Report of the Director-General of Health / Commonwealth of Australia.

COMMONWEALTH OF AUSTRALIA

REPORT
OF
THE DIRECTOR-GENERAL
OF
HEALTH

1ST JULY 1958 —— 30TH JUNE 1960

COMMONWEALTH  OF AUSTRALIA

REPORT
OF
THE DIRECTOR-GENERAL
OF
HEALTH

JULY 1, 1958 —— JUNE 30, 1960

COMMONWEALTH

CENTRAL OFFICE, PARKES, CANBERRA, A.C.T.

Director-General: Major-General W. D. Refshauge, C.B.E., M.B., B.S., F.R.C.O.G.

Assistant Directors-General: Dr. H. E. Downes, M.B., B.S., D.P.H.
Dr. G. M. Redshaw, M.B., B.S., D.P.H.
R. H. D. White, O.B.E.

Senior Medical Officers: Dr. R. E. Richards, M.B., B.S., M.C.P.A.

Dr. A. Johnson, M.B., B.Ch., B.A.O., B.A., D.P.H. (Belfast).

Dr. W. F. H. Crick, M.B., B.S.

Dr. C. W. Phillips, M.B., B.S., D.T.M. & H. (Chief Commonwealth Medical Officer at Australia House, London).

Dr. B. W. Royall, M.B., B.S., D.T.M. & H. (Chief Commonwealth Medical Officer, Immigration Service, The Hague, Holland).

Division of Public Health: Director, Dr. C. E. A. Cook, C.B.E., M.D., D.P.H. (Sydney), D.T.M. & H. (London).

Division of Tuberculosis: Director, Dr. Alan King, C.St.J., B.Sc., M.B., B.S., F.C.C.P.

Pharmaceutical Division: Director, R. M. W. Cunningham, Ph.C., M.P.S.

Division of Plant Quarantine: Director, Dr. T. H. J. Harrison, D.Sc.Agr. (Sydney), D.I.C. (London).

Division of Veterinary Hygiene: Director, K. S. McIntosh, B.V.Sc.

Division of Nursing: Principal, Matron F. M. Peterson.

Medical and Hospital Benefits Division: Director, A. A. M. Kelly, D.P.A., A.A.A.

STATE OFFICES

Sydney: Erskine House, 39 York-street, Sydney, N.S.W.
Commonwealth Director of Health, Dr. L. J. Wienholt, M.B., B.S.

Melbourne: Commonwealth Offices, Spring-street, Melbourne, C.1., Victoria.
Commonwealth Director of Health, Dr. H. M. Franklands, M.B., B.S., D.T.M.

Brisbane: Commonwealth Government Offices, Anzac Square, Adelaide-street, Brisbane, Queensland.

Commonwealth Director of Health, Dr. A. H. Humphry, M.B., B.S., D.T.M. & H.

DEPARTMENT OF HEALTH

Adelaide: C.M.L. Building, 41-47 King William-street, Adelaide, South Australia.
Commonwealth Director of Health, Dr. C. S. Barbour, M.B., B.S.

Perth: 473 Wellington-street, Perth, Western Australia.
Commonwealth Director of Health, Dr. J. B. Mathieson, M.B., B.S., D.T.M.

Hobart: Commonwealth Offices, Stowell-avenue, Battery Point, Hobart, Tasmania.
Commonwealth Director of Health, Dr. A. M. McArthur, M.B., Ch.B., D.T.M. & H., M.C.P.A.

Darwin: Department of Health, Darwin, N.T.
Acting Commonwealth Director of Health, Dr. I. D. Byrne, M.B., B.S., D.T.M. & H.

LABORATORIES AND RESEARCH ORGANIZATIONS

Commonwealth Serum Laboratories, Parkville, N.2, Victoria.
Acting Director, J. C. McAllester, B.Sc., A.R.A.C.I.

Commonwealth X-ray and Radium Laboratory, Surry-place, Melbourne, C.1.
Director, D. J. Stevens, B.Sc.

Commonwealth Acoustic Laboratories, Customs House, Circular Quay, Sydney, N.S.W.

Director, N. E. Murray, O.B.E., B.E., B.Sc.

Institute of Anatomy, Canberra, A.C.T.

Medical Officer-in-charge, Dr. E. H. Hipsley, M.B., B.S.

Institute of Child Health, University of Sydney, N.S.W.
Director, Professor Thomas Stapleton, M.A., D.M., M.R.C.P.

School of Public Health and Tropical Medicine, University Grounds, Sydney, N.S.W.

Director, Sir Edward Ford, Kt., O.B.E., M.D., D.P.H., D.T.M., F.R.A.C.P., F.Z.S.

Bureau of Dental Standards, 18 Lonsdale-street, Melbourne, C.1.
Officer-in-charge, A. R. Docking, M.Sc.

National Biological Standards Laboratory, Canberra, A.C.T.
Director, Dr. L. F. Dodson, M.B., B.S., Dip.Clin.Path., D.Phil. (Oxon).

Commonwealth Health Laboratories are located at the following centres:—

Townsville, Cairns, Rockhampton, Toowoomba, Lismore, Tamworth, Albury, Bendigo, Launceston, Hobart, Port Pirie, Kalgoorlie, Darwin, Canberra.

The names listed above are those of the officers occupying the various positions at the time of publication of this Report. In several instances the officer concerned assumed the position either during or since the period covered by the Report, the officer formerly occupying the position having either retired or taken up other duties.

CONTENTS

COMMONWEALTH DEPARTMENT OF HEALTH.

REPORT FOR THE PERIOD FROM 1st JULY, 1958, TO 30th JUNE, 1960.

THIS report deals in detail with the activities of the Commonwealth Department of Health for the two-year period ending 30th June, 1960, during the whole of which the Department was under the guidance of Dr. Arthur John Metcalfe, C.B.E., M.B., Ch.M., D.P.H., as Director-General. Dr. Metcalfe retired at the end of August, 1960, and was succeeded by Major-General William Dudley Refshauge, C.B.E., M.B., B.S., F.R.C.O.G., formerly Director-General of Army Medical Services.

The period was one of steady expansion in the Department's services, among the most notable being the introduction on 1st March, 1960, of the greatly expanded Pharmaceutical Benefits Scheme and substantial increases in the payments made by the Commonwealth to the Medical and Hospital Benefits Schemes, through which the Commonwealth subsidises persons who contribute to the voluntary insurance organizations which operate throughout Australia. During this period, also, the Special Accounts system was introduced, to provide an assured rate of hospital and medical benefit to contributors who would formerly have been excluded from the funds' benefits on account of organizations' rules regarding pre-existing ailments, chronic illness or maximum fund benefits.

No major outbreak of communicable disease occurred during the period. The overall incidence was, in fact, generally somewhat lower than in previous years for the majority of common infectious illnesses, indicating an increased efficiency in the State and Commonwealth public health services and an alert quarantine service.

While the death rate has been greatly reduced, tuberculosis remained a national problem, emphasizing the need for the public to take full advantage of the facilities offered by the State Governments, with Commonwealth financial assistance, including mass chest radiography, to discover previously unknown cases, and permit early treatment.

NATIONAL HEALTH BENEFITS.

The various National Health benefits administered by the Department are authorized under the following Acts:—

The *National Health Act* 1953-1959, which provides for the Medical Benefits Scheme, the Hospital Benefits Scheme, the Pensioner Medical Service, Pharmaceutical Benefits and Pharmaceutical Benefits to Pensioners.

The *Tuberculosis Act* 1948.

States Grants (Milk for School Children) Act 1950.

States Grants (Mental Institutions) Act 1955.

Table I on page 19 sets out the total Commonwealth expenditure on these activities for each year since 1st July, 1945. Tables II to XV on pages 20 to 31 show detailed statistics regarding each of the various benefits.

The establishment and history of the Hospital and Medical Benefits Schemes have been covered in detail in previous reports. However, a brief outline of each scheme is given hereunder, followed by an account of the developments during the two-year period ended 30th June, 1960.

HOSPITAL BENEFITS

Commonwealth hospital benefits comprise two kinds, commonly known as Ordinary Hospital Benefits and Additional Hospital Benefits.

Ordinary Hospital Benefits: The payment of Ordinary hospital benefits in respect of patients in public hospitals is governed by agreements between the Commonwealth and each of the State Governments. Under these agreements, the Commonwealth pays the State Governments Ordinary hospital benefit at the rate of 8s. per day for each day of hospitalization in a public hospital. For pensioners who are enrolled in the Pensioner Medical Service and who are not insured in a registered hospital benefits organization, the benefit rate for hospitalization in a public hospital (other than a State benevolent home) is 12s. per day. Under the agreements the benefit for patients in public hospitals is paid by the Commonwealth to the State Governments.

The rate of Ordinary hospital benefits in respect of patients in approved private hospitals is also 8s. per day. The benefit is paid to the proprietor of the hospital.

In both public and private hospitals the patient's account is reduced by the amount of the Ordinary hospital benefit. With certain minor exceptions, every person who is hospitalized in Australia is entitled to this benefit.

Additional Hospital Benefits: Commonwealth Additional hospital benefit is paid only to financial contributors to registered hospital benefits organizations in accordance with the principle of Commonwealth support of voluntary health insurance. In general, except during the first two months of membership, the Additional benefit is paid for each day a contributor or a dependant of a contributor is hospitalized in a public hospital or an approved private hospital.

Two different rates of Additional hospital benefit apply, viz.:—

4s. per day to contributors who are insured for a Fund benefit of at least 6s. per day but less than 16s. per day; and

12s. per day to contributors who are insured for a Fund benefit of 16s. per day or more.

Additional hospital benefit is paid to the contributor through his registered organization.

The registered hospital benefits organization to which the contributor belongs also pays, subject to its rules, a Fund benefit of at least 6s. per day according to the table of benefit for which contributions are paid.

MEDICAL BENEFITS

Commonwealth medical benefits are paid in respect of medical expenses incurred by the contributor only to financial contributors to medical benefits organizations registered under the *National Health Act*. The benefits vary according to the type of medical service rendered to the contributor and range from 6s. for minor services to a maximum of £22 10s. for a major operation. The benefits payable for each type of service are set out in the First and Second Schedules to the *National Health Act*. Payment is made through the organization to which the contributor belongs. In most cases, Commonwealth benefit is not payable during the first two months of membership.

The registered medical benefits organization also pays, subject to its rules, for each medical service a Fund benefit which varies according to the weekly contribution paid and the particular medical service, but which generally is equal to or greater than that specified in the Schedules for the particular medical service. However, the combined Commonwealth and Fund benefits must not exceed 90 per cent. of the fee charged by the medical practitioner.

Some registered organizations provide medical services for their members under contract arrangements with doctors. In these cases, the Commonwealth benefit is provided by way of cash reimbursement to the organization of a proportion of the payments made to the doctor for services covered by the contract.

Developments in Schemes, 1958-1960: There has been a steady increase in the membership of the two schemes, and the proportion of the population covered by the schemes also increased as shown by the following table:—

—	Hospital.		Medical.	
	As at 30th June, 1960.	As at 30th June, 1959.	As at 30th June, 1960.	As at 30th June, 1959.
Membership	2,907,989	2,749,308	2,907,671	2,666,984
Increase on previous year ..	6 per cent.	9 per cent.	9 per cent.	10 per cent.
Coverage	7,208,000 (est.)	6,774,000	7,311,000 (est.)	6,713,000
Per cent. of population covered	73 per cent.	68 per cent.	72 per cent.	67 per cent.

Commonwealth expenditure on hospital and medical benefits, compared with the previous year, is shown hereunder:—

—	1959–60.	1958–59.
	£	£
Ordinary hospital benefits	9,446,905	8,647,283
Additional hospital benefits	9,152,340	6,155,007
Medical benefits	9,291,706	7,779,451

Further details of the membership of the two schemes are given in Tables III and V on pages 21 and 23 respectively.

Totals of expenditure on Commonwealth Ordinary and Additional hospital benefits are given in Table II at page 20 and expenditure on Commonwealth medical benefits appears in Table I at page 19.

The higher rate of Commonwealth Additional benefit of 12s. per day came into operation on 1st January, 1958, and by the end of the period under review, nearly 99 per cent. of all days of hospitalization for which the Additional benefit was paid attracted the higher rate.

The *National Health Act* 1953-1957 was amended by Act No. 68 of 1958. The principal changes effected by those amendments were—

(a) the introduction of the Special Account system from 1st January, 1959;
(b) the introduction of a waiting period of two months for Commonwealth medical benefits; and
(c) amendment of the definition of "contributor" for hospital benefits purposes.

Establishment of the Special Accounts, which are explained in some detail later in this report, was a major step forward in the development of the Medical and Hospital Benefits Schemes.

The introduction of a waiting period for Commonwealth medical benefits was designed to discourage short-term insurance and was consistent with the introduction in the previous year of a similar waiting period for Commonwealth Additional hospital benefits.

Section 39 was amended to provide that, if a person's contributions to a hospital benefits fund were paid by a State Government or an institution conducted by a State (unless that person was an employee of that State Government or institution), the person concerned was deemed not to be a contributor, and thus he did not qualify to receive the Additional hospital benefit.

Special Accounts: Details were given in the previous report of the comparatively large number of cases which attracted Commonwealth medical and hospital benefits, but were denied fund benefit under organizations' rules relating to pre-existing and chronic ailments and maximum fund benefits. These exclusions were a source of criticism of the schemes as the non-payment of fund benefit occurred in cases where it was often most needed. From the organizations' viewpoint, however, such rules were essential to prevent exploitation by short-term contributors and to maintain financial stability of the organizations.

It was to meet this situation that the Special Account system was introduced to operate from 1st January, 1959.

Under the amended legislation a registered organization was empowered to establish Special Accounts for payment of medical and hospital fund benefits.

The basic principle of the Special Accounts is that the registered organizations provide certain minimum fund benefits to contributors in respect of claims which would otherwise be disallowed under pre-existing ailment, chronic illness or maximum fund benefit rules. These minimum benefits are referred to as "standard rate" benefits and consist of—

(a) in respect of medical claims—a fund benefit for each medical service equivalent to the amount specified for that service in the First and Second Schedules to the *National Health Act;*
(b) in respect of hospital claims—a fund benefit of 16s. per day.

If the contributor is insured in a table paying Fund benefit which is less than the standard rate he receives benefit at the insured rate instead of the standard rate benefit.

Having established Special Accounts, the registered organizations are required to pay these minimum Fund benefits either from the Special Accounts or from the general account of the organization, referred to as the " ordinary " account.

Where an organization, which has established a Special Account, receives a claim by a contributor for Fund benefit which could be disallowed under a rule relating to pre-existing ailment, chronic illness or maximum Fund benefits, the organization may pay Fund benefit from its ordinary account. If, however, the organization does not elect to pay from its ordinary account Fund benefit at least equal to the standard rate or lower insured rate, it must transfer the contributor to the Special Account and pay benefits from that account. While the contributor remains a Special Account member, no rule relating to pre-existing ailments, chronic illnesses or maximum benefits can operate to reduce his Fund benefit below the standard rate or the lower rate for which he is insured. With regard to other illnesses, the Special Account member is entitled, in general, to receive full benefits in the same way as an ordinary contributor.

The organization is required to credit to the Special Account all contributions receivable from the contributor after a certain date.

Initially the Special Account legislation required that all contributors aged 65 and over be transferred to the Special Accounts in recognition of the fact that older people generally require more medical and hospital treatment than the remainder of the community. However, it was found during the first year of operation of the Special Accounts that, so far as medical benefits were concerned, the contributors aged 65 and over in many organizations were, in general, not a bad risk and their compulsory transfer to the medical benefits Special Account was not necessary. Consequently, the requirement was waived for medical benefits as from 1st January, 1959. However, the original requirement has not been altered for contributors aged 65 and over in hospital benefit funds.

If, at the end of a financial year, the payments made from the Special Accounts for benefits to Special Account contributors and for reasonable management expenses exceed the contributions credited to the account, the amount of the deficit is reimbursed by the Commonwealth.

The *National Health Act* does not require each registered organization to establish Special Accounts. It may establish Special Accounts for both medical and hospital benefits, or for one only, but if it wishes to do so, it must comply with the conditions stipulated in sections 82A-82P of the *National Health Act*. Briefly, these conditions relate to the crediting of contributions to the Special Account and the payment of benefits therefrom, specific provisions to be included in the rules of organizations affecting Special Account contributors and membership and financial records to be maintained for the Special Accounts. One provision worthy of particular mention here is that a contributor is not required to pay a higher rate of contribution by virtue of his being a Special Account member, and, except as provided in section 82E, the Special Account contributor is entitled to the same Fund benefits as if he were an ordinary contributor. The main conditions are, for hospital benefits, that the hospital must be recognized for Special Account purposes, and that combined Commonwealth and Fund benefit does not exceed the hospital fees.

An indication of the success of the Special Accounts in extending the availability of benefits under the voluntary insurance scheme is shown in the fact that medical benefits funds comprising 94 per cent. of the total membership and hospital funds with over 91 per cent. of total membership have voluntarily established Special Accounts. Some organizations, which did not establish Special Accounts, amended their rules to provide that pre-existing ailment, chronic illness or maximum benefit rules would not operate so as to reduce a contributor's benefit below that which he would receive as a Special Account contributor.

Medical Benefits Increased: The *National Health Act* was further amended by Act No. 72 of 1959. The major changes resulting from these amendments were—

(a) increase in the amount of Commonwealth medical benefits payable from 1st January, 1960, for a wide range of professional services included in the First and Second Schedules to the Act;
(b) withdrawal of the compulsory transfer to the medical benefit Special Accounts of all contributors aged 65 and over;
(c) provision for payment of Special Account hospital fund benefit from 1st January, 1960, for particular individual cases in hospitals which are not recognized for Special Account purposes.

A problem which had been receiving considerable attention in recent years was the increasing share of the total cost of medical attention being borne by the contributor, particularly for cases of major surgery. During the period under review several proposals were put forward by interested bodies (including the Commonwealth Health Insurance Council) to raise the level of Commonwealth and Fund benefits. The *National Health Act* was amended so that from 1st January, 1960, Commonwealth benefits were substantially increased over a wide range of items, particularly operations and midwifery. These increases have been accompanied in general by increases in Fund benefits also.

As mentioned earlier it was found that, during the first year of operation of the Special Accounts, contributors aged 65 and over in many organizations were generally not a bad risk for medical benefits. Consequently, the requirement that they be automatically transferred to the medical benefit Special Accounts was withdrawn and the amendment made retrospective to 1st January, 1959, the date from which Special Accounts commenced to operate.

When the Special Accounts were introduced, it was provided that hospital Fund benefit was not payable to a Special Account contributor unless he was a patient in a hospital that is recognized for the purpose. In effect this meant that benevolent homes, convalescent homes, homes for the aged, rest homes or institutions that catered principally for permanent patients were not recognized. The decision to exclude patients in these institutions from Special Account benefits was based partly on financial reasons, but also on the grounds that the Commonwealth was already contributing generously by way of Ordinary hospital benefits and Additional benefits towards the maintenance of patients in these institutions.

This policy was subject to criticism from some quarters, mainly on the grounds that the rigidity of the provision excluded from benefit some patients in certain of these institutions who to all intents and purposes were genuine hospital cases.

The *National Health Act* was subsequently amended to re-define the class of institution which will not be recognized, by omitting the reference to institutions catering for permanent patients and by providing also for payment of Special

Account benefit to particular individual patients in unrecognized hospitals, subject to it being proved that the patient was suffering from an illness or injury requiring treatment of the kind provided in recognized public hospitals, and that he had in fact received such treatment.

Registered Organizations: There were minor changes in the numbers of organizations registered for medical and hospital benefits during the period. These are summarized in the following table:—

Medical Benefits.		Hospital Benefits.	
Registered as at 30th June, 1960.	Registered as at 30th June, 1958.	Registered as at 30th June, 1960.	Registered as at 30th June, 1958.
83	81	115	119

Variations.		Variations.	
New Registrations.	Deregistered.	New Registrations.	Deregistered.
3	1	3	7

The organizations deregistered were deregistered at their own request and arrangements were made for their members to be transferred to other organizations without loss of rights.

Commonwealth Health Insurance Council: The Commonwealth Health Insurance Council held its inaugural meeting at Canberra in April, 1959. The Council is constituted under section 136 of the *National Health Act*, and its functions are to advise the Minister on matters relating to the Medical Benefits and Additional Hospital Benefits Schemes and to recommend means by which improvements in methods and standards may be effected. The Council consists of the Director-General of Health as Chairman, one member each nominated by the associations of registered organizations which have been formed in each State, five other members representative of registered organizations generally, nominated by the Minister, and one member nominated by the Federal Council of the British Medical Association.

Council made a number of recommendations to the Minister on various aspects of the schemes.

PENSIONER MEDICAL SERVICE

The Pensioner Medical Service, which has operated since February, 1951, provides general practitioner medical attention and free medicine to age, invalid, widow and service pensioners and their dependants; also to persons receiving a tuberculosis allowance and their dependants.

The scope and application of the Service were described in the 1956-58 Report.

The only significant development in the Service during the two-year period ended 30th June, 1960, was the operation from 1st July, 1958, of a new agreement with the British Medical Association, under which fees payable to participating doctors were increased from 10s. to 11s. for a surgery consultation and from 12s. to 13s. for a domiciliary visit.

Tables VI., VII., and VIII. on pages 24, 25, and 26, respectively, relate to the operation of the Pensioner Medical Service during the years ended 30th June, 1959, and 30th June, 1960.

Details of pensioners and dependants participating in the Service at 30th June, 1959, and 30th June, 1960, are set out in Table VI., on page 24.

The number of participating doctors, and the payments to doctors for medical services and mileage, are shown in Table VII., on page 25.

Table VIII. gives a break-up of the types of services rendered by participating doctors and the number of mileage claims submitted during the two years under review.

PHARMACEUTICAL BENEFITS SCHEME

Under the Pharmaceutical Benefits Scheme between 70 and 80 per cent. of all prescriptions written by doctors are available to the patient, regardless of their cost, for a fee of 5s., plus 5s. for each repeat of the prescription, without any means test. A similar range of medicines is available to eligible pensioners, free of charge.

The drugs are supplied by chemists, but only on the prescription of a registered medical practitioner.

Prior to 1st March, 1960, a range of disease-preventing drugs was available free to all patients, the whole cost being met by the Commonwealth Government.

The economics of this free scheme were modest at the outset. The cost for the first full year of its operation, to 30th June, 1952, was £7,600,000. It rose steadily year by year as doctors used the Scheme more and the nation's population expanded. By 1957 it had reached £11,700,000 by a steady progression.

Then the costs began to rise more rapidly. In the year ending 30th June, 1958, the cost was £15,000,000 and in 1959 that figure had risen by another £6,000,000 to £21,000,000.

The principal reason was that there had been discoveries of many new drugs, and to preserve the conception of the scheme, which was the provision, free, of "costly, life-saving and disease-preventing drugs" it had been desirable to include them in the list. Most of them, especially the antibiotics, were expensive. Prescriptions which cost as much as £8 each were not rare. There are others which cost considerably more.

By 1959 the problem had become one of sustaining the Scheme and even expanding it to a still more effective level, without allowing it to dominate the whole National Health Plan, to the exclusion of other benefits equally

valuable. In August, 1959, it was announced that the Government had decided to apply a 5s. charge as a " brake " and with the further thought that to apply a charge, even although only a nominal one, would be in line with the principle of self-help which underlies the Government's national health planning. Other examples are the Government payments available to persons who insure themselves with the medical and hospital benefits organizations. It was hoped that the 5s. charge would permit the Scheme to continue to expand as modern medical developments dictated, yet without getting out of hand as a Budget item. The 5s. charge came into effect from 1st March, 1960.

The *National Health Act* requires, as a protective measure, that no drug may be listed by the Minister for Health unless it is recommended for inclusion by an expert Pharmaceutical Benefits Committee of seven, four of whose number are doctors chosen by the Minister from a panel nominated by the British Medical Association. This committee also advises the Minister when it considers a drug should be listed only for a prescribed purpose or purposes. Such restriction, for example, applies to the use of cortisone and cortisone derivatives, the antibiotics, certain hormones and certain drugs for the treatment of leukaemia and cancer.

In most instances the quantity of a drug that may be prescribed as a pharmaceutical benefit is dependent on the amount necessary for treatment of the condition for which the doctor is prescribing. The prescription generally provides sufficient of a drug to last about one week. Larger quantities are made available in the case of patients whose condition requires continued treatment to maintain life. The supply of insulin for diabetics, for example, is sufficient to last at least a month. Doctors may obtain special authority to prescribe larger quantities of a drug where they feel it is necessary. This involves no increase in the basic payment of 5s. Pensioners enjoy this concession without any cost.

The Government reimburses the chemist in terms negotiated with the Federated Pharmaceutical Service Guild of Australia, deducting 5s. from the claim for each prescription. This represents the patient's share of the cost, which the chemist is expected to collect from the patient. It is illegal for a chemist to offer to supply a prescription free, or for less than 5s., with the exception that Friendly Societies (lodges) whose membership fee covers, separately or among other services, the provision of medicine, may charge members less than 5s. per prescription. The payment to the chemist is based on the amount paid to the wholesaler for the supply of the drug, plus a mark-up and a dispensing fee, with allowance for certain contingencies, such as wastage of drugs. Where the normal retail price of a drug or prescription is less than 5s. the patient meets the whole charge.

Provision is made for both public and private hospitals to participate in the Scheme. Patients may receive pharmaceutical benefits whether as in-patients or out-patients, and the Commonwealth Government reimburses the hospitals either directly in the case of private hospitals or through State Governments in the case of public hospitals.

In isolated areas where normal pharmaceutical services are not available, special arrangements have been made for the supply of pharmaceutical benefits through doctors, bush nursing services, the Royal Flying Doctor Service or through other avenues.

The following table gives details of expenditure during 1959-60:—

	For General Population.	For Pensioners.	Hospital and Miscellaneous.	Total Commonwealth Payment.
	£	£	£	£
For nine months 1st July, 1959, to 31st March, 1960 (i.e. the " old " Scheme)	14,562,669	2,096,718	1,253,493	17,912,880
For three months 1st April, 1960, to 30th June, 1960 (i.e. the " new " Scheme)	3,794,735	1,477,505	1,150,551	6,422,791
	18,357,404	3,574,223	2,404,044	24,335,671

NOTE.—The Scheme changed from 1st March, 1960, but all claims from chemists up until 31st March, 1960, related to the former Scheme. Also, the expenditure figures for the period 1st April, 1960, to 30th June, 1960, included a proportion of claims relating to the former Scheme. Under the old Scheme, pensioners received benefits from the " general " list, as well as from the special " pensioner " list. To 31st March, 1960, the expenditure on benefits for pensioners covered only the pensioners benefit list. As from 1st April, 1960, expenditure on all benefits for pensioners is shown separately from benefits for the general public.

The public's contribution towards the cost for the April-June period was £827,000.

Early figures indicate that about 70 per cent. of all doctors' prescriptions at present being written are pharmaceutical benefits.

The proportion of doctors' prescriptions that is not covered by the Scheme comprises those prescriptions which are not authorized as pharmaceutical benefits and prescriptions written for the general public which cost less than 5s.

The average cost of prescriptions supplied under the Scheme is 18s. 6d. The scope of benefits available is practically the same for the general public and for pensioners, but the nominal charge of 5s. per prescription is not made to pensioners.

A tremendous volume of work is entailed in the examination of prescriptions, which takes place for the dual purpose of ensuring that the requirements of the Scheme have been met and the charges made on the Government for the prescriptions are accurate.

During 1959-60, for example, 23,828,440 prescriptions were written under the Scheme. This involved the examination of some 54,000 individual claims for payment, involving £21,931,627. The examination and payment of these claims were effected at an administrative cost of £200,000, less than 1 per cent. of the expenditure involved.

Committees of Inquiry: These committees, established by the Minister for Health, function in each State to inquire into and report on matters referred to them relating to the supply of pharmaceutical benefits. A Federal Committee is also established to deal with matters involving questions of principle.

Membership of the State Committees consists of the Commonwealth Director of Health, a departmental officer who is a pharmacist and four pharmaceutical chemists appointed by the Minister for Health from among pharmaceutical chemists nominated by the Federal Pharmaceutical Service Guild, in respect of each State.

FREE MILK FOR SCHOOL CHILDREN

There have been no changes in legislation affecting the supply of free milk to school children during the two years under review.

The estimated number of children receiving free milk during the two years and the amounts reimbursed to the States in meeting the cost of the scheme for the period are included in Table XIV. on page 31.

Total expenditure by the Commonwealth on the Free Milk Scheme since its commencement in 1950-51 is shown in Table I. on page 19. However, these figures do not include amounts reimbursed to the States in respect of 50 per cent. of capital and incidental expenditure, which were £8,994 and £12,146 respectively for 1958-59 and 1959-60. The figures shown in Table XIV. include these reimbursements in respect of capital and incidental expenditure.

MENTAL INSTITUTIONS

Earlier Commonwealth action in the field of mental health is summarized in my report covering the period ended 30th June, 1956. As there recorded, the Commonwealth Government, in June, 1955, made an offer to the States of a grant of £10,000,000 for the purpose of encouraging a capital expenditure programme of £30,000,000. The offer was made on the basis of the provision of £1 by the Commonwealth for every £2 by the States. All of the States accepted the offer made by the Commonwealth and agreed to the grant being divided on a population basis which resulted in the States being eligible for the following amounts:—

	£
New South Wales	3,830,000
Victoria	2,740,000
Queensland	1,460,000
South Australia	895,000
Western Australia	720,000
Tasmania	355,000
	10,000,000

In November, 1955, the Commonwealth Parliament passed the *States Grants (Mental Institutions) Act* which provided the necessary legislation for the above grants to be made available to the States. Expenditure must have the prior approval of the Minister for Health. The grant is paid to the States as a part reimbursement of their expenditure and therefore the amount of Commonwealth contribution, within the above totals, is dependent upon the capital expenditure made by the States in connexion with their mental hospitals.

Details of the expenditure by the States each year and the amount of Commonwealth grants paid to the States since the inception of the scheme are shown in Table XV. on page 31.

TABLE I

NATIONAL HEALTH

Commonwealth Expenditure

Year Ended.	Hospital Benefits.	Medical Benefits.	Pensioner Medical Service.	Pharmaceutical Benefits.			Tuberculosis (including Capital).	Free Milk for School Children.	Mental Institutions.	Total.
				General Benefits.		Pensioner Benefits.				
				Chemists and Doctors.	Hospital Reimbursements and Miscellaneous. (*a*)					
	£	£	£	£	£	£	£	£	£	£
30th June, 1946 ..	1,111,292	..	..	..	..	..	..	..	..	1,111,292
30th June, 1947 ..	4,380,296	..	..	..	..	..	109,603	..	..	4,489,899
30th June, 1948 ..	4,448,015	..	..	..	..	..	27,590	..	..	4,475,605
30th June, 1949 ..	5,885,446	..	..	66,268	82,769	..	151,079	..	..	6,185,562
30th June, 1950 ..	6,320,164	..	..	173,341	131,348	..	757,870	..	255,586	7,638,309
30th June, 1951 ..	6,535,628	..	75,511	2,726,779	203,384	..	2,682,749	35,775	405,664	12,665,490
30th June, 1952 ..	6,683,106	..	1,036,225	6,712,147	615,267	357,632	4,613,154	814,806	517,780	21,350,117
30th June, 1953 ..	7,223,241	..	1,739,953	6,199,784	286,867	728,658	6,168,289	1,521,394	522,552	24,390,738
30th June, 1954 ..	8,330,053	1,434,166	2,115,539	7,160,186	1,058,447	1,010,780	6,959,130	1,999,312	494,833	30,562,446
30th June, 1955 ..	9,320,603	4,209,495	2,516,077	8,151,970	1,292,661	1,294,836	7,366,728	2,237,425	(*e*) 225,585	36,615,380
30th June, 1956 ..	9,552,944	5,413,320	2,874,364	9,030,546	1,348,928	1,507,960	7,454,255	2,405,349	773,149	40,360,815
30th June, 1957 ..	9,813,283	6,146,029	2,998,886	8,585,835	1,337,889	1,793,101	8,596,624	2,607,040	1,248,132	43,126,819
30th June, 1958 ..	10,823,096	7,085,524	3,198,791	11,413,242	1,497,502	2,123,245	7,908,464	2,755,602	1,256,399	48,061,865
30th June, 1959 ..	*b*14,802,290	7,779,451	3,806,457	16,556,285	1,899,139	2,517,373	7,261,075	3,068,636	1,120,394	58,811,100
30th June, 1960 ..	*c*18,599,245	(*d*) 9,291,706	4,112,637	18,357,403	2,404,045	3,574,223	6,143,772	3,359,369	1,147,472	66,989,872

(*a*) The amounts shown in this column include some minor expenditure under Departmental votes. (*b*) This figure includes £9,000 paid to Hospital Benefits Organizations towards Special Account deficits. (*c*) This figure includes £1,253,767 paid to Hospital Benefits Organizations towards Special Account deficits. (*d*) This figure includes £86,555 paid to Medical Benefits Organizations towards Special Account deficits. (*e*) Payments up to 30th June, 1955, were made under the *Mental Institutions Benefits Act* 1948.

TABLE II

HOSPITAL BENEFITS

Commonwealth Expenditure

Year Ended.	Public Hospitals.			Private Hospitals.	Total Ordinary Benefits (Public and Private Hospitals).	Commonwealth Additional Benefit.	Total Ordinary and Additional Benefits.
	Ordinary.	Pensioners.	Total.				
	£	£	£	£	£	£	£
Amounts paid from 30th June, 1945, to 30th June, 1951	22,088,087	..	22,088,087	6,592,754	28,680,841	..	28,680,841
30th June, 1952	4,997,876	..	4,997,876	1,642,522	6,640,398	42,708	6,683,106
30th June, 1953	*80,441 4,186,144	653,976	4,920,561	1,659,098	6,579,659	643,582	7,223,241
30th June, 1954	*95,882 4,197,570	1,136,460	5,429,912	1,768,856	7,198,768	1,131,285	8,330,053
30th June, 1955	*103,405 4,598,496	1,252,998	5,954,899	1,852,609	7,807,508	1,513,095	9,320,603
30th June, 1956	*105,012 4,551,223	1,377,303	6,033,538	1,880,692	7,914,230	1,638,714	9,552,944
30th June, 1957	*131,443 4,314,566	1,546,932	5,992,941	1,980,222	7,973,163	1,840,120	9,813,283
30th June, 1958	*139,984 4,200,679	1,620,737	5,961,400	2,029,752	7,991,152	2,831,944	10,823,096
30th June, 1959	*145,542 4,680,741	1,653,849	6,480,132	2,167,151	8,647,283	‡6,146,007	14,793,290
30th June, 1960	*†146,738 †5,473,061	†1,417,616	7,037,415	2,409,490	9,446,905	‡7,898,573	17,345,478
Total	*948,447 63,288,443	10,659,871	74,896,761	23,983,146	98,879,907	23,686,028	122,565,935

* Payments of 12s. per day in respect of hospitals in South Australia to which Part IV. of the *South Australian Hospitals Act* 1934–1951 applies. † Estimated breakup of payments for Public Hospitals for 1959–60. Final figures are not yet available. ‡ Does not include payments to hospital benefits organizations towards Special Account deficits, the amounts of which were—year ended 30th June, 1959—£9,000; year ended 30th June, 1960—£1,253,767.

TABLE III

HOSPITAL BENEFITS

Membership of Registered Organizations and Fund Payments to Contributors, years ended 30th June, 1959 and 30th June, 1960

State.	Number of Organizations.		Membership.		Estimated Coverage (Including Dependants).		Percentage of Population Covered.		Fund Benefit Paid.*	
	As at 30.6.59.	As at 30.6.60.	As at 30.6.59.	As at 30.6.60.	As at 30.6.59.	As at 30.6.60.	As at 30.6.59.	As at 30.6.60.	As at 30.6.59.	As at 30.6.60.
							%	%	£	£
New South Wales	29	30	1,152,832	1,161,017	2,743,000	2,762,000	72	72	5,349,068	6,185,941
Victoria..	48	47	712,788	768,773	1,916,000	2,088,000	69	73	1,556,219	2,172,301
Queensland	3	3	288,365	322,689	728,000	804,000	51	55	897,774	1,092,869
South Australia	14	14	257,289	293,747	588,000	706,000	63	76	795,133	1,063,849
Western Australia	12	11	230,559	244,111	546,000	574,000	76	79	659,707	947,332
Tasmania	10	10	107,475	117,652	253,000	274,000	74	77	437,532	488,352
Commonwealth	116	115	2,749,308	2,907,989	6,774,000	7,208,000	68	72	9,695,433	11,950,644

* Does not include ancillary benefits. Total ancillary benefits paid 1958–59, £71,879; 1959–60, £99,152.

TABLE IV

HOSPITAL BENEFITS

Membership of Registered Organizations and Particulars of Claims, years ended 30th June, 1959 and 30th June, 1960

State.	Membership of Registered Organizations.		Claims for Fund Benefit.				Average Amount of Fund Benefit Paid.			
			Number.		Average Number of Claims per 100 Members (Mean Membership).		Per Claim.		Per day in Hospital.	
	As at 30.6.59.	As at 30.6.60.	1958–59.	1959–60.	1958–59.	1959–60.	1958–59.	1959–60.	1958–59.	1959–60.
							£ s. d.	£ s. d.	£ s. d.	£ s. d.
New South Wales ..	1,152,832	1,161,017	327,002	368,859	29	32	16 7 2	16 14 2	1 11 7	1 10 4
Victoria	712,788	768,773	169,562	171,175	24	23	9 3 7	12 13 10	1 0 4	1 1 5
Queensland	288,365	322,689	68,855	85,225	25	28	13 0 9	12 16 6	1 6 9	1 5 10
South Australia ..	257,289	293,747	63,946	79,922	26	29	12 8 8	13 6 3	1 6 9	1 7 2
Western Australia ..	230,559	244,111	69,479	92,626	30	39	9 9 11	10 5 8	1 1 5	1 1 2
Tasmania	107,475	117,652	26,782	29,067	25	26	16 6 9	16 6 1	1 15 0	1 12 11
Commonwealth	2,749,308	2,907,989	725,626	826,874	27	29	13 7 3	14 9 2	1 7 6	1 6 9

TABLE V

MEDICAL BENEFITS

Membership of Registered Organizations and Fund Payments to Contributors, years ended 30th June, 1959 and 30th June, 1960

State.	Number of Organizations.		Membership.		Estimated Coverage (Including Dependants).		Percentage of Population Covered.		Fund Benefit Paid.*	
	As at 30.6.59.	As at 30.6.60.	As at 30.6.59.	As at 30.6.60.	As at 30.6.59.	As at 30.6.60.	As at 30.6.59.	As at 30.6.60.	1958–59.	1959–60.
							%	%	£	£
New South Wales	26	26	1,230,496	1,341,861	2,966,000	3,164,000	79	82	4,437,512	5,098,217
Victoria..	22	23	611,999	672,039	1,723,000	1,909,000	62	67	1,859,049	2,336,721
Queensland	6	6	290,458	318,488	746,000	814,000	52	55	1,032,243	1,372,994
South Australia	9	9	241,814	262,798	563,000	653,000	61	70	898,712	1,179,515
Western Australia	9	9	199,429	207,677	498,000	526,000	70	72	906,888	1,061,817
Tasmania	10	10	92,788	104,808	217,000	245,000	63	69	276,213	345,625
Commonwealth	82	83	2,666,984	2,907,671	6,713,000	7,311,000	67	72	9,410,617	11,394,889

* Ancillary benefits, e.g., Physiotherapy services, etc., are not included. Total ancillary benefits paid 1958–59, £390,372; 1959–60, £498,465.

