CHAPTER 20

IN AUSTRALIA, 1941-1942

WE must here turn back to see what had been happening in Australia while the A.I.F. had been campaigning in the Middle East. Many medical problems called for solution. Coordination and equipment for medical work at home and abroad went ahead as national projects; later, a skeleton scheme for providing emergency medical services was devised. Returning casualties had to be provided with accommodation and treatment, facilities for their transport from overseas had to be expanded. Defence plans envisaged possible hostility directed against Australia, and for these special medical services were needed. Organisation in service medical matters was greatly expanded, and changes were made in the central medical directorate. The claims of women for enlistment in the armed Services were met by the establishment of new or greatly expanded organisations. Questions of health and fitness were given earnest attention, in both the selection of recruits in the light of oversea experience and the maintenance of a good standard of health in civilians doing important work at home. Finally the menace of a war with Japan became a reality, and the forces under training in Australia, and the I Australian Corps, consisting of the 6th and 7th Divisions of the A.I.F. were faced with the responsibility of defence of Australia and the islands to the north. Henceforth it was plain that after the fulfilment by the 9th Division of its last assignment in the Middle East Australia would be, so far as its army was concerned, committed to a difficult and dangerous struggle to deal with the powerful co-partner of the Axis. These subjects will now be dealt with serially.

ORGANISATION

Early in 1941 important changes were made in the central organisation of the medical services at Army Headquarters. Chief of these was the appointment of Colonel F. A. Maguire, a former D.D.M.S. of the Eastern Command, as D.G.M.S., with rank of major-general. It has been told already how Colonel S. R. Burston was appointed as D.M.S. of the Australian Corps by General Blamey, and later was promoted major-general, D.M.S. of the A.I.F. in the Middle East. Burston before leaving Australia, pointed out the advantage of the appointment of a D.M.S., but the Chief of General Staff, General Sir Brudenell White, did not agree, believing it was better to consider the possibility of the D.G.M.S. and other senior officers being sent overseas at a later date. In November Downes prepared for the Cabinet a memorandum describing the Australian medical organisation in Egypt in 1916, based on the account given in the Medical History of the 1914-1918 war the second volume of which had just been published. This memorandum drew attention to the improvements which had followed the appointment of a D.M.S. in 1916, and con-

tained a recommendation that the precedent should be followed. General Stantke, Adjutant-General, proposed to Downes that he be appointed D.M.S., and on Downes' demur asked if he was willing to go overseas. Thereupon Downes was appointed to the oversea post but no public announcement was made. Actually Blamey had already appointed Burston, and there was naturally a feeling in the Middle East force that he, who had built up the medical service there successfully, should be selected to control it. In the beginning of March 1941 Stantke personally informed Downes that he was to be appointed as Inspector-General of Medical Services and Maguire was to succeed him as D.G.M.S. This appointment was made at ministerial level, by direction of Mr Spender, Minister for the Army, and without consultation of the Military Board. Maguire accepted the appointment conditional to his having a stronger position with the Adjutant-General than had been accorded to Downes. Actually the status of the medical services was much more satisfactory in the Middle East than at home, for General Tomlinson, D.M.S. of the British Force dealt direct with his Commander-in-Chief, and General Burston with General Blamey. Maguire was told that he would attend meetings of the Military Board when medical matters were discussed, but the real position was little altered. Indeed on one occasion Maguire informed the A.G. that he would resign if an important matter which had been opposed was not sanctioned. Difficulties arising between the D.G.M.S. and the A.G. arose partly from questions of personality and partly from the reluctance of some staff officers to regard the D.G.M.S. as the responsible technical adviser on medical affairs, an attitude which complicated administration and tended to cause delays. General Downes after appointment as I.G.M.S. in 1941 visited the chief military centres in Australia, and, accompanied by Major C. H. Fitts as staff officer, travelled by the hospital ship *Oranje* to Malaya *via* Darwin and the Netherlands East Indies. He then visited Egypt, Palestine and Syria, Sudan, Eritrea and Abyssinia, and went to India and Ceylon, returning to Melbourne in October 1941. His reports covered most of the subjects of importance which affected the medical services of the A.I.F.

