produced.

There is a ready market for all tinware (in fact, one Perth store has guaranteed the purchase of our whole output), so that, at least while the war lasts, its economics are sound. It should be possible to continuue this work after the war. It is suitable for men below full physical capacity and is interesting for the patients. At present its scope is handicapped because of the difficulty in obtaining material. Scrap tin is largely used, but for many other articles, especially those for kitchen use (kettles, buckets, bowls) we cannot secure release of tin plate from the Ministry of Supply. While the difficulty of tin plate and galvanised iron supply is realised, the public must have kettles and similar articles; further, the manufacture of these articles by Sanatorium patients is a saving in manpower. Representations are being made to the Ministry of Supply on these lines in order to obtain the use of more tin plate, galvanised iron and solder.

Vegetable Gardens.

Two and a half acres of land has been cleared and fenced with rabbit-proof netting. Ploughing is heavy work, but a light plough is manageable. The effluent from the septic tanks is used for irrigation and manure carted from the farm. Work was commenced rather late last year and prevented full advantage being taken of the winter rains, but vegetables to the value of £265 have been sold to the Sanatorium. On the whole, this is a good beginning. Prices are fixed at those operating in the wholesale market. It is hoped this year to produce £300 worth of vegetables.

The number of men employed varies according to the season. There are always two and may be as many as six.

It is hoped to sink a bore for water to allow of more extensive irrigation in the summer months.

Orchard.

Four and a half acres of partly-cleared suitable land were completely cleared and fenced last year. Eighty trees were planted, but casualties were suffered from rabbits. Another 360 trees are to be planted this year and rabbit fencing has been put around the site. The future yield should supply all the fruit required for the Sanatorium. Work is seasonal and a varying number of men were employed. Of course there has as yet been no return.

In November, 1943, an orchard property of 160 acres with 50 acres of cleared land and 13 acres of orchard situated about one mile from the Sanatorium was purchased for £2,500. This money has been given us on loan by the Treasury and we are responsible for the interest and sinking fund. At present this property, which is well situated, is being investigated with a view to using it as the site of the main colony buildings, that is to say we hope to erect there our main workshops where we will carry on all our activities and also to house the resident colonists there. If we could build a hostel for single men and cottages for the married men we would have a really good nucleus. Cottages will at the present cost at least £800 each and perhaps more. The building of ten would therefore amount to an outlay of £8,000 and to this must be added the cost of a hostel for single men. We would require to instal power and therefore our capital needs are considerable.

It is thought that up to the present the Colony's activities have been satisfactory. Financial returns might be thought meagre, but almost all the work has been pioneering and will yield future returns.

As yet no cottages have been built for the use of patients who will be colonised, and their families. Cottages must be roomy and hygienic and as already stated each will cost at least £800, perhaps more. Probably if 10 cottages were available now, all would be occupied at once. Further development of the Colony will require much more capital.

Farm Manager's House.

A new house was built at the farm for the Farm Manager in 1942 using almost exclusively patient labour.

Management.

A trust account has been opened with the Treasury and this operates the financial concerns of the Colony. There is a Committee of Management at the Sanatorium with representatives of both staff and patients and with myself as Chairman. The patients are encouraged to manage their own Departments as much as possible and the Colony as a whole is run on a co-operative basis. In order to put its affairs on a proper legal basis, the appointment of the Committee of Management as a Visiting Hospital Committee has recently been commenced; it now has full legal powers to use its funds at its discretion.

Other aspects of occupational therapy might be mentioned. Apart from the usual grade-work in vogue at all Sanatoria (which is unpaid; being part of the treatment) one patient is employed at the Sanatorium Farm, two have been working at the poultry farm building hen houses, and two more are engaged in repairs and maintenance to the staff cottages at the farm and Sanatorium. These are all paid a small wage as "handymen." In addition various handicrafts are in full working order for the bed-patients, but great difficulties are experienced because we have no handicrafts room.