TABLE VI

PENSIONER MEDICAL SERVICE

Pensioners and Dependants Enrolled in Pensioner Medical Service as at 30th June, 1959 and 30th June, 1960

State.	1958–59.			1959–60.		
	Number of Pensions and Allowances Current.	Pensioners Enrolled (including Pensioner Wives).	Total Number of Pensioners and Dependants Enrolled.	Number of Pensions and Allowances Current.	Pensioners Enrolled (including Pensioner Wives).	Total Number of Pensioners and Dependants Enrolled.
New South Wales	280,308	254,790	288,315	290,192	260,657	294,954
Victoria	172,732	162,977	183,872	177,693	153,503	173,183
Queensland	104,031	94,420	112,685	108,123	101,459	130,343
South Australia	61,905	55,842	62,651	64,454	57,886	64,945
Western Australia	48,231	41,831	47,484	51,926	44,638	50,670
Tasmania	22,461	21,033	24,723	23,105	21,667	25,468
Northern Territory	336	288	323	624	334	374
Commonwealth	690,004	631,181	720,053	716,117	640,144	739,937

Figures for the Australian Capital Territory included in those shown for New South Wales.

TABLE VII

PENSIONER MEDICAL SERVICE

Payments to Participating Doctors, years ended 30th June, 1959 and 30th June, 1960

State.	1958–59.				1959–60.			
	Number of Participating Doctors.	Payments to Doctors.			Number of Participating Doctors.	Payments to Doctors.		
		Medical Services.	Mileage.	Total.		Medical Services.	Mileage.	Total.
		£	£	£		£	£	£
New South Wales	2,174	1,702,818	14,974	1,717,792	2,223	1,859,576	16,341	1,875,917
Victoria	1,591	918,008	14,429	932,437	1,665	963,080	15,301	978,381
Queensland	707	476,923	5,330	482,253	715	516,456	5,344	521,800
South Australia	482	317,839	3,859	321,698	502	356,544	4,166	360,710
Western Australia	423	257,913	924	258,837	424	273,635	868	274,503
Tasmania	149	87,200	5,328	92,528	151	94,312	5,883	100,195
Northern Territory	5	866	46	912	5	1,016	115	1,131
Commonwealth	5,531	3,761,567	44,890	3,806,457	5,685	4,064,619	48,018	4,112,637

Australian Capital Territory figures included in those shown for New South Wales.

TABLE VIII

PENSIONER MEDICAL SERVICE

Number of Services and Mileage Claims, years ended 30th June, 1959 and 30th June, 1960

State.	1958–59.				1959–60.			
	Number of Services.			Number of Mileage Claims.	Number of Services.			Number of Mileage Claims.
	Surgery.	Domiciliary.	Total.		Surgery.	Domiciliary.	Total.	
New South Wales	1,585,492	1,304,530	2,890,022	16,268	1,735,310	1,397,959	3,133,269	16,454
Victoria	754,327	852,515	1,606,842	12,321	799,720	805,462	1,605,182	13,313
Queensland	519,695	300,844	820,539	5,711	561,818	321,173	882,991	5,588
South Australia	245,370	290,650	536,020	3,919	279,594	311,997	591,591	4,153
Western Australia	268,639	172,196	440,835	832	287,874	176,364	464,238	916
Tasmania	87,390	58,034	145,424	4,043	98,260	61,975	160,235	4,994
Northern Territory	637	802	1,439	147	810	880	1,690	158
Commonwealth	3,461,550	2,979,571	6,441,121	43,241	3,763,386	3,075,810	6,839,196	45,576

Australian Capital Territory figures are included in those shown for New South Wales.

TABLE IX

GENERAL PHARMACEUTICAL BENEFITS

Year.	Commonwealth Payments for each State per annum—Chemists and Doctors.								Amount of Patient Contribution.	Total Payment for Prescriptions.
	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Australian Capital Territory.	Total.		
	£	£	£	£	£	£	£	£	£	£
1948–49 ..	15,235	21,903	3,875	4,783	12,224	8,228	20	66,268	..	66,268
1949–50 ..	50,704	54,400	8,806	14,385	23,515	21,485	46	173,341	..	173,341
1950–51 ..	986,807	799,710	357,232	284,215	227,425	64,925	6,465	2,726,779	..	2,726,779
1951–52 ..	2,610,314	2,070,477	769,559	674,368	446,398	126,419	14,612	6,712,147	..	6,712,147
1952–53 ..	2,452,123	1,834,691	739,307	602,588	433,378	121,522	16,175	6,199,784	..	6,199,784
1953–54 ..	2,877,692	2,067,187	842,340	646,310	556,537	147,684	22,436	7,160,186	..	7,160,186
1954–55* ..	3,398,810	2,253,602	1,007,413	732,448	600,939	158,758	†	8,151,970	..	8,151,970
1955–56 ..	3,880,513	2,566,624	1,072,872	746,727	592,558	171,252	†	9,030,546	..	9,030,546
1956–57 ..	3,533,119	2,423,714	1,076,500	761,783	599,261	191,458	†	8,585,835	..	8,585,835
1957–58 ..	4,791,959	3,249,416	1,391,250	973,093	738,397	269,127	†	11,413,242	..	11,413,242
1958–59 ..	6,808,120	4,703,345	2,124,979	1,419,991	1,087,551	412,299	†	16,556,285	..	16,556,285
1959–60 ..	7,551,419	5,387,507	2,303,194	1,521,803	1,142,657	450,823	†	18,357,403	945,378	19 302,781

* Figures for the year 1954–55 and subsequent years, include payments made for the supply of Doctors Bag Emergency Supplies.

† Included in New South Wales total.

TABLE X

PHARMACEUTICAL BENEFITS

Payments to Hospitals, Bush Nursing Centres, Flying Doctor Services, &c.

Year.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Australian Capital Territory.	Total.
	£	£	£	£	£	£	£	£
1948–49	..	..	74,808	..	..	3,244	4,717	82,769
1949–50	..	..	86,542	10,777	11,177	14,917	7,935	131,348
1950–51	..	..	106,383	17,616	20,409	16,995	41,981	203,384
1951–52	400,000	..	91,834	21,106	26,303	9,085	66,940	615,268
1952–53	..	..	114,858	32,995	72,000	16,662	50,352	286,867
1953–54	252,339	431,451	91,920	68,172	78,360	58,643	77,562	1,058,447
1954–55	494,466	325,000	200,709	84,693	85,237	48,616	53,940	1,292,661
1955–56	448,606	332,949	279,073	58,764	124,942	30,022	74,573	1,348,929
1956–57	460,865	333,630	243,831	81,573	99,212	51,508	67,269	1,337,888
1957–58	499,980	378,941	272,791	61,964	125,486	48,000	110,340	1,497,502
1958–59	613,114	561,436	247,008	136,516	133,936	90,489	116,640	1,899,139
1959–60	730,430	702,165	383,427	188,965	182,697	115,752	100,611	2,404,045

The figures for the Australian Capital Territory represent payments in respect of bush nursing centres, the Royal Flying Doctor Service and other miscellaneous payments.

TABLE XI

PHARMACEUTICAL BENEFITS

Statement Showing Number of Prescriptions

Year.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Australian Capital Territory.	Total.
1948–49	66,480	97,347	18,235	20,139	42,518	35,904	96	280,719
1949–50	124,173	169,558	28,560	38,360	62,018	61,386	155	484,210
1950–51	1,365,080	1,166,562	529,194	340,642	260,997	87,309	8,838	3,758,622
1951–52	2,513,350	1,987,658	828,225	603,912	428,542	137,282	16,699	6,515,668
1952–53	2,649,212	2,001,481	938,803	628,787	456,187	160,249	19,218	6,853,937
1953–54	2,752,330	2,033,299	940,287	635,715	487,478	174,602	20,710	7,044,421
1954–55	3,721,618	2,571,753	1,203,062	844,569	647,860	212,525	*	9,201,387
1955–56	3,744,722	2,448,144	1,145,473	797,452	633,937	201,162	*	8,970,890
1956–57	3,650,232	2,446,882	1,211,152	866,343	655,897	214,933	*	9,045,439
1957–58	4,213,538	2,872,602	1,314,222	931,605	710,921	266,558	*	10,309,446
1958–59	5,392,570	3,606,307	1,758,652	1,217,100	928,896	349,643	*	13,253,168
1959–60	6,846,804	4,622,717	2,157,586	1,482,298	1,081,810	433,127	*	16,624,342

* Included in New South Wales total.

TABLE XII

PENSIONER PHARMACEUTICAL BENEFITS

Payments Per Annum for Each State

Year.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Australian Capital Territory.	Total.
	£	£	£	£	£	£	£	£
1951–52..	186,814	60,721	40,320	32,988	29,448	6,980	361	357,632
1952–53..	364,240	139,166	96,613	65,185	48,590	14,149	715	728,658
1953–54..	502,402	200,163	135,990	88,424	62,967	19,711	1,123	1,010,780
1954–55..	618,904	262,807	188,142	117,694	82,304	24,985	*	1,294,836
1955–56..	708,947	313,659	223,177	137,144	95,553	29,480	*	1,507,960
1956–57..	825,873	377,629	278,510	162,155	113,632	35,301	*	1,793,100
1957–58..	965,308	454,659	335,158	182,870	139,282	45,968	*	2,123,245
1958–59..	1,137,894	525,080	394,421	227,908	175,557	56,513	*	2,517,373
1959–60..	1,576,522	789,688	539,650	331,406	251,829	85,128	*	3,574,223

* Included in New South Wales total.

TABLE XIII

Number of Prescriptions

Year.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Australian Capital Territory.	Total.
1951–52..	879,124	291,465	175,939	143,945	128,498	34,900	1,699	1,655,570
1952–53..	1,344,682	547,531	373,990	237,036	206,790	53,058	2,860	2,765,947
1953–54..	1,651,195	716,993	479,970	316,738	215,884	68,560	4,211	3,453,551
1954–55..	2,063,013	901,042	673,933	403,517	286,274	90,854	*	4,418,633
1955–56..	2,465,906	1,090,980	776,271	470,202	327,606	104,048	*	5,235,013
1956–57..	2,541,147	1,192,500	868,092	512,063*	354,181	112,963	*	5,580,946
1957–58..	2,895,952	1,347,137	980,940	548,615	407,650	132,920	*	6,313,214
1958–59..	3,103,319	1,400,213	1,088,058	614,589	463,003	152,396	*	6,821,578
1959–60..	3,595,305	1,703,010	1,258,485	729,967	560,191	182,010	*	8,028,968

* Included in New South Wales total.

TABLE XIV

FREE MILK FOR SCHOOL CHILDREN

State.	* Number of Children.		Payments.	
	As at 30th June, 1959.	As at 30th June, 1960.	1958–59.	1959–60.
			£	£
New South Wales	554,700	564,740	1,191,548	1,286,672
Victoria	370,000	420,000	784,063	910,000
Queensland	229,000	239,420	476,000	480,246
South Australia	155,000	170,000	237,000	275,000
Western Australia	114,500	124,000	183,324	229,872
Tasmania	48,200	55,000	183,792	156,358
Australian Capital Territory ..	8,000	9,000	19,104	22,874
Northern Territory	5,300	5,880	2,799	10,493
Total	1,484,700	1,588,040	3,077,630	3,371,515

* These figures represent the number of school children eligible to participate in the Free Milk Scheme.

TABLE XV

States Grants (*Mental Institutions*) *Act* 1955

STATES' EXPENDITURE AND COMMONWEALTH GRANTS

——	1955–56.	1956–57.	1957–58.	1958–59.	1959–60.	Total.
	£	£	£	£	£	£
New South Wales—						
State Expenditure ..	626,290	1,150,666	972,455	590,492	1,077,181	4,417,084
Commonwealth Grant	208,763	383,555	324,152	196,831	359,060	1,472,361
Victoria—						
State Expenditure ..	1,337,239	1,581,639	1,636,095	1,858,754	1,554,812	7,968,539
Commonwealth Grant	445,746	527,213	545,365	619,585	518,271	2,656,180
Queensland—						
State Expenditure ..	199,764	264,203	342,311	355,536	223,839	1,385,653
Commonwealth Grant	66,588	86,068	114,104	118,112	74,613	459,485
South Australia—						
State Expenditure ..	36,735	385,400	456,476	366,983	275,310	1,520,904
Commonwealth Grant	12,245	128,467	152,158	122,328	91,770	506,968
Western Australia—						
State Expenditure ..	29,953	155,565	87,709	51,631	110,397	435,255
Commonwealth Grant	9,985	51,855	29,236	17,210	36,799	145,085
Tasmania—						
State Expenditure ..	89,467	206,923	274,151	137,677	200,984	909,202
Commonwealth Grant	29,822	68,974	91,384	45,892	66,995	303,067
Total—						
State Expenditure ..	2,319,448	3,744,396	3,769,197	3,361,073	3,442,523	16,636,637
Commonwealth Grant	773,149	1,248,132	1,256,399	1,120,358	1,147,508	5,545,546

DIVISION OF TUBERCULOSIS

An intensive campaign against tuberculosis was begun in 1948 following an agreement between the Commonwealth and State Governments. This "Arrangement", as it was called, made the fullest possible provision for the diagnosis, treatment and control of tuberculosis without additional cost to the States and, almost without exception at no charge to the patient.

As a result of the agreement, the Commonwealth has paid for all expenditure on new clinics and hospitals, and for equipment of every kind. It has also paid for the increased maintenance costs of the campaign, such as expenditure on mass x-ray surveys, clinics, tuberculosis hospitals and sanatoria.

The Commonwealth is also responsible for the payment of Tuberculosis Allowances, a scheme which was introduced in July, 1950.

The allowances are subject to a liberal means test and are paid to sufferers who are infectious and who co-operate fully with the tuberculosis control authorities.

The following tables give details of the payments made by the Commonwealth under the Arrangement:—

REIMBURSEMENTS TO STATES

TABLE I

Reimbursement of Capital Expenditure

State.	1949–50 to 1957–58.	1958–59.	1959–60.	Total.
	£	£	£	£
New South Wales	4,124,226	371,624	215,451	4,711,301
Victoria	1,431,843	44,444	25,895	1,502,182
Queensland	3,568,058	664,213	353,188	4,585,459
South Australia	483,420	69,754	89,816	642,990
Western Australia	1,869,101	256,530	23,561	2,149,192
Tasmania	233,820	4,497	21,325	259,642
Total	11,710,468	1,411,062	729,236	13,850,766

TABLE II

Reimbursement of Maintenance Expenditure

State.	1949–50 to 1957–58.	1958–59.	1959–60.	Total.
	£	£	£	£
New South Wales	8,859,408	1,789,097	1,400,000	12,048,505
Victoria	8,262,177	1,072,637	1,121,092	10,455,906
Queensland	3,878,200	800,142	547,749	5,226,091
South Australia	2,014,980	440,340	634,967	3,090,287
Western Australia	3,074,642	565,890	520,455	4,160,987
Tasmania	1,261,163	176,000	151,993	1,589,156
Total	27,350,570	4,844,106	4,376,256	36,570,932

TUBERCULOSIS ALLOWANCES

TABLE III

Expenditure

State.	1950–51 to 1957–58.	1958–59.	1959–60.	Total.
	£	£	£	£
New South Wales	5,271,709	363,863	358,178	5,993,750
Victoria	3,412,481	224,085	212,197	3,848,763
Queensland	1,786,982	206,185	201,420	2,194,587
South Australia	1,271,227	132,126	123,343	1,526,696
Western Australia	843,721	78,084	70,230	992,035
Tasmania	630,502	58,266	60,105	748,873
Total	13,216,622	1,062,609	1,025,473	15,304,704

TABLE IV

Variations in Rates of Allowances

Category.	Original Rate 13.7.50.	Rate as at 1.7.58.	Rate from 8.10.59.
	£ s. d.	£ s. d.	£ s. d.
1. Married person rate	6 10 0	10 7 6	11 2 6
2. Sufferer without dependants—			
(*a*) Whilst not in hospital	3 12 6	6 10 0	6 17 6
(*b*) Whilst receiving treatment in an approved institution free of charge	2 12 6	4 7 6	4 15 0
3. Sufferer with no dependent wife but with a dependent child or children	3 12 6	6 10 0	6 17 6
4. Each dependent child of a sufferer	0 9 0	0 10 0	0 10 0

N.B.—The means test was relaxed from 14.10.54 when the allowable income was raised for sufferers without dependent wives from £2 to £3 10*s*. per week and for married sufferers from £4 to £7 per week.

The weekly payment of 10s. for each dependent child is in addition to child endowment.

On 30th June, 1960, the rates were as at 8.10.59.

The number of persons receiving allowances has declined from 4,427 in June, 1956, to 2,211 at 30th June, 1960.

Incidence of tuberculous infection: The rate in school children of naturally positive reactors to tuberculin continues to fall. It is becoming apparent, especially in Queensland, to a less extent in Western Australia and in some areas of New South Wales, that a positive reaction to 10 Tuberculin units (0.1 cc of 1 in 1,000 O.T., given intradermally) or to the Heaf Multiple Puncture Test, does not necessarily indicate tuberculous infection.

In these parts there is evidence of cross-sensitization to mycobacteria other than the mammalian tubercle bacillus. This is suggested by the fact that, although the reactor rate to the Mantoux 10 T.U. or the Heaf test is relatively high in these areas, the incidence of clinical tuberculosis in school children and young adults is very low. Further, in Queensland and in Western Australia, pulmonary disease associated with "atypical" or "anonymous" mycobacteria is being found. These mycobacteria also appear in the Northern Territory to be a factor in cross-sensitization of the skin to tuberculin and to be associated with disease in human beings.

Non-specific sensitization does not seem to be of any significance in Tasmania, Victoria, or the southern areas of South Australia.

The trend in tuberculin testing, especially in areas where cross-sensitization exists, will be to rely on carefully measured doses of P.P.D. given intradermally (Mantoux method) and carefully calibrated readings of the positive reactions. Reactions of 10 mm and more to 5 T.U. of P.P.D-S could be regarded as indicating infection by the mammalian tubercle bacillus. It is hoped that the preparation of P.P.D. antigens from atypical mycobacteria, and their use in intradermal testing, will help in the clarification of cross-sensitization phenomena.

In future, the Tuberculin test will be used more and more to indicate those children and young adults who would most likely benefit from a preventive course of Isoniazid. Such chemoprophylaxis is expected to reduce the incidence of disease.

Tuberculin Skin Tests of School Children—Results

(excluding those previously vaccinated with B.C.G.)

State (and Method).	1958–59.		1959–60.	
	Number tested and read.	Per cent. Positive.	Number tested and read.	Per cent. Positive.
New South Wales—				
(Mantoux 10 T.U)..	95,207	15.6	156,664 ..	
			Australian	16.3
			Migrant..	24.05
Victoria—				
(Mantoux 10 T.U)..	(i) *Metropolitan*—		(i) *Metropolitan*—	
	24,278	6.5	30,470	5.2
	(ii) *Rest of State*—		(ii) *Rest of State*—	
	19,991	5.7	12,542	4.2
Queensland—				
(Heaf)	Mostly aged 12–14— Brisbane, Cairns, Doomadgee (all ages), Ayr (7–15), Roma, Rockhampton—			
	4,601	41.7		
	(Rockhampton) ..	92.9		
(Mantoux) ..	PPD–S 4,024	8.6	39,945 persons Mantoux tested in 1959–60 but details not available.	
	PPD–B { Rockhampton	51.9		
	PPD–B { Doomadgee ..	18.7		
	3,475 (all ages) ..	34.1		

Tuberculin Skin Tests of School Children—Results

(excluding those previously vaccinated with B.C.G.—*continued*

State (and Method).	1958–59.		1959–60.	
	Number tested and read.	Per cent. Positive.	Number tested and read.	Per cent. Positive.
Q'land (Continued).				
	PPD–F 254 } Cairns	13.8		
	PPD–N 252 } Cairns	0.8		
	PPD–Y 255 } Cairns	14.1		
	PPD–Avian 578 Brisbane	27.1		
	(S=standard mammalian; B=Battey Bacillus (Georgia, U.S.A.); N=Nocardia intracellularis; Y=Yellow bacillus (Chicago).			
South Australia— (Mantoux 10 T.U)..	(i) *Metropolitan*— 6,608		(i) *7th Grade Metropolitan*— 6,193 Australian	3.4
	Australian ..	4.7	1,366 Migrant ..	10.1
	Migrant ..	18.1		
	(ii) *Country*— 9,045		(ii) *All Grades Country*— 12,236 Australian	2.1
	Australian ..	2.9		
	Migrant ..	6.2	2,007 Migrant ..	5.9
Western Australia— (Heaf)	No epidemiological survey during the period	..	*Age* 3–17 *and over*— 6,578	10.0
Tasmania— (Mantoux 10 T.U)..	Primary and secondary, all grades 5,121	2.5	1,753	2.2

Increase in notifications: The number of cases reported during the year 1st July, 1959, to 30th June, 1960, showed an increase—3,983 as compared with 3,652 for the previous twelve months. Most of this increase was in New South Wales and Victoria.

Notifications in the different States were as follows:—

State.	1958–59.		1959–60.	
	Number.	Rate per 100,000.	Number.	Rate per 100,000.
New South Wales	1,178	31.6	1,419	37.4
Victoria	788	28.4	897	31.5
Queensland	792	55.6	788	54.4
South Australia	285	31.3	285	30.5
Western Australia	389	54.5	402	55.3
Tasmania	164	46.4	135	37.7
Northern Territory	46	127.8	46	134.3
Australian Capital Territory ..	10	23.3	11	22.0
Totals	3,652	36.6	3,983	39.1

TUBERCULOSIS STATISTICS—AUSTRALIA

New Cases Notified—Source of Report

1958-59 and 1959-60

Source.	Number and Percentage.			
	1958–59.	%	1959–60.	%
New South Wales—				
Private Practitioners	253	21	323	23
Chest Clinics	156	13	159	11
Other Hospitals	216	18	252	18
Repatriation	25	2	47	3
Mass X-ray Surveys	348	30	416	30
Other	95	8	92	7
Death Certificates	80	7	120	8
Sanatoria	5	1	..	..
	1,178	100	1,409	100
Victoria—				
State Clinics and Institutions	317	40	340	38
Mass X-ray Surveys	147	19	221	24
Public Hospitals	51	6	33	4
Private Practitioners	173	22	224	25
Repatriation	78	10	71	8
Death Certificates	22	3	8	1
	788	100	897	100
Queensland—				
Chest Clinics	449	57	457	58
General Hospitals	189	24	145	18
Sanatoria	63	8	49	6
Private Practitioners	42	5	85	11
Repatriation	24	3	39	5
Thursday Island	5	.6	4	1
Post Mortem examinations	9	1	9	1
Cherbourg	3	.4	..	..
Palm Island	4	.5	..	..
Death Certificates	4	.5	..	..
	792	100	788	100
Australian Capital Territory—				
Private Practitioners	8	80	4	36
Hospitals (Routine Chest X-rays)	2	20	2	18
Routine employment X-rays	..	..	4	36
Routine Migrant Arrivals	..	..	1	10
	10	100	11	100

TUBERCULOSIS STATISTICS—AUSTRALIA—*continued*

NEW CASES NOTIFIED—SOURCE OF REPORT—*continued*

1958-59 and 1959-60—*continued*

Source.	Number and Percentage.			
	1958–59.	%	1959–60.	%
South Australia—				
Chest Clinics	64	22	46	16
Mass X-ray Surveys: Metropolitan	74	26	70	25
Rural	23	8	22	8
Hospitals, Metropolitan	42	15	58	21
Sanatoria	19	7	8	1
Repatriation	13	5	4	3
Private Practitioners	28	10	24	9
Children's Hospitals	18	6	49	17
Other	3	1	..	..
Government Statistician	1	..	..	..
	285	100	281	100
Western Australia—				
Mass X-ray Surveys	107	27	100	25
Private Practitioners (via P.C.C.)	59	15	62	15
Private Practitioners	37	10	40	10
Repatriation	23	6	28	7
Other Hospitals	45	12	26	6
Transfers In	19	5	15	4
Chest Clinics	98	25	125	31
Post Mortem examinations	1	..	4	1
Sanatoria	..	..	2	1
	389	100	402	100
Tasmania—				
Private Practitioners	20	12	29	22
Chest Clinics	25	15	18	13
Repatriation	7	4	5	4
Mass X-ray Surveys	67	41	37	28
G.M.O.	..	..	1	..
Public Hospitals	45	28	44	33
	164	100	134	100
Northern Territory—				
Health Department	46	..	47	..
	46	..	47	..

TUBERCULOSIS STATISTICS 1958-59

New Cases Notified

Age Group.	New South Wales.		Victoria.		Queensland.		South Australia.		Western Australia.		Tasmania.		Northern Territory.		Australian Capital Territory.		Commonwealth.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
0– 4 ..	13	20	23	26	34	35	6	7	3	3	4	1	1 (1)	2 (2)	..	..	84 (1)	94 (2)
5– 9 ..	6	2	12	12	5	5	5	6	..	3	..	2	2 (2)	..	..	..	30 (2)	30
10–14 ..	4	3	4	11	4	4	2	2	..	..	1	4	..	..	..	1	15	25
15–19 ..	15	15	15	19	9	9	4	2	..	6	5	9	4 (4)	1 (1)	..	..	52 (4)	61 (1)
20–24 ..	33	29	26	32	12	16	11	9	7	6	9	11	1 (1)	5 (5)	1	..	100 (1)	108 (5)
25–29 ..	48	41	36	39	18	20	11	9	11	8	4	7	..	2 (2)	..	..	128	126 (2)
30–34 ..	57	59	48	45	40	27	11	12	19	13	13	6	6 (3)	6 (6)	..	..	194 (3)	168 (6)
35–39 ..	61	37	34	21	40	29	20	9	29	11	12	3	..	2 (2)	2	..	198	112 (2)
40–44 ..	74	26	46	15	41	21	22	12	21	8	5	5	1	1 (1)	1	..	211	88 (1)
45–49 ..	99	31	42	10	41	15	11	6	32	10	8	6	..	..	2	..	235	78
50–54 ..	80	36	51	11	58	13	21	6	34	10	8	5	3	1 (1)	..	..	255	82 (1)
55–59 ..	83	19	49	12	61	10	15	5	43	6	10	2	1	1 (1)	..	..	262	55 (1)
60–64 ..	72	22	37	5	55	12	11	6	30	8	7	1	3 (3)	2 (2)	2	..	217 (3)	56 (2)
65–69 ..	57	15	29	12	48	10	13	3	19	3	6	1	..	..	..	..	172	44
70–74 ..	49	10	20	8	37	5	9	3	15	7	3	1	1 (1)	..	1	..	135 (1)	34
75 and over ..	44	14	28	8	29	12	9	7	21	1	3	2	..	..	..	..	134	44
Not stated ..	3	1	1	1	9	8	..	..	2	..	..	..	..	..	..	..	15	10
Total ..	798	380	501	287	541	251	181	104	286	103	98	66	23 (15)	23 (23)	9	1	2,437 (15)	1,215 (23)
	1,178		788		792		285		389		164		46 (38)		10		3,652 (38)	

Figures in brackets refer to Aboriginals.

TUBERCULOSIS STATISTICS 1959-60

New Cases Notified

Age Group.	New South Wales.		Victoria.		Queensland.		South Australia.		Western Australia.		Tasmania.		Northern Territory.		Australian Capital Territory.		Commonwealth.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
0– 4 ..	20	29	21	26	11	7	16	14	2	5	1	3	1	..	..	..	72	84
5– 9 ..	12	9	19	7	3	4	8	9	4	4	4	1	..	..	..	..	50	34
10–14 ..	4	6	15	13	1	5	4	2	2	1	5	3	..	..	..	..	31	30
15–19 ..	11	13	19	22	3	10	1	6	3	4	4	5	2 (2)	..	1	1	44 (2)	61
20–24 ..	37	23	27	21	8	16	7	8	10	4	9	10	1 (1)	3 (3)	1	..	100 (1)	85 (3)
25–29 ..	32	31	36	40	17	20	6	11	9	16	5	4	7 (5)	2 (2)	1	..	113 (5)	124 (2)
30–34 ..	83	43	35	35	37	18	15	9	13	11	5	5	3 (1)	1 (1)	1	1	191 (1)	124 (1)
35–39 ..	86	47	59	43	44	21	11	10	19	12	9	10	2 (1)	1	1	..	231 (1)	144
40–44 ..	79	41	39	24	51	22	17	1	19	8	4	3	..	1 (1)	1	..	211	100 (1)
45–49 ..	97	48	45	22	49	23	21	9	33	10	7	2	2 (2)	4 (2)	1	..	255 (2)	118 (2)
50–54 ..	118	33	44	20	59	16	23	7	36	8	6	2	2 (1)	..	1	..	289 (1)	86
55–59 ..	108	19	61	15	55	13	15	1	42	4	6	1	1 (1)	..	..	..	288 (1)	53
60–64 ..	83	22	43	17	73	9	14	4	29	3	4	3	5 (3)	2 (2)	..	..	251 (3)	60 (2)
65–69 ..	82	20	44	12	47	18	7	5	31	6	3	1	2 (2)	..	1	..	217 (2)	62
70–74 ..	68	23	34	9	45	13	4	2	21	7	6	2	3 (2)	1 (1)	..	..	181 (2)	57 (1)
75 and over ..	65	21	21	8	39	9	12	6	18	7	..	2	..	..	..	..	155	53
Not stated ..	5	1	1	..	10	12	..	..	1	..	..	..	..	..	..	..	17	13
Total..	990	429	563	334	552	236	181	104	292	110	78	57	31 (21)	15 (12)	9	2	2,696 (21)	1,287 (12)
	1,419		897		788		285		402		135		46 (33)		11		3,983 (33)	

Figures in brackets refer to Aboriginals.

Case finding by x-rays: Sensationally presented news items, newspaper articles and correspondence regarding alleged radiation hazards from chest x-ray surveys had, in 1958 and 1959, an unfavourable effect on attendances in some areas, especially in the larger cities. It is an established fact that radiation from a modern mirror camera miniature chest x-ray unit fitted with protective devices is negligible. Therefore the statement dealing with mass surveys in the interim report of the National Radiation Advisory Committee in July, 1959, was welcomed by public health authorities. The relevant paragraphs are as follows:—

"The National Radiation Advisory Committee re-affirms its concurrence with the policy of the authorities in Australia concerned with the control of human tuberculosis, namely to continue, with modern technique and equipment, mass miniature radiographic surveys to meet the requirements of public health.

In this connection, it should be noted that the United Kingdom Committee on Radiological Hazards to Patients has recently reported on its study of mass miniature radiography used in the control of tuberculosis in the United Kingdom. That committee concluded that the practice is of great value and, when properly employed, makes a negligible contribution to the total radiation to which the population is exposed."

Non-selective surveys: Victoria, the sole State relying on the voluntary system, continues to show the lowest coverage and the lowest yield. In the 55 and over age groups the rate of new cases rises sharply. However, the attendances of the eligible population in the 50 and over groups greatly drop. It is evident that most of the unknown cases would be found in these *older* people. Some means should be found of getting these people to attend. When the coverage by non-selective surveys is poor, concentration on the examination of special groups likely to give a high yield is indicated. In Victoria, in particular, a scheme for the routine x-ray examination of In-patients and Out-patients of hospitals urgently needs implementation. This could be expected to be fruitful since many people of 50 and over who do not attend the voluntary surveys would thus be x-rayed.

In New South Wales, attendances in the metropolitan surveys have noticeably diminished. It again appears that the principal decrease is in the 50 and over age groups, those in fact in which the disease has its highest incidence.

Tasmania continues to have the most effective and complete coverage. This has resulted in a great reduction in new cases among special groups which initially showed a high incidence, e.g., in-patients and out-patients, inmates of mental hospitals and gaols and residents in old people's homes. The only special group now relatively productive of new cases is that comprised of contacts, mostly younger persons. The climatic conditions of Tasmania afford greater opportunities for massive infection. However, disease prevention in this group now appears feasible as a result of the prophylactic use of Isoniazid.

The first compulsory survey of Adelaide, begun in March, 1952, was completed only in February, 1959. The first compulsory survey of country areas in South Australia was almost completed on 30th June, 1959.

Selective surveys (special groups): The most productive groups for new cases are, in most States, hospital in-patients and out-patients, physician referrals, self-referrals, the inmates of mental hospitals and gaols, contacts and residents of old people's homes.

NON-SELECTIVE COMMUNITY X-RAY SURVEYS

State.	1958–59.				1959–60.			
	Number X-rayed.	Coverage.	Yield.		Number X-rayed.	Coverage.	Yield.	
			Number of Active Cases.	Rate per 1,000.			Number of Active Cases.	Rate per 1,000.
		Per cent.				Per cent.		
New South Wales—	602,303		270	0.45				
(i) Metropolitan	..	Average 66	..	..	302,371	Average 56	155*	0.51*
(ii) Country	..	Average 100	..	..	253,836	Average 90–100	67†	0.26†
Victoria—								
(i) Metropolitan	130,668	Not Available	31	0.24	127,276	28	30	0.23
(ii) Country	105,641	Not Available	40	0.38	134,473	38.7	39	0.29
Queensland	..	..	..	..	123,436‡	Not Available	74	0.6
South Australia	111,318	95	112	1.0	109,926	90	67	0.61
Western Australia	135,283	Metropolitan 75 Country 80–100	116	0.7	60,719	70–75	54	0.89
Tasmania	120,823	65–72	68	0.56	112,568	94–100	51	0.45
Northern Territory (August and December, 1959)								
White	..	..	..	..	9,730	82	8	0.82
Coloured	..	..	..	..	1,038		0	..
Full Blood Aboriginals ..	..	..	..	..	8,092		11	1.36

* Excludes Hornsby. † Incomplete. ‡ First compulsory survey, Northern Queensland.

One feature of mass surveys important in the control of tuberculosis, but not shown in the above table, is the discovery of persons who have healed or apparently healed tuberculosis. As these persons have a much greater tendency to develop active tuberculosis than those with normal chest radiographs, they require regular x-ray supervision. Such supervision will result in the detection of any reactivation of the disease. Further, it appears likely that chemoprophylaxis, administration of Isoniazid to some of these people, will reduce any tendency to reactivation.

Routine chest radiography of hospital patients: This has to be distinguished from the x-ray examination of patients referred on account of chest symptoms.

(i) *New South Wales.*—Routine miniature chest films were taken of in-patients at the three principal teaching hospitals in Sydney, Royal Prince Alfred, Royal North Shore and St. Vincent's, and of in-patients at St. George's District and Canterbury District Hospitals. The coverage of in-patients is good at Parramatta District Hospital. A miniature apparatus was used for ante-natal patients at the Royal Women's Hospital, Paddington. A similar service was in operation at the Lidcombe State Hospital and Home where the coverage was complete. Some of the country base hospitals endeavour to x-ray routinely on large film as many in-patients as possible. However, accurate statistics regarding activities in this field were not available.

(ii) *Victoria.*—The only large hospital in which a miniature apparatus was in use for routine examination of patients was at the Alfred, Melbourne. However, only a small proportion of out-patients were x-rayed.

Ante-natal patients attending the following hospitals had routine chest x-ray examination on large film:

The Royal Women's, Queen Victoria Memorial, Box Hill and District, Footscray District, Latrobe Valley and Gippsland Base.

Statistics are not available, except for the Royal Women's Hospital.

Victoria, with its low coverage of the community by its non-selective mass surveys would benefit considerably from a comprehensive system of routine chest x-ray examination of hospital patients. This is necessary especially in the case of older patients.

(iii) *Queensland.*—During 1958 over 70 per cent. of out-patients and nearly 30 per cent. of in-patients had routine chest radiographs on miniature apparatus at the two largest general hospitals in Brisbane (North and South). 21,173 persons were x-rayed. 40 active cases were found, a rate of 1.9 per 1,000. This relatively high rate was to be expected in a city which has not yet had its first comprehensive community survey on a compulsory basis. Apparatus was available at the hospitals in Cairns, Townsville, Rockhampton and Toowoomba for routine admission radiography, but the results have not been made available.

(iv) *South Australia.*—All new patients at the Queen Victoria Maternity Hospital in Adelaide were x-rayed but the results have not been reported.

(v) *Western Australia.*—This method of case-finding was first adopted in Australia at the Perth General Hospital in 1947. It was most fruitful in its yield of active cases. However, during the last few years with the extension of compulsory community surveys, the hospitals in Western Australia have done much less routine admission radiography.

(vi) *Tasmania.*—The procedure was used in seven hospitals, including those in Hobart and Launceston. Coverage of in-patients at the Royal Hobart Hospital was about 90 per cent. in 1958. In that year at this hospital, 7,824 miniature films were routinely taken and six new active cases discovered, a rate of 0.77 per 1,000 (higher than the non-selective surveys for the same period).

OTHER GROUPS

	1958–59.			1959–60.		
	Number X-rayed.	Number Active Cases.	Rate per 1,000.	Number X-rayed.	Number Active Cases.	Rate per 1,000.
(1) New South Wales—						
Mental Hospitals	1,248	Nil	..	5,970	18	2.88
Men's Hostel	407	7	1.7	..	..	..
Homes for Aged	430	Nil	..	..	..	..
Positive tuberculin reactors (school children)	..	28	..	163,475	13	0.08
Industry	..	..	..	38,446	29	0.75
Food handlers	..	..	..	14,789	11	0.74
Hairdressers	..	..	..	1,045	1	0.95
Gaols	..	..	..	1,458	2	1.64
Self-referrals	..	..	..	4,918	15	3.05
(2) Victoria—						
Pentridge Gaol	732	1	1.4	768	Nil	..
Mental Hospitals	6,171	5	0.8	8,073	24	2.97
Homes for Aged	1,303	6	4.7	..	..	..
Pensioners	1,821	1	0.54	1,708	2	1.17
Public Servants	39,423	26	0.66	24,751	7	0.28
Hospital O.P. or I.P. routine X-ray—						
Alfred O.P.	..	..	..	7,047	18	2.55
R.W.H.	..	..	..	5,935	2	0.33
Industry	56,218	14	0.24	45,536	13	0.28
Industry, Metropolitan	..	..	..	35,130	3	0.085
Industry, Country	..	..	..	10,406	10	0.96
Hairdressers	..	..	..	7,165	9	1.25
Hotel Trade	..	..	..	985	11	11.1
(3) Queensland—						
Industry (private)	350	2	5.7	(*a*)		
Works Council	283	1	3.53			
Public Servants	1,326	2	1.5			
Two mental hospitals	2,191	19	8.7			
Other special groups	16,281	32	1.96			
(4) South Australia—						
Migrant arrivals	(*b*)			4,233	3	0.71
Self-referrals				5,077	7	1.38
Doctor referrals				2,509	6	2.35
Contacts				559	1	1.79
Public Servants				1,942	..	..
Pre-employment or routine employment X-rays				601	1	1.65
Teachers' College				1,703	..	..
University Students				763	..	..

(*a*) In 1959–60 a total of 138,062 persons were X-rayed but details are not available. (*b*) Figures not reported.

OTHER GROUPS—*continued*

	1958–59.			1959–60.		
	Number X-rayed.	Number Active Cases.	Rate per 1,000.	Number X-rayed.	Number Active Cases.	Rate per 1,000.
(5) Western Australia—						
Hospital O.P. or I.P. routine X-ray				6,341*	11	1.73
Mental hospital				1,615	2	1.24
Contacts				928	Nil	..
Positive tuberculin reactors		(*a*)		650	1	1.5
Self-referrals				14,267	8	0.56
Doctor referrals				12,923†	39	3.0
Public Servants				2,023	1	0.49
Armed services, N.S.T., &c.				4,032	2	0.5
(6) Tasmania—						
Hospital O.P. or I.P. routine X-ray				5,690	3	0.53
Mental hospital		(*b*)		751	Nil	..
Contacts				1,700	6	3.53
Homes for Aged				619	Nil	..
Armed services				655	Nil	..
(7) Australian Capital Territory—						
Hospital O.P. or I.P. routine X-ray				3,424	2	0.68
Migrant arrivals				181	1	5.52
Self-referrals				397	Nil	..
Doctor referrals		(*c*)		841	2	2.4
Contacts				21	Nil	..
Public Servants				1,256	1	0.8
Armed services				513	Nil	..
Pre-employment or routine employment X-rays				569	3	5.3

(*a*) Only inmates of Homes for Aged were examined in 1958. (*b*) Survey of inmates of Homes for the Aged, Hobart Gaol and Lachlan Park Mental Hospital carried out yearly since 1949. Yield of cases used to be considerable but none were discovered during 1958–59. (*c*) Nil.