While Downes was D.G.M.S. the medical services had been greatly expanded and important organisations within the Services were developed. Significant changes were the developments relating to induction of recruits into the army, and the early steps leading to the inevitable growth of women's services.

At the outbreak of war the Australian Army Nursing Service was the only army women's service in existence in Australia, with only a few nurses on the reserve. In the middle of 1941 the Australian Women's Army Service was formed, which released many men for service in forward areas. The organisation of women's service in the navy and air force will be dealt with in a later volume. The formation of these services with large numbers of women in all the military areas in Australia raised special problems of recruitment, accommodation and medical care. Medical examination of women recruits was based on the general lines

laid down for men, but carried out as far as possible by women doctors, usually working on a part-time basis. Voluntary aids were also enlisted as a necessary and integral part of the medical services. A new handbook had been written for their use by General Downes just before the outbreak of war. These detachments were raised under the tutelage of the St. John Ambulance Brigade and the Red Cross Society, separately or in conjunction, in different States, and were regarded by the D.G.M.S. as a valuable source of assistance to the medical services. Two unpaid members were allowed to proceed overseas with the 2/2nd A.G.H. but it was some time before the Cabinet could be convinced that the voluntary aid detachments should be paid and accommodated for the purpose of special service with the army. At first approval was sought for the employment of voluntary aids in camp hospitals in Australia, where they immediately established themselves as invaluable. It seems difficult now to imagine that there was even a minority of people, some not uninformed, who doubted whether nurses were needed in camp hospitals, or whether voluntary aids were needed for military duties. The V.As. were found of great value too in all the lines of communication areas in Australia, and in June 1941 approval was given for 800 to be enlisted for oversea service. The first draft proceeded overseas in October 1941, but the altered military situation prevented further detachments from serving in the Middle East, except those who served with the 2/12th A.G.H. in Colombo and in hospital ships. Expansion of this auxiliary service continued: a controller, Miss K. A. L. Best, was appointed to the staff of the D.G.M.S., and an assistant controller to the staff of the D.D.M.S. of each military area to coordinate the services, and the range of duties performed was greatly increased. Voluntary aids as well as working as nursing and dental orderlies and operating room attendants were posted as clerks, messwomen, laboratory assistants, dispensers, radiographers, telephonists, tailoresses, storekeepers, laundry workers and general duty women. This growth in their activities coincided with the greater needs of the period beginning at the end of 1941, when Japan entered the war. At this time too a large part of the A.I.F. returned to Australia, and with the great changes imperative in general army organisation it was natural that the voluntary aids should be enlisted into the army and form a special service. There were two distinct types of service rendered, part-time and full-time, both valuable, and it was obvious that women carrying out these specialised forms of service in the army should belong to a separate service.

Another offshoot of military activity was the V.D.C. (Volunteer Defence Corps). This body arose from the desire of veterans of the 1914-1918 war to offer themselves for emergency service and for special training in defence, in passive air defence, or in signals or medical or other technical work. The army medical services were not directly concerned with this body as an organisation, but individual members of the A.A.M.C. gave their time to teaching first aid and other procedures and to field training which might equip members of the V.D.C. in emergency for work in home service medical units. Occasionally difficult problems of

compensation arose when members during training or field work became ill or were injured. Civilian doctors attended such men and in the adjustment of remuneration for these services members of the consulting staff of the D.G.M.S. acted as assessors.

MEDICAL COORDINATION IN 1941 AND 1942

The demands likely to be made on all medical services were increased when the war against Japan began in December 1941. At the beginning of 1942 the procedures for obtaining medical officers were working smoothly, though with occasional difficulties and misunderstandings. The question of allotment to the A.I.F. or to the C.M.F. (Militia), which was quite outside the province of the Central Medical Coordination Committee, gave occasional trouble. This committee having delegated to the State committees the task of obtaining as many medical officers as could be spared from civil work for the army, navy and air force, had not campaigned to obtain men for home service. This was not necessary, as the *Defence Act* gave power to call up medical practitioners of appropriate age groups for this service, officers on the reserve could be used for the same work, and there was little difficulty in employing doctors not within the compulsory age group for short periods of home service. If in fact such a campaign became necessary the central committee would initiate it through the State committees. Misunderstanding sometimes arose too due to a lack of understanding that once an officer was allotted to a medical service the service director alone was responsible for the manner of his employment.