Specific mention should be made of patients from the fighting services. These men have been as willing and eager to work as the patients from civil life. The hope of service and war pensions has not deterred them from seeing that work is necessary to their physical and mental well-being. In fact some of our most enthusiastic workers are soldiers. As tuberculosis among servicemen will be a big problem after this war, a vigorous prosecution of occupational therapy while the war is on is of great value in educating the men's opinion and inclinations. All that is required is to give them the opportunity to work, they will respond, and will therefore benefit both their physical and mental health.

The following figures give more indication of the Sanatorium activities:—

Year.	Admitted.	Discharged.	Died.	In Sanatorium 31st December.
1939 ...	190	134	67	...
1940 ...	209	138	75	...
1941 ...	201	144	77	...
1942 ...	277	251	73	222
1943 ...	370	313	63	214

PATHOLOGICAL LABORATORY.

Examinations carried out in the Six-Monthly Period, June 30th to December 31st, 1943.

Sputum for tubercle bacilli	1845
Sputum for tubercle bacilli, Concentration Method	37
Blood sedimentation rates	143
Microscopical examination of urine	112
Pleural fluids (microscopical)	24
Haemoglobin estimation	16
Smears of pus for micro-organisms	30

The laboratory work is rapidly expanding and more varied examinations will be conducted next year.

Wassermann Reactions, Guinea-Pig Inoculations, and various cultures have been done by Dr. Kingsbury at the Pathological Laboratory in Perth, to whom are due our thanks.

X-ray Department—Films, 1943—705; Fluoroscopic Examinations (screening)—5,250.

On 31/12/43, there were 214 patients in the Sanatorium. These are divided into two classes—those in whom tubercle bacilli have been found in the sputum, "T.B. plus," and those in whom tubercle bacilli have not been found, "T.B. minus."

Note:—

Group 1.—Cases with minimal disease and with excellent prospects of recovery of full capacity.

Group 2.—Cases intermediate between groups 1 and 3.

Group 3.—Cases of advanced disease in whom there is little or no prospect of producing permanent arrest of the disease.

	T.B. Plus.	T.B. Minus.	Total.
Group 1	2	9	11
Group 2	69	27	96
Group 3	104	3	107
Totals	175	39	214

Active collapse therapy (which includes artificial pneumo-thorax with or without internal pneumolysis or division of adhesions, phrenic paralysis, pneumo-peritoneum and thoracoplasty) is being carried out in 106 patients, i.e., 50 per cent.

Attempted collapse failed in 14 patients, i.e., approximately 7 per cent. Note that 107 or one-half of the patients are far-advanced when they are admitted. Many of these are over 45 years of age and collapse therapy is in them impracticable.

OPERATIVE TREATMENT IN CASES OF PULMONARY TUBERCULOSIS CARRIED OUT AT PERTH HOSPITAL.

	Pneumolyses.	Phrenic Crush and Evulsion.	Thoracoplasty.	Thoracoscopy.
1937 ...	...	...	...	...
1938 ...	14	...	...	3
1939 ...	12	3	8	6
1940 ...	17	2	3	...
1941 ...	13	1	1	...
1942 ...	41	7	10	9
1943 ...	56	9	4	10
1944 to 25th March ...	24	13	2	3

Leprosarium.

Lepers of European origin are treated in the Leprosarium which at present houses four patients. In September, 1942, the orderly and nurse, Mr. and Mrs. Street, resigned and their place was taken by Mr. and Mrs. Fraser who are doing good work. The patients are now interested in gardening, have made new concrete paths, re-surfaced the tennis court and have planted lawns. The improved appearance of the premises is a tribute to their work and to the efforts of Mr. and Mrs. Fraser.

I wish to place on record my appreciation of the sympathetic and helpful attitude of the State Government and the Minister of Health, Mr. Panton, of the Under Secretary, Mr. Huelin, the Assistant Under Secretary, Mr. Wilson, and the officers of the Medical Department, of the Lotteries Commission, of the cordial collaboration of my professional colleagues in the State, the members of the Wooroloo Welfare Committee, and of the excellent work of the Sanatorium staff which is working under the difficulties of wartime conditions. Finally I appreciate very much the counsel which you have given on many occasions.