* Includes also large film referrals—Fremantle. † Perth Clinic, Fremantle Clinic and country.

Treatment facilities: Beds available for treatment of tuberculosis were, on 30th June, 1960, approximately 4,368 (Repatriation 981, States approximately 3,387). Beds for tuberculous patients in State Mental Hospitals are not included in the above figure.

Average length of stay.	Hospital.	Sanatorium.
	Weeks.	Weeks.
New South Wales	14	14
Victoria	12	19
Queensland	16	16
South Australia	..	17
Western Australia	28	..
Tasmania	..	18

B.C.G. vaccination: During the years 1958-59 and 1959-60 school children were given B.C.G. in Victoria, Queensland and to a less extent in South Australia. Elsewhere B.C.G. is given to those at risk. It is given to all natives in the Northern Territory who do not react to tuberculin.

State.	Number given B.C.G., 1959–60.	Conversion rate 2–3 months.
		%
New South Wales ..	129 (Department P.H. only)	91
Victoria	43,223 (including 38,644 school children) ..	91
Queensland ..	17,553	Not reported
South Australia ..	11,111 (including 10,911 school children) ..	97
Western Australia ..	382	95
Tasmania	563	98

Deaths: The downward trend in the death rate continues, but to a less extent.

The following tables compare with rates of 6 for 1957 and 7.6 for 1956. It is highest for males in 50 and over age groups (over 70 per cent. of all deaths) and for females between 35 and 45 years. Deaths in males outnumber those in females by approximately three to one.

State.	1958.		1959.	
	Number.	Rate per 100,000.	Number.	Rate per 100,000.
New South Wales	220	5.9	224	5.9
Victoria	163	5.8	153	5.3
Queensland	83	5.7	78	5.4
South Australia	54	5.9	47	5.0
Western Australia	28	3.9	24	3.3
Tasmania	27	7.9	19	5.3
Northern Territory	1	4.8	4	19.6
Australian Capital Territory ..	..	..	..	..
	576	5.7	549	5.4

IMMIGRATION MEDICAL SERVICE

The Department continued to conduct the hospitals of the Immigration Medical Service in migrant reception centres controlled by the Department of Immigration.

Six hospitals with 350 beds, cots and bassinettes were in use at the commencement of the period under review. Scheyville reverted to a first aid post in July, 1959, and Greta closed in January, 1960, thus reducing the number of beds to 280.

The number of migrants accommodated in the centres increased from 3,869 in July, 1958, to 4,332 in June, 1959, and in June, 1960, the number had fallen to 3,110.

No births were recorded in centre hospitals but 223 babies were born in local public hospitals to centre residents.

A total of 5,908 in-patients were treated, covering 36,776 bed days. Included in this figure were 1,473 cases of infectious diseases. Out-patient treatments numbered 110,900 and 6,912 immunizations were effected. Minor surgery was carried out in three centres and a total of 228 operations were performed.

Staff figures at the commencement and end of the period were—

—	1st July, 1958.	30th June, 1960.
Medical Officers	2	1
Matrons and Sisters	17	11
Male Orderlies	4	..
Female Orderlies	44	28
Other	51	35

NATIONAL FITNESS MOVEMENT

ADMINISTRATION AND FINANCE

The administration of the National Fitness Movement followed the same pattern as in previous years, with the Commonwealth allocating a grant of £72,500 per annum to State National Fitness Councils, State Education Departments and six Universities, one in each State.

There was an increase in some State Government grants for 1958. In New South Wales the State grant increased by £11,519 to bring the total to £86,538. The State grant in South Australia was increased by £375 to £6,125 and early in 1959 the State Government allotted a yearly increase of £1,000 to the State National Fitness Council to a maximum State grant of £10,000.

In Tasmania a change in administration occurred, with the transfer of control of the State National Fitness Council from the Minister for Education to the Minister for Public Health Services.

AUSTRALIAN CAPITAL TERRITORY

In the Australian Capital Territory, the policy of assisting the development of youth centres was continued and in 1958 a special grant of £1,700 was allocated from accumulated balances in the A.C.T. National Fitness Fund towards the cost of youth buildings at two parish youth centres. This brought the number of Church youth centres in the A.C.T. assisted from the National Fitness Fund to four. In addition, a special grant was made to Reid Y.M.C.A. for a central recreation building and assistance was given towards the building of Legacy House.

STATE NATIONAL FITNESS COUNCILS

State Councils continued their activities in the field of Youth Leadership Training assistance to youth and amateur sports organizations, the development of national fitness camps and youth hostels, and assistance in the conduct of holiday play centres.

TRAINING OF VOLUNTARY LEADERS

During 1958, 134 training courses of various kinds ranging in length from week-end courses to full-time courses of a fortnight, or weekly session courses up to fourteen weeks, were conducted by State Councils in all States. Courses were held at National Fitness Camps, at National Fitness Head-quarters in the capital cities; also in the suburbs and country centres. A total of 7,367 leaders was trained in these courses. The activities offered included youth leadership, camp leadership, recreation and sports activities of all kinds and youth club management.

NATIONAL FITNESS CAMPS

During 1958 nineteen National Fitness Camps were in operation, with two further camps operated solely by State Education Departments, one in Tasmania and the other in Western Australia. A total of 442 youth groups used these camps during 1958, recording 21,797 enrolments.

Extensions were made at the two Victorian camps, Mount Evelyn and Anglesea; buildings were replaced at the Burleigh Heads Camp in Queensland, and further development was carried out at a new seaside camp site at Sorrento, in Western Australia.

The youth hostels movement, originally assisted by the National Fitness Councils in all States, is now operating independently in New South Wales and Victoria. In the other States, State National Fitness Councils still provide facilities for hostel bookings and make satisfactory buildings available to the State Associations in those States.

The Tasmanian bookings in 1958 reached a record of 5,301 bed nights, while in South Australia the total was 2,228 bed nights.

PLAY CENTRES AND PLAYGROUND DEVELOPMENT

State National Fitness Councils in New South Wales, Victoria and Tasmania continued to assist local government authorities in the conduct of holiday play centres and playground development. In New South Wales the January, 1958, enrolment at holiday play centres reached 25,474, and the centres employed a staff of 367. Thirteen of these centres were organized for migrant children.

In Victoria, ten holiday play centres in city and metropolitan areas, and eight centres at migrant hostels were organized with a total attendance of approximately 35,000 children.

ASSISTANCE TO AMATEUR SPORTS

During 1958, considerable development took place in all States in assistance given to amateur sports organizations. In New South Wales, 21 training and coaching camps were held at National Fitness Camps enrolling 1,326 young players, while 80 organized groups with a total of 6,500 players used seventeen high school gymnasiums regularly throughout the year for indoor games. In Tasmania the North-West Recreation Association developed a recreation centre at Devonport which catered for 1,000 players each week and in the south, the Associated Youth Clubs Southern Recreation Association was responsible for competitions and tournaments enrolling 768 players.

STATE EDUCATION DEPARTMENTS

The programmes in State Education Departments financed from National Fitness funds again provided for the training of teachers, the organization of school camps, the provision of bursaries for teachers and of materials for book and film libraries and teaching aids.

TRAINING OF TEACHERS

A total of 50 Schools of Instruction and training camps was held during 1958, from one day for Schools of Instruction and demonstrations to longer residential camps of two to fourteen days. A total of 8,252 teachers attended these courses, while 2,653 student teachers from Teachers' Colleges also received concentrated courses of training in National Fitness Camps and at other centres.

SCHOOL CAMPS

School camping programmes were continued in all States using National Fitness and special Education Department Camps. Periods of camping varied from three days to eleven days. A total of 226 school camps was held, with 13,167 children attending. The highest enrolment in 1958 was in New South Wales, where 9,491 children attended National Fitness Camps.

LIBRARIES, FILMS AND PUBLICATIONS

The following publications for teachers were issued in 1958:—

South Australia.—" Physical Education in Infants' Schools " and " Physical Activities in South Australian Schools ".

Western Australia.—" Experimental Hobbies for Junior and Senior Sections of the Primary School ".

New South Wales.—A film catalogue; a " Games Book "; and a new edition of " Swimming—A Guide to Teachers ".

Text-books, gramophone records, films and film strips were purchased in all States.

UNIVERSITIES

In Tasmania a Diploma Course in Physical Education at the University of Hobart came into full operation in 1958. It now provides specialist training for Tasmanian teachers in Tasmania instead of students having to go to the University of Melbourne.

Student enrolment in 1958 was maintained with a slight increase in some States. The total enrolment, including physical education students at the Sydney Teachers' College, and teachers taking the Evening Diploma Course in Sydney, was 393, drawn from Education Departments (161), teachers' colleges (160) and private students (72) with 24 enrolled at the University of Tasmania.

A total of 98 students completed Diploma or Degree Courses in Physical Education at the end of 1958 and were employed in Education Departments and private schools.

In addition, University Departments of Physical Education offered courses for other faculties, in particular, in the diploma courses in education, physiotherapy, occupational therapy and first year medicine (Queensland).

The most important development was in Tasmania at the new University site at Sandy Bay where new sports facilities including ovals, basketball and tennis courts and playing fields were developed.

The Student Health Service at the University of Adelaide was responsible for 1,069 student examinations carried out at the University Health Centre. Also in 1958, 5,477 anti-poliomyelitis injections were given to students.

A number of research projects being carried out by University Departments of Physical Education was continued. In Western Australia four projects were under way and two reports were published in 1958 dealing with aspects of swimming.

Two investigations were also carried out at the University of Tasmania and a pilot investigation in the field of muscle training was completed in Melbourne and the report published in the Universities' Report of Research and Investigation.

The Commonwealth grant of £2,000 to each University was continued. The total costs of all University courses in physical education considerably exceeded the Commonwealth grant, the highest being that of the Melbourne Department of Physical Education which reached £15,597.

OTHER DEVELOPMENTS

Other activities of interest carried out by State National Fitness Councils during 1958 included the further extension of the Western Australian Experiment in Youth Education. Twenty-six part-time youth organizers were employed at youth centres throughout the State. A survey of recreation facilities in the metropolitan area of Adelaide was carried out by the South Australian National Fitness Council during 1958.

ANNUAL ALLOCATION OF COMMONWEALTH NATIONAL FITNESS GRANTS—Total £72,500

To:—	£
State National Fitness Councils	36,954
State Education Departments	17,000
Universities	12,400
Central Administration	3,396
Australian Capital Territory	2,750
	72,500

ALLOCATIONS TO STATE AGENCIES—Total £66,354

State.	Councils.	Universities.	Education Departments.	Totals.
	£	£	£	£
New South Wales	7,243	2,000	2,834	12,077
Victoria	7,243	2,100	2,834	12,177
Queensland	5,742	2,100	2,833	10,675
South Australia	5,742	2,100	2,833	10,675
Western Australia	5,742	2,100	2,833	10,675
Tasmania	5,242	2,000	2,833	10,075

DETAILS OF ALLOCATIONS TO STATE AGENCIES

State National Fitness Councils—Total £36,954

Item.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.
	£	£	£	£	£	£
1. Salaries and travelling expenses, Director and Assistant Director	1,750	1,750	1,500	1,500	1,500	1,500
2. Services to Associated Groups ..	2,000	2,000	1,500	1,500	1,500	1,500
3. Grants to voluntary Youth Organizations	500	500	438	438	438	258
4. Subsidies to local National Fitness Committees	750	750	654	654	654	384
5. Services to sports organizations ..	243	243	150	150	150	100
6. Development of Camps and Hostels	2,000	2,000	1,500	1,500	1,500	1,500
Totals	7,243	7,243	5,742	5,742	5,742	5,242

State Education Departments—Total £17,000

Item.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.
	£	£	£	£	£	£
1. Training of general teachers in physical education—						
(*a*) Short courses	500	500	500	300	300	300
(*b*) Residential courses ..	500	500	500	500	500	500
2. Provision of bursaries to enable selected teachers to undertake university courses	..	..	..	600	600	600
3. Development of health and physical education in practising schools and Teachers' Colleges—						
(*a*) Equipment	300	300	300	200	200	200
(*b*) Camps for Teachers' college students	250	250	250	150	150	150
4. Publications, films, records, &c. ..	484	484	483	483	483	483
5. Development of school camping and hostelling—						
(*a*) Equipment of camps and schools	500	500	500	400	400	400
(*b*) School camping, hostelling	300	300	200	200	200	200
Totals	2,834	2,834	2,833	2,833	2,833	2,833

Universities—£12,400

1. The Universities of Melbourne, Sydney, Queensland, Adelaide, Western Australia, and Tasmania receive £2,000 each for the conduct of specialist Physical Education Courses. All except Sydney receive the £100 special grant for the promotion of a physical education programme for the general student body.

2. The Sydney Course is conducted as a Diploma Course at the Sydney Teachers' College, and not as a University Course. Therefore no special grant for activities of the general student body is allocated.

Australian Capital Territory—£2,750

	£
1. Development of activities in the Australian Capital Territory ..	2,000
2. Grant to Young Men's Christian Association and Young Women's Christian Association, Canberra	750
	2,750

NURSING

COLOMBO PLAN—TECHNICAL CO-OPERATION SCHEME

Graduate Nurses: As in previous years training programmes were arranged for graduate nurses awarded scholarships under the Colombo Plan Technical Co-operation Scheme.

In the two years ended 30th June, 1960, 37 graduate nurses from several countries studied in Australia. Many attended College courses, while others followed courses arranged in the various specialized branches of nursing or had *ad hoc* training. Most of the nurses spent some time prior to the commencement of their courses in hospitals to enable them to become familiar with the Australian pattern of nursing and with hospital methods. Some had short periods of observation or nursing experience in hospitals following formal courses.

At the 1960 Nursing Administration Diploma Course examination conducted by the New South Wales College of Nursing, Sydney, one nurse from India gained second class honours.

The nurses came from many countries. The following sets out the number of nurses from each country for the two years: Sarawak 10, Singapore 6, India 6, Thailand 5, Burma 3, Philippines 3, Pakistan 2, North Borneo 1, and Vietnam 1.

Under-graduate Nurses: Since 1955, 104 girls have been awarded scholarships to undergo a three-year basis nursing course. Fifty-six of this number have completed their courses.

During the past two years, 42 nurses successfully completed training. With the exception of one nurse from North Borneo and one from Burma, the nurses came from Malaya. The nurse from Burma is at present undergoing a twelve months post-certificate course in midwifery in Western Australia. All the other nurses have now returned to their own country.

Of the total intake of nurses for basic nursing courses, the wastage rate up to the present time has been small, 8.7 per cent.

World Health Organization Nursing Fellowships: Training programmes for nine graduate nurses awarded W.H.O. Fellowships were arranged during the last two years. These nurses came from Burma, India, Indonesia, Thailand and Formosa.

Commonwealth Home Nursing Subsidy Scheme: The operation of the Commonwealth Home Nursing Subsidy Scheme has led to the general expansion of the services of the older established organizations receiving State Government Subsidy. Also it has been instrumental in the formation of a number of new organizations. An interesting feature of the development of a number of the newer organizations is that municipal councils in Sydney have either set up direct nursing services within their administrative framework, to be responsible for district nursing within their municipality, or provided financial assistance to a Committee set up for this purpose.

In April, 1960, the Commonwealth increased the rate of subsidy. Eligible organizations established prior to November, 1956, now receive £900 per annum in respect of each additional qualified nurse engaged, and new organizations established after 1st November, 1956, receive £450 per annum in respect of each qualified nurse employed.

The total subsidy paid to district nursing organizations during 1958-59 was £34,538 and for 1959-60 was £53,616. Translated into numbers of nurses, this amount means that approximately 54 and 88 nurses respectively were subsidised during the two financial years.

INSTITUTE OF ANATOMY

Museums: Development of the exhibits follows the plan outlined in the previous Report of the Director-General of Health, 1956 to 1958. The main improvements have been the inclusion of additional information in the form of legends, maps and photographs to supplement the displays of artifacts. Considerable progress has been made with the identification and cataloguing of the National Ethnographical Collections.

Nutrition: The bi-monthly publication of "Food and Nutrition Notes and Reviews" which has been produced continuously since 1943 has been continued. A booklet entitled "Eat Better for Less" has been prepared.

A special study of the diets of representative groups of young women was made. The groups studied were nurses, factory workers, Seventh-Day-Adventist vegetarians, and Italian and Polish immigrants. A study of the diets and activity patterns of nursing mothers has been commenced.

A comprehensive review of the nutritive significance of Australian bread with special emphasis on the Vitamin B1 (thiamine) content has been completed.

Considerable progress has been made in drawing up a completely new set of dietary allowances for use in planning diets in Australia and Papua and New Guinea. These differ radically in format from the existing tables. These recommended allowances are now complete except for recommendations relating to the diets of infants, expectant and nursing mothers.

Metabolic Studies: In conjunction with a medical officer of the Department of Health, Territory of Papua and New Guinea, comparative studies have been made of the protein fractions in the sera of groups of natives of Papua and New Guinea compared with similar age and sex groups of white Australians. These groups included pregnant women, newborn infants and nursing mothers. It was found that compared with white women, the New Guinea women had in their sera a greater concentration of gamma globulin together with a smaller concentration of albumin. Compared with white newborn infants, the sera of the New Guinea infants showed a greater concentration of gamma globulin. An interesting finding was that in white infants the level of serum gamma globulin tended to be at or above the level in the mother, whereas in New Guinea infants the level was less than that of the mother. It appears to be important to explain this finding.

The levels of serum protein fractions of a group of non-vegetarian nurses were compared with those of a group of vegetarians. The latter group was found to have a significantly higher concentration of serum gamma globulin than

the former. Reasons have been advanced for believing that this finding may be due to the consumption by the vegetarians of a lower fat diet during the growing period.

Recently these metabolic studies have been extended to include a detailed study of the age and production rates of lymphocytes—from which gamma globulin ultimately derives.

PUBLICATIONS

FOOD AND NUTRITION NOTES AND REVIEWS. Vol. 15, 1958, Nos. 7-12.
Ibid. Vol. 16, 1959, Nos. 1-12.
Ibid. Vol. 17, 1960, Nos. 1-6.
(Published by Department of Health, Commonwealth of Australia.)

CORONARY HEART DISEASE IN AUSTRALIA. E. H. Hipsley, *Nutrition Reviews*, Vol. 16, 1958, p. 129.

THE CAPACITY OF PLASMA FOR BINDING VASOPRESSIN IN PREGNANT AND NON-PREGNANT HUMAN SUBJECTS. E. H. Hipsley and J. W. McKellar, *J. Endocrin.*, Vol. 19, 1959, p. 345.

NUTRITION IN PUBLIC HEALTH IN THE UNITED STATES OF AMERICA. R. M. Peel, *Food and Nutrition Notes and Reviews*, Vol. 15, 1958, p. 57.

CHOLESTEROL IN THE AUSTRALIAN DIET. N. E. Kirk, *Food and Nutrition Notes and Reviews*, Vol. 16, 1959, p. 102.

REVIEW OF THE NUTRITIVE SIGNIFICANCE OF AUSTRALIAN BREAD (1959). N.H. & M.R.C. Special Report Series No. 9.

SERUM PROTEIN FRACTIONS IN MOTHERS AND NEWBORN INFANTS—A COMPARISON OF NEW GUINEA MOTHERS WITH WHITE AUSTRALIANS. J. Kariks and E. H. Hipsley (submitted for publication).

SERUM PROTEIN FRACTIONS IN PREGNANCY AND LACTATION—A COMPARISON BETWEEN NEW GUINEA AND WHITE WOMEN. E. H. Hipsley and J. Kariks (submitted for publication).

THE SERUM PROTEINS OF WHITE AUSTRALIANS CONSUMING LACTO-OVO-VEGETARIAN AND NON-VEGETARIAN DIETS. E. H. Hipsley, R. M. English and N. E. Kirk (submitted for publication).

RECORDS OF THE AMERICAN-AUSTRALIAN SCIENTIFIC EXPEDITION TO ARNHEM LAND. Vol. 2, *Anthropology and Nutrition*, published by the Melbourne University Press, 1960, containing chapters as follows:—

"Good Consumption and Dietary Levels of the Aborigines at the Settlements", M. McArthur, p. 14.
"The Health and Nutritional Status of the Aborigines", B. P. Billington, p. 27.
"Report of the Biochemical Assessments of Nutritional Status", K. J. Hodges, p. 72.
"Food Consumption and Dietary Levels of Groups of Aborigines Living on Naturally Occurring Foods", M. McArthur, p. 90.
"Analysis of Naturally Occurring Foodstuffs of Arnhem Land", C. F. Fysh, K. J. Hodges and L. Y. Siggins, p. 136.

(Reprints of these publications are available from the Australian Institute of Anatomy.)

THERAPEUTIC SUBSTANCES

THERAPEUTIC SUBSTANCES ACT AND REGULATIONS

The Therapeutic Substances Act and Regulations came into operation in 1956 for the purpose of controlling standards of therapeutic substances imported into Australia, traded interstate or exported from Australia in accordance with the standards fixed by the British Pharmacopoeia, the British Pharmaceutical Codex or by Regulation. Provisions of the Act and Regulations also apply to the standards of therapeutic substances supplied in the form of pharmaceutical benefits and to the Commonwealth Government.

To ensure that there is conformity to the prescribed standards, the Act makes provisions for the sampling and testing of therapeutic substances. In the initial stages this was confined to a limited list of controlled therapeutic substances which were being imported, the scope of which was gradually increased. During the period under review a considerable number of samples of both importations and local manufacture was taken under the provisions of the Act.

The Act and Regulations further make provision for certain labelling requirements and action was taken in many instances to ensure that the legislation in this respect was carried out.

CONTROL OF IMPORTATIONS OF BIOLOGICAL AND ANTIBIOTIC SUBSTANCES

Item 28A of the Third Schedule to the Customs (Prohibited Imports) Regulations controls the importation of the following therapeutic substances:—

(a) Sera, toxoids, toxins, antitoxins, antigens and glandular extracts, and

(b) Antibiotic substances.

Following the implementation of this item on 1st May, 1958, a considerable number of applications for permission to import the above-mentioned substances were received from importers. Where the applications complied with departmental requirements the necessary authorities for importation were issued with a minimum of delay.

CONTROL OF STANDARDS OF PHARMACEUTICAL BENEFITS

Under the provisions of the *National Health Act* samples of pharmaceutical benefits are taken from approved chemists and submitted for analysis at periodic intervals for the purpose of ensuring that pharmaceutical benefits are supplied to the prescribed standards. In the period under review a considerable number of such samples was taken throughout the Commonwealth.

EPIDEMIOLOGY

The following information in respect of the two years under review has been collated from information received from State Health Authorities:—

TABLE I.

Diseases Notifiable in each State and Territory of Australia and Number of Cases Reported during the Year Ended 31st December, 1958

Disease.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
Acute Rheumatism	105	140	276	8	21	*	6	..	556
Amoebiasis ..	*	6	7	2	1	1	2	..	19
Ancylostomiasis ..	20	..	82	..	1	..	259	..	362
Anthrax	*	..	..	..	..	..	..	..	..
Bilharziasis ..	*	..	..	..	..	..	..	..	..
Breast Abscess ..	† 6	‡161	122	*	*	*	*	3	292
Brucellosis ..	23	17	..	1	..	5	..	..	46
Chorea	6	20	..	1	1	*	1	..	29
Dengue	..	..	*	..	..	*	..	..	..
Diarrhoea, Infantile	193	627	167	13	12	9	97	26	1,144
Diphtheria ..	28	37	10	2	24	2	..	..	103
Dysentery, Bacillary	*	335	78	57	121	2	108	..	701
Encephalitis ..	25	37	4	11	..	..	2	2	81
Erythema Nodosum	..	15	..	1	2	..	3	..	21
Filariasis ..	*	..	2	..	..	..	..	..	2
Homologous Serum Jaundice ..	*	..	*	..	..	*	..	..	..
Hydatid	*	19	..	4	..	18	..	..	41
Infective Hepatitis..	3,262	1,053	469	307	396	51	45	16	5,599
Influenza.. ..	*	*	*	4	*	*	*	*	4
Lead Poisoning ..	*	..	10	..	1	*	..	..	11
Leprosy	..	2	8	..	38	..	36	..	84
Leptospirosis ..	18	..	88	..	..	*	..	1	107
Malaria	..	7	18	..	2	..	11	1	39
Meningococcal Infection ..	72	78	31	5	9	5	..	..	200
Ophthalmia ..	*	*	*	..	30	..	..	..	30
Ornithosis ..	..	2	*	6	..	*	..	..	8
Paratyphoid ..	10	1	..	3	2	..	..	..	16
Poliomyelitis ..	23	60	5	10	2	..	..	..	100
Puerperal Fever ..	46	5	34	3	1	..	..	..	89
Q Fever ..	*	*	50	*	*	*	*	*	50
Rubella	*	1,745	27	271	3,059	25	8	128	5,263
Salmonella Infection	*	*	*	59	45	*	3	..	107
Scarlet Fever ..	703	1,079	177	133	190	42	4	18	2,346
Tetanus	*	13	32	6	11	*	..	..	62
Trachoma ..	*	1	*	..	364	*	..	..	365
Trichinosis ..	*	*	*	..	..	*	..	..	..
Tuberculosis ..	1,399	639	764	302	374	168	55	7	3,708
Typhoid Fever ..	17	9	11	3	22	..	..	..	62
Typhus (flea, mite or tick borne) ..	5	..	19	..	5	..	..	..	29

* Not notifiable. † Breast Abscess notifiable in New South Wales from December, 1958 only. ‡ Breast Abscess notifiable in Victoria from August, 1958 only.

NOTE.—No case of Cholera, Plague, Smallpox, Epidemic Typhus or Yellow Fever.

TABLE Ia.

Diseases Notifiable in each State and Territory of Australia and Number of Cases Reported during the Year Ended 31st December, 1959

Disease.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	N.T.	A.C.T.	Aust.
Acute Rheumatism	59	118	129	8	15	*	1	2	332
Amoebiasis ..	*	3	13	2	2	..	13	..	33
Ancylostomiasis ..	37	1	63	..	1	..	308	..	410
Anthrax	*	..	..	..	..	..	..	..	..
Bilharziasis ..	*	..	..	..	..	..	..	..	..
Breast Abscess ..	38	160	123	*	*	*	*	7	328
Brucellosis ..	7	16	..	1	8	1	..	..	33
Chorea	3	12	..	1	2	*	..	..	18
Dengue	..	..	*	..	1	*	..	..	1
Diarrhoea, Infantile	237	609	185	4	26	15	71	36	1,183
Diphtheria ..	14	14	7	16	48	..	1	..	100
Dysentery, Bacillary	*	103	51	61	188	4	99	4	510
Encephalitis ..	25	45	3	11	..	..	..	..	84
Erythema Nodosum	..	10	..	..	1	..	..	..	11
Filariasis ..	*	..	..	..	..	..	..	..	..
Homologous Serum Jaundice ..	*	..	*	..	..	*	..	..	..
Hydatid	*	19	..	..	..	16	..	..	35
Infective Hepatitis..	3,183	1,452	762	749	142	21	53	16	6,378
Influenza.. ..	*	*	*	1,163	*	*	*	*	1,163
Lead Poisoning ..	*	..	19	2	2	*	..	..	23
Leprosy	1	1	6	..	18	..	49	..	75
Leptospirosis ..	9	1	134	..	2	*	..	..	146
Malaria	..	12	46	1	3	..	10	..	72
Meningococcal Infection ..	75	63	34	7	3	24	6	5	217
Ophthalmia ..	*	*	*	1	50	..	..	15	66
Ornithosis ..	2	1	*	1	..	*	..	..	4
Paratyphoid Fever..	9	..	..	..	..	2	..	..	11
Poliomyelitis ..	16	30	6	1	3	..	..	..	56
Puerperal Fever ..	56	4	60	2	3	..	1	..	126
Q Fever ..	*	*	595	*	*	*	*	*	595
Rubella	*	992	7	87	221	8	25	17	1,357
Salmonella Infection	*	*	*	45	40	*	4	1	90
Scarlet Fever ..	478	907	148	232	60	39	13	4	1,881
Tetanus	*	8	27	6	5	*	1	1	48
Trachoma ..	*	..	*	..	656	*	405	..	1,061
Trichinosis ..	*	*	*	..	..	*	..	..	..
Tuberculosis ..	1,166	811	752	283	343	156	42	11	3,564
Typhoid Fever ..	2	8	7	7	8	..	..	..	32
Typhus—(flea, mite or tick borne) ..	2	..	11	..	6	..	..	..	19

* Not notifiable.

NOTE.—No cases of cholera, plague, smallpox, epidemic typhus or yellow fever were notified.

TABLE II.

POLIOMYELITIS STATISTICS—AUSTRALIA

Showing Age and Sex, Type of Disease, 1st July, 1958, to 30th June, 1959

Age Group.	Paralytic.				Non-Paralytic.		Bulbar.				Nature Not Stated.	Total.
	Respirator.		No Respirator.				Respirator.		No Respirator.			
	Fatal.	Not Fatal.	Fatal.	Not Fatal.	Fatal.	Not Fatal.	Fatal.	Not Fatal.	Fatal.	Not Fatal.		
Males.												
0– 1..	..	..	..	2	..	..	..	..	..	..	..	2
1– 4..	..	..	..	20	..	4	..	..	..	..	..	24
5– 9..	..	..	1	7	..	3	..	..	..	..	..	11
10–14..	..	..	..	5	..	2	..	..	..	..	..	7
15–19..	..	..	..	3	..	..	..	..	..	..	..	3
20–24..	..	..	..	3	..	..	..	..	..	..	..	3
25–29..	..	..	..	..	..	..	..	..	..	..	..	..
30–34..	..	1	..	1	..	1	..	..	..	..	..	3
35–39..	..	..	..	..	..	1	..	..	..	..	..	1
40–44..	..	..	..	2	..	..	..	..	..	..	..	2
45 and over	..	..	..	..	..	..	..	..	..	..	..	..
Not stated	..	..	..	..	..	..	..	..	..	..	..	..
Total	..	1	1	43	..	11	..	..	..	..	..	56
Females.												
0– 1..	..	..	..	2	..	1	..	..	..	..	..	3
1– 4..	..	..	..	9	..	2	..	..	..	..	..	11
5– 9..	..	..	..	4	..	9	..	..	..	..	..	13
10–14..	..	..	..	1	..	1	..	..	..	..	..	2
15–19..	..	..	..	2	..	..	..	..	..	..	..	2
20–24..	..	..	..	1	..	..	..	..	..	..	..	1
25–29..	..	..	1	9	..	..	..	..	..	..	..	10
30–34..	..	1	..	2	..	..	..	..	..	..	..	3
35–39..	..	..	..	1	..	..	..	..	..	..	..	1
40–44..	..	..	..	..	..	..	..	..	..	..	..	..
45 and over	..	..	..	..	..	..	..	..	..	..	..	..
Not stated	..	..	..	..	..	..	..	..	..	..	..	..
Total	..	1	1	31	..	13	..	..	..	..	..	46

TABLE III.

POLIOMYELITIS STATISTICS

Total All Persons 1955-56, 1956-57, 1957-58 and 1958-59

Age Group.	Number.			
	1955–56.	1956–57.	1957–58.	1958–59.
0– 1	15	10	..	5
1– 4	200	66	9	35
5– 9	241	69	8	24
10–14	167	36	1	9
15–19	115	16	4	5
20–24	117	34	4	4
25–29	150	26	3	10
30–34	114	20	4	6
35–39	48	9	2	2
40–44	25	2	1	2
45 and over	17	2	1	..
Not stated	11	..	..	..
Total	1,220	290	37	102

TABLE IV.

POLIOMYELITIS STATISTICS

Summary

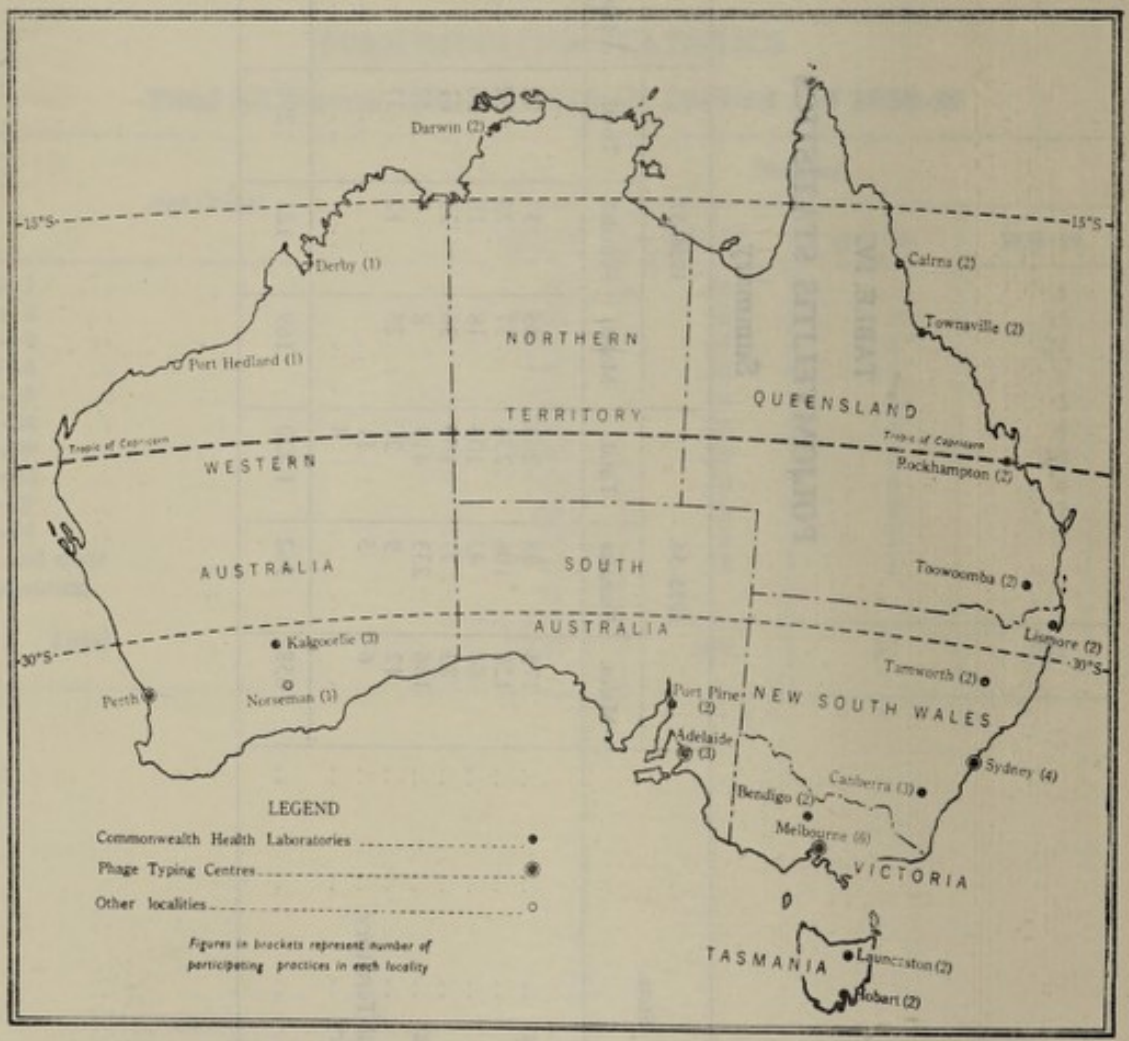
State.	1955–56.			1956–57.			1957–58.			1958–59.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
New South Wales	175	88	263	45	37	82	13	8	21	12	6	18
Victoria	128	108	236	37	25	62	..	3	3	46	32	78
Queensland	64	42	106	18	18	36	2	1	3	1	2	3
South Australia	83	77	160	36	25	61	1	4	5	1	..	1
Western Australia	186	233	419	8	4	12	1	1	2	1	..	1
Tasmania	12	9	21	25	12	37	1	2	3	..	1	1
Australian Capital Territory	6	5	11	..	..	..	..	..	..	..	..	..
Northern Territory	..	..	4	..	..	..	..	..	..	..	..	..
Total	658	562	1,220	169	121	290	18	19	37	61	41	102

A SURVEY OF STAPHYLOCOCCAL INFECTIONS OF THE SKIN AND SUBCUTANEOUS TISSUES IN GENERAL PRACTICE IN AUSTRALIA—MAY-DECEMBER, 1958

This survey comprised nineteen localities and the routine bacteriology was carried out at the Commonwealth Health Laboratories in thirteen of the centres. Bacteriological services for the four Sydney practices were provided by the School of Public Health and Tropical Medicine, University of Sydney. Similar facilities for the Melbourne practices were made available at the Commonwealth Serum Laboratories, Melbourne, and for the Adelaide practices at the Institute of Medical and Veterinary Science, Adelaide.

Swabs from the township of Norseman were sent to Kalgoorlie and the State Public Health Laboratory in Perth placed its facilities at the disposal of the doctors in the two north-western towns in Western Australia, Port Hedland and Derby.

The following map shows details of the organization:—



Localities and Laboratories participating in the Survey.

Forty-four practices contributed cases. More than 50 per cent. of the doctors were members of the Australian College of General Practitioners.

The conditions towards which investigations were especially directed were furuncle, pustule, stye, carbuncle, abscess, impetigo, paronychia, pulp space infection and infected lacerations.

Only those cases of soft tissue infection which the general practitioner saw initially in his consulting room or at the patient's home were included and a swab was taken from the lesion in every case where pus presented. A routine nasal swab was taken at the patient's first visit or consultation.

Cultures giving a positive coagulase test were recorded as pathogenic *Staphylococcus aureus* and sensitivity tests and phage-typing were then carried out. Two strengths of antibiotic tablets (" Sentest "-Evans) were used for the sensitivity tests, i.e., penicillin, streptomycin, erythromycin, chloramphenicol and tetracycline.

Phage-typing centres for the survey were located as follows:—

Fairfax Institute of Pathology, Royal Prince Alfred Hospital, Sydney.
Commonwealth Serum Laboratories, Melbourne.
Institute of Medical and Veterinary Science, Adelaide; and
Department of Microbiology, University Medical School, Perth.

Pure cultures for phage-typing were sent from:—

Queensland and New South Wales to Sydney.
Tasmania and Victoria to Melbourne.
South Australia and Darwin to Adelaide.
Western Australia to Perth.

The total number of persons who were examined during the survey was 2,164.

From the conclusion of the survey up to the end of April, 1959, work was carried out on coding and statistical processing of the data. The report was completed in December, 1959, and published in the Special Report Series of the National Health and Medical Research Council (No. 10). It was given a wide distribution and copies were sent to all doctors and laboratories in Australia and, through the Department of External Affairs, to interested authorities abroad.

The authors of the report were—

Alex Johnson, M.B., B.Ch., B.A.O., D.P.H., Senior Medical Officer, Commonwealth Department of Health, Canberra, A.C.T., and Hon. Secretary, Committee in Preventive Medicine, Australian College of General Practitioners.

Phyllis M. Rountree, D.Sc., Research Bacteriologist, Fairfax Institute of Pathology, Royal Prince Alfred Hospital, Sydney, N.S.W.

Katherine Smith, B.Sc., Bacteriologist, Commonwealth Serum Laboratories, Parkville, Vic.

Neville F. Stanley, D.Sc., Professor of Microbiology, Faculty of Medicine, University of Western Australia, Nedlands, W.A.

Kevin Anderson, M.B., B.Ch., Bacteriologist, Institute of Medical and Veterinary Science, Adelaide, South Australia.

BROADCASTING AND TELEVISION CENSORSHIP

The censorship of medical talks and advertisements relating to medicines used in sound broadcasting has been carried out under the *Broadcasting and Television Act* 1942-1956. During the year 1958-59, 1,285 commercials for broadcasting and 116 television commercials were received. The figures for 1959-60 were 1,540 and 155, respectively.

BROADCASTING.

In the censorship of radio commercials no serious problems were encountered. Some were rejected because the claims made were grossly exaggerated and several others were rejected because no precise knowledge of the method of treatment advertised was known. A list of the commoner words and phrases which have not been approved is as follows:—" All infections of the throat and lungs ", " Vitality " (and rejuvenation claims), " Medical ", " Medically approved ", " hospital tested ", " The modern approach to breath and body odour ", " Best ", " most effective " (superlative adjectives), " Skin specialists ", " Starvation diet ", " Cure asthma by diet ", " Money back guarantee ", " Made according to doctor's prescription ".