In February 1942 a Premiers' conference was held, at which some of these matters were discussed. The question of registration of nurses was also brought under review, and General Maguire expressed the opinion that it would be best if nurses, dentists and technicians as well as doctors were called up for service and civil needs. The D.G.M.S. also brought the altered situation before a conference of Commonwealth and State Ministers. He pointed out that over 100 doctors had already been replaced by civilians in the army, thus effecting a considerable saving. Registrars and adjutants in general hospitals had been replaced by experienced laymen, bearer officers were no longer appointed to field ambulances, their work being taken over by men highly trained in first aid procedures, medical officers in hygiene sections were replaced by highly trained public health inspectors and work in some technical specialties such as entomology and bacteriology was being done by scientific technicians, instead of medical officers. The shortening of the medical course had been effected at the Universities, and women graduates were being used for certain army appointments. At the same time great care was being exercised in calling up doctors for military work: they were being used part-time wherever possible, and if a serious emergency occurred final year medical students could be employed in certain capacities under supervision. The D.G.M.S. emphasised that, while the State Medical Coordination Committees controlled the pool of doctors, supplying them to the

services and the civil community as required, the central committee as the central authority should have full executive powers in the distribution and employment of medical men. At a meeting of the Central Coordination Committee this view was shared by the deputy chairman of the central committee, Sir Alan Newton, and at a meeting of a special subcommittee a scheme was drawn up for the establishment of an executive medical coordination committee. In addition the question of medical equipment was reviewed.

The closeness of the Japanese war to Australia had introduced another problem. The various organisations concerned with air raid precautions and some private firms had made panic purchases of medical equipment, and the need for a coordinating officer was felt. At the end of 1941 the appointment of a medical director of home security was suggested to the Minister for Home Security, but he deferred action.

Dr Cumpston was then asked by the central committee to make a visit to the various States and ascertain the position in each. On his return he made a comprehensive report. This pointed out the different legal position in each State with regard to the maintenance of essential services, but recognised the aim of all the State Governments to cover all medical needs of the community. The Commonwealth had endorsed the necessary powers of the States by the *National Security Act,* which could be further invoked should further action be demanded. The distribution of doctors available for civil domestic practice was on the whole satisfactory, and the arrangements seemed likely to withstand the strain of full mobilisation, but further organisation was indicated for emergency purposes, should war actually come to Australian shores. The doctors in private practice were working very hard, and in some instances, were showing signs of strain. The medical attention given to the public was, in Dr Cumpston's opinion satisfactory. Strain was most evident in Western Australia where the medical resources were fully exploited. In the event of a raid or other hostile action the resultant emergency would divert numbers of doctors carrying on over-busy practices. Therefore a Commonwealth-wide emergency organisation was suggested that a mechanism for equalisation of effort might be possible. Though the balance was delicately held in some States between service requirements and civil needs, coordination was then working well in all States.

The altered war situation had introduced several new factors. For example, more prisoners of war were being held in camps, calling for more administrative assistants; the American armed forces were arriving in increasing numbers, again involving more work in administration, and for a time more call on hospital accommodation and care; the flow of civilians from evacuated enemy-held countries was increasing, and the risks of disease were thereby enhanced. In each State there were committees for civil defence in addition to the coordination committees under the Department of Defence. These separate committees had different members and the coordination between them was not always very close. The presence of some members on both committees was helpful in this

regard; cooption was a means to this end, and was used more in some States than others. Practical cooperation had been achieved in most instances by mutual understanding, but the difficulty of having two bodies representing different authorities remained.