LINLEY HENZELL,
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Medical Superintendent, Wooroloo Sanatorium,
Government Tuberculosis Officer.

ANIMALS SLAUGHTERED UNDER GOVERNMENT SUPERVISION AT ABATTOIRS, DURING THE YEARS 1939-1943 INCLUSIVE.

Year.	Cattle.	Calves.	Sheep.	Pigs.	Total.
1939	38,720	1,477	518,832	74,163	633,192
1940	41,045	1,933	554,818	90,253	688,049
1941	41,369	2,036	608,939	126,329	778,673
1942	54,138	2,413	666,844	153,160	876,555
1943	63,148	2,902	834,407	123,041	1,023,498

CONDEMNATIONS OF CARCASES, PART-CARCASES AND ORGANS.

Year.	Whole Carcases.	Part Carcases.	Organs.
1939	2,009	1,178	69,093
1940	2,001	1,565	74,624
1941	2,574	1,397	64,874
1942	2,412	2,294	109,011
1943	2,703	1,750	78,280

ANIMALS SLAUGHTERED IN PRIVATE SLAUGHTER-YARDS WHERE MEAT INSPECTION AND BRANDING REGULATIONS ARE IN OPERATION.

Year.	Cattle.	Calves.	Sheep.	Pigs.
1939 ...	11,129	18,733	90,393	9,700
1940 ...	8,843	18,147	75,850	9,313
1941 ...	9,781	20,838	83,635	11,297
1942 ...	11,595	17,993	109,323	9,310
1943 ...	12,141	16,432	121,987	5,133

Country towns carrying out meat inspection are the following:—Albany, Bunbury, Busselton, Bridgetown, Collie, Geraldton, Katanning, Narrogin, Merredin, Northam, Wiluna, York.

These towns have a qualified Meat Inspector who carries out the work.

The pathological conditions for which condemnations of carcases, part carcases or organs were made during 1943 are shown in the schedule following to indicate prevalent conditions in food animals:—

MEAT INSPECTION.

Return of Animals slaughtered and condemned for year ended 31/12/43.

Animals Slaughtered.

Cattle	63,148
Calves	2,902
Sheep	834,407
Pigs	123,041
	1,023,498

CONDEMNATIONS.

Pathological Condition.	Carcases Condemned.	Part Carcases Condemned.	Organs Condemned.
Actinomycosis ...	...	173	281
Actinobacillosis ...	...	...	93
Abscess	3	125	260
Advanced pregnancy	3	...	...
Angioma	...	...	148
Cirrhosis	...	...	592
Emaciation	1,349	...	...
Erysipelas	1	...	...
Fatty infiltration ...	...	...	2,405
Gangrene	30	11	...
Hydatid	5	...	11,607
Hydremia	22	...	...
Hydronephrosis ...	...	...	23,723
Icterus	130	...	...
Immaturity	4	...	...
Lymphadenitis ...	7	30	21,012
Moribund	78	...	...
Melanosis	...	...	143
Necrosis	...	...	14,171
Nephritis	...	...	136
Pleuro-pneumonia ...	...	...	27 (lungs)
Piroplasmosis ...	64	...	...
Peritonitis	46	...	...
Pyrexia	155	...	...
Putrefaction ...	32	...	1,575
Paratyphoid ...	3	...	...
Pericarditis	...	...	634
Pyemia	45	...	...
Sepsis	35	...	...
Septic pneumonia ...	125	...	...
Septic metritis ...	10	...	...
Traumatism ...	112	478	...
Tuberculosis ...	379	933	337
Uremia	15	...	...
Unmarketable ...	6	...	1,136
Miscellaneous ...	44	...	...
	2,703	1,750	78,280

By Authority: Robert H. Miller, Government Printer, Perth.