Of the 1,285 broadcast commercials received during the year 1958-59, 1,237 were approved without amendment; 39 were approved with amendment, and nine were rejected. Of the 1,540 broadcast commercials received during the year 1959-60, 1,356 were approved without amendment, 148 were approved with amendment, and 36 were rejected. The standard attained by the advertising agencies who have submitted these scripts over the past years has shown considerable improvement. There has been a large degree of co-operation between representatives of the Australian Association of Advertising Agencies and national advertisers and the department.

TELEVISION

Out of a total of 116 television commercials received during the year 1958-59, 109 were approved, five were approved with amendment and two were rejected. Of the 155 television commercials received during the year 1959-60, 123 were approved, 26 were approved with amendment and six were rejected. Some of the advertising agencies submit the television commercials in the form of a " storyboard ", while others submit a typed script describing the audio and video portions of the commercial and giving the full text of the statements which will be made.

An arrangement has been made with the agencies that the preliminary description of the commercial should be submitted to the Department for comment before much expenses is incurred in making the film. In this way the agency and the advertiser are saved any monetary loss incurred by completing a film which might subsequently not be approved.

The " Medic " films are imported from America and deal with medical topics. They are used for advertising purposes and commercials are shown at the beginning, in the middle and at the end of each film. Fifty-five of these films were received during the period under review and eight were not approved, mainly because too much operative detail was shown. One of the films which was not approved depicted a case of maternal dementia which could have had a very disturbing effect on many expectant mothers.

In the audio part of the television commercials the same phrases occurred from time to time as in broadcast commercials, e.g., the use of the superlative adjective, and pseudo-scientific statements.

At the 49th Session (May, 1960) of the National Health and Medical Research Council a comprehensive report entitled " Commercial Advertising in General and Patent Medicine Advertising in Particular " was presented by Dr. A. Johnson. Council decided that there should be a code for proprietary medicine advertising in all media and that it should be uniform throughout the Commonwealth.

The Commonwealth Department of Health in co-operation with representatives of the Australian Association of National Advertisesrs, the Australian Association of Advertising Agencies and the Australian Newspaper Council, was asked to undertake the preparation of such a code.

Work on the code is proceeding.

LEGISLATION

The Director-General's authority is contained in the following sections of the *Broadcasting and Television Act* 1942-1956:—

Section 100 (6). A licensee shall not broadcast or televise an advertisement relating to a medicine unless the text of the proposed advertisement has been approved by the Director-General of Health, or, on appeal to the Minister under this section, by the Minister.

Section 121 (1). Except as prescribed, a person shall not broadcast or televise a talk on a medical subject unless the text thereof has been approved by the Director-General of Health, or, on appeal to the Minister under this section, by the Minister.

Departmental policy can be summed up as follows:—

"Within a broad interpretation of the principles of truth and ethics, a reasonable degree of latitude is given to the advertiser, the objective being to provide a balance between his economic motives on the one hand, and the contents of, and therapeutic claims made for, his product on the other hand."

NATIONAL HEALTH AND MEDICAL RESEARCH COUNCIL

The Forty-ninth Session of the National Health and Medical Research Council was held at the Institute of Anatomy, Canberra, on Thursday, 12th May, 1960. The members present were: Dr. H. E. Downes (Acting Chairman), Professor Sir Edward Ford, Dr. P. L. Bazeley and Dr. C. E. Cook representing the Commonwealth, Dr. C. J. Cummins (New South Wales), Dr. K. Brennan (Victoria), Dr. P. S. Woodruff (South Australia), Dr. A. Fryberg (Queensland), Dr. W. S. Davidson (Western Australia), Dr. J. Edis (Tasmania), Dr. H. N. White (Territory of Papua and New Guinea), Dr. W. F. Simmons (Federal Council of the British Medical Association), Professor J. S. Lyell (Australian Dental Association), Professor F. C. Courtice (Australian Universities having Medical Schools), Professor E. S. J. King (Royal Australasian College of Surgeons), Professor B. T. Mayes (Australian Regional Council of the Royal College of Obstetricians and Gynaecologists), Professor J. G. Hayden (Royal Australasian College of Physicians), Dr. J. G. Radford (Council of the Australian College of General Practitioners), Dr. J. R. S. Douglas (College of Pathologists of Australia), Dr. H. J. Ham (College of Radiologists of Australasia), Dr. H. McLorinan (Australian Paediatric Association), Sir Norman Nock (layman appointed by the Commonwealth) and Matron G. N. Burbidge (laywoman appointed by the Commonwealth).

The Committees of the Council during 1960 included: Medical Research Advisory, Overseas Travelling Fellowships, Public Health, Epidemiology and Control of Epidemic Diseases, X-Rays, Radio-Active Isotopes, Radio Therapy Advisory, Industrial Hygiene, Antibiotics, Tropical Physiology and Hygiene, Maternal and Child Welfare, Nutrition, Dental Research Advisory, Nursing, Ultrasonics, Rh Factor, Staphylococcal Infection, Medical Radiation, Medical Statistics, and Veterinary Public Health.

The resolutions adopted at the Forty-sixth, Forty-seventh, Forty-eighth and Forty-ninth Sessions of the Council are listed below:—

Forty-sixth Session: Held at the School of Public Health and Tropical Medicine, University Grounds, Sydney, on Thursday, 13th November, 1958.

Resolution 1.—That Oestrogens, Progesterons and Androgens or their preparations should be sold only on prescription and only be repeated on prescription.

Resolution 2.—That the Commonwealth Department of Health make funds available annually to send an Australian representative to the United States to attend the Federal Drug Administration's International Conference on Antibiotics.

Resolution 3.—That broad spectrum antibiotics should be made available free in quantities up to 100 capsules for the long-term treatment of bronchiectiasis and fibrocystic disease of the pancreas.

Resolution 4.—That Item 37 of the Second Schedule should be amended to permit issue of 100 tablets of Penicillin V for the prophylaxis of nephritis and rheumatic fever.

Resolution 5.—(a) All States adopt the list of Notifiable Diseases submitted in 1950 as amended from time to time by resolution of the National Health and Medical Research Council.

(b) The law requiring notification should discriminate between—

(i) diseases required to be notified for the information of the Central Health Authority.

(ii) diseases required to be notified for purposes of statutory prophylactic measures by the local health authority or the Central Health Authority.

Resolution 6.—(i) That all types of leukaemia should be made notifiable in every State.

(ii) That the information to be collected about each notified case and the reason for requiring it should be set out in a document to be prepared for the Council by Sir Macfarlane Burnet, Dr. E. V. Keogh and Professor E. S. J. King.

(iii) That each State should set up a consultative panel to collect and elucidate this information.

Resolution 7.—That it re-affirm its recommendation for the early immunization of the age group 15-44 years of age against poliomyelitis.

Resolution 8.—That States require notification of Breast Abscess and of acute infections in the new born occurring in the first four weeks after birth, and including, mastitis, conjunctivitis, paronychia, dermatitis, infection of the cord and any systemic extension of these to pneumonia or enteritis.

Resolution 9.—That the National Health and Medical Research Council re-affirm its recommendation of May, 1957, that States arrange for decentralization of supplies of Gamma Globulin. The Council further recommends that with the co-operation of the British Medical Association and the Medical Journal of Australia, States undertake a campaign to achieve the wider use of Gamma Globulin in the prophylaxis of infectious hepatitis.

Forty-seventh Session: Held at Parliament House, Adelaide, on Thursday, 21st May, 1959.

Resolution 1.—The Council takes note of the report of its Industrial Hygiene Committee and suggests that a campaign of education and advice be taken up with the appropriate employers' organizations with a view to reducing hazards due to excessive noise, and ultimately to recommend legislation to implement the advice if necessary.

Resolution 2.—(a) That X-ray equipment for use on humans be registered subject to its compliance with prescribed standards.

(b) That this equipment be subject to inspection and that registration be withdrawn at any time should the equipment not comply with the prescribed standards.

Resolution 3.—Council resolves that each State and Territory should undertake study of Leukaemia by collection of detailed information concerning cases occurring within its jurisdiction. For this purpose the pro-forma being used by the Cancer Council of Victoria might be used as a basis.

Resolution 4.—That the National Health and Medical Research Council recommend to the Minister that a member of the Antibiotics Committee or other suitable representative be sent to the Annual Conference on Antibiotics in the United States and that the expenses for same be obtained by the Commonwealth Department of Health or if possible from the sum allotted to Pharmaceutical Benefits.

Forty-eighth Session: Held at the School of Public Health and Tropical Medicine, University Grounds, Sydney, on Thursday, 12th November, 1959.

Resolution 1.—That in relation to the uncontrolled use of Synthetic dye stuffs in cosmetics the terms of reference for the Food Additives Committee should be widened to include the study of dye stuffs used in cosmetics and toilet preparations.

Resolution 2.—That States should amend their legislation to make the words "HOLD UNDER REFRIGERATION" more conspicuous on the labels of canned semi-conserve hams.

Resolution 3.—That in the interests of surveillance and evaluation the present requirements, for the recording of poliomyelitis immunization of the individual must be continued and that the method of distribution of the vaccine must be such that it will always ensure that conditions of handling and storage will be consistent with conservation of its potency.

Resolution 4.—That in view of the requirements set out for the handling, storage and recording of Poliomyelitis Vaccine, it cannot recommend any variation in the present terms of issue of the vaccine to the States, until an alternative system, of issue which satisfactorily meets the requirements, has been devised.

Resolution 5.—Where there is an outbreak of Poliomyelitis which may be described as severe or explosive, the immediate commencement or the completion of Poliomyelitis vaccination of all persons in the area should be undertaken.

Resolution 6.—The Council recommends the use of a quadruple antigen in children under two years and, for older age groups, other appropriate antigens combined with poliomyelitis vaccine.

Resolution 7.—That the Australian Atomic Energy Commission be invited to submit to the Chairman of the Council, for reference to the Radiotherapy Advisory Committee for its evaluation, proposals it has, from time to time, for the production of radio-isotopes in the form of grains, wires, rods, discs, regular and irregular shapes for radio-therapeutic purposes within Australia.

Resolution 8.—That, with the reactor of the Australian Atomic Energy Commission shortly operating as a potential source of supply of radio-isotopes, the procedure for the authorization, procurement and distribution of all radio-isotopes to be used on humans in Australia should be clearly defined. It believes that authorization, procurement and arrangements for distribution should be effected through a single departmental organization.

Resolution 9.—That, when an Australian source of radio-isotopes comes into operation, the well-established policies, practices and functions for authorization, procurement and arrangement for distribution continue to be, as at present, the responsibility of the Committee on Radio-isotopes of the National Health and Medical Research Council and of the Commonwealth Department of Health through its X-ray and Radium Laboratory.

Resolution 10.—The Council re-affirms its policy that the use of radio-isotopes in medicine—

(a) should be determined by clinical necessity after proper evaluation has been made of all possible methods including those not involving the use of radio-isotopes;

(b) should be carried out only where proper facilities are available for safe handling and administration of the radio-isotopes and for evaluation of clinical and physical material;

(c) should be carried out only where clinicians experienced with their use are available.

Resolution 11.—The Council emphasizes the desirability of implementing the fluoridation of reticulated water supplies in the light of the accumulated evidence since the Council's resolutions of 1953.

Resolution 12.—The Council resolved the following requirements concerning dietary supplements of fluoride:—

(i) Fluoride preparations should be dispensed only on prescription in order that adequate supervision may be provided for their safe and effective use.

(ii) Supplementary fluorides should be prescribed only when the concentration of fluoride ion in the drinking water is known and is less than 0.7 parts per million (ppm).

(iii) No more than approximately 250 mg. of sodium fluoride should be dispensed at one time.

(iv) Prescriptions should be limited to those instances where the parent, or those acting in loco parentis, may be expected to follow directions carefully, because dietary fluoride should be continuously available throughout the period of tooth formation (at least 0-12 years of age).

(v) For the guidance of medical and dental practitioners State Health Departments should be requested to publish figures where available of the fluoride content of municipal water supplies and to make these available to such practitioners.

Resolution 13.—In order to prevent excessive mottling of the teeth of children and possible effects on the general health of adults, that naturally occurring potable waters containing more than 1.5 parts per million of fluoride should not be consumed habitually by children under ten years of age and that those waters containing more than 3.0 parts per million should not be consumed habitually by adults. Where these limits are exceeded the waters should be treated to remove the excess fluoride or alternative supplies provided.

In suggesting these limits the Council realizes that there are climatic and other variations determining the threshold values but the values given have been selected as safe within these variations.

Resolution 14.—*Terms of Reference:* The Committee submitted for the approval of the National Health and Medical Research Council a recommendation that in addition to reporting upon matters referred to it by the National Health and Medical Research Council, the Commonwealth Department of Health and/or the Commonwealth Statistician its terms of reference shall include those specified for National Committees on Vital and Health Statistics by the World Health Organization in its Technical Report Series No. 133, page 7, namely—

(a) To help in assessing the needs for vital and health statistics, in evaluating the degrees to which the needs are met, and in providing vital and health records and statistics satisfactory and useful to the individuals and groups who use such records and statistics.

(b) To help to achieve essential uniformity in records, methods, and tabulations for the production of the minimum core of comparable vital and health statistics needed for national or international purposes.

(c) To assure a free flow of information and exchange of views, so that the needs and preferences of producers and users of vital and health records and statistics, at all levels, are given full expression and receive due consideration.

(d) To relate the activities and functions of diverse agencies or organizations that produce statistics, so that they work as a co-ordinated whole, avoiding both wasteful overlapping of effort and important gaps in essential aspects of statistical data.

(e) To make vital and health statistics of greater practical use and appeal.

(f) To stimulate needed statistical studies by those persons or groups best able to undertake them.

(g) To stimulate the training and supply of an adequate number of skilled workers in the field of vital and health statistics, and to encourage the interest of the medical profession in the value of the statistical approach to their problems.

(h) To assist when desirable or necessary in the implementation of international recommendations in this field.

Resolution 15.—*Cancer of the Lung:* (a) That Rubric 163 of the 7th Revision of the International Classification of Cause of Death should only be used for the listing of those cases in which it is not possible to ascertain from the certifier whether the lung was the primary site.

(b) The 4th Digits to Rubric 162 of the International Classification should be adopted and it is not necessary to attempt the separation of cancer of the bronchus from cancer of the lung.

Resolution 16.—*Classification of Type of Malignant Neoplasm:* That the statistical table purporting to show the type of malignant neoplasm causing death should be allowed to lapse from the annual issue of the Demography Bulletin.

Resolution 17.—*Births:* That the information recommended by Council to be collected in respect of births and foetal deaths should be obtained from all women delivered after completion of the 20th week of gestation or giving birth to a foetus of 250 grammes weight.

Resolution 18.—*Terms of Reference:* That the Council may refer to the Committee any matter it considers appropriate. The terms of reference of the Committee in Veterinary Public Health may be understood to include any public health problem having a veterinary component or implication and in particular—

(a) Any matter relating to the incidence, epidemiology, diagnosis, treatment or control of any zoonosis.

(b) The use of animals or the products of animals as a source of food for man; the standard of purity and quality of any such food; the precautions to be taken in its production and distribution; the identification and correction of factors likely to cause such food to produce disease in man or animal whether by infection, deficiency or toxicity.

(c) The use of animals in the preparation of biological products for use in medical or veterinary practice.

(*d*) The use of therapeutic substances, antibiotics, hormones, pesticides or other substances in animal husbandry under conditions likely, indirectly or directly, to affect adversely the health of man.

(e) Recommendations for research projects in any one or more of these.

Resolution 19.—*Leptospirosis:* That those States which have commenced investigations into Leptospirosis on persons employed at abattoirs and other workers at special risk, be asked to continue the work, and that those States which have not yet commenced investigations be asked to do so.

Resolution 20.—*Melioidosis:* That the Queensland Institute of Medical Research be asked whether it would be prepared to undertake investigations into the Aetiology and incidence of this disease for the Council.

Resolution 21.—*Q. Fever:* That States initiate or continue surveys in Q. Fever and that the information obtained, should be forwarded through the Commonwealth for distribution to the other States.

Resolution 22.—*Committee Membership:* That subject to the approval of the Chairman of the Council, the Veterinary Public Health Committee co-opt a medical man to give advice when required on certain zoonosis.

Resolution 23.—*Finance:* (1) The immediate provision of a supplementary grant of £21,000 to cover essential needs for 1960, thereby permitting approved projects and personnel to extend their activities through 1960.

(2) That for the year 1960-61, the appropriation to the National Health and Medical Research Council should be £250,000, in order to permit the Medical Research Advisory Committee to do justice to the research needs of this country.

Forty-ninth Session: Held at the Institute of Anatomy, Canberra, on Thursday, 12th May, 1960.

Resolution 1.—*Medical Research in Australia:* That the scope and future policy of medical research in Australia should be examined by an expert Committee consisting of Australian representatives nominated by the Medical Research Advisory Committee and that the assistance of one or two overseas experts to be enlisted to enable impartial opinion to be put forward during the Committee's deliberations. This committee to comprise of representation from—

Australian National University,
Commonwealth Department of Health.
Research institutes,
Universities,
Clinical medicine,

with power to make other recommendations.

Resolution 2.—*Vitamins:* That the addition of synthetic vitamins to food be controlled by a general prohibition to which specific exceptions may be made by regulation.

Resolution 3.—*Broadcasting and Television—Patent Medicine Advertisements:* That Section 100 (6.) of the *Broadcasting and Television Act* be amended by substituting the following:—

(1) A licensee shall not broadcast or televise an advertisement relating to—

(i) a substance or appliance for which a therapeutic use is claimed, or

(ii) a substance, appliance, method or technique for which cosmetic, physiological or anatomical advantages are claimed,

unless the text of the proposed advertisement has been approved by the Director-General of Health, or, on appeal to the Minister under this section, by the Minister.

Resolution 4.—*Maximum Concentrations of Atmospheric Contaminants for Industrial Exposures:* That the schedule of recommended maximum concentrations of atmospheric contaminants for Occupational Exposures, as recommended by the Committee in March, 1960, should be published as the Australian standards on this subject.

Resolution 5.—That the Australian Atomic Energy Commission be invited to submit to the Chairman of the Council for its evaluation, proposals it has, from time to time, for the production of radio-isotopes in the form of grains, wires, rods, discs, regular and irregular shapes for radio-therapeutic purposes within Australia.

Resolution 6.—*Deaths Reported to Coroners:* (a) That the certificate which the coroner is required to complete for purposes of registering the death should contain provisions for reporting the cause of death in the form prescribed in the international medical certificate of cause of death. Guidance as to the sequence of causes of death from the medical viewpoint can be obtained from the medical practitioner conducting the post-mortem or, if no post-mortem was required, from the medical practitioner(s) advising the coroner as to the cause of death from the medical viewpoint.

(b) That it would be of considerable assistance, in the interests of accuracy, clarity and uniformity, if a schedule of notes was prepared for the guidance of coroners.

Resolution 7.—*Medical Certificate of Cause of Death:* So that the essential difference in the information sought of the certifier in the two parts of the Medical Certificate may be visually accentuated, and in order to avoid the use of Part II. (other significant condition contributing to the death, but not related to the disease or condition causing it) as a space to insert " spill over " information from Part I., it is recommended that—

(1) Two lines be provided for the insertion of the cause in (c) of Part I.

(2) A heavy line be drawn between Parts I. and II.

(3) The heading—" Other significant conditions contributing to the death but not related to the disease or condition causing it " be printed across the certificate, under the heavy line and above the line on which the conditions are entered.

Resolution 8.—*Carcinoma of the Lung:* That the Council expresses itself as strongly of the opinion that, cigarette smoking being a contributory cause in the development of lung cancer, Commonwealth and State Departments of Health, Local Health Authorities and Educational Institutions should devote special attention to a campaign to publicize the risks to health attaching to tobacco smoking. The Council also considers that cigarette and tobacco advertisements on Television and Radio and in the press should be subject to strict control to prevent the fostering of smoking by young people.

SCHOOL OF PUBLIC HEALTH AND TROPICAL MEDICINE

Major developments in the organization of the School, occurring during the period under review, include the establishment of an Environmental Health Section, the opening of a Tropical Diseases Annexe associated with the Section of Tropical Medicine, at St. Vincent's Hospital, Sydney; and a re-organization of the Section of Biochemistry. Additions have been made to the range of instruction provided, including an Industrial Hygiene and Safety course for Engineering students, and an annual course for Industrial Medical Officers.

ESTABLISHMENT OF SECTION OF ENVIRONMENTAL HEALTH

Since the end of World War II. the increase in population, the growth of government services and the development of new industries in the northern areas of Australia and in its tropical dependencies have resulted in renewed interest in the special problems arising from the effects of hot climates on the white inhabitants of those areas. This led the Commonwealth Department of Health, in conjunction with the Department of Territories, the Commonwealth Public Service Board and the Administration of Papua and New Guinea to propose that a survey should be made of living and working conditions in Tropical Australia.

At the request of the then Commonwealth Minister for Health, the Right Honorable Sir Earle Page, the Medical Research Council in London made available the services of an officer with experience in the problems of tropical living to undertake the survey, and the report of his inquiry was submitted in August, 1956, to Doctor the Honorable D. A. Cameron, who had succeeded Sir Earle Page as Minister for Health. Among the recommendations made was one to the effect that a section for the study of environmental health should be established at the School. A proposal to this effect was later submitted by the Minister for Health to Cabinet and approved, and in September, 1958, Dr. R. K. Macpherson was appointed to be in charge of the Section.

The activities of the Section are directed to teaching, research and the provision of authoritative advice on the problems of environmental health. The main lines of investigation are physiological, biochemical and psychological, and one of its main duties will be to provide a body of well-informed and freely-available opinion on the effects of hot climates on living and working in Australia and its Territories. The scope of its subject is very wide, and touches on a range of problems as far apart as housing, air-conditioning, clothing, industrial health, and infant and maternal welfare. Little study has yet been made of the effects of heat on women, children, the infirm, and those at the extremes of life—the very old and the very young—and there is urgent need for investigation on these groups.

Though yet incompletely staffed and equipped, teaching, investigational and advisory services have been vigorously pursued in the past year, as far as the facilities of the Section have permitted.

Research has been hampered by lack of staff, but an Australia-wide survey to define the preferred environmental temperature has been undertaken to meet an urgent need within the Commonwealth Public Service. A comparative study of the acclimatization status of Australian aborigines has also been made in conjunction with Dr. C. H. Wyndham, of the Applied Physiology Laboratory of the Transvaal and Orange Free State Chamber of Mines, Johannesburg.

With the approval of the Medical Director-General of the Royal Australian Navy, a survey has been made by a naval medical officer of environmental conditions in a small warship in the tropics. The Australian Military Forces have

been advised on a number of matters, more especially those referring to the prevention of heat casualties. At the invitation of the War Office, Whitehall, Dr. Macpherson attended a military exercise at Aden as Australian Army representative. Dr. Macpherson had previously assisted in planning the preliminary stages of this exercise, which had been devised to assess the role of acclimatization in tropical warfare.

Assistance has been given in the planning of physiological research in Antarctica, and a programme of research planned for a medical officer of the Antarctic Division of the Department of External Affairs to carry out during his tour of duty at Macquarie Island.

TROPICAL DISEASES ANNEXE, ST. VINCENT'S HOSPITAL, SYDNEY

The provision of ward accommodation and services especially devoted to tropical diseases, at St. Vincent's Hospital, Sydney, fills a long-standing need, and will greatly strengthen our teaching in this subject. In Sydney, as elsewhere in Australia, there was no hospital accommodation reserved for tropical cases, and the distribution of these throughout local hospitals made the provision of clinical teaching material difficult and unsatisfactory. Negotiations conducted at various times over the past twenty years, for the allocation of beds for this purpose in one or other of the metropolitan hospitals, had failed for financial reasons. The requirements of the School have now been excellently met by the provision of a Tropical Diseases Annexe in the Chest Hospital established by the Commonwealth at St. Vincent's Hospital, Sydney. The new hospital was opened by the Minister for Health, Doctor the Honorable D. A. Cameron, on 1st May, 1960, and is named in his honour as the Cameron Wing of St. Vincent's.

TEACHING.

Post-graduate: *Diploma in Public Health* (one academic year).—Subjects comprise: Bacteriology, Parasitology, Entomology, Physiology, Biochemistry, Nutrition, Public Health Practice and Administration, Vital Statistics, Epidemiology, Maternal and Child Health, Hygiene and Sanitation, Communicable Disease Control, Occupational Health and Health Education. In 1958 nine students were enrolled; in 1959 five; and in 1960 ten.

Diploma in Tropical Medicine and Hygiene (six months).—Subjects comprise: Parasitology, Entomology, Bacteriology, Vital Statistics, Tropical Physiology, Nutrition, Tropical Medicine, Tropical Hygiene and Sanitation, Epidemiology, Communicable Disease Control, and Child Health. In 1958 sixteen students were enrolled; in 1959 sixteen; and in 1960 eleven.

University Diploma courses—single subjects provided.—

Diploma in Dermatological Medicine: Mycology, Entomology; *Diploma in Clinical Pathology:* Parasitology; *Diploma in Social Work:* Physical and Mental Health.

Undergraduate: Medicine (5th year)—Preventive and Social Medicine (55 Lectures and practical instruction). The number of students enrolled were 203 in 1958, 210 in 1959 and 213 in 1960.

Medicine (4th year)—Helminthology.
Science (3rd Year)—Protozoology (Advanced Zoology).
Architecture (3rd Year)—Hygiene.
Engineering (3rd Year)—Industrial Hygiene and Safety.

Miscellaneous: Australian School of Pacific Administration—Lectures for teachers, patrol officers and others attending A.S.O.P.A. courses.

Annual Course for Industrial Medical Officers—Arranged by public advertisement—for medical practitioners.

Courses for Armed Services—

R.A.A.F.: Industrial Health for Hygiene Inspectors.

Army: Malaria Control—instruction to local units.

Non-professional Course in Tropical Medicine and Hygiene—For missionaries, planters, nurses and other residents of tropical areas: 30 lectures. Annual attendances are large, e.g., 75 in 1958, 82 in 1959, and 92 in 1960.

Courses in Association with New South Wales College of Nursing: Diploma in Nursing Administration and Sister Tutor's Diploma.—

Public Health and Preventive Medicine: 40 lectures.

Laboratory Instruction: As arranged for Departmental and Territorial officers, and candidates for various services and institutions.

RESEARCH

Bacteriology and Pathology: *Leptospirosis.*—A comprehensive serological survey of leptospiral infection in domestic animals in N.S.W. is nearing completion. This work has been carried out in association with the Veterinary Research Institute, Glenfield. The findings have, in part, been published.

A serological investigation of leptospiral infection in occupational groups in N.S.W. has been completed and is yet to be published.

During the year work was published relating to the initial identification of leptospirosis in the Territory of Papua and New Guinea.

During the year the School has co-operated with the Department of Agriculture, Tasmania, in an investigation of reservoirs of infection in domestic animals as a preliminary to a survey of the incidence of the human infection in occupational groups.

Q Fever.—A serological survey relating to the incidence of the disease in occupational groups of workers in N.S.W. has been completed and will be reported.

Ornithosis—Lymphogranuloma.—With the co-operation of the State Department of Public Health, N.S.W., a limited serological survey of the incidence of psittacosis in pet-shop workers in Sydney has been completed.

Melioidosis.—A matter of Public Health interest has been the identification of strains of *Pseudomonas pseudomallei*, the causal organism of melioidosis, from human cultures received for examination. Melioidosis had been recognized previously in domestic animals in North and North-West Queensland. Of the isolates examined six strains were submitted from the Commonwealth Health Laboratory, Townsville, and one from Darwin. This latter case represents the initial diagnosis of melioidosis in either man or animal in the Northern Territory.

Medical Mycology.—An investigation of dermatophytosis in South Australia is in progress in association with Dr. I. Donald.

Histo-pathology of Tumours.—A long-term study of tumours in the native population of New Guinea was commenced by the establishment of a Papua/New Guinea Tumour Registry, in which the School is associated with the Director of Health of the Territories, the Director of the Tumour Clinic, St. Vincent's Hospital, Sydney, and the Professor of Pathology, University of Western Australia.

The special objective of this work is to define the pattern of benign and malignant new growths in the native people who represent a primitive population, ideally suited for such an inquiry. The purpose of the investigation is not, by any means, purely academic, since it serves also as a very useful diagnostic service with regard to both neoplastic and non-neoplastic lesions. Some interesting results have already emerged from this survey, with particular reference to granulomatous conditions.

Biochemistry: Work has been initiated on the following subjects:—(a) the kinetics of the quinine oxidase system; (b) the correlation of electrophoretic quantitation methods; and (c) the investigation of regenerated rat liver in *Plasmodium berghei* infections.

Entomology: *Mosquitoes and Myxomatosis.*—A co-operative programme with C.S.I.R.O. Wildlife Survey Section, initiated in 1951, has continued along the following special lines:—

(a) Analysis of the data on mosquito behaviour in relation to meteorological factors during field studies in 1950-58. Preliminary graphs of these factors and light, against mosquito catches were also prepared. Including mosquito catch data, about 40,000 figures are now available for analysis.

(b) Again in association with C.S.I.R.O., a periodic assessment of myxomatosis incidence in relation to rabbit density and vector populations has been continued. It is hoped to continue this for some years in order to have a complete history of the effectiveness, and perhaps eventual decline, of the disease in the isolated rabbit population at Mt. Flora, this being the only area in Australia where observations have been continuous since the first introduction of the disease. A sample of rabbit kittens taken in the Spring of 1959 for analysis by Professor Fenner at the Australian National University has given the very interesting result of a considerably lower degree of inherited immunity than in any other area studied in Australia.

Sandflies.—The study of sandfly-breeding zones was continued in estuaries at Careel Bay. Although not remarkably successful, largely because the problem is obviously one for a team rather than one man, our understanding of breeding habitat zonation was advanced and techniques of investigation were given an experimental trial. Light-trap catches of insects were continued at Hornsby and Careel Bay to give an indication of species of pest blood-sucking insects involved in these areas and of their fluctuations throughout the season. Reports on the work undertaken in the previous season were prepared, particularly relating coastal sandfly incidence to the phenomena of the lunar tide cycle. Systematic studies of Australasian sandflies have continued.

Psychodidae.—By invitation, Dr. P. Freeman, of the British Museum, undertook a revision of this family. Special collections of material from varied localities have been made, and forwarded to Dr. Freeman for study. All pre-existing material in the School's collections has also been forwarded.

Mosquitoes.—Precipitin tests of the blood meals of mosquitoes, to determine their feeding preferences, were continued.

Mites.—The identification of material in the large School collection of mites was completed by Dr. P. L. Robertson.

House-flies.—Periodic observations were made of three selected areas to gain some preliminary indications of the relative significance of garbage disposal and specialized vegetable production on domestic-fly incidence.

OCCUPATIONAL HEALTH

Investigations, parts of which were associated with the advisory work of the Section, were made on the following subjects:—

(a) *Toxic hazards in industry*, including T.N.T. and cordite at a munitions factory, lead and trichlor-ethylene.
(b) *Dust hazard* in quarries.
(c) *Ventilation* of spray-painting booths.
(d) *Mercury* fumes in laboratories.

PREVENTIVE MEDICINE

Child Growth and Development: An epidemiological study is in progress, of the records of approximately 800 children who have attended the Lady Gowrie Child Centre, Erskineville. This is designed to elucidate the various factors, environmental and sociological, which affect child growth and development.

PARASITOLOGY

Filariasis: At the invitation of the Director of Public Health, Papua/New Guinea, Dr. B. McMillan visited New Guinea on two occasions (June-August, 1959; April-June, 1960) to investigate the epidemiology of filariasis. On the first occasion he worked on the northern coast between Saidor and Sio where clinical filariasis is very prevalent and in two areas in the Sepik District. On the second occasion a control scheme depending on the mass distribution of Diethylcarbamazine was initiated in the Saidor-Sio area.

Amoebiasis: Studies were continued on the serological diagnosis of amoebiasis using the complement fixation and agar diffusion techniques.

Miscellaneous Parasites: Investigations were made on—

(a) Malarial parasites of local seagulls.
(b) The parasites of marsupials.

Bather's Itch: The parasitology of cercarial dermatitis in coastal lagoons was continued.

Leishmaniasis: Studies were made on *Leishmania* cultures in respect of the action of certain antibiotics. Attempts to infect possums with *L. donovani*, *L. tropica* and *L. adleri* were unsuccessful.

RADIOBIOLOGY

Work, under the direction of Dr. P. L. T. Ilbery, supported by the N.S.W. State Cancer Council, and various aspects from time to time by the Australian Atomic Energy Commission, Post-Graduate Medical Foundation of the University of Sydney, and an anonymous donor, included:

Effects of Lethal Doses of Whole Body Irradiation: Mice were subjected to irradiation and their resuscitation from the damaging effects of this was aided by the intravenous administration of donor bone marrow and latterly by foetal haemopoietic material. As the donor and host material are incompatible the surmounting of this immunological problem has been an important part of the Unit's work.

Leukaemia was induced by irradiation of mice and the underlying mechanism, as to whether a direct or indirect result of irradiation, studied. Mouse leukaemia has been treated by whole body irradiation and bone marrow replacement.

Estimation of Radiostrontium Content of Bone: A simpler method was published for estimating the radiostrontium content of bone, based on a chemical precipitation technique designed to separate strontium from the chemically similar substance calcium.

TROPICAL MEDICINE

Health of Patrol Officers: A report on the health of patrol officers in the Territory of Papua and New Guinea resulting from investigations carried out for the Australian School of Pacific Administration, Mosman, N.S.W., was submitted to the Minister for Territories.

Relapsing Malaria: Work on the eradication of relapsing vivax malaria with primaquine indicates that some cases are due to infection with strains which are fairly resistant to this drug. In the pursuit of this work observations have been made on the clinical features of overt vivax malaria as seen in Sydney. Comment made in a published article on the importance of considering malaria as a possible diagnosis in pyrexia in this country, especially in States where malaria is not endemic.

Transfusion Malaria: In association with the Red Cross Blood Transfusion Service donors have been investigated in cases of accidental transfusion malaria. Infections with *Plasmodium vivax, P. falciparum* and *P. malariae* have been seen. The policy concerning the acceptance as donors of persons who have resided in malarious areas has been discussed with the Service as a result of this work. It is considered that such persons are acceptable under certain circumstances and these have been laid down as instructions within that Service.

VITAL STATISTICS

Studies of the following were undertaken:--

Statistics of fertility in Australia; Australian cancer statistics; Mortality statistics for New Zealand; Mathematical studies on X^2 and related subjects; A morbidity survey of rheumatism in Sydney (with Dr. S. G. Nelson).

PUBLICATIONS.

THE OVIPOSITION BEHAVIOUR OF *Aedes Australis* (ERICKSON) (*Diptera, Culicidae*), A. K. O'Gower. *Proc. Linn. Soc. N.S.W.*, Vol. 83, Pt. 3, 1958, pp. 241-4.

AUSTRALASIAN CERATOPOGONIDAE (*Diptera, Nematocera*), Part VIII. A New Genus from Western Australia Attacking Man, Willis W. Wirth and D. J. Lee. *Proc. Linn. Soc. N.S.W.*, Vol. 83, Pt. 3, 1958, pp. 337-9.

GENERATION LIFE-TABLES IN AUSTRALIA, H. O. Lancaster. Paper read to Section G. Australian & New Zealand Association for the advancement of Science, Adelaide, August 1958. *Aust. J. Sci.*, Vol. 21, Dec. 1958. p. 118. (*Title only.*)

Mosquitoes and Fowl Pox in the Sydney Area, D. J. Lee, F. Fenner and J. J. Lawrence. *Aust. Vet. J.*, Vol. 34, August, 1958, pp. 230-7.

Cancer Statistics in Australia, Part I., H. O. Lancaster. *Med. J. Aust.*, Vol. 2, 1958, Sept. 13, pp. 350-6.

Chloroquine, R. H. Black. (Correspondence) *Med. J. Aust.*, Vol. 2, 1958, Sept. 27, pp. 433-4.

The Mosquitoes of North Western Australia, A. K. O'Gower. *Service Publication, School of Public Health and Tropical Medicine*, No. 7, Sept., 1958, p. 46.

Results of the Clinical Use of Primaquine for the Eradication of Relapsing Vivax Malaria of South-West Pacific Origin, R. H. Black. (Contribution to scientific session of Royal Australasian College of Physicians). Summary only in *Aust. Ann. Med.*, Vol. 7, 1958, pp. 259-60.

Cod Liver Oil, Vitamin E and the Pro-oxidant Theory of Pink Disease, F. R. Barrett. (Correspondence) *Med. J. Aust.*, Vol. 2, 1958, Oct. 25, pp. 585-6.

The Structure of Bivariate Distributions, H. O. Lancaster. *Ann. Math. Statist.*, Vol. 29, Sept., 1958, pp. 719-34.

John Irvine Hunter, 1898-1924, R. E. Murray. *The Gazette*, University of Sydney, Vol. 1, No. 16, Oct. 1958, pp. 225-7.

Acclimatization Status of Temperate-Zone Man, R. K. Macpherson. (Letters to the Editor) *Nature*, Vol. 182, Nov 1, 1958, pp. 1240-1.

Bather's Itch, A. J. Bearup. *Ampoule*, Vol. 1, Dec., 1958, pp. 8-10.

Sandfly Research, D. J. Lee. *Ampoule*, Vol. 1, Dec., 1958, pp. 15-7.

Health Problems in a New Land, Edward Ford. *Ampoule*, Vol. 1, Dec., 1958, pp. 38-44.

Hepatomegaly in Tropical Children, R. H. Black. Chapter in Trowell, H. C. & Jelliffe, D. B., "Diseases of Children in the Subtropics and Tropics", Lond., 1958, pp. 430-3.

Sunlight and Its Effects on the Human Skin in Australia, H. O. Lancaster. *Health*, Vol. 8 Dec., 1958, pp. 107-110.

Sunlight as Cause of Melanoma, H. O. Lancaster. *The Year Book of Cancer*, 1957-58, Chicago, pp. 66-8.

Diabetes and Tuberculosis, H. O. Lancaster. (Current Comment—unsigned) *Med. J. Aust.*, Vol. 2, 1958, p. 579.

Health Education in Papua and New Guinea, R. H. Black. *South Pacific*, Vol. 10, 1958, p. 1.

Examination of Domestic and Field Animals of the Territory of Papua and New Guinea for Evidence of Leptospiral Infection, B. R. V. Forbes and J. S. Wannan. *Aust. J. Sci.*, Vol. 21, No. 4, Nov., 1958, pp. 121-3.

Occurrence of *Ollulanus tricuspis* in Australia, A. J. Bearup. *Aust. J. Sci.*, Vol. 21, No. 5, Dec., 1958, pp. 149-50.

Man as a Tropical Animal, R. K. Macpherson. *The New Scientist*, Vol. 5, Jan., 1959, pp. 228-9.

HEALTH AND VITAL STATISTICS IN THE UNITED STATES OF AMERICA, H. O. Lancaster. (Current Comment—unsigned.) *Med. J. Aust.*, Vol. 1, 1959, p. 57.

ANTIMALARIAL DRUGS AT PRESENT IN USE FOR THE PREVENTION AND TREATMENT OF MALARIA, R. H. Black. *Med. J. Aust.*, Vol. 1, 1959, p. 26.

HAPTOGLOBINS AND HAEMOGLOBINS IN AUSTRALIAN ABORIGINES, R. H. Black. (Correspondence.) *Med. J. Aust.*, Vol. 1, 1959, pp. 175-6.

A MORBIDITY SURVEY OF RHEUMATISM IN SYDNEY, S. G. Nelson and H. O. Lancaster. *Med. J. Aust.*, Vol. 1, 1959, pp. 190-3.

SOME FACTS ABOUT QUEENSLAND, H. O. Lancaster. (Current Comment—unsigned.) *Med. J. Aust.*, Vol. 1, 1959, p. 207.

MORTALITY IN AUSTRALIA, 1951 TO 1955, H. O. Lancaster. *Med. J. Aust.*, Vol. 1, 1959, pp. 350-5.

GENERATION LIFE TABLES FOR AUSTRALIA, H. O. Lancaster. *Aust. J. Statis.*, Vol. 1, April, 1959, pp. 19-33.

DAY-TO-DAY VARIATION OF HAEMOGLOBIN VALUE, HAEMATOCRIT READING AND ERYTHROCYTE SEDIMENTATION RATE IN HEALTHY SUBJECTS, Helen Cotter, H. O. Lancaster and R. J. Walsh. *Aust. Ann. Med.*, Vol. 8, May, 1959, pp. 109-112.

LETHAL RADIATION, P. L. T. Ilbery. *Ampoule*. Vol. 1, No. 2, March-April, p. 5.

THE CASE OF THE FORGOTTEN FLEA, D. J. Lee. *Ampoule*, Vol. 1, No. 3, July, 1959, pp. 9-10.

A GREAT SOCIAL EXPERIMENT, R. K. Macpherson. *Ampoule*, Vol. 1, No. 3, July, 1959, pp. 31-2.

TROPICAL HYGIENE AND ITS INFLUENCE ON ARCHITECTURAL DESIGN, R. E. Murray. *Archt. Res. Rev.*, Vol. 2, July, 1959, pp. 101-5.

MANY MEDICAL PROBLEMS SOLVED IN TROPIC REGIONS, R. H. Black. *Sydney Morning Herald*, August 31, 1959, p. 22.

SERPULIDAE (*Polychaeta*) FROM AUSTRALIA, Barbara Dew. *Rec. Aust. Mus.*, Vol. 25, Sept., 1959, pp. 19-56.

ANKYLOSTOMIASIS OR ANCYLOSTOMIASIS?, T. Clive Backhouse. (Correspondence.) *Med. J. Aust.*, Vol. 2, 1959, Sept. 19, pp. 418-9.

THE HEALTH OF PATROL OFFICERS IN THE TERRITORY OF PAPUA AND NEW GUINEA, R. H. Black. *Med. J. Aust.*, Vol. 2, 1959, Sept. 26, pp. 428-35.

CLINICAL FEATURES OF OVERT VIVAX MALARIA SEEN IN AUSTRALIA: INFECTIONS ACQUIRED IN NEW GUINEA, R. H. Black. *Med. J. Aust.*, Vol. 2, 1959, Oct. 24, pp. 591-3.

A REVISION OF THE GENUS *Tyrophagus*, WITH A DISCUSSION ON ITS TAXONOMIC POSITION IN THE ACARINA, Phyllis L. Robertson. *Aust. J. Zool.*, Vol. 7, October, 1959, pp. 146-81.

THE GENUS *Paradasyhelea* MACFIE, WITH DESCRIPTIONS OF TWO NEW SPECIES FROM EASTERN AUSTRALIA (Diptera: *Ceratopogonidae*), Willis W. Wirth and D. J. Lee. *Bull. Brooklyn Entomol. Soc.*, Vol. 54, October, 1959, pp. 114-21.

Babesia tachyglossi n.sp. FROM THE ECHIDNA *Tachyglossus aculeatus*, T. Clive Backhouse and A. Bolliger. *J. Protozool*, Vol. 6, Nov., 1959, pp. 320-2.

MURINE LEUKAEMIA AND THE RADIATION CHIMAERA, P. L. T. Ilbery, M. J. Corp, J. F. Loutit and F. E. Neal. *Proc. Canad. Cancer Conf.*, 1959. Academic Press, London, edited by R. W. Begg, Vol. 3, p. 367.

SECONDARY RADIATION DISEASE FOLLOWING HETEROGRAFTING, P. L. T. Ilbery. *Proc. Sec. A/asian Conf. Rad. Biol.*, 1958, Butterworths, London, 1959: edited by J. H. Martin, p. 73.

THE ESTABLISHMENT AND ACTIVITIES OF THE ENVIRONMENTAL HEALTH SECTION, SCHOOL OF PUBLIC HEALTH AND TROPICAL MEDICINE, SYDNEY, R. K. Macpherson. *Health*, Vol. 10, March, 1960, pp. 26-9.

PINK PAGES FOR PROLIX PROFESSORS, R. H. Black. (Correspondence.) *Amateur Radio*, Vol. 28, No. 5, 1960, p. 12.

TOWNSVILLE CULICINES AS POSSIBLE VECTORS OF DENGUE AND ALLIED VIRUSES AMONG LOCAL FERAL FAUNA, A. K. O'Gower. *Aust. J. Exp. Biol.*, Vol. 38, 1960, pp. 1-10.

THE EFFECT OF HYDROGEN ION CONCENTRATION AND OF HEAT ON THE COMPLEMENT-FIXING ANTIGEN AND HAEMAGGLUTININ OF ECTOMELIA VIRUS, J. J. Lawrence. *Aust. J. Exp. Biol.*, Vol. 38, 1960, pp. 61-8.

RADIATION INDUCED "ACCEPTANCE" AND THE IMMATURE HAEMOPOIETIC HOMOGRAFT, P. L. T. Ilbery. *Aust. J. Exp. Biol.*, Vol. 38, 1960, pp. 69-78.

SEPARATION OF THE HAEMAGGLUTININ AND COMPLEMENT-FIXING ANTIGEN OF ECTROMELIA VIRUS FROM THE INFECTIVE PARTICLE BY DIFFERENTIAL CENTRIFUGATION, J. J. Lawrence. Letter to the Editor, *Aust. J. Sci.*, Vol. 22, March, 1960, pp. 393-4.

OCCUPATIONAL HEALTH SERVICES, AUSTRALIA, Gordon C. Smith. *World Med. J.*, Vol. 7, May, 1960, pp. 189-90.

HEALTH WORK AMONGST PATROL OFFICERS AT THE AUSTRALIAN SCHOOL OF PACIFIC ADMINISTRATION 1956-1959, R. H. Black. *J. Pub. Service, Territory of Papua and New Guinea*, Vol. 2, 1960, p. 91.

EXPERIMENTAL HAEMOPOIETIC REPLACEMENT—POSSIBLE USE IN RADIOTHERAPY, P. L. T. Ilbery. *J. Coll. Radiol. Aust.*, Vol. 4, pp. 50-4.

AN ACCOUNT OF THE HEALTH ASPECTS OF THE FRENCH CAMPAIGN IN INDO-CHINA, 1945-1954, R. H. Black. *Directorate of Medical Services, Army Head-quarters, Melbourne. Medical Liaison Letter No.* 2/60, 31*st May*, 1960, Part 2 (Mimeographed).

THE SUSCEPTIBILITY OF THE GROUND-SQUIRREL XERUS (*Euxerus*) *erythropus* GEOFFROY, 1803, TO RABIES STREET VIRUS AND ITS POTENTIALITY AS A RESERVOIR OF RABIES IN NORTHERN NIGERIA, Bruce McMillan and L. R. Boulger. *Ann. Trop. Med. Parasit.*, Vol. 54, June, 1960, pp. 165-171.

THE IMPORTANCE OF CULEX FATIGANS AS A VECTOR OF *Wuchereria bancrofti* IN NEW GUINEA, Bruce McMillan. *Trop. & Geogr. Med.*, Vol. 12, June, 1960, pp. 183-5.

INSTITUTE OF CHILD HEALTH

The functions and activities of the Institute have continued along the same lines as in previous years.

TEACHING

A considerable part of the time of the permanent staff has been devoted to teaching at both the under-graduate and post-graduate levels. This includes teaching not only in the Faculty of Medicine, but in the Faculty of Education and in the Department of Social Work, and in the courses conducted by the New South Wales College of Nursing.

In addition, members of the staff of the Institute have collaborated actively with the Department of Tutorial Classes, University of Sydney, and the New South Wales Association for Mental Health in community education programmes in the field of parent education.

RESEARCH

The research activities of the Institute during the year can be grouped under four main headings—

1. Studies designed to collect more information about some aspect (the cause, natural history, prevention, treatment) of a number of diseases and conditions of childhood, namely, rheumatic fever, cancer, cretinism, scurvy, urinary tract infections, endemic goitre, accidents, prematurity, congenital heart disease.
2. Studies aimed at perfecting techniques for the treatment of some forms of heart disease.
3. Experimental studies on animals which might have significance for certain human diseases.
4. A search for more satisfactory techniques of parent education.

Rheumatic Fever: In the past, rheumatic fever was one of the more serious disabling diseases of childhood. It is often characterized by recurrent attacks.

In 1952, a long-term study was commenced to determine the effectiveness of penicillin, administered orally, in preventing recurrent episodes of the disease. At present, approximately 130 rheumatic children are receiving penicillin regularly twice a day in tablet form. The employment, under medical supervision, of a social worker who has kept in constant contact with each family has assisted in keeping so many children in the study-group over the past eight years. No apparent harmful effect has accompanied the administration of penicillin to any child, and the number of rheumatic recurrences has been reduced significantly.

Cancer: It has been shown that malignant disease is one of the commonest causes of death in childhood. A survey of admissions to the Royal Alexandra Hospital for Children has shown that, since 1950, a substantial increase has taken place in the number of children admitted each year with various forms of malignant disease; the peak occurs in the first five years of life.

This study is continuing with the establishment of a Cancer Registry to obtain first-hand information of the distribution and characteristics of the various types of cancer in children as a basis for assessing the various forms of treatment.

Techniques have been developed for the administration of relatively large amounts of a range of potent new chemicals without adverse effects upon the child. A limited trial has been made with those chemicals available in Sydney. This study is being made in conjunction with the New South Wales State Cancer Council.

Cretinism: A small study was commenced two years ago, designed to assess the mental and physical progress of a group of children suffering from cretinism (congenital insufficiency of the thyroid gland). The performance of these children was compared with that of their brothers and sisters. As might be expected the intelligence of the cretins was found to be significantly lower than that of their siblings. In general, the earlier in the life of the child treatment with thyroid gland extract was commenced, the closer the cretin approached the sibling in physical and mental growth.

Scurvy: One of the surprising anomalies of modern medicine is the relatively large number of children being admitted to children's hospitals in Australia suffering from scurvy, a disease that can be easily prevented by infants and children being given adequate amounts of vitamin C either as a fruit juice or in tablet form.

It was decided to investigate the social background of children admitted with scurvy to the Royal Alexandra Hospital for Children and to test the hypothesis that the parents of children admitted with this condition were social isolates, making very little contact with the community at large. Since January, 1960, seventeen children admitted to the Children's Hospital with a diagnosis of scurvy have been investigated; the parents of six of these were New Australians, all of whom had appreciable language difficulty; some other parents were clearly social isolates with poor social inter-relationships, but one or two were, undoubtedly, good mothers who had received inadequate advice about infant feeding. This study is continuing.

Urinary Tract Infection: This study was commenced several years ago with the object of following a number of children treated at the Royal Alexandra Hospital for Children with infections of the urinary tract. A standardized technique has been developed for the collection of urine specimens, and the interpretation of the urinary findings in these children has been placed upon a firm foundation. An important fact emerging from the study is the continued excretion of micro-organisms from the kidney into the urine of some patients with chronic infections in the absence of any symptoms or other findings to suggest continuing disease. It has also been found that treatment must be continued for long periods, months or even years, in some patients in order to control effectively long-established infections.

Endemic Goitre: This is a long continuing study into the cause of endemic goitre in children in parts of Tasmania where it is, apparently, not due to iodine deficiency. The two most important developments in the current year have been the detailed study of epidemics of endemic goitre recorded in groups of school children in Southern Tasmania and the attempts to isolate a chemical substance from the milk of cows feeding on pastures which it is suspected are contaminated with weeds which may contain a substance capable of producing goitre in children. This investigation is being carried out in conjunction with the Division of Public Health, Tasmania, and the Department of Biochemistry, University of Melbourne.

Prevention of accidents in Childhood: This is a long continuing study of the Institute designed to ascertain the causes of accidents in childhood and the most effective forms of parent education to prevent accidents occurring. In 1958 a field experiment was initiated to determine the efficacy of the group discussion method among parents in reducing the incidence of accidents among pre-school children. Approximately 100 mothers from metropolitan kindergartens were trained in safety practices by this method and their children's accident status has

subsequently been noted at eight monthly intervals. Two control groups of mothers and their children have been surveyed in a similar manner. The final check is currently being made.

Prognosis of babies with very low birth-weight: In view of the varying reports from overseas writers it was decided to review the subsequent history of children born with birth-weights of 3 lb. or less. Lists of such children born in the period 1952-54 were obtained from maternity hopitals and mothercraft homes. So far 92 children have been studied. Each child has a complete physical and psychological examination and his emotional status is assessed in relation to his family and environment. In addition studies are made of hearing, vision and teeth. This work is continuing.

Congenital Heart Disease: In conjunction with Dr. Farrow of the Children's Medical Research Foundation, study has been made of the foetal haemoglobin content of the blood of about 500 infants and children attending the Congenital Heart Clinic.

Studies aimed at perfecting techniques for the treatment of some forms of heart disease: During the latter half of 1959 a pump-oxygenator of high standard was constructed and underwent considerable laboratory trial and was first used clinically in December, 1959. It has proved to be highly successful and, to date, twenty children have undergone heart surgery supported by the heart-lung machine with extremely satisfactory results. The majority of the children have had a complete correction of their congenital heart abnormality.

In addition, electronic equipment has been constructed in order to monitor various vital body functions during open heart surgery. This has already been used in a small number of cases and it is proving highly satisfactory. As a result of this developmental work a heart-lung machine and electronic equipment equal to the best available anywhere in the world have been constructed, and requests have already been received from other units working in this country for the supply of similar equipment.

Experimental studies on animals: These experiments were commenced in 1958 and consisted of the destruction of bone marrow in rabbits with either radio-active gold or with exposure to cobalt radiation. After all the marrow was apparently destroyed the rabbits were given transfusions of marrow from other animals in an attempt to replace the initial marrow with living active marrow. These experiments could have a bearing on such human diseases as leukaemia. This work is being done in association with members of the staff of St. Vincent's Hospital.

Parent education: If more of what is at present known about the prevention of disease and the most desirable forms of child rearing, to allow children to grow up healthier and happier, was applied in the community at large the effects would be considerable. There is a great need to bring to parents and members of the public generally knowledge about the prevention of disease and the maintenance of health. A study is being made by members of the staff of the Institute of the effectiveness of the group discussion method in raising the level of parent-craft. A survey of a sample of 90 mothers is in progress to determine factors underlying attendance and non-attendance of mothers at meetings at which child care is discussed. It is hoped that the results of this study will provide information on which to develop later programmes of community education on a wider scale.

Some of the members of the staff of the Institute are collaborating with the New South Wales Institute for Mental Health and the Tutorial Department, University of Sydney, in community education programmes. This year a training programme has been started for non-professional people preparing them to act as leaders of community discussion groups. This was felt to be a necessity because of the limited number of professional workers who are free to act as teachers within the community.

PUBLICATIONS

EMOTIONAL DEVELOPMENT AND BEHAVIOUR PROBLEMS. Clements, F. W. (1958), published in *Diseases of Children in the Subtropics and Tropics*, by H. C. Trowell and D. B. Jelliffe, pp. 65-85.

ACCIDENTS AND POISONING. Clements, F. W. (1958), published in *Diseases of Children in the Subtropics and Tropics*, by H. C. Trowell and D. B. Jelliffe, pp. 832-837.

THE BIOLOGY OF THE CHILDREN OF HOPEWOOD HOUSE, BOWRAL, N.S.W. THE PHYSICAL HEALTH OF THE CHILDREN. Clements, F. W. (1958), *Aust. Dent. J.*, Vol. 3, pp. 383-389.

THYROID DISEASE: PUBLIC HEALTH ASPECTS. Clements, F. W. (1958), *Med. J. Aust.*, Vol. II., pp. 823-825.

A SIMPLE METHOD FOR THE OXYGENATION OF HEPARINIZED VENOUS BLOOD. Cohen, D. (1958), *Aust. and New Zaland J. Surg.*, Vol. 28, pp. 108-109.

AN EXPERIMENT IN ACCIDENT PREVENTION IN CHILDHOOD. Clements, F. W. (1958), *Ampoule*, Vol. I., No. 1, p. 25.

SOME ASPECTS OF THE NEPHROTIC SYNDROME IN CHILDHOOD. Vines, R. H. (1959), *Med. J. Aust.*, Vol. I., pp. 42-45.

MEDICAL ASPECTS OF PYURIA IN CHILDHOOD. McDonald, J. (1959), *Med. J. Aust.*, Vol. I., pp. 152-154.

THE CHILDREN'S MEDICAL RESEARCH FOUNDATION. Dods, L. F. (1959), *Ampoule*, Vol. I., No. 2, p. 44.

SOME ACQUIRED HAEMOLYTIC ANAEMIAS OF CHILDHOOD. Dods, L. F., and Harley, J. (1959), *A'sian Annals of Med.*, Vol. 8, No. 2, pp. 98-108.

CONTROLLED HYPOTHERMIA IN INFANCY AND CHILDHOOD. Cohen, D. (1959), *Brit. Med. J.*, Vol. I., pp. 1435-1439.

THE HYPOPLASTIC AORTIC ARCH SYNDROME. Cohen, D. (1959), presented at the Aust. Paediatric Meeting in Canberra, April 19-21, 1958.

TEMPERATURE GRADIENTS DURING HYPOTHERMIA. Hercus, V., Cohen, D. and Bowring, A. C. (1959), *Brit. Med. J.*, Vol. I., pp. 1439-1441.

THE SPREAD OF CANDIDA IN INFANTS AND CHILDREN. Vince, S. (1959), *Med. J. Aust.*, Vol. II., pp. 143-145.

GENERALISED ENDOGENOUS MYCOSIS IN CHILDHOOD. Vince, S. (1959), *Med. J. Aust.*, Vol. II., pp. 145-148.

THE SURGERY OF CONGENITAL HEART DISEASE. Cohen, D. (1959), *Bull. Post-Grad. Comm. in Med.*, Vol. 15, No. 5, pp. 187-197.

CHANGING FOOD HABITS. Clements, F. W. (1959), published in *South Pacific*, Vol. 10, p. 173.

SHOULD ASCORBIC ACID BE ADDED TO INFANTS DRIED MILK PREPARATIONS? Clements, F. W. (1959), *Med. J. Aust.*, Vol. II., pp. 799-800.

HYPOTHERMIA FOR CARDIAC SURGERY IN CHILDREN. Cohen, D. (1959), *Med. J. Aust.*, Vol. II., pp. 786-789.

THE STATE OF IMMUNIZATION OF INFANTS ADMITTED TO HOSPITAL. A SURVEY. Jervie, Ann (1959), *Med. J. Aust.*, Vol. II., pp. 891-892.

ATAXIA TELANGIECTASIS. Beveridge, J. (1960), *Med. J. Aust.*, Vol. I., pp. 613-616.

PATENT DUCTUS ARTERIOSUS. Cohen, D. (1960), *Med. J. Aust.*, Vol. I, pp. 601-604.

PSYCHOLOGY AND NUTRITION IN CHILDREN. Clements, F. W. (1960), published in *The Journal of Maternal and Child Welfare*, Vol. 31, pp. 14-16.

NATURALLY OCCURRING GOITROGENS. Clements, F. W. (1960), *Brit. Med. Bull.*, Vol. 16, No. 2, pp. 133-137.

THE ROLE OF SOCIAL AND ECONOMIC FACTORS. Clements, F. W. (1960), published in *The International Journal of Health and Education*, Vol. III., No. 2, pp. 66-69.

SEASONAL EPIDEMICS OF ENDEMIC GOITRE IN TASMANIA. Clements, F. W. (1960), *Med. J. Aust.*, Vol. I., pp. 875-880.

THE RISE AND DECLINE OF PINK DISEASE. Clements, F. W. (1960), *Med. J. Aust.*, Vol. I., pp. 922-925.

ANIMAL QUARANTINE AND VETERINARY HYGIENE

There have been several modifications of the Quarantine (Animals) Proclamations and Regulations over this two-year period to meet changes in the global disease position and to consolidate existing legislation.

PROCLAMATIONS

(i) Proclamation 63A of 23rd October, 1958, was issued to consolidate previous Proclamations 55A, 58A and 60A relating to the importation of live animals.

(ii) Proclamation 64A of 20th October, 1959, was issued to cover amendments, indicated later, to regulations 22 and 24 (Statutory Rule No. 87 of 20th October, 1959).

(iii) Proclamation 65A of 15th January, 1960, consolidated and replaced Proclamations 63A and 64A with an amendment at this time to delete Northern Ireland and the Republic of Ireland from the countries from which swine may be imported owing to the presence of Rhinitis in those countries.

(iv) Proclamation 66A of 26th February, 1960, replaced Proclamations 42A and 59A, listing ports where animals may be imported and stations for the performance of quarantine by animals.

(v) Proclamation 67A of 14th May, 1960, amended Proclamation 65A by deleting New Zealand as a country from which swine may be imported owing to New Zealand's continued importations from Northern Ireland. As stated above, importation of pigs from Northern Ireland is prohibited.

REGULATIONS

(i) By Statutory Rule No. 72 of 14th August, 1959, several important alterations to Quarantine (Animals) Regulations were effected.

In the case of dogs imported from New Zealand, Regulation 24 was amended so that they must now be accompanied by a certificate of effective treatment with arecoline hydrobromide against the tape-worm Multiceps multiceps. On arrival in Australia the treatment is repeated at a quarantine station to remove any residual infestation. This tape-worm is not present in Australia and its economic significance lies in the fact that the cystic stage of its life history is passed in the brain of a sheep causing the condition known as "Gid". Dogs from Great Britain are routinely treated whilst undergoing their 60 days detention in a quarantine station.

Regulation 82 dealing with the importation of cooked meats and cooked edible parts of animals contained in hermetically sealed cans or tins was amended so that in the case of such products derived from birds (including poultry) the requirement for ante mortem and post mortem inspection was deleted. The certificate relating to the cooking of such products remains the same.

A new Regulation 95A was made, prescribing the conditions under which Australian meat may be transported on overseas vessels from one port to another in Australia. The principal conditions are that the chambers in which the meat is to be carried must be thoroughly cleansed and disinfected to the satisfaction of the Chief Quarantine Officer, and the vessel must not have any meat on board other than Australian meat or canned meat.

(ii) By Statutory Rule No. 87 of 20th October, 1959, some further amendments were made to the Quarantine (Animals) Regulations.

Regulation 11 was amended to allow a person authorized by the owner of a horse, and who is responsible for shipment of the animal from Great Britain, Northern Ireland or the Republic of Ireland, to sign a declaration instead of the owner. This was necessary as the new owner of a horse was often a person not present in the country of export at the time of shipment.

A new Regulation 22 was made to cover the importation of swine from Northern Ireland and the Republic of Ireland. Permission for these importations was made dependent on the pig having been born in Northern Ireland or the Republic of Ireland, that it had always been free from disease and contact with disease, and certification by a Government Veterinary Surgeon that there has not been a case of Swine Fever in the country of export during the six months preceding shipment. However, as mentioned earlier, a complete ban on the importation of swine has been imposed by Proclamation and is at present in force.

Regulation 24 was amended to permit the importation of dogs and cats from the Channel Islands under the same conditions as apply to dogs and cats from Great Britain and requires that they be shipped from a specified port in Great Britain.

IMPORTATIONS SUBJECT TO QUARANTINE

Domesticated Animals: Importations during the year comprised—

—	From—				
	Great Britain and Ireland.		New Zealand.		Total.
	1958–59.	1959–60.	1958–59.	1959–60.	1958–60.
Horses	26	36	404	512	978
Cattle	1	..	..	..	1
Goats	2	..	..	..	2
Pigs	..	..	1	90	91
Dogs and Cats	247	285	162	157	851

The one head of cattle and two goats from Great Britain were actually en route to Australia at the time when the prohibition of all ruminant animals was imposed as from 31st May, 1958, and their importation was permitted.

Laboratory Animals: Recognized scientific institutions in Australia imported 349 small laboratory animals under quarantine permits during the period; 291 came in 1958-59 and 58 arrived in 1959-60.

In addition the Commonwealth Serum Laboratories continued the importation of monkeys from Asia for use in the preparation of Salk Poliomyelitis vaccine, a total of 19,407 arriving by aircraft, of these 9,481 came in 1958-59 and 9,926 in 1959-60. On arrival these aircraft are specially disinsectized, then thoroughly cleansed and disinfected; all litter and waste is incinerated.

Zoological and Other Animals: A total of 488 animals, mostly carnivores and primates, were imported for permanent quarantine in registered zoological gardens and circuses; of these 160 came in 1958-59 and 328 in 1959-60. Consignments of queen bees and a number of aquarium fish were also imported.

Goods: A wide variety of goods subject to quarantine control was imported including hides, skins, wool, sausage casings and foodstuffs of animal origin.

Apart from consignments of foodstuffs which are imported under the usual provisions of quarantine legislation there has been an interesting increase in the number of uncertificated samples of canned meat and milk products. These are for the purpose of examination and analysis by Australian manufacturers wishing to improve their own products or to manufacture new products. As they are for this specific purpose, special provision is made for their examination by manufacturers after which the samples are incinerated.

Biological Products: The implementation of Item 28A of the Third Schedule to the Customs (Prohibited Imports) Regulations has resulted in a more effective quarantine control of imported therapeutic substances, many of which are derived from animals, being sera, glandular extracts, vaccines, &c. A very close liaison is maintained with the Pharmaceutical Section of this Department and all such importations are carefully scrutinized to ensure that there would be no risk of introducing diseases of animals, more particularly exotic virus diseases.

If there is a significant quarantine risk the importation is prohibited under the provisions of Quarantine Proclamation 6G under which the permission of the Director of Quarantine is required before the importation may be made of vaccines, cultures, viruses, disease germs or substances likely to contain disease germs or viruses.

Exports Subject to Quarantine: The principal animal exports were—

—	1958–59.	1959–60.	Total.
Horses	536	2,359	2,895
Cattle	14,957	11,328	26,395
Buffaloes	..	44	44
Sheep	139,043	257,647	396,690
Goats	7,501	2,797	10,298
Pigs	907	621	1,528
Dogs and Cats	774	764	1,538
Poultry	347,512	648,215	995,727
Miscellaneous (including live fish and birds) ..	44,407	34,571	78,978

Most of the cattle which were exported went to Hong Kong and the Philippines for slaughter but there were also exports for dairy and breeding purposes.

The export of sheep to Singapore and Malaya for slaughter from Western Australia continued and accounted for most of the sheep exports.

All exports were accompanied by health certificates issued by officers of the Animal Quarantine Service together with certificates of testing for disease where appropriate.

An interesting development in the export trade was the export of large consignments of lambs to the United States of America. A senior veterinary official of the United States Department of Agriculture visited Australia during the period to investigate the animal disease position and following discussions, U.S.A. pre-shipment health requirements were agreed upon.

Animal Quarantine Stations: At all State capital city ports, animal quarantine stations have functioned for the detention of imported animals and cattle undergoing quarantine prior to export to Great Britain.

The new Animal Quarantine Station at Spotswood near Melbourne was taken over in 1959. As mentioned in the Report for 1956-58 the Spotswood Station replaces the Coode Island Animal Quarantine Station, as the land on which the latter is situated is required by the Melbourne Harbour Board for port expansion.

Miscellaneous Quarantine Matters: Small portions of meat and meat products, eggs, home-made cheese and straw packing continue to arrive in the luggage of migrants or through parcels post in contravention of Quarantine legislation. Many of these are carried by persons destined for country areas or addressed to persons in such areas and there is therefore a very real risk of meat scraps and other like materials being fed to animals and thus involve a significant risk in introducing diseases of animals.

These items are intercepted by Customs Searchers and passed over to Quarantine Officers for incineration.

Customs officers also co-operated in the control of pet animals on overseas ships of which 1,500 carried pets (707 in 1958-59 and 793 in 1959-60) all of which were the subject of Shipmasters' Bonds. These Bonds are for the safe-keeping of the animals on board whilst at Australian ports and animals are checked at all ports of call not only for disease but also to ensure that they have not been landed.

Interstate Transportation of Cattle: With the greater development of export of large consignments of cattle from Australia and the gradual reduction of coastal vessels suitable for such transport, a demand has arisen for the use of overseas vessels for interstate transportation of cattle as ship loads.

Sometimes the project is to sandwich interstate with overseas voyages from Australia and to transport cattle from the Northern Territory or the northern parts of Western Australia to Queensland for slaughter. This type of situation is covered by Proclamation 10A which prohibits:—

"the removal of any animal from any part of the Commonwealth to any other part of the Commonwealth on any vessel (other than an Australian vessel or a vessel which trades exclusively between Australia and New Zealand) except with the consent of the Chief Quarantine Officer of the State to which the animal is to be removed and subject to compliance with such of the provisions of the Quarantine (Animals) Regulations as the Chief Quarantine Officer directs".

As a working arrangement each application for the use of an overseas vessel for this purpose is considered by the Chief Quarantine Officer (Animals) of the receiving State in consultation with the Chief Quarantine Officer (Animals) of the sending State and the Director, Division of Veterinary Hygiene. This has become essential to achieve uniformity of action and because the Chief Quarantine Officer of the sending State is required to verify certain particulars before loading and to supervise cleansing and disinfection of the vessel.

Each application is considered individually having regard to certain basic requirements.

Conferences: A conference of Chief Quarantine Officers (Animals) was held in Hobart in October, 1958, under the Chairmanship of the Director of Veterinary Hygiene.

The Biennial Conference of Commonwealth and States Veterinarians, under the aegis of the Australian Agricultural Council, was held at Canberra in September, 1959, with the Director of Veterinary Hygiene as Chairman.

This Conference considered disease control measures and problems relevant to the animal disease position in Australia and methods and principles involved in control.

The Biennial Conference in 1959 was preceded by a meeting of the Chief Quarantine Officers (Animals) who considered matters concerning the effective implementation of the Animal Quarantine requirements.

The Director of Veterinary Hygiene was unable to attend the 27th Session of the Office International des Epizooties during May, 1959, at Paris, as Permanent Delegate but fortunately it was possible to arrange for the attendance of Dr. D. F. Stewart, Officer-in-Charge, C.S.I.R.O., MacMaster Laboratory, Sydney, as an alternative. A paper entitled "Airport Inspection of Animals and Animal Products, Treatment of Waste, notably Food Waste Originating from Aircraft" by Mr. K. S. McIntosh, Assistant Director of Veterinary Hygiene, was presented by Dr. Stewart.

The Director of Veterinary Hygiene, as representative of the Department, attended meetings of the Standing Committee on Agriculture of the Australian Agricultural Council at Melbourne in 1958 and Perth in 1959. Each meeting was followed by a meeting of the Council which the Director attended as Adviser.

The Director of Veterinary Hygiene attended meetings of the National F.A.O. Committee held at Canberra, with Dr. Hipsley, as representatives of this Department.

As Chairman of the Cattle Tick Control Commission the Director of Veterinary Hygiene convened Commission meetings at Lismore, New South Wales, this being the field centre of work carried out by the staff of the N.S.W. Department of Agriculture. The 100th meeting of the Commission was held in July, 1958, followed by meetings in December, 1958, and June, 1959. This year was a difficult one for the Commission owing to the re-infestation of large areas of the Grafton and Copmanhurst districts after they had been free from cattle ticks for 15 and 20 years respectively. During 1959-60, the Commission met in October and November, 1959, and in May, 1960. Owing to restricted finance, certain variations in control were instituted with emphasis on prevention of spread of cattle ticks to clean country and eradication in certain areas. At the same time control within the whole area was continued within the limits of finance available. The Commission stressed the need for continued replacement of Arsenic by D.D.T. in dips owing to the spread of Arsenic-resistant ticks. Many dips have already been charged with D.D.T. but the objective is to have all dips so charged. Three areas were found to be free of ticks following eradication treatment and subsequent extensive examinations, and were released from quarantine.

The Assistant Director of Veterinary Hygiene with Dr. Cook of this Department attended a Seminar on Veterinary Public Health at Tokyo in April, 1959. This was organised by W.H.O. in collaboration with F.A.O. and was the first of its kind in the Western Pacific Area. Its object was to identify problems of veterinary public health in the area, exchange information on dealing with these problems, determine guiding principles in their solution, arrange co-ordination of veterinary public health activities in the area, consider training of personnel and other related matters.

Following his visit to Tokyo, the Assistant Director of Veterinary Hygiene visited Hong Kong and Manila and held discussions with the veterinary authorities concerning the shipment of live cattle from Australia.

The Director of Veterinary Hygiene is a member of the Veterinary Public Health Committee set up in 1959 under the aegis of the National Health and Medical Research Council to consider public health problems with a veterinary component or implication, and in particular zoonoses, use of animals and animal

products for food and biologicals, and the use of therapeutic substances, antibiotics, hormones and so on likely to affect the health of man adversely. This Committee has received a number of problems for consideration.

The Division of Veterinary Hygiene has acted as a secretariat in some instances for interstate liaison when Commonwealth-wide uniformity is desired in a specific field under the jurisdiction of State legislations. At the request of the Australian Agricultural Council an inaugural conference of representatives of the States' Stock Medicines Boards was held in Canberra in 1959 and as a result of their deliberations a large measure of agreement and uniform action has resulted.

The Division of Veterinary Hygiene collects each year from the States information on the disease position within Australia and when collated this is furnished for inclusion in the "F.A.O.-O.I.E. Animal Health Yearbook", a publication which was commenced in 1957 and has now developed into a comprehensive directory on world disease incidence of much value to the livestock Quarantine authorities.

The Department was able to arrange for Mr. C. R. Mulhearn, Director of Veterinary Services, Queensland Department of Agriculture and Stock, to act as Australian Representative with Mr. R. F. Riek, of C.S.I.R.O., on the Expert Panel on Ticks and Tick Borne Diseases, formed by F.A.O. Mr. Mulhearn, who became the Queensland representative on the Cattle Tick Control Commission during the year, attended a meeting of the Panel in London during Demember, 1958.

HUMAN QUARANTINE

The Quarantine Service authorized under the *Quarantine Act* 1908-1950, was maintained during the two-year period ended 30th June, 1960.

There were no amendments in this period to the *Quarantine Act* or to the General Regulations or Proclamations issued under the Act. Quarantine procedure was modified, however, by the introduction of a system of Radio-Pratique. Under this system, passenger vessels on regular schedules between the United Kingdom or Europe or North America and Australia are not required to be inspected by Quarantine Officers on arrival at their first Australian port, provided that—

(a) all members of the crew are currently vaccinated against smallpox and a vaccination register is carried;

(b) all passengers are currently vaccinated against smallpox excepting only those who have religious objections to vaccination or who suffer from a medical condition which renders vaccination inadvisable;

(c) an inspection of all on board is carried out by the Ship's Surgeon within twenty-four hours prior to arrival at the first Australian port; and

(d) there are no cases of quarantinable disease on board.

Some forty vessels on regular schedules to Australia fulfil the above conditions and obtain Radio-Pratique.

No case of quarantinable disease was encountered during the two-year period.

TABLE I

Vessels Boarded and Cleared

Port.	1958–59.					
	Surface.			Air.		
	Craft.	Crew.	Passengers.	Craft.	Crew.	Passengers.
Sydney	527	46,689	37,190	629	5,639	20,619
Newcastle	53	2,421	47	..	..	..
Port Kembla	43	1,792	21	..	..	..
Botany Bay	149	7,949	18	..	..	..
Total (N.S.W.)	772	58,851	37,276	629	5,639	20,619
Melbourne	338	30,299	41,704	4	30	88
Geelong	113	5,442	151	..	..	..
Total (Vic.)	451	35,741	41,855	4	30	88
Brisbane	249	16,550	3,545	63	599	2,050
Bowen	7	288	3	..	..	..
Cairns	48	2,585	464	1	7	6
Gladstone	11	567	..	..	..	..
Rockhampton	1	71	..	..	..	..
Mackay	20	816	..	..	..	..
Townsville	59	2,973	784	32	208	120
Thursday Island	12	531	23	..	..	..
Urungan	6	273	..	..	..	..
Amberley	..	..	..	22	151	274
Total (Q'ld.)	413	24,654	4,819	118	965	2,450
Port Adelaide	195	13,389	5,072	..	..	..
Port Lincoln	11	586	8	..	..	..
Port Pirie	16	1,158	42	..	..	..
Port Augusta	1	42	..	..	..	..
Wallaroo	11	494	6	..	..	..
Cape Thevenard	5	228	..	..	..	..
Total (S.A.)	239	15,897	5,128	..	..	..
Kwinana	154	7,735	..	..	..	..
Fremantle	499	58,365	108,129	..	..	..
Albany	68	3,435	295	..	..	..
Broome	2	191	149	..	..	..
Bunbury	54	2,392	70	..	..	..
Carnarvon	6	341	124	..	..	..
Derby	13	1,098	636	..	..	..
Esperance	10	446	17	..	..	..
Geraldton	41	1,752	56	..	..	..
Port Hedland	8	274	..	..	..	..
Wyndham	2	138	..	..	..	..
Yampi	1	37	..	..	..	..
Point Samson	7	461	130	..	..	..
Perth	..	..	..	238	2,410	7,606
Total (W.A.)	865	76,665	109,606	238	2,410	7,606

TABLE I.—*continued.*

Vessels Boarded and Cleared—*continued.*

Port.	1958–59.					
	Surface.			Air.		
	Craft.	Crew.	Passengers.	Craft.	Crew.	Passengers.
Hobart	22	2,699	31	..	..	..
Burnie	3	178	4	..	..	..
Bell Bay	5	220	..	..	..	..
Devonport	1	62	3	..	..	..
Launceston	2	93	..	..	..	..
Beauty Point	2	95	..	..	..	..
Total (Tas.)	35	3,347	38	..	..	..
Darwin	51	1,164	28	949	8,172	25,980
Total (All States)	2,826	216,319	198,750	1,938	17,216	56,743

TABLE 1A.

Vessels Boarded and Cleared

Port.	1959–60.					
	Surface.			Air.		
	Craft.	Crew.	Passengers.	Craft.	Crew.	Passengers.
Sydney	607	43,999	28,166	622	6,241	26,128
Newcastle	92	4,200	83	..	..	..
Port Kembla	78	3,286	19	..	..	..
Botany Bay	142	7,901	12	..	..	..
Coffs Harbour	1	5	..	..	..	..
Total (N.S.W.)	920	59,391	28,280	622	6,241	26,128
Melbourne	334	26,084	32,944	4	31	32
Geelong	134	5,398	60	..	..	..
Portland	2	169	..	1	5	3
Total (Vic.)	470	31,651	33,004	5	36	35
Brisbane	262	17,159	1,631	50	472	1,954
Bowen	2	65	1	..	..	..
Cairns	53	2,685	479	4	36	53
Gladstone	9	400	..	..	..	..
Mackay	22	959	1	..	..	..
Townsville	41	2,054	483	23	227	119

TABLE 1A—*continued.*

Vessels Boarded and Cleared—*continued.*

Port.	1959–60.					
	Surface.			Air.		
	Craft.	Crew.	Passengers.	Craft.	Crew.	Passengers.
Thursday Island	19	558	125	..	..	..
Urungan	2	75	..	..	..	..
Amberley	..	..	..	13	75	70
Bundaberg	1	13	..	..	..	..
Total (Q'ld.)	411	23,968	2,720	90	810	2,196
Port Adelaide	172	10,756	870	..	..	..
Port Lincoln	9	391	3	..	..	..
Port Pirie	21	1,312	60	..	..	..
Port Augusta	2	77	..	..	..	..
Wallaroo	8	334	..	..	..	..
Cape Thevenard	6	228	..	..	..	..
Total (S.A.)	218	13,098	933	..	..	..
Kwinana	152	7,756	..	..	..	..
Fremantle	551	60,743	112,117	..	..	..
Albany	70	3,489	237	..	..	..
Bunbury	56	2,523	37	..	..	..
Carnarvon	2	133	42	..	..	..
Derby	15	1,245	669	..	..	..
Esperance	19	878	23	..	..	..
Geraldton	42	1,771	64	..	..	..
Port Hedland	8	264	..	..	..	..
Wyndham	3	193	4	..	..	..
Yampi	4	148	..	..	..	..
Point Samson	10	669	136	..	..	..
Perth	..	..	..	243	2,415	7,104
Total (W.A.)	932	79,812	113,329	243	2,415	7,104
Hobart	12	1,097	403	..	..	..
Burnie	10	253	213	..	..	..
Bell Bay	9	355	..	..	..	..
Devonport	2	118	9	..	..	..
Launceston	3	215	2	..	..	..
Inspection Head	2	174	14	..	..	..
Total (Tas.)	38	2,212	641	..	..	..
Darwin	57	2,398	102	1,103	9,478	35,544
Total (All States) ..	3,046	212,530	179,009	2,063	18,980	71,007

TABLE II

Infectious Diseases on Overseas Vessels Arriving in Australia—1st July, 1958, to 30th June, 1960

Disease.	Number of Cases.	
	1958–59.	1959–60.
Amoebic Hepatitis and Colitis	..	1
Chickenpox	84	59
Gastro-Enteritis	65	..
Infective Hepatitis	1	2
Infectious Paratitis	..	2
Influenza	17	4
Leprosy	..	2
Measles	149	112
Morbilli	..	11
Mumps	22	24
Paratyphoid	..	1
Poliomyelitis	1	..
Pulmonary Tuberculosis	..	6
Rubella	3	14
Scarlet Fever	1	2
Syphilis	1	2
Varicella	6	3
Whooping Cough	3	..
	353	245

TABLE III

Inspections and Examinations at Australian Ports Required under the Navigation Act

1st July, 1958, to 30th June, 1960

Port.	Number of Vessels Inspected.						Number of Seamen Examined.	
	Primary Inspections.		Annual Re-inspections.		Special Inspections.			
	1958–59.	1959–60.	1958–59.	1959–60.	1958–59.	1959–60.	1958–59.	1959–60.
Sydney	5	1	91	49	13	4	475	463
Newcastle ..	1	1	46	23	2	4	165	343
Melbourne ..	..	1	24	20	35	11	280	293
Brisbane ..	..	..	12	10	5	1	116	131
Cairns	..	..	..	..	..	..	..	29
Townsville ..	..	..	..	..	..	..	12	16
Port Adelaide ..	..	1	15	9	7	..	73	113
Whyalla ..	2	2	..	..	..	..	..	1
Fremantle ..	1	10	8	5	3	3	125	233
Hobart	..	..	2	..	..	..	..	..
Launceston ..	1	..	1	2	2	..	..	..
Devonport ..	1	..	1	..	1	..	..	..
	11	16	200	118	68	23	1,246	1,622

PLANT QUARANTINE

Routine inspection was maintained at all ports of entry for goods of plant origin arriving by air or sea. Air transport is being used increasingly for the importation of perishable plant propagating material.

Inspection of wooden crates and timber for evidence of timber pests has occupied a large proportion of staff. Overseas exporters are more familiar with timber quarantine requirements and are now mostly co-operative. Acceptable treatments in the countries of origin have contributed to a smoother flow of certain crated goods.

Bamboo from Asian countries used in manufactured goods was found frequently infested with borers. To meet the situation all articles containing bamboo are now required to be fumigated with methyl bromide at the port of entry.

IMPORTATION OF WHEAT FROM CANADA

During 1957-58 a drought in the Eastern States left grain reserves at a very low level. Late in 1958 bulk importations of Canadian wheat were permitted to Sydney flour mills where storage, milling and careful scrutiny for escaped weeds could be policed by quarantine inspectors. Weed seeds, Charlock in particular, were found in the wheat, and accordingly every precaution was exercised, including the sifting of the weeds from the wheat in the flour mills and the removal of all residue from rail trucks which carried the wheat from ship to mill. Importations of this nature place a strain on quarantine resources.

There was a similar experience with a bulk maize importation. The grain was processed under quarantine to ensure no possible escape of diseases, particularly Boil Smut.

THE RICE INDUSTRY AND ITS PROBLEMS

Endeavours are being made to establish a rice industry in Northern Australia. From the outset it has been beset with attacks by various Stem Borer pests and certain diseases. The Murrumbidgee Irrigation Area in New South Wales has a thriving rice industry established on a sound introduction procedure and free of the important diseases and pests. To safeguard this unique situation arrangements were made early in 1960 for brown rice from the Northern Territory to be processed under quarantine control in Sydney before being distributed as polished rice which does not represent any quarantine risk.

LIFTING OF IMPORT RESTRICTIONS

The lifting of the import restrictions by the Department of Trade early in 1960 created certain problems for plant quarantine. There was a tendency for primary industries to look to plant quarantine for protection previously provided by the import restrictions. This Department has consistently maintained a policy that plant quarantine should be used only for sound biological reasons. The importation of broom millet for processing was permitted when the Department was satisfied that all risks of introducing pests, particularly the European Corn Borer, Durra Stem Borer, and diseases had been eliminated by proper treatment carried out under adequate supervision.

By Proclamation 47P (proclaimed 24th December, 1957), the importation of lucerne seed was prohibited because of the risk of introducing *Corynebacterium insidiosum*, the cause of bacterial wilt. This is an introduced disease of the U.S.A. where it has caused immense losses in susceptible lucerne varieties. Statutory Rule No. 73 of 1959 prohibited the importation of Centrosema and Melilotus alba except by permit. Proclamation 48P was issued on 9th April, 1958, demarcating the area in Tasmania known to be infested with Sirex. This was revised by Proclamation 49P on 22nd January, 1960.

The policy of limiting nursery stock importations to quantities which can be adequately screened in quarantine has been pursued.

Further progress has been made with the scheme whereby new commercial fruit varieties are established under post-entry quarantine. For example, strawberries, peaches, apples and vines are subject to indexing for virus freedom by pathologists before release. Staff and facilities are limiting factors in the development of this important facet of plant quarantine work.

VALUABLE RESULTS OF RESEARCH WORK

Certain research, not covered by any other institutions in Australia, has been continued. Useful information was obtained from some methyl bromide fumigation treatments carried out on nursery stock in England before transport by air to Australia. This was possible only through the co-operation of the British Ministry of Agriculture and Food. The work of devising a satisfactory treatment to free nursery stock of European Red Mite has been concluded successfully. Valuable knowledge has been gained by participating in the referee testing of seed samples for disease content organized by the International Seed Testing Association Seed-Borne Disease Committee.

The Director of Plant Quarantine has completed a two-year term as Chairman of the South-East Asian Plant Protection Committee set up by F.A.O. Meetings have been held at Kandi in Ceylon and New Delhi, India.

PLANT QUARANTINE PUBLICITY

Plant Quarantine publicity has been consolidated. A film on Codling Moth, of special value for Western Australia, has been produced and circulated widely. Practically all airlines are placing quarantine publicity pamphlets on aircraft or in passenger lounges. Overseas publicity has been intensified. Before their departure migrants now receive a Plant Quarantine brochure, mostly in their native language. Films with English or foreign language sound tracks are shown on migrant ships.

TERRITORY HEALTH

AUSTRALIAN CAPITAL TERRITORY

Due to the unusual system of local government in Canberra, the Department of Health is called upon to assume certain responsibilities and to perform certain duties which would normally be functions of a local municipal council.

The administration of Canberra and the Australian Capital Territory is the direct responsibility, in the case of health services, of the Minister for Health.

HEALTH INSPECTIONS

A staff of four health inspectors, under the Medical Officer of Health, closely supervised those matters affecting the health of Territory residents.

Chemical and bacteriological tests of the city's water supply were made and samples of milk were frequently taken for chemical and bacteriological analysis.

Hygiene problems associated with the construction of the Upper Cotter Dam have received much attention. Research into possible sources of discolouration of the Cotter River has been maintained.

The numbers of licences issued for various purposes during the two years under review were—

Premises.	As at 30th June.	
	1959.	1960.
Prepared Meat Vendors	123	127
Ice Cream Vendors	13	12
Barber's Shops	37	35
Milk Vendors	76	136
Eating Houses	43	46
Meat Vendors	30	31
Boarding Houses	23	26

The District Nursing Service made a total of 9,857 visits in 1958-59 and 9,896 in 1959-60.

CHILD HEALTH

Medical Examinations of School Age Children: Regular visits to all A.C.T. schools were made by the School Medical Officer and the School Nurse. The number of routine examinations carried out during 1958-59 totalled 2,975. These examinations resulted in the following defects being notified to parents as requiring treatment:—Vision 209, hearing 68, nose and throat 107.

In 1959-60, examinations increased to a total of 4,166 resulting in the following defects being notified:—Vision 302, hearing 99, nose and throat 132.

In addition there were 108 cases of minor hearing loss in 1958-59 and 115 cases in 1959-60. Also there were various miscellaneous defects noticed about which advice was given. The Medical Officer arranged 217 personal interviews with parents in 1958-59 and 244 in 1959-60.

Pre-school Children: During the year 1958-59 the pre-school programme had to be curtailed and time permitted only 187 children to be inspected. Of these, 21 had ear, nose and throat defects and twelve others had miscellaneous defects including congenital heart, hernia, gross dental caries and orthopaedic conditions. During 1959-60, 182 examinations were carried out. Twelve of the children examined had defects requiring treatment.

Infant and Maternal Welfare: Seven full-time triple-certificated sisters of the Canberra Mothercraft Society maintained nine Baby Health Centres which provided a nursing advisory service, including home visits. During the year 1958-59, 2,642 children in the age group 0-2 years attended the centres and 3,843 home visits were made. During 1959-60, 3,048 children in the same age group attended the centres and 3,835 home visits were made.

The Canberra Mothercraft Society, subsidized by the Department of Health, administered the Infant Welfare Service in Canberra.

Immunizations: Immunization sessions were held regularly at Baby Health Centres for the prevention of diphtheria, whooping cough and tetanus (a combined vaccine was used for these diseases), and poliomyelitis. During 1958-59, 4,759 injections of Triple Antigen and 4,849 of Poliomyelitis Vaccine were given and in 1959-60, 5,442 injections of Triple Antigen and 6,808 of Poliomyelitis Vaccine were given.

School and Pre-school Dental Service: The number of children examined and treated in 1958-59 totalled 5,282, while in 1959-60 this number increased to 7,180.

New clinics were put into operation at Lyneham and North Ainslie Schools, and a new building which provides both office and surgery space was opened at Civic Centre.

Free Milk: At 30th June, 1959, 8,208 children attending twenty schools in the Territory were each receiving one-third of a pint of milk each school day. At 30th June, 1960, the number of children receiving milk increased to approximately 9,000 and the number of schools to twenty-five.

Free milk for school children is provided under the *States Grants (Milk for School Children) Act* 1950.

VETERINARY SERVICES

The veterinary interests of the Commonwealth Department of Health within the Australian Capital Territory include the prevention and control of diseases of stock, the supervision of the hygiene and health of animals at dairies and piggeries, an advisory service for district stock-owners with field diagnosis on a herd or flock basis supported by laboratory confirmation, and the control of the Canberra Abattoir, an establishment at which a full meat inspection service of high standard is provided.

Canberra Abattoir: The Canberra Abattoir is conducted by the Department of Health and is a responsibility of the Division of Veterinary Hygiene.

During the past two years veterinary activities carried out at Canberra Abattoir, additional to the routines of management and supervision of meat inspection, have included the use of abattoir facilities to—

(i) perfect laboratory techniques for the detection of internal parasites of sheep and cattle by faecal examinations;

(ii) follow to a conclusion field trials on the use of synthetic hormone implants which are claimed to increase the carcase weight of lambs; and

(iii) locate suitable lines of sheep and cattle for field experiments and to follow through subsequently, by post-mortem examinations at slaughter, stock treated in controlled groups to determine the efficacy of a new preparation, under trial by the C.S.I.R.O., intended for the control of liver fluke infestations.

On the functional side, it is of interest to record the considerable increase in throughput at the Canberra Abattoir in recent years. Since the Abattoir was opened in 1944 the numbers of cattle and sheep slaughtered have increased almost three-fold, and pigs have increased more than twenty-fold.

This increase in the volume of stock slaughtered has necessitated planning for an increase in size of all sections of the Abattoir. Some of these extensions have already been carried out—the by-products section and the stock yards and pens have been suitably enlarged and the modern chiller extensions which are now in use are appreciated by all who use them.

As the result of a policy decision announced by the Minister for Health in September, 1958, the principle of free trade has been in operation since then. Meat can now enter the Australian Capital Territory from other suitable abattoirs, subject only to restrictions imposed for health reasons. Previous to this arrangement the policy had been to limit permits for the introduction of meat to those types of meat which were in short supply in this area.

The volume of meat handled through the Abattoir during each of the two years covered was comparable to that handled in recent years, although on the basis of animals slaughtered, the throughput for 1957-58 at first seemed much greater; however, the larger number of stock slaughtered in 1957-58 was mainly due to the drought season that year with a consequent throughput of lighter carcases.

The number of animals slaughtered during the two years ended 30th June, 1960, was—

—	1958–59.	1959–60.
Cattle	8,458	7,797
Calves	1,449	945
Pigs	4,425	4,517
Sheep and Lambs	66,115	70,994

The Abattoir is operated on the solo system and each firm with a permit to slaughter provides its own labour to handle its stock through the works. There has been a further increase in the number of firms with permits to slaughter from ten in 1958-59 to twelve in 1959-60.

Abattoir by-products are the property of the Commonwealth and are marketed as meat and bone stock-feeding meal, blood and bone fertilizer, bone meal, tallow, concentrated ox-gall, washed hair, horns, sinews, glue pieces, and animal casings.

To facilitate the handling of by-products and their conversion into saleable products, a contract was let during the year 1959-60 for the installation of modern machinery which is largely automatic in operation. This equipment is designed to receive those by-products of the slaughter-floor which need heat processing, deliver them after automatic slicing and washing to the digestors, and then after heat treatment deliver then on further through an automatic press which expresses the fats for tallow production and sends the residual cakes to the milling area for conversion into meat meal, bone meal or blood and bone fertilizer. Installation should be completed in August, 1960, and this equipment is expected to improve the quality of some products as well as increase the efficiency of by-product processing.

Besides the normal Abattoir functions, the opportunity is taken from year to year, as the needs arise, to investigate at the Canberra Abattoir, matters of animal health of importance to the livestock industry. During 1959-60 suitable lines of sheep and cattle for field experiments were located for the Commonwealth Scientific and Industrial Research Organization who treated them with various medicaments intended for the control of liver infestation. Subsequently the stock treated were followed through by post-mortem examination on slaughter.

As at 30th June, 1960, there were fourteen men on the Commonwealth staff employed full-time at Canberra Abattoir, including two Meat Inspectors. In addition, the Senior Veterinary Officer is also Superintendent of the Abattoir, and the central office accounts section handles the accounts side of the Abattoir business.

Field and Laboratory Veterinary Services: Veterinary advice to stock-owners was freely available on disease and husbandry problems concerning their herds or flocks. Examinations were usually carried out in the field, but many examinations were also carried out in the veterinary laboratory at the Institute of Anatomy, on animals brought in by stock-owners, and specimens collected by veterinary officers in the field.

Radio broadcasts were given over station 2CY on contagious footrot in sheep, Haemonchosis in sheep, Pentachlorphenate and the control of Liver Fluke, Snails, and Red Mite infestation of poultry. *The Canberra Times* published several articles of topical interest on stock diseases, prepared by this Department.

Diseases and conditions investigated during the two years included mortalities or economic loss caused by the following:—

(a) Diseases declared under the A.C.T. *Stock Diseases Ordinance* 1933-1958—

Cattle: mastitis, actinomycosis, tuberculosis, blackleg, black disease, enterotoxaemia.

Sheep: mycotic dermatitis, contagious footrot, enterotoxaemia, black disease, brucellosis, and infestations of ked, lice and psorergates ovis.

Poultry: fowl pox, infectious laryngo-tracheitis and pullorum disease.

(b) Diseases and conditions not declared under the A.C.T. *Stock Diseases Ordinance* 1933-1958—

Cattle: liver fluke infestation, eye cancer, neurofibroma, bloat, paramphistomum infestation, infertility, phalaris grass poisoning, and footrot.

Sheep: pregnancy toxaemia, toxaemic jaundice, pneumonia, dystokia, prolapse, neo-natal mortalities, photosensitization, internal parasites (trichostrongyles, haemonchus, ostertagia, nematodirus and liver fluke), hypocalcaemia, mastitis, post-dipping lameness, balanitis, phalaris grass staggers, carbon tetrachloride poisoning, cheilanthes tenuifolia poisoning and chronic copper poisoning, foot abscess, bacterial discolouration in wool, tetanus, oestrous ovis infestation, epididymitis, urinary calculi, and sodium monofluoroacetate poisoning of sheep in a paddock where this chemical had been laid as a poison bait for rabbits.

Poultry: coccidiosis, uraemia, blackhead, leucosis, chronic respiratory disease, internal parasites, red mites, lice, Vitamin A deficiency and problems of feeding and management, and heat apoplexy mortalities.

The movements of stock in and out of the Territory were watched as a safeguard against spread of disease, and appropriate health certificates were issued for animals moving to other States.

Throughout the two years routine and frequent inspections were made of the registered dairies and dairy herds within the Australian Capital Territory to ensure that the herds, premises and dairy procedures conformed with the requirements of the Public Health (Dairy) Regulations. An interesting development during 1960 was the decision of two dairymen to build the labour-saving type of dairy, known as the herringbone design, which has become increasingly popular in New Zealand in recent years. The first of these for the Australian Capital Territory is now nearing completion.

All dairy stock on these registered dairies, which totalled 2,605 head for 1958-59 and 2,618 for 1959-60, were tested with C.S.L. tuberculin intradermally and when doubtful reactions were observed the short thermal test was used for confirmation. Four positive reactors were discovered during 1958-59 and only one during 1959-60. These were removed from the herds and slaughtered.

Milk samples were collected regularly throughout the two years by the health inspectors and submitted to the veterinary laboratory for bacteriological examination, and in addition several samples were collected on dairies by veterinary officers and also examined. In all, a total of 323 samples were handled in this way during 1958-59 and 298 samples in 1959-60.

To protect the dairy replacement stock from brucellosis, 440 calves between the ages of five and eight months were inoculated with strain 19 Brucella Abortus vaccine during 1958-59, and 399 calves were inoculated during 1959-60. The vaccine was prepared by the Commonwealth Serum Laboratories.

Periodic inspections were also made of the piggeries located within the A.C.T. to ensure that they continued to comply with the requirements of the Public Health (Piggeries) Regulations.

CANBERRA COMMUNITY HOSPITAL

A statistical summary of the activities of the Canberra Community Hospital for the two years ended 30th June, 1959, and 30th June, 1960, is set out below:—

—	1958-59.	1959-60.
Total number of daily occupied beds	69,326	71,647
Daily average number of patients	190	196
Total number of births	1,380	1,540
Total number of deaths	151	139
Total number of major operations	886	976
Total number of minor operations	5,328	5,562
Out-patients—		
Total number of out-patients treated	10,167	12,544
Total number of treatments	15,008	17,396
X-ray Department—		
Number of examinations	6,762	7,961
Number of examinations (miniature machine)	5,202	7,206
Ambulance Service—		
Number of calls attended	3,366	3,989
Number of miles travelled	31,780	40,560
Physiotherapy Department—		
Number of patients	1,853	2,971
Number of treatments	12,267	17,056
Dental Clinic—		
Number of patients treated	1,100	1,319
Number of attendances	4,868	4,966
Pre- and post-natal clinic—		
Number of patients attending	781	983
Number of attendances	5,190	6,562

NORTHERN TERRITORY

Whilst considerable expansion has taken place in the Northern Territory Medical Service, especially in recent years, there are still immense administrative problems arising from the need to provide a satisfactory health service to a relatively small population (36,000) scattered over more than 500,000 square miles.

The provision of an adequate service to meet the needs of the sparse European and aboriginal population, alike, calls for a divergence of activity as well as a high degree of professional and technical skill, yet it is often difficult to attract staff because of disadvantages, real or imaginary, attached to living in the Northern Territory. Then, too, whilst the service has to be flexible in operation in order to be effective, it must conform to accepted Administrative standards.

AERIAL MEDICAL SERVICE

The Aerial Medical Service demonstrates how one phase of the problem of communication has been attacked successfully. The use of radio communication in conjunction with departmental air ambulances based at Darwin and Alice Springs has brought a new measure of confidence to the people of the outback. Residents in remote areas can now receive direct medical advice at any hour of the day or night by radio and be evacuated to hospital by air ambulance within a few hours in times of emergency.

Although on call in times of emergency, the aircraft are also used for routine flights which bring them to remote areas. This system of visiting is proving successful from the preventive medicine aspect. In addition, it has become exceedingly popular with people in remote areas and with whom harmonious relationships have been established.

Road ambulances stationed at the hospitals at Darwin, Katherine, Tennant Creek and Alice Springs support the Aerial Medical Service as well as provide a normal ambulance service to those communities.

The need for flexibility in the service is essential. For example, between August and December, 1959, a chest X-ray survey of the white and native population was carried out in co-operation with the Anti-Tuberculosis Association of New South Wales. This survey not only called for the organization and movement of staff and equipment between centres, but also involved skin testing of all children by the staff. The results of the survey are discussed later in this report.

Progress in Air Services operating between Australia and countries overseas has led to a considerable increase in the volume of work undertaken by the Quarantine staff. Currently, there are 800-900 scheduled and 200-300 unscheduled flights per annum of overseas aircraft through Darwin Airport. Many of these aircraft arrive during the evenings or in the early morning.

The build-up in the cattle trade with Eastern countries has also had its effects. As Darwin is now receiving regular visits of cattle boats from ports of other countries, an additional burden has been placed on the Quarantine staff.

Hospitals form a large section of the Division's activities. A rise in population and advances in medical science are accentuating the need for a hospital expansion and re-building programme, the planning for which is receiving the Department's attention.

The influenza epidemic (A/Asian strain) towards the end of 1958 was responsible for five native deaths and a further 21 native deaths occurred in areas affected by the epidemic where co-existing chronic disease was present. There were 131 native deaths in all Northern Territory hospitals of which 72 were under the age of five years and 46 under the age of one year. The most serious problem amongst the native population is malnutrition with anaemia and associated complications Bronchopneumonia and Gastroenteritis.

The quarantine work has been fully transferred to Quarantine Assistants since February, 1960, allowing the Health Inspectors to concentrate more on actual health work.

Food shops have generally improved throughout the Territory, particular attention having been given to lining and ceiling of premises, the installation of double bowl washup sinks and the provision of hand washing facilities. Modern refrigeration has assisted considerably to raise the standard of food selling.

Hotels have been considerably improved by the co-operation of the Licensing Police who request our recommendations and place them before the Licensing Magistrate.

Darwin water supply from Manton Dam remains of good quality and adequate to date.

Katherine water supply from the Katherine River is also good and in adequate quantities.

Tennant Creek water supply is very poor and consists of cartage by water tanker from two poor sources pumped into individual tanks on each residence, at a minimum cost of 70s. per 1,000 gallons. An alternative supply is being

developed in a series of shallow wells in the Cabbage Tree Flat area five miles south of the town. This water has a high saline and mineral content and is not favoured.

Alice Springs water supply obtained from the subterranean lake beneath the township has improved considerably by the installation of new bores and the replacement of the open wells by closed bores.

Sanitation is progressively improving throughout the Territory, the accent being on water closet systems. Pan systems and septic tanks still operate in Alice Springs and Tennant Creek. A sewerage scheme for Alice Springs is being developed.

Darwin's sewerage scheme continues to expand.

MOSQUITO CONTROL

Other than in Darwin and Katherine, mosquitoes are no problem other than the nuisance variety, culex fatigans, which usually becomes apparent and is easily controlled.

In the top end of the Territory, there is the ever present danger of Malaria as anopheline breeding is widespread, but with the constant treatment and elimination of the human carriers, the danger of an outbreak is remote. Sporadic cases still occur and mosquito control measures are carried out by fogging all buildings in the area with a 10 per cent. D.D.T. solution and larval control effected by spraying where practicable.

Salt water breeders cause considerable nuisance at times, but, in this case, control is undertaken by the Darwin City Council.

SETTLEMENTS AND MISSIONS

Native settlements and missions throughout the Territory are visited by Health Inspectors at intervals. Any suspected or obvious outbreak of disease is investigated and reports forwarded to the authorities concerned. Because of the lack of a conception of the need for observing hygiene principles by most aborigines, it is difficult to maintain standards of hygiene and sanitation but efforts are continually made to effect improvement.

SCHOOL MEDICAL SERVICES

It has been possible to devote more time during the last twelve months to routine examination of school children than during the year ended 30th June, 1959.

For several months a second medical officer has been available for the Darwin area to see children at seven pre-school centres and new intakes at the primary schools. This has given the Medical Officer for Schools an opportunity to commence examination of Alice Springs pupils (for the first time in two years) and those attending schools en route to Alice Springs.

The weekly immunization paediatric clinics at Darwin have been continued and well attended.

INFANT HEALTH CLINICS

In both centres more accent has been placed on home visiting. This has been made easier by the appointment of a second Infant Health Sister in the Darwin Area in February, 1960.

NATIVE HEALTH

Routine medical visits of missions, settlements and cattle stations were continued during the period, whilst special visits were made to investigate diseases.

Thirty-three new cases of leprosy were found in 1959-60 at Maningrida, Darwin, Auvergne, Groote Eylandt, Inverway, Victoria River Downs, Oenpelli, Port Keats, Beswick Settlement, Yirrkala, Roper Valley, Leguna and Millingimbe. All contacts were followed up. In 1958-59 forty cases were notified.

Thirteen cases of Malaria occurred in the Northern Territory during 1959-60 of which nine cases were confined to the native population. Ten occurred in 1958-59.

T.B. X-RAY SURVEY

With the aid of the R.A.A.F., the Anti-Tuberculosis Association of New South Wales visited all accessible missions, settlements and cattle stations for the purpose of conducting on behalf of the Department of Health, a mass chest x-ray campaign on natives as well as white people. A number of cases of active pulmonary tuberculosis were detected but the total incidence revealed a rate similar to that existing in the States in white residents, and slightly higher, but of no great significance, in aborigines.

Statistics of this survey are as follows:—

——	White.	Part Coloured.	Full Blood.	Total.
Number examined (X-rayed) ..	9,730	1,038	8,092	18,840
Active Pulmonary Tuberculosis	8	..	13	21
Doubtful Active under investigation	3	3	11	17
Inactive Pulmonary Tuberculosis	121	9	180	310
Non Tuberculous Abnormalities	145	11	230	386

HOSPITALS

The number of patients requiring admission generally to Darwin Hospital has continued to increase. The Nursing Staff establishment has increased by 23. At present sixteen of these positions are occupied by trained staff, but with continued expansion of the nursing training system they will gradually be replaced by trainee nurses.

Bagot Hospital continues to operate for convalescent patients, thereby relieving the native wards at Darwin Hospital. The staff also treat the natives of nearby Bagot Reserve for minor illnesses, and maintain contact and supervision over natives awaiting repatriation.

At Alice Springs Hospital a general increase in activities has occurred, particularly in the obstetrics section. An additional 24 births took place during 1959-60 giving a total for the year of 183.

An increasing volume of work is being carried out at the Katherine Hospital with a comparison of 8,131 daily occupied beds for 1959-60 against 6,312 for 1958-59.

At Tennant Creek Hospital 8,030 out-patients were treated in 1958-59 and 6,430 in 1959-60, and the occupied bed-days were 4,069 in 1958-59 and 3,256 in 1959-60. A number of the more serious medical and surgical cases for whom suitable treatment was not available locally were transferred to the larger hospitals at Darwin and Alice Springs respectively.

During the major part of the year regular visits by a Medical Officer to Banka Banka, Renner Springs, Helen Springs, Elliott and Newcastle Waters were continued.

Out-patient attendances at the Batchelor Hospital (which operates as an out-patient department only) were 3,877 in 1959-60—slightly less than in 1958-59 (4,357)—despite the fact that there is no mining of ore taking place. The major work now is treatment of the ore to extract uranium oxide.

During 1959-60 there was a further increase in the number of Aerial Medical Service flights carried out. Darwin-based aircraft made a total of 279 flights in the year, whilst the Alice Springs-based aircraft made 84 flights in the same period. Hours, miles flown, landings made and patients carried all showed an increase over the previous year.

The routine visits by medical officers to missions, settlements and cattle stations were maintained in 1958-59 and were increased during 1959-60.

HEALTH LABORATORY

The bulk of the Laboratory work continues to be routine investigations on the population of the Darwin area, but specimens for examinations arrive from all parts of the Northern Territory.

The amount of Public Health work, particularly bacteriological examination of milk has increased considerably in the last year.

A large native population survey of Oenpelli for Salmonella excreters is in progress. This is the first such investigation undertaken here. This information will be a valuable addition to the considerable information already collected on the parasitology of these people.

Information on the causes of death in the native population is still being collected. The present post mortem studies into this matter have been going for four years now and include almost 200 autopsies. Interest is still concentrated on infants and young children among whom malnutrition, iron deficiency and a high mortality persists.

DENTAL SERVICE

The main clinic in Darwin has been kept very busy during the period under review. The Darwin school clinic was in operation for seven weeks and the Parap school clinic for seventeen weeks of the year 1959-60.

The Overland Mobile Dental Unit operated three times during the year, for twelve weeks, five weeks and eighteen weeks respectively, visiting the main centres between Darwin and Alice Springs and native and other settlements within reasonable distance of the Stuart Highway.

One clinic operated at the East Arm Settlement for a period of approximately two weeks.

In addition a dentist visited the Cocos (Keeling) Islands Group.

Aerial Mobile Clinics visited 44 settlements, including missions, cattle stations and welfare settlements. All of these received one visit excepting Bathurst Island (three visits), Maningrida (two visits) and Snake Bay (two visits).

Alice Springs Clinic made visits to four Welfare Settlements (Yuendumu—two visits), two missions, five cattle stations and the township of Finke.

Health Services provided at main Northern Territory Hospitals.

—	Darwin.		Alice Springs.		Katherine.		Tennant Creek.		Batchelor.	
	1959–60.	1958–59.	1959–60.	1958–59.	1959–60.	1958–59.	1959–60.	1958–59.	1959–60.	1958–59.
Total number of daily occupied beds	68,292	61,343*	33,388	31,989	8,131	6,312	3,256	4,069	..	..
Average number of daily patients	187*	168*	91	87	22	15	9	10	..	..
Total number of births	525	529	183	159	49	49	38	37	..	..
Total number of deaths	98	86	83	50	18	17	7	16	..	..
Total number of post-mortem examinations ..	109	81	36	19	17	25	8	7	..	..
Total number of major operations	373	470	168	102	2	..	11	20	..	..
Total number of minor operations	1,528	1,170	497	595	122	82	61	97	..	1
Total number of out-patients treated	54,408*	47,060*	17,427	18,969	3,947	4,052	6,430	8,030	782‡ 3,095§	796‡ 3,561§
Dispensaries—										
Prescriptions dispensed	20,824	17,941	8,633	6,152	11,195	9,892	2,926	9,021	..	..
Daily average of prescriptions dispensed per working day	86	74	34	24	35	31	8	26	..	..
X-ray Departments—										
Number of examinations	7,830	7,744	2,853	3,380	469	245	285	174	..	..
Number of exposures	13,077	12,176	4,900	5,548	676	341	432	188	..	..
Ambulance Services—										
Number of trips	1,661	2,099	596	510	204	331	85	93	..	..
Number of patients carried	1,605	1,913	476	483	313	271	106	89	..	..
Number of miles travelled	15,805	17,478	15,412	15,668	16,537	15,300	10,653	11,262	..	..
Physiotherapy Departments—										
Number of patients	1,337	861	944	451	..	..	..	..	..	..
Number of treatments	5,565	4,337	4,526	2,461	..	..	..	..	..	..

Darwin Hospital.—* These figures include Bagot Hospital.

Batchelor.— ‡ Outpatients seen at the Doctor's Clinic.
§ Outpatients seen at the Daily Clinic.

COMMONWEALTH SERUM LABORATORIES

Commonwealth Serum Laboratories maintained its position as the premier manufacturer of biological products within Australia. Production of products for both human and veterinary use was continued at a high level with a sales total of £2,340,000 for the year 1959-60. The sales volume in 1958-59 was a record of £2,500,000.

During the period considerable progress was made in modernizing still further the plant and equipment and providing additional much-needed accommodation to enable production, development and research activities to be carried out under the best possible conditions.

Commonwealth Serum Laboratories is one of two Australian producers of antibiotics and is responsible for providing a large proportion of the penicillin used throughout Australia. Commonwealth Serum Laboratories supplies bulk penicillin to manufacturing chemists in addition to issuing its own prepared penicillin products for human and for veterinary use.

Oral Penicillin.—The acid-stable phenoxymethyl penicillin (penicillin V) came into much more general use during 1959-60 and large quantities were produced by Commonwealth Serum Laboratories for use throughout Australia. It is most essential that Australian production of all penicillin products be maintained at as high a level as possible. Commonwealth Serum Laboratories sold 16 per cent. more penicillin for human and veterinary use than in 1958-59.

The greater availability of stocks of snake antivenenes was reflected in an increase in sales. The range of snake antivenenes was further extended by the inclusion of Papuan Black Snake Antivenene and Brown Snake Antivenene.

Prophylactics.—Commonwealth Serum Laboratories sold increased quantities of prophylactic materials against diphtheria, whooping cough, tetanus, tuberculosis, typhoid and cholera. The continued interest of industry in protecting employees against tetanus is to be commended. This activity is reflected in a reduced usage of tetanus antitoxin—sales of which fell significantly—approximately 25 per cent. Commonwealth Serum Laboratories policy of emphasizing the importance of immunization against the various diseases was continued on all possible occasions, e.g., trade exhibits at Royal Agricultural Shows and various congresses, and by advertising in magazines, professional and trade journals. Public relations were advanced by means of lectures and talks on the activities of the Laboratories.

Immunization of a large proportion of the child population against poliomyelitis is complete and a commencement was made by all States in immunizing persons in other age groups. However, the response to date was not as encouraging as desired. Epidemics of poliomyelitis are still likely to occur and while so many in these age groups remain unimmunized they run a grave risk themselves and represent a potential danger to the community.

Considerable publicity was also directed towards inducing business organizations throughout Australia to immunize staff against virus influenza, but sales fell from 710,000 doses in 1958-59 to 563,000 doses in 1959-60. Several thousands of people failed to respond to appeals to maintain their immunity by means of a single booster dose. While some reduction in sales was expected by reason of the single booster dose against a primary immunizing course of two doses, it is felt that sales were affected by a misconception in the public's mind concerning the efficacy of the vaccine.

There was some decline in the sales of Commonwealth Serum Laboratories' insulin products but this should be arrested and the position improved materially when Commonwealth Serum Laboratories' more complete range of insulin products becomes available in the near future.

Blood Fractions.—Greater use is now being made by medical practitioners of the blood fractions processed by Commonwealth Serum Laboratories from blood supplied to the Australian Red Cross Society by blood donors throughout Australia. A heavy increase in demand over the year 1959-60 reflects the growing awareness of the medical profession to the value of this service. Large quantities of gamma globulin, normal serum albumin and fibrinogen were fractionated by Commonwealth Serum Laboratories' modern equipment and were supplied, free of charge, throughout Australia and New Guinea for the prophylaxis and treatment of specified diseases. The cost of blood fractionation is borne by the Commonwealth.

The sales of numerous veterinary products are influenced strongly by the seasonal conditions prevailing each year. Despite the dry conditions operating throughout many parts of Australia the sales of veterinary products during 1959-60 showed a slight increase.

In the veterinary field the demand for vaccines increased by 6 per cent. These results indicate that stockowners are displaying an increasing interest in preventative measures against stock diseases. Developmental work on new veterinary preparations and on improving established products continued during the year and the new and improved preparations will be available very shortly.

Exports.—Commonwealth Serum Laboratories provide a convenient source of supply of biological products for countries and islands throughout the South Pacific. Products are also exported to Asian countries in significant quantities. A few of the places to which products are exported are New Zealand, New Guinea, Hong Kong, Malaya, Borneo, Noumea, Fiji and Korea.

At 30th June, 1960, Commonwealth Serum Laboratories employed a staff of 1,076 comprising doctors, veterinarians, scientists, engineers, draftsmen, production operatives and administrative personnel.

In addition to providing employment for these workers, Commonwealth Serum Laboratories gives support to many industries, as annual purchases in excess of £1,000,000 testify.

PRODUCTION DIVISION

Bacterial Products: A notable achievement for this section has been the procurement of an order for 800,000 doses of dried B.C.G. vaccine to Singapore. This was obtained in competition with overseas manufacturers and was followed by an inspection of the Laboratory by the head of the Tuberculosis Services for Singapore. Inquiries have also been received from the Federation of Malaya.

Larger quantities of allergens were produced in 1959-60 than in the previous year, especially of dried pollens, but in spite of this a supply from overseas of the more uncommon species had to be obtained to build up reserves. It is hoped to establish a garden plot at the Broadmeadows farm which should result in independence of overseas supplies.

Blood grouping sera showed considerable fluctuation of stocks in 1958-59 and it was necessary to examine all incoming blood from the Mobile Blood Bank when the Red Cross panel of donors failed to provide enough for our requirements. A panel of donors from staff members was subsequently arranged and is functioning satisfactorily.

Three new products were prepared or commenced preparation. These were Anti A1, blood grouping reagent (from seed of dolichos biflorus); P.P.D. tuberculin for the Heaf test; and complement-fixation antigens for ovine brucellosis and Johne's disease.

Enlarged production of Triple Antigen has been necessary to cope with greatly increased sales; production of this product is a major activity in the Section.

The Anaerobes (Tetanus), Sterility and Allergen Departments moved into new laboratories during the period.

The main development project commenced during 1959-60 was Quadruple Antigen. Supplies for the triple component of this as well as the testing of blood samples from clinical trials are a function of the Bacterial Products Section.

Other development projects initiated were: Alternative antiseptic for coryza vaccine; improved method of production of tetanus toxin; preparation of special dry pollens; addition of Tween 80 to hay fever extracts; drying of existing liquid extracts for stability in storage; improved methods for ultra-filtration of toxoids; thromboplastin from monkey brains.

Steps were taken to establish the C.S.L. Culture Collection on a full-time basis following the appointment of an additional science graduate to the Section.

Virus Products: Salk poliomyelitis vaccine totalling 3,400,000 doses in 1959-60 and 5,520,000 doses in 1958-59 satisfactorily passed all safety and potency tests and was released for issue. The total amount of vaccine made available since commencement in 1956 is now 17,670,000 doses.

During 1959-60 a considerable amount of developmental work was done on the type 1 and type 3 components of poliomyelitis vaccine. This aimed at a two-fold increase in the antigenic mass of these two types, with the object of increasing the antibody response. This work has progressed favourably, and future batches will be issued at the increased potency level.

A comprehensive range of tissue culture media, materials and cell lines has been made available to biological workers throughout Australia. The necessity for this service, and the growing interest in tissue culture techniques, is exemplified by some 34 different institutes having availed themselves of supplies.

Influenza Vaccine: Production of the single type influenza virus vaccine components, for incorporation in the polyvalent vaccine to be distributed during the 1960 season, continued at high level until September, 1959, and at normal level for the remainder of the financial year. This enabled a reserve of vaccine to be established which should enable future sharp increases in demand to be met. The components of the 1960 vaccine were types A, A1, A2, A/Swine, B (two strains), and D. Types A2 and B were again the major components in view of the epidemiological reports from the Northern Hemisphere, where epidemics of these types had been experienced. The type B component was divided between two strains so as to broaden the antigenic spectrum and so cover the strains recently appearing in countries other than Australia. The production of influenza vaccine during 1959-60 amounted to 700,000 doses, of which approximately 150,000 doses were for stock. In 1958-59 708,000 doses were produced.

In accordance with the C.S.L.'s function as a W.H.O. influenza centre, attempts to isolate influenza virus from specimens submitted from clinical cases in various parts of Australia have been continued. In the latter half of 1959 the type A2 virus had disappeared whereas 30 isolations of A2 had been made in 1958-59.

The only evidence of influenza since 1959 has been the isolation, in May, 1960, of what at this stage appears to be a Type D influenza, or Sendai virus. It has occurred in two fairly isolated groups of persons. The first was a group of aboriginal children at Port Keats, Northern Territory, and the second was a group of R.A.A.F. personnel at Tottenham, Victoria. During 1959-60, 942 serum samples from blood banks were examined for influenza antibodies and they showed no evidence of influenzal infection in the community. These samples came from Victoria, Tasmania and South Australia. Serological surveys were also carried out on controlled groups to determine the antibody status following immunization with C.S.L. influenza vaccine.

Smallpox vaccine production continued throughout the year and the amount of fully tested vaccine resulting was equivalent to 265,000 doses in capillary tubes. Issues for 1959-60 were 177,000 doses. It was noted that the demand for single dose containers, at the expense of multi-dose containers, continued. A smallpox vaccine prepared in embryonate eggs has been shown to be of equal viral content to calf lymph. Current work is mainly directed towards development of a dried smallpox vaccine that will be stable when stored or transported under adverse conditions.

Antibiotics: Production of penicillin was maintained during 1959-60 at a level slightly lower than maximum due to the withdrawal of one fermenter for installation of redesigned equipment. Following the trend which became apparent in 1958-59 the demand for penicillins has moved strongly towards penicillin V, although requirements of penicillin G did not diminish to the extent which had been predicted. Higher production yields were obtained by the use of an improved strain of Penicillium and by increasing the power input to fermenter agitators. Supply of existing lines of bulk penicillin powder and dispensed injectibles and tablets to distributors and users continued. An oral suspension of penicillin V was introduced during the period.

Development work was directed towards improvement of the oral suspension. An oily suspension of benzathine penicillin V was also formulated with considerable improvement in flavour and physical properties. Clinical trials showed that this formulation gave effective blood levels and routine production was consequently approved. Work is also in progress on the formulation of a palatable aqueous suspension with suitable keeping qualities.

A method of assay of penicillinase was devised based on spectrophotometric measurement of the rate of destruction of penicillin. As a result of this work the preparation issued as a laboratory reagent is now issued at a standardized potency, under the trade name " Labpenase ". Purified penicillinase for therapeutic use has also been prepared and after successful hospital trials is about to be marketed under the name " Compenase ".

Collaborative work with the Victorian Department of Agriculture on penicillin preparations for treatment of mastitis has led to the adoption of a new formulation which will shortly be made available.

Biochemical Products: There was a considerable increase in activity in this section during the year 1959-60. The intake of human plasma from Red Cross for fractionation rose by 15 per cent. to 20,000 litres. Issues of pooled human serum and gamma globulin remained fairly steady but there was an increase of about 20 per cent. in the issue of albumin. The rate of distribution of this product is now in excess of intake with less than one year's stock on hand.

Increased emphasis was placed on the production of special blood fractions (both human and animal) and the testing of all products. Production was undertaken of fibrinogen from out-dated blood, antihaemophilic globulin, 5 per cent. albumin in Hartman's buffer and a number of special fractions for clinical and laboratory use.

Serum production increased during the year and good stocks are now held for most products, particularly tetanus antitoxin, which previously had been in short supply. Increased plasma levels enabled many products to be produced at higher unitages.

Brown Snake antivenene was produced in quantity for the first time as a result of increased supplies of the venom.

Following the modification of the existing plant and the introduction of a new process early in 1959, the yield and purity of insulin rose considerably compared with previous years. The yield increased by about 300 per cent. and the purity by 20 per cent. with the result that the production of very high purity insulin is now in excess of Australia's requirements.

Sales of Regular Insulin and Protamine Zinc Insulin fell slightly during the year, but the fall associated with Protamine Zinc Insulin was compensated by an increase in the sales of Isophane Insulin.

Production of the Insulin Zinc Suspensions commenced and these will be available for distribution early in the new financial year.

Development work with the Cohn fractionator has been in progress since December, 1959, and six donors supplied by Red Cross each week are providing fresh plasma for preparation of antihaemophilic globulin. Long-term storage of red cells by glycerolization is now in operation. A number of units of rarer types of cells is being stored at —80° C. for subsequent study both in vitro and in vovo. Platelet concentrates equivalent to those available overseas can now be prepared, but building up of stocks for clinical trial is being deferred until a special reagent for preservation of platelets has been obtained.

Work has commenced in the preparation of antivenenes against certain Asiatic land and sea snakes; this resulted from requests from Malaya and the Persian Gulf. Work is also in hand on the characterization of snake venoms by agar diffusion methods.

Veterinary Products: During the period under review, a new farm property at Woodend was taken over and put into operation for horse breeding. Reallocation of the functions of the section was undertaken on a regional basis, in accordance with the three areas of operation—Parkville, Broadmeadows and Woodend.

Considerable attention has been paid to veterinary vaccine improvement and standards, and certain abnormally high seasonal demands have been adequately met. As a result of improved staffing, it has been possible to carry out a number of most useful bacteriological investigations on post mortem and in vivo samples of monkeys and other animals. These have been of considerable value as an adjunct to the section's animal management responsibilities.

A new method of production has been introduced for pasteurella vaccine, with a view to improving potency.

Due to vastly improved hyperimmunization procedures, output of immune plasma, particularly tetanus antitoxic plasma, has improved to such a degree as to warrant reduction in numbers of animals under hyperimmunization. Winter breeding of ticks under controlled conditions has permitted year-round production of canine anti-tick serum.

Following adoption of a policy of modified feed lot management of stock, improved utilization of the Broadmeadows property for production of green fodder crops has resulted, and a number of waste residues from the laboratories are used as fertilizers.

Care of the extensive monkey colony required for production of poliomyelitis vaccine, and breeding of small animal supplies for laboratory use have been improved with the introduction of new practices.

Development work directed at culture of Brucella abortus in cellophane sacs has produced excellent results. Adoption of the method for routine production has been approved and should lead to reduced costs and also to the availability of freeze-dried vaccine.

PRODUCTION SERVICES

Continued progress was made in the modernization and mechanization of the Packaging Section and further staff economies resulted. Many packages were redesigned and reprinted in more attractive form with close attention to meeting the requirements of the British Pharmacopoeia and British Veterinary Codex in regard to nomenclature and standards. Additional products were selected for conversion to containers more suitable for mechanical packing. During the year 1959-60, 5,765,639 containers were packaged—a decrease of 9 per cent. over the previous year. This decrease was partially attributable to reduced issues of penicillin products but also to a trend from single dose containers to multiple dose containers.

Production planning staff were installed in new quarters at the outset of the year and planning procedures are now fully operative for all products. This has brought about a much more even flow of work through packaging operations and has contributed to the staff economies in that section.

Revision of product labels and leaflets has been intensified and all have been brought up to date with current standards of quality and nomenclature. Methods of preparation of products are being steadily documented, providing valuable reference manuals for research, consultant, development and production staff.

Progress has been made with setting up of a Work Study Section with a view to improving productivity at all levels.

RESEARCH DIVISION

The following research activities were undertaken:—

Bacteriology and Staphylococcus Research: Purification of staphylococcal antigens and their analysis by fractionation. Research into preparation of an antipenicillinase for use with formalin in the treatment of antibiotic-resistant staphylococcal infections. Phage typing of staphylococci in connexion with study of staphylococcal soft tissue infections. Investigations of the effect of inoculum size on antibiotic sensitivity testing of staphylococci. Examination of blood samples for the presence of penicillin antibodies by agglutination of penicillinized compatible red blood cells.

Veterinary Research: Development and testing of Leptospiral vaccines. Evaluation of method for routine production of a bivalent vaccine against Leptospira pomona and Leptospira hyos. Preliminary work towards development of a human Leptospiral vaccine was commenced with strains received as primary human blood cultures from the Commonwealth Health Laboratory, Cairns, North Queensland.

Development of standard procedures for production of dog-tick antisera and of improved methods for estimation of this antibody. Commencement of studies on C.S.L. horse population for evidence of infection with equine infectious anaemia.

Virus Tissue Culture: Investigations have been directed towards extending our knowledge of the methods of tissue culture and their application in virus vaccine production. These investigations include: Analyses of the kinetics of polio virus inactivation with formalin. Analyses of antibody response in persons vaccinated with polio vaccine. Establishment of cultures suitable for vaccine production by continual culture. Investigation of epidemics of respiratory, enteric or neurological diseases for viral agents.

A study of the development of tumours following the inoculation of tissue culture cells in suitably irradiated rats has commenced. The resulting tumours have all the features of malignancy except that usually they regress after a period of growth. The study of the serum antibody in bringing about the regression has commenced, as have in vitro methods which may demonstrate the antibody more readily. During this work, a transmissible sarcoma has been established, and an evaluation of factors conferring transplantation is being investigated.

A study of epidemic virus infections occurring throughout Australia has been undertaken in co-operation with Commonwealth Health Laboratories and virus institutes in various States. A large number of cases of aseptic meningitis has been examined without any one agent seeming responsible for the majority of cases. Polio virus type 1 was isolated from an outbreak exhibiting mild weakness amongst aborigines in and around Darwin; otherwise the incidence of polio virus would appear to be extremely low.

The development of adeno-virus vaccines has been delayed through difficulties in inactivation inherent in the method proposed by the National Institute of Health, Washington.

Biological Chemistry: The isolation and characterization from human and animal sera of proteins active biologically in tissue culture growth and maintenance. The purification of the principal α-glycoprotein (fetuin) of foetal calf serum and the elucidation of its carbohydrate structure. The isolation of plasmin of purity suitable for clinical evaluation. The characterization of normal and malignant cells and cell lines on the basis of cellular density, phospholipid and nucleic acid composition.

The biophysical examination of normal and pathological sera, bacterial toxins, venoms, &c., using techniques such as electrophoresis, ultracentrifugation and ion exchange chromatography. A study has commenced on the amino acid composition of biologically active peptides and proteins.

The development of fixation methods and section cutting techniques for use in the examination by electron microscopy of normal and virus-infected tissues and tissue cultures.

Anaerobic Research: Purification of tetanus toxins for use in the haemagglutination test for assay of antitoxin.

Biochemical Research.—Biochemical aspects of the protection of experimental animals against bacterial toxins.

Venom and Antivenene Research: Studies were carried out on the venoms of the Red Back Spider, the Funnel Web Spider and the Stone Fish in connexion with the preparation of antivenenes.

Exotic Virus Research: Collection in Northern Queensland of material from feral fauna, culicines and culicoides and investigation of arthropod-borne viruses. Examination and investigation of laboratory animals for indigenous infections.

CONSULTANT DIVISION

The Consultant Division has continued its duties in relation to the medical, veterinary and special scientific problems associated with the production and use of biological preparations. A close liaison has been maintained with the State Health and Agricultural Departments, the Australian Red Cross Society, the medical departments of the Armed Services, hospitals, other scientific bodies and institutions, and through their co-operation numerous field trials have been undertaken and completed.

Clinical Trials: Many clinical trials have been undertaken in connexion with the improvement of existing and the use of new products. Tetanus prophylaxis has featured in these clinical trials by investigation of factors causing specific and non-specific reactions.

Work has been carried out with the subcutaneous administration of diluted tetanus antitoxin, for the detection of sensitivity to horse serum, and the prevention of anaphylactic reactions. Clinical investigation of new diluents for tetanus toxoids have also been part of this programme.

Trials on immunization with influenza virus vaccine at the Balcombe Apprentice School and on the C.S.L. staff have been maintained with a yearly immunization programme. Clinical data on the efficacy of this vaccine was obtained from two employment groups and the material used for a publication. Other respiratory viruses are being studied in selected groups.

An Australian survey on plants producing hay fever is in progress and much useful information has been obtained. The current problems which are being investigated are the potency of allergen extracts, particularly the effects of non-ionic detergents, allergic compounds in house dust and special extracts from insects and atmospheric moulds, while aspects of insect bites and stings, and the results of hyposensitization are being reviewed.

The use of penicillinase in penicillin reactions has been studied with a preparation produced in the Laboratories and the results of this trial have been prepared for publication.

B.C.G. Vaccine: A member of the Division attended a study group sponsored by the World Health Organization and obtained information on various aspects of B.C.G. Vaccine production. The post-vaccination Mantoux reaction and the percentage and duration of conversion are being studied.

The whole aspect of the use of antivenenes in snake bite with particular reference to the distribution of snakes, identification and cross-protection by various antivenenes have been reviewed, and new recommendations for treatment of snake bite have been formulated.

All the literature relating to leaflets which accompany products has been revised, and the material for the new edition of the " Handbook of Instructions for Products for Human Use " has been prepared and edited.

The Blood Group Reference Laboratory has had a busy year in relation to problems in blood groups and transfusions referred from Commonwealth Health Laboratories, hospitals and other scientific institutions throughout Australia.

PUBLICATIONS

THE ABSORPTION OF PENICILLIN V IN CHILDREN. S. W. Williams, A. G. Mathews, H. K. Harcourt. *Med. J. Aust.*, Vol. 2, pp. 117-120 (July 26, 1958).

STONE-FISH STING AND ITS TREATMENT. S. Wiener. *Med. J. Aust.*, Vol. 2, pp. 219-222 (Aug. 16, 1958).

A BLOOD GROUP GENETICAL SURVEY IN AUSTRALIAN ABORIGINAL CHILDREN OF THE CAPE YORK PENINSULA. R. T. Simmons, J. J. Graydon, D. C. Gajdusek. *Amer. J. phys. Anthrop.*, Vol. 16, pp. 59-78 (March, 1958).

THE SECOND AUSTRALIAN EXAMPLE OF ANTI-s ASSOCIATED WITH THE MNSs BLOOD GROUPS. M. L. Verso, R. T. Simmons. *Med. J. Aust.*, Vol. 2, pp. 286-289 (Aug., 30, 1958).

BLOOD GROUP D IN PYGMIES OF THE WISSEL LAKES IN NETHERLANDS NEW GUINEA WITH ANTHROPOLOGICAL NOTES BY H. H. T. BIJLMER, J. J. Graydon, N. M. Semple, R. T. Simmons, S. Franken. *Amer. J. phys. Anthrop.*, Vol. 16, pp. 149-172 (June, 1958).

PROTECTIVE ACTION OF VENOMS CONTAINING PHOSPHATIDASE-A AGAINST CERTAIN BACTERIAL EXOTOXINS. E. A. North, Hazel M. Doery. *Nature*, Vol. 182, pp. 1374-1375 (Nov. 15, 1958).

THE SEPARATION AND PROPERTIES OF THE NEUROTOXINS FROM THE VENOM OF THE TIGER SNAKE NOTECHIS SCUTATUS SCUTATUS. Hazel M. Doery. *Biochem. J.*, Vol. 70, pp. 535-543 (1958).

ADVERSE EFFECT OF FILTRATION ON THE IMMUNIZING POWER OF STAPHYLOCOCCAL TOXIN AND TOXOID, E. A. North. *Aust. J. exp. Biol. med. Sci.*, Vol. 36, pp. 547-554 (1958).

COLORIMETRIC ESTIMATION OF PHENOXYMETHYL PENICILLIN (PENICILLIN V) AND PHENOXYACETIC ACID IN SAMPLES FROM PENICILLIN FERMENTATIONS. J. Birner. *Analyt. Chem.*, Vol. 31, pp. 271-273 (Feb., 1959).

AN OUTBREAK OF DENGUE-LIKE FEVER, NORTH QUEENSLAND 1954: SEROLOGICAL FINDINGS WITH THE VIRUS NEUTRALIZATION AND FIXATION TESTS. L. C. Rowan. *Med. J. Aust.*, Vol. 1, pp. 323-327 (Mar. 7, 1959).

PERSISTENCE OF TETANUS ANTITOXIN IN CHILDREN TWO YEARS AFTER A THIRD DOSE OF TETANUS TOXOID. S. Wiener, R. W. Patterson, E. Forbes-Mackenzie. *Med. J. Aust.*, Vol. 1, pp. 188-189 (Feb. 7, 1959).

OBSERVATIONS OF THE VENOM OF THE STONE-FISH (SYNANCEJA TRACHYNIS). S. Wiener. *Med. J. Aust.*, Vol. 1, pp. 620-627 (May 9, 1959).

ANTIBODY RESPONSE IN MAN TO TWO DOSES OF POLYVALENT INFLUENZA VIRUS VACCINE. M. F. Warburton, A. E. Duxbury, R. W. Greville. *Med. J. Aust.*, Vol. 1, pp. 786-790 (June 13, 1959).

ANTIBODY RESPONSE TO A/ASIAN COMPONENT OF POLYVALENT INFLUENZA VIRUS VACCINE. A. E. Duxbury, M. F. Warburton, R. W. Greville. *Med. J. Aust.*, Vol. 1, pp. 790-793 (June 13, 1959).

THE DUPLICATION OF THE GR (GRAYDON) BLOOD GROUP BY VW (VERWEYST). R. T. Simmons, J. A. Albrey, W. J. McCulloch. *Vox Sanguinis*, Vol. 4, pp. 132-137 (1959).

A Review of Blood Group Gene Frequencies in Aborigines of the Various Australian States. R. T. Simmons. Seventh Congress of the International Society of Blood Transfusion, Rome, Proc., pp. 287-292 (1958).

Iso-immunization in a Mother which Demonstrates the New Rh Blood Antigen G(rh^G) and Anti-G(rh^G). Rachel Jakobowicz, R. T. Simmons. *Med. J. Aust.*, Vol. 2, pp. 357-358 (Sept. 12, 1959).

The Effectiveness of Vaccination in Preventing Poliomyelitis in Australia over a Period of Two Years. J. J. Graydon. *Med. J. Aust.*, Vol. 2, pp. 370-372 (Sept. 12, 1959).

Some Recent Advances Influencing Prophylaxis against Canine Distemper. D. T. Oxer. *Aust. Vet. J.*, Vol. 35, pp. 194-200 (Apr., 1959).

The Use of Specific Antitoxin Against Experimental Staphylococcal Infection in Mice. E. A. North. *Aust. J. exp. Biol. med. Sci.*, Vol. 37, pp. 341-352 (1959).

Immunological Tolerance Within the ABO Blood Group System. Rachel Jakobowicz, H. Crawford, J. J. Graydon, M. Pinder. *Brit. J. Haematol.*, Vol. 5, pp. 232-244 (July, 1959).

"Myeloma" Serum Electrophoretic Patterns in Conditions other than Myelomatosis. J. A. Owen, W. R. Pitney and J. F. O'Dea. *J. Clin. Path.*, Vol. 12, pp. 344-350 (July, 1959).

The Sydney Funnel-web Spider (Atrax Robustus) II. Venom Yield and other Characteristics of Spider in Captivity. S. Wiener. *Med. J. Aust.*, Vol. 2, pp. 679-682 (Nov. 7, 1959).

The Production and Assay of Stone-fish Anti-venene. S. Wiener. *Med. J. Aust.*, Vol. 2, pp. 715-719 (Nov. 14, 1959).

Tetanus Prophylaxis. G. F. Trinca. *Med. J. Aust.*, Vol. 1, pp. 67-69 (Jan. 9, 1960).

Penicillinase. A. G. Mathews. *Aust. J. Pharm.*, Vol. 41, pp. 204-205 (Mar. 30, 1960).

The Pharmacopoeial History of Microbiological Products and Processes. A. G. Mathews. *Aust. J. Pharm.*, Vol. 41, pp. 99-105 (Feb., 1960).

Viral Vaccines. A. E. Duxbury. *Aust. J. Pharm.*, Vol. 41, pp. 106-110 (Feb., 1960).

Sterility Testing and the British Pharmacopoeia. W. G. Newman. *Aust. J. Pharm.*, Vol. 41, pp. 110-113 (Feb., 1960).

Stability of Microbiological Products. L. J. Davis. *Aust. J. Pharm.*, Vol. 41, pp. 203-204 (Mar., 1960).

Serum Chromatography on Columns Connected to a Common Source of Buffer Gradients. A. G. Marr, C. M. Gilbo. *Nature*, Vol. 185, pp. 853-854 (Mar. 19, 1960).

Specific Immunity against Staphylococcus Infection in Mice not associated with Demonstrable Antibody in the Serum: Interference Effect. E. A. North, G. Pawlyszyn. *Med. J. Aust.*, Vol. 1, pp. 925-928 (June 11, 1960).

RECENT DEVELOPMENTS IN SERUM SENSITIVITY TESTING. J. C. Trinca. *Med. J. Aust.*, Vol. 1, pp. 913-918 (June 11, 1960).

ANTI-Rh_0 (D) ANTIBODIES PRODUCED BY ISO-IMMUNIZATION IN AN Rh-POSITIVE MOTHER OF THE UNUSUAL GENOTYPE R^1r^y(CD^{u}e/CdE). R. T. Simmons, Vera Krieger. *Med. J. Aust.*, Vol. 1, pp. 1021-1022 (June 15, 1960).

ACTIVE IMMUNIZATION OF MAN AGAINST THE VENOM OF THE AUSTRALIAN TIGER SNAKE (NOTECHIS SCUTATUS). S. Wiener. *Amer. J. trop. Med. Hyg.*, Vol. 9, pp. 284-292 (May, 1960).

FACTORS INVOLVED IN THE ACTION OF VENOMS AGAINST BACTERIAL TOXINS IN EXPERIMENTAL ANIMALS. Hazel M. Doery, E. A. North. *Brit. J. exp. Path.*, Vol. 41, pp. 243-250 (June, 1960).

ANTAGONISM BETWEEN THE ACTION OF STAPHYLOCOCCAL TOXIN AND THE VENOM OF CERTAIN SNAKES AND INSECTS IN MICE. E. A. North, Hazel M. Doery. *Brit. J. exp. Path.*, Vol. 41, pp. 234-242 (June, 1960).

A BLOOD GROUP GENETICAL SURVEY IN NEW BRITAIN. R. T. Simmons, D. C. Gadjusek, Lois C. Larkin. *Amer. J. phys. Anthrop.*, Vol. 18, pp. 101-108 (June, 1960).

THE STERILIZATION OF PENICILLIN; PAPER PRESENTED AT A.N.Z.A.A.S. MEETING ADELAIDE 1958. A. G. Mathews, G. Anderson. *Aust. J. Pharm.*, Vol. 39, p. 1368 (1958) (Summary).

A SURVEY OF STAPHYLOCOCCAL INFECTIONS OF THE SKIN AND SUBCUTANEOUS TISSUES IN GENERAL PRACTICE IN AUSTRALIA. A. Johnson, P. M. Rountree, Katherine Smith, N. F. Stanley, K. Anderson. N.H.M.R.C. Spec. Rept. No. 10 (1960).

WHITE COATS AND WHITE MEN IN THE TROPICS. L. C. Rowan. *Ampoule*, Vol. 1, p. 18 (June-July, 1959).

FLUORESCEIN GLOBULIN STAINING OF CELLS IN TISSUE CULTURE. C. J. Louis, J. White. *J. Lab. Invest.*, Vol. 9, p. 273 (Mar.-Apr., 1960).

SNAKEBITE AS A VETERINARY PROBLEM. G. F. Trinca. Aust. Veterinary Assoc. Proc. Annual Meeting, Vol. 81 (1959).

THE PREPARATION OF AN EXTRACT FOR TREATMENT OF SANDFLY SENSITIVITY. J. C. Trinca. *Ampoule*, Vol. 1, p. 28 (Mar.-Apr., 1959).

POLIOMYELITIS. P. L. Bazeley. Fourth International Poliomyelitis Conference, papers and discussions: p. 97 (1958).

COMMONWEALTH SERUM LABORATORIES.

PROFIT AND LOSS APPROPRIATION STATEMENT

For the Year Ended 30th June, 1959

	£	£
Trading Revenue—		
Sales of products, including reimbursements for issues, by authority, free of charge		2,508,878
Trading Expenditure—	£	
Costs of manufacture	1,799,987	
Administrative and selling expenses	346,079	
		2,146,066
		362,812
Operating surplus—		
Less Appropriations—	£	£
(i) Consultative services	38,723	
(ii) Research expenses not recovered	54,809	
(iii) Development expenses not recovered	57,273	
		150,805
Net surplus		212,007

COMMONWEALTH SERUM LABORATORIES—*continued.*

Balance Sheet as at 30th June, 1959

	£
Funds employed	5,824,423
Represented by the following assets:—	
Assets—	
Cash in hand and at bank, stamps	804,557
Stocks	1,682,401
Sundry debtors, prepayments	269,089
Land, building, plant (*less* provision for depreciation)	3,216,749
	5,972,796
Less sundry creditors, accruements, deposits on contracts, provision for royalties	148,373
	5,824,423

PROFIT AND LOSS APPROPRIATION STATEMENT

For the Year Ended 30th June, 1960

	£	£
Trading Revenue—		
Sales of products, including reimbursements for issues, by authority, free of charge		2,275,242
Trading Expenditure—		
Manufacturing cost of sales	1,745,457	
Administrative and selling expenses	421,776	
		2,167,233
		108,009
Operating Surplus—		
Less appropriations—		
(i) Consultative services	42,599	
(ii) Research expenses not recovered	171,550	
(iii) Development expenses not recovered	86,284	
		300,433
Deficiency		192,424

Balance Sheet as at 30th June, 1960.

	£
Funds employed	6,255,452
Represented by the following assets:—	
Assets—	
Cash in hand and at bank, stamps	444,367
Sundry debtors, prepayments	352,360
Stocks	2,008,667
Land, buildings, plant (*less* provisions for depreciation)	3,713,367
	6,518,761
Less sundry creditors, accruements, deposits on contracts, provision for royalties	263,309
	6,255,452

COMMONWEALTH X-RAY AND RADIUM LABORATORY

The Laboratory was established in 1929, as the Commonwealth Radium Laboratory, and has for many years served as a national centre for radiological physics.

RADIUM SERVICES

The Laboratory acts as the central reserve for the national holding of radium, from which loans are made when required by approved hospitals.

The national holding of radium is subject to audit, and periodical checks of the radium are made in terms of the "radium ledger" maintained at the Laboratory.

To meet the physical requirements of recently-developed radio-therapeutic techniques, arrangements are in hand to convert some of the Commonwealth radium held in reserve to gynaecological tubes of more suitable mounting. The total quantity of radium to be converted is 650 milligrammes.

Data on radium services are summarized in Table I.

RADON SERVICES

Radon, the gaseous decay product of radium, has a number of practical and economic advantages over radium for use in treatment. Radon is regularly prepared and issued to supply the treatment requirements of hospital and private patients in Victoria, South Australia, Tasmania and Western Australia. The requirements of New South Wales and Queensland are met from radium solutions made available from the Commonwealth radium holdings to local physical services in those States.

The use of radon in nasal applicators has declined considerably. This decline is due partly to the substitution of X-ray therapy for radon in the treatment of the nasopharynx and partly to the decision in some States not to issue licences (necessary under their Radioactive Substances Acts) for the use of nasal applicators.

The important place which radon held in industry by reason of its low monetary value and the small size of the highly active sources obtainable, has largely been taken over by radioactive isotopes, principally Co^{60}, Cs^{137} and Ir^{192}. During the period under review only one radon industrial source was issued.

Data on radon services are contained in Tables 2, 3 and 4.

It will be noted from Table 2 that the total activity of radon issued for all purposes has decreased considerably and the amount issued in 1959-60 is less than half the amount issued in the previous year. This decrease is almost entirely accounted for by the reduced use of nasal applicators, to which reference has already been made.

Other activities have included the design of an automatic radon pump, a device for the rapid measurement of radon and modifications to some of the equipment used in the radon laboratory.

For many years radon issued in Australia for medical purposes has been supplied in capillary tubing of pure gold. The laboratory constructs all the gold tubing used in the various radon centres in Australia and in the Dominion X-ray and Radium Laboratory, Christchurch, New Zealand. In addition to the gold tubing 41 "nasal applicators" were constructed during 1958-59 and 22 during 1959-60. Over the period 1958-60, 54 special capsules, 24 brass tubes and 51 transport boxes were constructed.

The distribution to the various centres of tubing made during the two-year period is set out in Table 4.

X-RAY SERVICES

An excessive dose of X-rays in treatment may cause irreparable damage and too small a dose may make further treatments impossible. Therefore, the dose delivered in each case must be known with accuracy.

The calibration of dosemeters is a function of the Laboratory and is not restricted to equipment owned by the local physical services in each State. Inspection and necessary adjustments of dosemeters before calibration are routine procedures. Thirteen dosemeters have been calibrated in the last two years. In 1958-59, nine calibrations of deep-therapy equipment and sixteen of superficial-therapy equipment were made by the Laboratory and six calibrations of deep-therapy equipment and twenty of superficial-therapy equipment were completed in 1959-60.

In May, 1960, work began on an intercomparison of the standard free-air chamber maintained by the Laboratory with similar chambers held by the national standardizing laboratories of other countries. This work is being co-ordinated by the International Commission on Radiological Units and Measurements. The comparison is being made in terms of an intermediate " transfer standard " made available through the National Bureau of Standards, Washington, D.C., U.S.A.

Investigations of physical aspects of radiotherapy are carried out in close association with the Radiotherapy Advisory Committee of the National Health and Medical Research Council.

There has been a marked decrease in the number of requests by research institutions for irradiation of biological materials and only one batch of seeds has been treated, for the Agriculture Department, Victoria.

X-ray Diagnosis: Investigation of the physical problems of diagnostic radiology were continued. The Laboratory is actively engaged on projects for assessing the radiation dose received under various conditions by patients undergoing diagnostic radiography and fluoroscopy. During 1958-59 measurements were undertaken on 36 diagnostic and dental units, and during 1959-60 on eight such units, with a view to recommending means by which the dose received by patients could be reduced. Investigations of radiation dose to patients will be continued in association with the Medical Radiation Committee of the National Health and Medical Research Council.

In view of the increasing tendency to use tube voltages above 100 K.V.P. for routine diagnostic radiology, it has become necessary to undertake physical investigations in this field and a modern X-ray unit (150 K.V.P., 300 mA) was installed for this purpose at the Laboratory in June, 1960.

The resolving powers of intensifying and fluoroscopic screens have been determined by means of a graticule consisting of radio-opaque and radio-lucent materials in alternate strips of progressively increasing width. This graticule has also proved very satisfactory as a test object for focussing the optical systems of miniature radiographic units.

The tuberculosis-case-finding programme for sections of the staff at the Commonwealth Serum Laboratories was continued. Direct (full size) radiographs have been made of those whose miniature radiographs indicated that further examination was desirable. Workers in the B.C.G. Unit of the Commonwealth Serum Laboratories and those in the Department of Bacteriology in the University of Melbourne, who are engaged in the examination of sputum, have been periodically examined by direct radiographs.

By arrangement with the Australian College of Dentistry, an encephalometer unit was installed at the Laboratory in 1951. This device is so designed that posterior-anterior and lateral radiographs of the skull, taken at intervals of many months, may later be superimposed accurately, thus enabling investigations to be made of the growth of facial bones. The Laboratory continues to co-operate with the Department of Anatomy in the University of Melbourne in such a project and during the two-year period 419 patients were radiographed. The encephalometer is available by arrangement to orthodontists in private practice; 184 patients were examined in 1958-59, and 235 in 1959-60.

Advice on the purchase of new equipment for hospital departments and on the condition of existing equipment, is frequently sought from the Laboratory by the State Governments and by hospital authorities.

Arising from the Tuberculosis Arrangement between the Commonwealth and the States, the Laboratory has assisted in the selection and purchase of X-ray equipment and accessories for those States obtaining such equipment under the Arrangement. There has been considerable demand for the services of the Laboratory in this respect arising from the current programme to replace 35 mm. lens cameras with 70 mm. mirror cameras for mass X-ray survey work.

Assistance has been given to the Department of External Affairs in the selection of equipment being sent abroad under the Colombo Plan.

RADIOACTIVE ISOTOPE SERVICES

The functions of the Laboratory include the importation and distribution in Australia of radio-isotopes for all purposes. Some stable isotopes are also imported.

During 1958-59, 660 orders involving shipments of 50 different isotopes, were delivered to the Laboratory for distribution. Of these, ten isotopes were required for medical purposes and the remainder for research and industry. In the twelve months ended 30th June, 1960, 820 shipments involving 200 different compounds and 62 isotopes were obtained and distributed by the Laboratory. Nine isotopes, incorporated in 21 different compounds, were required for medical purposes, the remainder being used in research and industry. Statistical data on the use made of radio-isotopes has been collated in Tables 5, 6 and 7.

Isotopes for Medical Purposes: Radio-isotopes used regularly in medical practice are purchased in bulk supplies, subdivided in and distributed from the Laboratory. Of the radio-isotopes imported for medical purposes, phosphorus-32 (P^{32}) and iodine-131 (I^{131}) continued to be in most demand. The use of colloidal gold-198 for the treatment of peritoneal and pleural effusions associated with malignancies has continued, but its use is decreasing as colloidal chromic phosphate and colloidal zirconium phosphate, labelled with phosphorus-32, have been shown to be satisfactory clinical substitutes the use of which results in less exposure of the staff handling it.

Chromium-51, cobalt-58-labelled vitamin B12, iron-59 and a number of iodine-131-labelled compounds (human serum albumin, oleic acid and triolein) have been regularly distributed. The demand for iodine-131-labelled diodrast, of which only four issues were made in 1959-60, has for the present ceased entirely.

Radioactive decay of short-lived isotopes between the arrival in bulk supplies in the Laboratory and administration of individual doses is considerable. Therefore, the doses are dispensed to contain the desired activity at the time

of administration. In spite of this decay and of variations in demand, 84 per cent. of the phosphorus-32 and 79 per cent. of the iodine-131 arriving in the Laboratory during 1958-59 were utilized. The percentages used during 1959-60 were 82 per cent. and 70 per cent. respectively.

During 1959-60 occasional issues of isotopes were made for research purposes from the bulk supplies imported primarily for medical purposes. Details of these issues are shown in Table 7. It will be noted that these isotopes were issued for research in the physical and biological sciences and for investigations of production problems in industry.

Isotopes for Industrial and Research Purposes: Considerable assistance may be required with scientific techniques unfamiliar to industry, such as advice on the choice of suitable counting equipment (often requiring preliminary investigation), detailed consideration of protection requirements, planning of disposal of radioactive wastes, and provision of suitable information so that all using the isotopes will be fully informed of possible hazards and methods of avoiding them.

The Laboratory and the Australian Atomic Energy Commission maintain a close liaison to enable them to provide conjointly the advice and assistance necessary to industrial and to research organizations in the safe and useful application of radio-isotopes. In several fields of scientific research, extensive use of radio-isotopes is being made by University Departments and by the Commonwealth Scientific and Industrial Research Organization. The Laboratory provides advice regarding the design and construction of suitable rooms and ancillary equipment when requested. In cases where an organization has not yet established its own isotopes section, the Laboratory has provided working facilities.

PROTECTION SERVICES

The ever-increasing use of ionizing radiations in medicine, research and industry could, if uncontrolled, lead to serious hazards to health, not only among those actively engaged in their use, but also among those working or living in the vicinity. Investigations of the degree of protection necessary in particular applications of X-rays and radioactive materials continue to be an important activity of the Laboratory.

In the past two years specifications have been prepared for the installation of protective materials in 38 X-ray departments, of which six were intended for therapy, 28 for medical diagnosis and four for industrial radiography.

Inspections were made by invitation of sixteen diagnostic departments, four therapy departments, five dental installations, eight industrial and ten research centres, with a view to assessing the degree of protection provided in the installation and the safety of the procedures used. In addition, a survey of all X-ray departments operated by the Commonwealth in the Northern Territory was made in 1958-59 and a survey of all X-ray departments operated in Australia by the Repatriation Commission was made in 1959-60.

So that the radiation dose to the individual worker may be regularly assessed, the Laboratory provides a film-badge service for those occupationally exposed to radiation. A total of 18,049 film badges worn by people working with radiation during 1958-59 was received for processing and assessment of exposure from 149 centres: the corresponding figures for 1959-60 were 21,352 film badges and 149 centres. When an excessive exposure is indicated by a film badge, the cause of such exposure is sought with a view to preventing repetition.

Protective gloves, aprons and sheets are frequently sent to the Laboratory by local manufacturers and X-ray firms for inspection. The articles are inspected for flaws, and measurements are made of the lead-equivalent thickness in order to ensure compliance with recognized standards. During the period, 210 gloves, 137 aprons and 46 sheets were examined.

To assist in propagating a wider practical knowledge of radiation protection, the Laboratory has commenced a series of courses on the Principles of Radiological Protection. The first of these courses was conducted at the Laboratory from March to May, 1960, and was available to members of the Section of Industrial Medicine of the British Medical Association (Victorian Branch). Fifteen industrial medical officers from Commonwealth and State authorities and from private firms attended. The majority of the lectures and demonstrations were given by the staff of the Laboratory but medical specialists were invited to present lectures in appropriate subjects. The course was opened by the Minister for Health, Dr. the Hon. Donald A. Cameron, O.B.E., M.P. Further courses are planned for other medical officers as well as for scientific officers.

ADVISORY SERVICES

A comprehensive library service is provided by the specialized library maintained at the Laboratory. A Library Information Bulletin is published at intervals and is sent to over 100 institutions and individuals.

Under the Colombo Plan Training Scheme, the Laboratory has been responsible for placing trainee radiographers in the X-ray Diagnostic and Radiotherapy Departments of a number of hospitals. The progress of these trainees has been watched by the Laboratory and special assistance has been provided where necessary.

The Laboratory is represented on several committees set up by the National Health and Medical Research Council. These committees are: The Standing Committee on X-rays, the Standing Committee on Radio-isotopes, the Radiotherapy Advisory Committee, the Medical Radiation Committee and the Industrial Hygiene Committee. The Laboratory is also represented on the Committee on X-rays of the Hospitals and Charities Commission of Victoria, the Board of the Cancer Institute of Victoria and the Committees on X-ray Equipment and on Anaesthetics of the Standards Association of Australia.

Two members of the Laboratory staff are members of the Conjoint Board of the College of Radiologists of Australasia and the Australasian Institute of Radiography. This Board is the body responsible for the training of radiographers and radiotherapy technicians in Australia.

The Director of the Laboratory, Mr. D. J. Stevens, is the Australian Representative on the United Nations Scientific Committee on the Effects of Atomic Radiation and is a Member of Committee III. of the International Commission on Radiological Protection of Committee IV. of the International Commission on Radiological Units and Measurements, of the Australian National Radiation Advisory Committee, of the Australian Atomic Weapons Tests Safety Committee and of the Boards of Studies of Nuclear Science and Engineering, of Therapeutic Radiology and of Diagnostic Radiology, of the University of Melbourne. The Director attended the 1960 International Labour Conference as a Member of the Australian Delegation.

A liaison is maintained with the Consultative Committee for the Standards of Measurement of Ionizing Radiation of the International Bureau of Weights and Measures.

TABLE 1

RADIUM SERVICES

1st July, 1958, to 30th June, 1960

Item.	Quantity.	
	1959–1960.	1958–1959.
1. Total movement of Commonwealth Radium (mgm)	488	410
2. Quantity of radium measured (mgm)	35	117
3. Number of radium containers tested—		
Commonwealth	650	5
Private	8	107
4. Number of searches for lost radium or radon containers	1	1

TABLE 2

RADON SERVICES, C.X.R.L.

1st July, 1958, to 30th June, 1960

Quantities of radon issued are those at time of use

Item.	Quantity.	
	1959–1960.	1958–1959.
1. Radon issued for all purposes (including item 11) (mc)	32,150	66,646
2. Radon issued for treatment purposes only (including items 10, 11 and 12) (mc)	30,316	65,293
3. Radon issued to hospitals (including item 11) (mc)	17,993	37,439
4. Location of hospitals to which radon was issued—		
Metropolitan	6	7
Country	11	11
Interstate	4	4
5. Radon issued to private practitioners (including item 11) (mc)	12,323	27,854
6. Location of private practitioners to whom radon was issued—		
Metropolitan	14	12
Country	3	4
Interstate	4	4
7. Containers issued (including only capillary implants, needles and tubes of all classes)	5,846	6,583
8. Returnable containers not returned	10	3
9. Implants (0.5 mm Pt. eq) received* from Sydney—		
Number	174	352
Total Radon (mc)	121	225
10. Nasal applicators—		
Number issued	19	37
Total Radon (including item 11) (mc)	5,294	35,306
Total patients treated	567	1,877
11. Radon re-issued in nasal applicators (mc)	None	20,691
12. Radon plates (eye applicators)—		
Number issued	11	11
Total radon (mc)	1,088	1,184
13. Industrial sources—		
Number issued	None	1
Total radon (mc)	None	410
14. Radon issued for research purposes (mc)	1,834	943
15. Total radon extracted from solution (mc)	106,637	105,521
16. Total radon at time of use (mc)†	32,039	45,955
17. Ratio $\frac{\text{Item 16}}{\text{Item 15}} \times 100$	30.1	43.5
18. Number of purifications	190	198

* Victorian requirements of radon in gold capillary of 0.5 mm. Pt. eq. filtration, are obtained from the Bureau of Physical Services, Sydney.

† These figures do not include the radon received from Sydney in implants of 0.5 mm. Pt. eq. filtration, nor the radon issued for use a second time in nasal applicators or radon plates.

TABLE 3

RADON SERVICES, CENTRES OTHER THAN C.X.R.L.

Quantities of radon issued are those at time of use

Item.	Quantity.	
	1959–1960.	1958–1959.
(*a*) Sydney—		
1. Radon issued—		
Hospitals (mc)	5,386	7,077
Private Practitioners (mc)	1,740	2,235
Research purposes (mc)	..	..
2. Total radon extracted from solution (mc)	20,925	23,773
3. Total radon at time of use (mc)	7,126	9,312
4. Ratio $\frac{\text{Item 3}}{\text{Item 2}}$ x 100	34.0	39.2
5. Number of purifications	54	65
(*b*) Brisbane—		
1. Radon issued—		
Hospitals (mc)	15,592	14,299
Private Practitioners (mc)	335	165
Research purposes (mc)	180	..
2. Total radon extracted from solution (mc)	30,738	29,994
3. Total radon at time of use (mc)	16,107	14,464
4. Ratio $\frac{\text{Item 3}}{\text{Item 2}}$ x 100	52.5	48.2
5. Number of purifications	188	172

TABLE 4

Gold Tubing Issued to Radon Centres, 1st July, 1958, to 30th June, 1960

Length in feet

Radon Centre.	Gold Capillary 0.3 mm. Pt. eq.		Gold Capillary 0.5 mm. Pt. eq.		Gold Casing for Needles 0.8 mm. Pt. eq.	
	1958–59.	1959–60.	1958–59.	1959–60.	1958–59.	1959–60.
Melbourne	574	468	..	..	28	2
Sydney	48	32	52	43	4	4
Brisbane	..	..	504	454	..	..
Christchurch	..	56	..	58	..	..
Total	622	556	556	555	32	6

TABLE 5

Distribution of Imported Radioactive Isotopes

Year.	Industrial.		Medical.		Research.		Total.	
	No. of Shipments.	Activity mc.	No. of Shipments.	Activity mc.	No. of Shipments.	Activity mc.	No. of Shipments.	Activity mc.
1959–60..	20	48,470	389	22,122	411	264,287	820	334,879
1958–59..	46	130,381	330	19,267	284	26,713	660	176,361
	Proportion of Total Imports (Per cent.).							
1959–60..	2.4	14.4	47.5	6.6	50.1	79.0	100	100
1958–59..	7.0	74.0	50.0	10.9	43.0	15.1	100	100

NOTE;—In addition to the 820 shipments of radioactive isotopes procured directly by the Laboratory during the year for use in medicine, research and industry, 90 Clearance Certificates required under Item 23 of the Third Schedule of the Customs (Prohibited Imports) Regulations were issued through the Laboratory.

TABLE 6

Distribution of Isotopes for Medical Use

In this table the word issue denotes an isotope container despatched from the Laboratory. The isotope in the container may consist of either an individual dose, or a bulk issue from which individual doses will be dispensed. The number of patients treated will therefore be at least as great as the number of issues.

Isotope.	Chemical Form.	Use.	1959–60.		1958–59.	
			No. of Issues.	mc at Use.	No. of Issues.	mc at Use.
Au^{198} ..	Colloidal gold ..	Therapy ..	34	4,402	28	3,211
		Tracer ..	..	..	16	3.2
		Total ..	34	4,402	44	3,214
Co^{58} ..	Vitamin B.12 ..	Diagnosis ..	132	0.6	138	0.8
Cr^{51} ..	Chromate in isotonic saline	Diagnosis ..	723	104	761	113
Fe^{59} ..	Ferric chloride ..	Diagnosis ..	88	1.0	75	0.8
I^{131} ..	Iodide	Therapy—				
		General ..	475	6,057	509	6,683
		Carcinoma ..	21	1,798	32	2,116
		Diagnosis ..	5,241	183	4,411	177*
	Diodrast ..	Diagnosis ..	4	1.4	12	7
	Gamma globulin ..	Diagnosis ..	..	..	5	1.6
	Human serum albumin ..	Diagnosis ..	89	65	39	37
	Oleic acid ..	Diagnosis ..	19	15.5	17	9.7
	Poly-vinyl pyrrolidone	Diagnosis ..	16	2.15	..	..
	L-tri-iodothyronine	Diagnosis ..	6	1.4	..	..
	triolein	Diagnosis ..	48	44	37	37
		Total ..	5,919	8,167	5,062	9,068*
P^{32} ..	Orthophosphate in hydrochloric acid	Therapy ..	287	1,372	242	1,280
		Diagnosis ..	34	16	30	16
	Colloidal $CrP^{32}0_4$..	Therapy ..	52	451	16	172
		Tracer ..	5	12.3	5	2.8
	Colloidal $ZrP^{32}0_4$ ..	Therapy ..	21	215	3	34
		Total ..	399	2,066	296	1,505

* Revised values. Those previously reported were 110 and 9,001 respectively.

TABLE 7

Isotopes Made Available for Use in Research from Bulk Stocks Purchased for Medical Use During 1959-60*

Isotope.	Chemical Form.	No. of Issues.	Activity at issue mc.
Co^{58} ..	Vitamin B.12	2	0.01
Cr^{51} ..	Chromate in isotonic saline	2	0.12
Fe^{59} ..	Chloride in isotonic saline	3	0.03
I^{131} ..	Iodide	110	129
P^{32} ..	Orthophosphate	90	174

* The table presents data on the issues made for research in the physical and biological sciences and fo investigations of production problems in industry.

PUBLICATIONS AND LECTURES

1958-1959

Papers.

GLOBAL FALLOUT IN AUSTRALIA DURING THE PERIOD 26TH NOVEMBER, 1956, TO 31ST DECEMBER, 1957. D. W. Keam, L. J. Dwyer, J. H. Martin, D. J. Stevens, E. W. Titterton. *Aust. J. Sci.*, Vol. 21 (1), pp. 8-9, July 1958.

RADIOACTIVE FALLOUT IN AUSTRALIA FROM OPERATION BUFFALO. W. A. S. Butement, L. J. Dwyer, J. H. Martin, D. J. Stevens, E. W. Titterton. *Aust. J. Sci.*, Vol. 21 (3), pp. 63-77, October 1958.

EXPERIMENTS ON THE STICKY-PAPER METHOD OF RADIOACTIVE FALLOUT SAMPLING. D. W. Keam, L. J. Dwyer, J. H. Martin, D. J. Stevens, E. W. Titterton. *Aust. J. Sci.*, Vol. 21 (4), p. 99, November 1958.

ASSESSMENT OF LEVELS OF RADIATION DOSES IN MEDICAL PRACTICE. D. J. Stevens. (Condensed from a paper read at the North Queensland Medical Conference, 22nd to 26th September, 1958.) *Health*, Vol. 9 (1), pp. 16-24, March 1959.

GLOBAL FALLOUT IN AUSTRALIA DURING 1958 (in press).

Library Information Bulletins.

No. 40: RADIOACTIVE CONTAMINATION, DECONTAMINATION AND WASTE DISPOSAL: WATER SUPPLIES; LIQUID WASTES.

No. 41: REPORTS ISSUED BY THE U.S. NAVAL RADIOLOGICAL DEFENSE LABORATORY—I.

No. 42: REPORTS ISSUED BY THE U.S. NAVAL RADIOLOGICAL DEFENSE LABORATORY—II.

No. 43: REPORTS ISSUED BY THE U.S. NAVAL RADIOLOGICAL DEFENSE LABORATORY—III.

No. 44: RADIOACTIVE CONTAMINATION FROM NUCLEAR TESTS AND REACTORS, WITH PARTICULAR APPLICATION TO AGRICULTURE AND FISHERIES.

No. 45: THE EFFECTS OF IONIZING RADIATION ON FOOD AND AGRICULTURE.

1959-1960

Papers.

X-RAY DOSIMETRY IN AUSTRALIA. J. F. Richardson. *Aust. J. Sci.*, Vol. 22, p. 207, November 1959.

Editorial, *Proc. Coll. Radiol. Aust.*, December 1959.

RADIATION HAZARDS—A PUBLIC HEALTH PROBLEM. D. J. Stevens. *Health*, Vol. 10, p. 7, March 1960 (re-printed in National Hospital, June 1960).

RADIOLOGICAL HAZARDS TO PATIENTS—MASS MINIATURE RADIOGRAPHY. D. J. Stevens. *Health*, Vol. 10, p. 14, March 1960.

ISOTOPE SERVICES OF THE COMMONWEALTH X-RAY AND RADIUM LABORATORY. D. J. Stevens. *Health*, Vol. 10, p. 18, March 1960.

GLOBAL FALLOUT IN AUSTRALIA DURING 1959 (in press).

Library Information Bulletins.

No. 46: ADDITIONS TO LIBRARY STOCK. BOOKS AND PAMPHLETS.

No. 47: 1. ADDITIONS TO LIBRARY STOCK: REPORTS ISSUED BY THE UNITED KINGDOM ATOMIC ENERGY AUTHORITY.

2. LIST OF PREVIOUS LIBRARY BULLETINS.

No. 48: 1. ADDITIONS TO LIBRARY STOCK: (i) REPORTS. (ii) BOOKS, PAMPHLETS, REPRINTS AND SEPARATES.

2. APPLICATIONS OF RADIOACTIVITY IN GEOLOGY AND MINERALOGY —SELECTED ANNOTATED REFERENCES.

No. 49: IONIZING RADIATIONS IN INDUSTRY AND SANITARY ENGINEERING: APPLICATION—TECHNIQUES—SAFEGUARDS.

COMMONWEALTH ACOUSTIC LABORATORIES

During the year 1959-60 the Commonwealth Acoustic Laboratories supplied transistor hearing aids to 1,914 children, Repatriation cases, Service personnel and other persons entitled to receive them. As the change-over from valve to transistor hearing aids was virtually completed in 1958-59, this figure mainly represented new cases attending the Laboratories throughout Australia who required this type of aural assistance. Whilst it was considered essential that all cases be fitted with a modern transistor hearing aid, the Calaid was designed to house varying components depending on the degree of deafness (from slight to severe) of each individual. Because of this the five models of the Calaid available for issue can and have been consistently improved in performance.

Just under half the children who have been provided with Calaid hearing aids by Acoustic Laboratories throughout the Commonwealth have now left school. The Laboratories have kept in touch with them in co-operation with the Vocational Guidance Services of the States and the Commonwealth Employment Service.

SCHEME EXTENDED

Screening tests conducted by the Vocational Guidance Service in New South Wales have shown there is a possibility that a small number of children with minor hearing deficiencies may have remained undetected during their school years, or their hearing may have deteriorated subsequently. Because of this, the Minister for Health approved the extension of the Calaid scheme to include persons whose hearing loss is discovered after leaving school, but who are still under 21. In such instances the cost of batteries is to be borne by the persons concerned.

It is expected that in future partially deaf children, if referred as soon as the disability is known, will be fitted with Calaids when they are about eighteen months old. This is in order that the children may obtain the maximum continuous auditory experience as soon and as continuously as possible. In co-operation with the State Education authorities deaf pre-school children receive training and guidance in specially equipped class rooms in each of the Acoustic Laboratories. The equipment is consistently being added to as successful experimentation is completed in Sydney, the latest using stereophonic sound.

In 1958-59, 3,151 transistor hearing aids were fitted throughout Australia, compared with 2,189 in the previous year.

NEW EQUIPMENT

In this period all the mainland laboratories were provided with both skin resistance audiometry and delayed speech feedback units. This equipment, which was designed in Australia, widened considerably the range of clinical tools available. Both units proved valuable in the detection of malingering and for cases with psychogenic deafness. The skin resistance audiometry equipment was also used extensively in assessing the degree of hearing impairment in very young children. New equipment for the accurate calibration of audiometers and other electro-acoustic gear was installed in the Laboratories.

Because of the increased demand for services in the field of noise control, octave band analysers were installed in Melbourne, Adelaide, Perth and Hobart laboratories. This equipment allows the detailed analysis of various industrial noises to be made locally, obviating the need to send tape recordings of noises to the central laboratory.

Initial experiments were made and the tooling-up completed for the modification of the transistor hearing aid to incorporate the telephone induction coil. Hearing aids, when equipped with coils, enable many cases to use the telephone more easily and to enjoy wireless broadcasts and television. These coils are also used in conjunction with other equipment, special classes for hard-of-hearing children and schools for the deaf.

RESEARCH

Effects of Noise: The effect of noise on man is becoming a controlling factor in the operation of the new jet aircraft and the most important point, in many cases, in the layout of aerodromes and runways. As many millions of pounds are expended on airport development much emphasis is being placed on establishing criteria for the amount of noise to which human beings can be exposed from the point of view of health, deafness, annoyance and efficiency.

In November, 1959, because of the urgency and importance of these matters, the Director of the Laboratories investigated developments at all major centres engaged in this work in the United States, prior to representing Australia at the Commonwealth Aeronautical Advisory Research Council conference, London. As chairman of the Ultrasonic Committee of the National Health and Medical Research Council he also visited the active centres of development in ultrasonic medicine in the United States and Europe.

The initial work on the calibration of ultrasonic therapy apparatus was completed and a major report on the calibration of the ultrasonic apparatus issued. It is now possible to calibrate completely all ultrasonic therapeutic apparatus including intensity, intensity distribution, frequency and wave form. A research physicist, appointed in 1959, is at present working with Dr. Garrett of the Queen Elizabeth Mothers and Infants Research Foundation on the visualization of abdominal masses using ultrasonics. The use of ultrasonics in otology is also receiving consideration.

Advice continued to be given to the armed forces and industry regarding hearing conservation, noise problems as they affect health, noise measurements, noise reduction, audiometry and protective devices. In addition noise measurements and analysis, reports, lectures, &c., were carried out on behalf of the managements of the mining, metallurgy and heavy metal industries.

Investigations proceeded for the combined Defence Medical Services Committee to determine and instal standard methods of testing hearing, hearing protection and hearing conservation in the Services.

Noise Problems in R.A.A.F.: The field work associated with the noise problems in the R.A.A.F., which began in 1956, was completed by June, 1959. The report, "Noise and Hearing Conservation in the R.A.A.F.", was subsequently published. Industrial noise and hearing conservation were extended to such an extent that it became necessary to use an engineer and technical officer full time on these problems. Hearing conservation programmes were set up in a number of large organizations, such as the R.A.A.F., Metropolitan Water, Sewerage and Drainage Board, Footscray Munitions Factory and the Lithgow Small Arms Factory.

In March, 1959, the research physicist began work on the use of ultrasonics in medicine. Excellent progress was made in new problems associated with basic calibration of ultrasonic therapeutic equipment. About the same time a study of presbycusis was commenced. This investigation sought reliable data for Australian conditions on the deterioration of hearing acuity with age.

PUBLICATIONS.

1958 Cal Hearing Impairment Table.

1959 Auditory Equipment for Educational Purposes.

Cal Handbook No. 1 Lipreading for Home Practice and Revision.

Reports: Cal 15 Noise and Hearing Conservation in the R.A.A.F.

Cal 16 Calibration of Ultrasonic Therapeutic Equipment.

COMMONWEALTH ACOUSTIC LABORATORIES

SUMMARY OF CLINICAL ACTIVITIES

1st July, 1958, to 30th June, 1960

—	1959–60.	1958–59.
1. New Cases Attending Laboratories—		
Children	2,791	2,624
Repatriation	2,068	1,696
Miscellaneous	820	743
Social Services	20	26
Army	98	50
Royal Australian Air Force	92	108
Navy	56	50
Directors of Health	131	112
Total	6,076	5,409
2 Civil Aviation Referrals—		
New	462	450
Repeat Tests	2,667	2,529
Total	3,129	2,979
3. Aid Fittings—		
Children and Health	712	924
Repatriation	1,064	2,189
Social Services	12	25
Army	13	6
Royal Australian Air Force	..	5
Navy	1	2
Total	1,802	3,151
4. Total Aids Issued up to 30th June, 1960—		
Repatriation	7,160	..
Health	1,530	..
Children	3,048	..
Social Services	45	..
Army	33	..
Royal Australian Air Force	7	..
Navy	4	..
Total	11,827	..

COMMONWEALTH BUREAU OF DENTAL STANDARDS

STANDARDS

The Bureau has continued to assist in the preparation of Australian dental standards and is also contributing to the work on international standards for dental materials.

Through the Standards Association of Australia, specifications for the following were published during the period:—

Australian Standard T.11—Denture Base Resin;
Australian Standard T.15—Alginate Impression Material;
Australian Standard T.16—Agar Impression Material.

Standards for local anaesthetic solution, impression paste, modelling wax, synthetic resin teeth, casting investment and dental X-ray film are almost completed and standards for several other materials are in various stages of development.

Through the Fédération Dentaire Internationale, international specifications for inlay wax, denture base polymer and silicate cement are about to be adopted. Assistance has also been given the Specifications Committee of the International Association for Dental Research in its standards programme.

TESTING

An analysis of the testing carried out during the period gave the total number of samples for which reports were issued as 731 with the following distribution:—

Mineral products	55
Cements	68
Waxes and impression materials	65
Synthetic resins	151
Metals and alloys	251
Instruments	26
Surgical and therapeutic materials	115

Of these, 99 samples were tested for public instrumentalities, 49 for overseas firms and the remainder chiefly for Australian firms.

RESEARCH

Investigations have continued on various aspects of the hygroscopic expansion of casting investments, the setting of gypsum plasters, the welding and soldering of orthodontic wires, and the properties of amalgam fillings.

In relation to the development or revision of Australian Standards investigations have been conducted on the testing of stainless steel wire and solders, the controlled preparation of amalgam specimens, the testing of porcelain teeth, dental burs and impression materials.

Other projects include the accuracy of impression materials, the behaviour of orthodontic elastics, temperatures within inlay rings, the strength of gypsum products and various manufacturing investigations.

INFORMATION

Considerable assistance on a wide variety of topics has been given in a consultative or lecturing capacity to dental schools, dentists individually and collectively, and to manufacturers and distributors of dental materials. Government organizations have sought advice on a number of items.

Lectures and demonstrations have been given to a number of groups throughout Victoria and in Brisbane and Launceston. A special exhibit on the work of the Bureau was staged in conjunction with the 15th Australian Dental Congress held in Adelaide during February, 1959.

GENERAL

Since the site occupied was required by the University of Melbourne for other purposes, the Bureau has removed to premises in 18-26 Lonsdale-street, Melbourne. The building gives increased space, new laboratory and general facilities and controlled atmospheric conditions essential for testing and research work.

PUBLICATIONS

In addition to the regular "Dental Materials—Current Notes" series and various minor reports, the following papers were published:—

PLASTER AND STONE. *D. Clin. Nth. Am.*, pp. 727-735, (Nov.) 1958.

DENTAL MATERIALS IN THE TROPICS. *Austral D. J.*, Vol. 3, pp. 215-229, (Aug.) 1958.

MATERIALS AND INSTRUMENTS, DENTAL. *Internat. D.J.*, Vol. 8, pp. 240-242, (June) 1958.

A series of seven "Practical Guides" has been published for distribution to members of the dental profession.

NATIONAL BIOLOGICAL STANDARDS LABORATORY

The *Therapeutic Substances Act* 1953 provides the Commonwealth with powers to ensure that therapeutic substances used for the prevention, diagnosis and treatment of diseases in man and animal are safe, pure and potent.

The Director-General of Health is authorized under the Act to set up laboratories to test such substances. Since 1956, pharmaceutical products have been analysed for the Commonwealth in the pharmacology laboratories of the Universities of Sydney and Melbourne and in the Commonwealth Laboratory, Department of Customs and Excise, Melbourne.

In 1958, the National Biological Standards Laboratory was established in Canberra to extend the scope of these examinations and to include substances requiring biological assay.

Dr. L. F. Dodson was appointed Director of the Laboratory in June, 1958. He was granted a World Health Organization Travelling Fellowship and visited biological standards laboratories in the United States of America, Canada, the United Kingdom and in Europe, during the latter part of 1958. On his return temporary quarters were provided in the Institute of Anatomy, Canberra, and staff recruitment commenced. During the first half of 1959, the organization of the Laboratory was defined, and techniques for the assay of antibiotic products were set up.

The Australian National University generously agreed to provide accommodation for the National Biological Standards Laboratory in one of the temporary buildings previously occupied by the Physiology Department of the John Curtin School of Medical Research. The National University made this building available for a five-year period. It has been re-modelled by the Department of Works and was handed over to the staff of the National Biological Standards Laboratory in June, 1959.

The National Biological Standards Laboratory has been organized into two Divisions—a Biological Products Division and a Pharmaceutical Products Division.

The Biological Products Division comprises a Bacterial Products laboratory, a Viral Products laboratory and an Antibiotic Products laboratory. The Pharmaceutical Products Division consists of an Analytical Chemistry laboratory, an Endocrine Products laboratory and a Pharmacology laboratory. Positions have

been made for officers to supervise each of the above laboratories with the exception of the Pharmacology laboratory which for the time being is to be supervised by the Director. Difficulties have been met in recruiting officers for several of these posts. At present the laboratory staff consists of four professional officers and ten technicians.

During 1959-60 several of these laboratories commenced to function.

BIOLOGICAL PRODUCTS DIVISION

Antibiotic Products Laboratory: As yet a suitable officer has not been found to take charge of this laboratory. However, during the year assays have been carried out under the supervision of the Director and Dr. J. K. Kiraly, who was seconded from the Pharmacology laboratory.

In order to test the stability of various preparations some samples of antibiotic products were collected both from manufacturers and from pharmacies throughout Australia, where they had been subjected to varying climates and conditions of storage. All products were tested for potency, and where applicable, for moisture content, tablet disintegration time, consistency, toxicity, pyrogenicity, alkalinity of glass containers and their labels were examined for compliance with the monographs of the British Pharmacopoeia.

The antibiotics tested in this first instance were those listed as pharmaceutical benefits by the Commonwealth and which represent a very significant proportion of government expenditure under the *National Health Act*.

During the nine-month period from September, 1959-May, 1960, 317 samples were assayed. Including technical investigation, approximately 1,500 assays were carried out. A variety of dosage forms of Phenoxymethyl penicillin, procaine benzyl penicillin, tetracycline hydrochloride, dihydrostreptomycin, oxytetracycline, chlortetracycline, erythromycin, streptomycin and chloramphenicol were examined representing 46 items listing the samples by product and manufacturer. Of these, six items failed to meet the British pharmacopoeial standard. Four items failed because the glass containers did not meet the specifications for alkalinity of glassware. The products of two manufacturers contained an excess of moisture. There was, however, no evidence in any instance of deterioration of the product. The excess moisture in one antibiotic preparation was due to a difference between the specifications laid down by the British Pharmacopoeia and the United States Pharmacopoeia.

These failures to meet standards have been brought to the attention of manufacturers.

This is one of a number of instances where differences between the standards of the British Pharmacopoeia and the United States Pharmacopoeia have led to the marketing of products in Australia which are not uniform in standard and sometimes even in potency. Methods for obtaining the desired uniformity are under consideration.

During the year, therefore, the Antibiotic Laboratory has examined a considerable proportion of the antibiotic preparations available on the Australian market. In almost every case these products were found to reach an excellent standard.

Viral Products Laboratory: Mr. D. W. Howes was appointed in April, 1960, as Officer-in-charge of this laboratory. Mr. Howes is a graduate of the Adelaide University and held research posts at the Institute of Medical and Veterinary Science in Adelaide, Yale University and the Australian National University.

Equipment for this laboratory has been purchased and installed. Cultures and media have been prepared for use in testing several viral vaccines, infectious Laryngo-tracheitis, Canine Hepatitis, Smallpox and Yellow Fever. Tests of infectious Laryngo-tracheitis Vaccine have begun and the others will be tested shortly.

As a result of discussions with veterinary organizations and other interested bodies, the National Biological Standards Laboratory has undertaken to co-operate with the New South Wales Department of Agriculture in field trials of infectious Laryngo-tracheitis vaccines. These trials, in addition to yielding other information, should provide data for setting official standards for infectious Laryngo-tracheitis vaccines at a later date.

Bacterial Products Laboratory: As yet it has not been possible to obtain an officer to take charge of this laboratory. Sterility testing and allied procedures which normally would be carried out by this laboratory are at present being carried out by the staff of the Antibiotic Products Laboratory.

PHARMACEUTICAL PRODUCTS DIVISION

Analytical Chemistry Laboratory: Dr. F. E. Peters was appointed Officer-in-charge in January, 1960, while resident in the United States of America. Dr. Peters is a graduate of Sydney University. He held a research post with the National Health and Medical Research Council at Sydney University and was later Biochemist-in-charge of a Nutrition Laboratory with the South Pacific Commission. He obtained his doctorate at Purdue University, Indiana, U.S.A. and was an Analyst with the Indiana State Chemist. Dr. Peters took up duty in Canberra in March, 1960.

The Analytical Chemistry Laboratory has been partially equipped and since April, 1960, has carired out assays on the following substances:

Chloramphenicol: There is only one manufacturer of this pharmaceutical. Five different preparations were examined and were found to meet a reasonable standard. An official standard exists for only one product and discussions are in progress with the manufacturer for the setting of standards for the remaining products.

Amylobarbitone and Amylobarbitone Sodium: The products of eight distributors were examined. The products of three of these failed to meet British Pharmacopoeia standards.

Acetazolamide: There is only one manufacturer and his product met British Pharmacopoeia standard.

Antimony Potassium Tartrate Injection: There is only one manufacturer and his product met British Pharmacopoeia standard.

Aurothioglucose: There is only one manufacturer and his products met a reasonable standard. There is as yet no official standard for this product.

Potassium chloride: The products of three manufacturers were examined. One failed to meet British Pharmacopoeia standards.

Intravenous Infusions: A complete survey of all intravenous infusions is being made. As this survey is still incomplete it will be summarized in the next report.

A total of 80 samples and some 300 assays have already been carried out in this laboratory. The types of assays which can be performed have been limited up to the present by unavoidable delays in obtaining staff, specific reagents and some equipment. These deficiencies are expected to be overcome in the forthcoming year. It is clear from the results of the first three months' work that in this field the National Biological Standards Laboratory is faced with an important and formidable task.

Pharmacology Laboratory: The development of this laboratory has been retarded by the necessity to use its staff in the Antibiotic Products Laboratory. However, samples of several products have been taken during June, 1960, for analysis. Part of the work of this laboratory has been complementary to that carried on in the Analytical Chemistry laboratory since the more precise chemical methods frequently require checking by less precise but more specific biological assays.

Endocrine Products Laboratory: This laboratory has not yet become operative. Negotiations for staff are in progress and equipment is being purchased. It is expected that work in this field will be commencing later in 1960.

Relations with Industry: Liaison with the pharmaceutical industry is being established. The factories of a number of manufacturers have been inspected and discussions held with their management and quality control staff. On a number of occasions quality control personnel have visited the National Biological Standards Laboratory to study and exchange technical methods with its staff. The Laboratory is grateful to industry for the provision of quantities of pure chemicals and antibiotics to be standardized against International Reference Standards and used as working laboratory standards.

COMMONWEALTH HEALTH LABORATORIES

The Department maintains health laboratories at fifteen strategic points throughout Australia, from Townsville to Kalgoorlie. Each of these laboratories assists the medical profession and the public in its region by the examination of clinical specimens and in a variety of other ways. The first health laboratory was opened at Rabaul, New Guinea, in 1921 and others were established soon afterwards.

These laboratories perform laboratory work of a public health nature, such as the bacteriological and clinical examination of food, milk and water and the investigation of outbreaks of disease. They also provide a point for the efficient distribution of the products of the Commonwealth Serum Laboratories. They have proved of special value in the investigation of peculiarly local diseases in Queensland and the Northern Territory.

Some of these laboratories, which are located at seaports or airports (e.g. those at Cairns, Townsville and Port Pirie) perform quarantine duties in respect of incoming passengers and cargo, and keep a day-to-day vigilance to prevent the introduction of plant and animal diseases into Australia. It is, of course, essential that staff engaged on such duties should be both competent and continually alert.

The number of pathological examinations and laboratory tests performed at each laboratory from 1st July, 1958, to 30th June, 1960, were as follows:—

Location.	1958–59.	1959–60.
Albury	27,152	29,545
Alice Springs	2,993	7,351
Bendigo	66,268	66,316
Cairns	54,101	65,309
Canberra	111,627	125,632
Darwin	32,683	44,724
Hobart	53,346	52,430
Kalgoorlie	39,218	35,124
Launceston	37,559	41,280
Lismore	63,482	75,379
Port Pirie	10,650	10,854
Rockhampton	41,710	43,826
Tamworth	37,756	43,644
Toowoomba	93,425	105,816
Townsville	89,910	99,534

WORLD HEALTH ORGANIZATION

TWELFTH WORLD HEALTH ASSEMBLY

The Twelfth World Health Assembly was held at Geneva from 12th to 29th May, 1959. It was attended by 82 Member States and Associate Members, representatives of the United Nations and its specialized agencies, observers for inter-governmental and non -governmental organizations in official relations with W.H.O. and observers from several non-member States.

The Australian delegation at the Assembly consisted of Dr. A. J. Metcalfe, Director-General of Health, Dr. A. H. Humphry, Chief Medical Officer, Australia House, London, Mr. L. J. Arnott, Permanent Representative to the European Office of the United Nations, and Miss M. McPherson, Second Secretary, Permanent Mission to the European Office of the United Nations.

The programme of work for 1960 contains several important developments which will result in the emergence of a series of new trends and changes of emphasis in the long-range programme of the World Health Organization. The most outstanding development is the increased emphasis on eradication as an approach to the solution of communicable disease problems. The diseases mainly concerned are malaria, smallpox, yaws, tuberculosis and leprosy. Vital and health statistics services will be utilized in other W.H.O. activities on a wider scale than formerly. Increasing attention will be paid to nutritional problems.

In 1960, W.H.O. also plans to concentrate on the improvement of community water supplies. This is part of a programme for fighting bilharziasis and other communicable diseases. An expansion of activities will be directed against the arthropod-borne viruses many of which are known to be important producers of human and animal disease.

In the field of mental health the two main subjects to be dealt with are the epidemiology of mental disorders and the teaching of psychiatry and of mental health techniques. Special activities will be sponsored together with the World Federation of Mental Health for the organization of a world mental health year in 1960.

It is proposed that chronic and degenerative diseases, especially cardiovascular diseases and cancer will be given more attention beginning in 1960.

Medical research will be more intensely encouraged and attention will be given to problems of world-wide significance and emphasis placed on research activities which can best be carried out through international co-operation.

Some of the other significant resolutions adopted by the Assembly were the following:—

Malaria Eradication: Concern was expressed over the lack of adequate response to requests for contributions to the Special Account. It was decided to study measures that may be taken to ensure the continued financing of W.H.O.'s assistance to the malaria eradication programme.

The view was expressed that health administrations should be invited to emphasize the inclusion of appropriate health activities in their countries' consolidated programme requests for 1960 and future years.

It was again emphasized that attempts should be made in those countries where smallpox is still present to develop eradication programmes with the advice and technical guidance of the World Health Organization.

Regional Committee for Western Pacific: Dr. H. E. Downes, Assistant Director-General of Health and Mr. D. F. Ritchie of the Department of External Affairs attended the session of the Western Pacific Regional Committee as the representatives of Australia. The meeting was held at Manila, Philippines, from 26th September, 1958, to 3rd October, 1958.

Dr. Downes was elected Chairman for the session and in the address he made to the Committee he spoke on the subject of national health budgeting and communicable disease particularly in relation to Australia.

The matters discussed included the smallpox and malaria eradication programmes which placed emphasis on the health education of the public and training courses, the proposed projects for the 1959 and 1960 Technical Assistance Programme and the 1960 Regular Programme and Budget.

Seminar on Dental Health: A Seminar on Dental Health was held in Adelaide, South Australia, from 10th to 20th February, 1959, in conjunction with the Fifteenth Australian Dental Congress, held 23rd to 27th February. Ten Australian participants attended the seminar in addition to 34 participants from overseas countries.

Seminar on Health Physics: An Inter-regional Training Course on Health Physics was held in Bombay, India, from 17th November to 19th December, 1958. Dr. John Stockdale, Research Officer, Health Physics Section, Australian Atomic Energy Commission was the Australian representative at this seminar.

Seminar on Veterinary Public Health: A Seminar on Veterinary Public Health was held by the Western Pacific Regional Office of W.H.O. in collaboration with the Food and Agriculture Organization, at Tokyo, Japan, from 20th April to 1st May, 1959. Participants from Australia were Dr. C. E. Cook, Director of Public Health and Mr. K. S. McIntosh, Assistant Director of Veterinary Hygiene, of the Commonwealth Department of Health.

Seminar on Maternity Care: A W.H.O. Regional Conference on Maternity Care was held in Manila, Philippines, from 9th to 20th March, 1959. Participants at the conference from Australia were Dr. B. Meredith of the Victorian Department of Health, Dr. H. C. Murphy of the Queensland Department of Health and Home Affairs and Dr. J. J. Refshauge of the Department of Public Health of the Territory of Papua and New Guinea.

THIRTEENTH WORLD HEALTH ASSEMBLY

The Thirteenth World Health Assembly was held at Geneva from 3rd to 19th May, 1960. It was attended by the Member States and Associate Members, representatives of the United Nations and its specialized agencies, observers for inter-governmental and non-governmental organizations in official relations with W.H.O. and observers from several non-member States.

The Australian delegation at the Assembly consisted of Dr. L. J. Weinholt, Commonwealth Director of Health, Sydney, who was the chief delegate, Dr. A. H. Humphry, Chief Medical Officer, Australia House, London, Dr. B. W.

Royall, Chief Medical Officer, Australian Embassy, The Hague, Holland, and Mr. P. G. F. Henderson, Second Secretary, Permanent Mission to the European Office of the United Nations, Geneva.

The programme of work for 1961 illustrated the broadening of W.H.O.'s long-term activities in a number of fields, in particular the intensification of medical research work.

Special Conferences: In the field of communicable diseases an inter-regional conference on yaws is planned for 1961 in addition to the work already being carried out. Further developments are proposed in the Organization's anti-tuberculosis programme. By 1961 smallpox eradication campaigns will be in the final stages in some countries of the Americas and well advanced in others. In the Eastern Mediterranean, South-East Asian, Western Pacific and African Regions, some of the countries where the disease is still a serious public health problem will be developing smallpox eradication campaigns, or completing their planning stages. In the trachoma programme particular reference will be made to research on the microbiology and the epidemiology as it occurs around the Mediterranean basin. A greatly expanded malaria eradication programme will be promoted throughout the world in 1961.

Attention will be paid to the strengthening of health services and to medical education and training. In Europe conferences and seminars will be held on national vital statistics, education of psychiatric nurses and environmental sanitation. A training course will be organized for physicians and engineers in the Eastern Mediterranean Region, and South-East Asia may later become the basis for training national personnel in occupational health.

A large number of inter-regional activities are to deal with the manifold health problems related to ionizing radiation and the use of radioactive isotopes and atomic energy.

In the matter of medical research, research in communicable diseases is given emphasis closely followed by research on the problems of highly industrialized countries, e.g., cardiovascular diseases and cancer. Due attention will also be given to research in human genetics, in nutrition, in radiobiology and in health problems arising from the use of ionizing radiation. Increased attention will also be given to the training of research workers in all countries.

Regional Committee for Western Pacific: Dr. G. M. Redshaw, Assistant Director-General of Health and Dr. R. F. R. Scragg, Director of Public Health, Territory of Papua and New Guinea, attended the Tenth Session of the Western Pacific Regional Committee as the representatives of Australia. The meeting was held at Taipei, Taiwan, from 16th to 22nd September, 1959.

At this session the formal invitation by the Australian Government that the 14th Session of the Regional Committee should be held in Port Moresby in 1963 was considered and accepted unanimously.

The technical discussions during the session were devoted to the subject "Tuberculosis Control" with emphasis on the control of this communicable disease as a part of the integrated health services of a country. In the matter of malaria eradication concern was expressed at the growing evidence of resistance by vectors to insecticides such as D.D.T. and even Dieldrin. Disappointment was expressed at the comparatively poor response to the Malaria Eradication Special Account.

In the field of environmental sanitation it was decided that as much assistance as possible be given to Member States undertaking projects to provide adequate and safe supplies of water to the inhabitants of their communities.

The urgency of achieving world-wide smallpox eradication was emphasized and attention was particularly directed to the fact that eradication campaigns have not yet been started in all the countries where endemic foci exist.

Seminar on Tuberculosis: A W.H.O. Seminar on Tuberculosis was held in Sydney, New South Wales, from 23rd May to 3rd June, 1960. Australia was represented by various Commonwealth and State Government officials and also representatives of medical societies and tuberculosis organizations.

Seminar on Education: A Regional Seminar on the Education and Training of Sanitation Personnel was held in Tokyo, Japan, from 21st October to 5th November, 1959. Participants from Australia were Mr. C. E. Flower of the Public Health Department, Western Australia, Dr. W. D. Symes of the Department of Public Health, Territory of Papua and New Guinea, and Dr. D. W. Johnson, of the Department of Health and Home Affairs, Queensland.

COMMONWEALTH GRANTS

RED CROSS BLOOD TRANSFUSION SERVICE

Prior to 30th June, 1952, the cost of the Blood Transfusion Service conducted by the Australian Red Cross Society in all States was borne by that Society with some assistance from the State Governments. In 1952, the Commonwealth agreed to make an amount of £50,000 available to the Society through the State Governments and a further grant of £44,000 was made available by the Commonwealth during the year ended 30th June, 1954. State assistance was to be continued at the previous level, with arrangements with the Society to share any deficit still remaining.

A further offer was made by the Commonwealth in March, 1954, of a grant to each State Government, equal to 30 per cent. of the certifiable operating costs of the Blood Transfusion Service incurred by the Society in each State. All States accepted the offer on the condition that 60 per cent. of the operating costs would be met by the State concerned, leaving 10 per cent. of the expense to be met by the Society, thus ensuring adequate maintenance of this important community service at a high level of efficiency.

Details of grants made by the Commonwealth during the period under review are included in the following table:—

State.	1958–59. (Based on Expenditure for year ended 30th June, 1958.)	1959–60. (Based on Expenditure for year ended 30th June, 1959.)
	£	£
New South Wales	35,263	36,644
Victoria	40,858	43,691
Queensland	25,102	24,494
South Australia	13,468	16,116
Western Australia	12,008	14,923
Tasmania	4,830	4,925
	131,529	140,793

ROYAL FLYING DOCTOR SERVICE

A further increase was made in the Commonwealth annual grant towards maintenance, made to the Royal Flying Doctor Service of Australia, from £20,000 to £25,000, with effect from 1st July, 1957. The Commonwealth grant towards capital expenditure by the Service remained at £15,000 per annum for the two years under review. The capital expenditure grant is made on £ for £ basis in respect of approved projects.

The Commonwealth continues to meet the cost of the contents of standard medicine chests supplied for use in the various centres serviced by the Royal Flying Doctor Service when doctors give medical advice by radio.

HOME NURSING SUBSIDY SCHEME

Details of this Scheme, which came into operation on 1st January, 1957, are included under the Nursing section of this Report.

By Authority: A. J. Arthur, Commonwealth Government Printer, Canberra.