Dr Cumpston suggested that the State coordination committees should appeal to doctors to serve in an emergency under stated conditions or unconditionally, that civil practices should be more economically controlled by introducing a geographical zoning for visits of doctors to patients' homes, and prescribed hours at prescribed places for treatment. He further suggested that a roster of doctors should be drawn up who would be willing to act in an emergency on a salaried basis, and pointed out that a compulsory basis for emergency service might become necessary. After discussing the situation in the light of this report the full central committee on 22nd February 1942 agreed to the establishment of an emergency medical service under the direction of the Department of Health. After the meeting the representatives of the British Medical Association and Air Vice-Marshal Hurley put forward the view that the members of the medical profession might look askance at the method of administration of such a service, and might regard it as a thinly veiled introduction of permanent nationalisation of medicine as a war measure. In view of this a further meeting was held on 8th March 1942 at which it was agreed that the E.M.S. would be established under the general direction of the Minister of Home Security, but that the actual administration should be undertaken by the Director-General of Health as member of the central coordination committee. This step was taken because the Department of Home Security would terminate with the cessation of war. One possible drawback was seen, that the administration of this service might revert eventually to the committee itself.

EMERGENCY MEDICAL SERVICE

The necessary regulations governing the E.M.S. were gazetted on 26th March 1942. These provided for the actual administration by State committees through executive officers; these positions were filled by the deputy chairman, who had done excellent work in each State, having already made arrangements for caring for the civilians in an emergency and for the needs of the air raid precautions organisation. Along these lines the organisation was shaped, and a complete account of the practice and procedure was drawn up. Various amendments were made in the regulations, which were consolidated in statutory rules. On 20th April 1944 the administration, which had been placed previously under the Minister for Defence, was transferred to the Department of Health. The Director-General of the Emergency Medical Service was empowered to give effect to the decisions of the Central Medical Coordination Committee in relation to the work of the E.M.S., and to give directions to a State committee. Assistants to executive officers were also appointed in most States. Pay and expenses for part-time and whole-time service in executive work was based upon equivalent military scales. Allocations of

medical practitioners for naval, military, and air force requirements were arranged through the State executives, and where consultants were desired for special duty they were made available by agreement with the senior representatives of the services concerned. An emergency civil medical practitioner service was organised, consisting of volunteers, and others whose services were called upon in pursuance of the regulations. No barrier was raised to any member of the E.M.S. serving in a force outside Australia. Arrangements were also made to draw into the organisation those doctors who after service with the forces had returned to civilian practice. Assignment for duty in the E.M.S. consisted of the following categories: continuation with present work; part-time posting to hospital on first aid duties; and full-time work during an emergency or as a principal or *locum tenens* carrying out civil practice or as an E.M.S. practitioner in a country area on a salaried basis. Every medical practitioner concerned was duly notified of these provisions, and if called upon to carry out any specific duty, could appeal to the central committee. Rates of salary for a *locum tenens* or full-time service were determined: in certain areas a special district allowance was made in addition. These were in accordance with the rates of pay and allowances payable to medical officers of the Commonwealth Department of Health. Arrangements were also made for the necessary accommodation and equipment for practice under direction by the E.M.S., and standard charges for various medical and surgical procedures were drawn up.

COORDINATION OF DENTISTS

The coordination of medical practitioners for war service aroused interest in the dental profession. A suggestion was therefore made that a dental coordination committee should be established, separate from the Central Medical Coordination Committee, and consisting of the senior dental officer from the navy, the army and the air force, a representative of the Federal Council of the Australian Dental Association, and a representative of the State councils of the same body for New South Wales and Victoria, under the chairmanship of the chairman of the C.M.C.C. The central committee decided not to recommend such a dental coordination committee, feeling that there was a danger that the action taken by this committee might be opposed to the policy of the service directors of the navy and air force, who were only represented by senior dental officers. An alternative was proposed and accepted, which provided for the appointment of a dental sub-committee of the C.M.C.C., which could make recommendations to the central committee. As the committee had previously restricted its ambit to medical practitioners a change in the regulations was now necessary in order to allow for the coordination of all "medical personnel". This was effected on 26th March 1942. It was evident as soon as the sub-committee met that the service demands for dentists were much less than the call for medical practitioners. In Australia 5,000 dentists were registered, and of these only 500 were required. Therefore there was no need at that stage to introduce regulations similar

to those needed for the coordination of doctors. Honorary dental advisers were appointed to each State coordination committee whose function was to advise through each State committee concerned the calling up of dentists for service. Thus a system of voluntary coordination between service dental officers and representatives of the civil dental profession was effected. This appeared to be a more generally acceptable method than a more thoroughly controlled mechanism, since it avoided any suggestion of the beginnings of nationalisation of the dental profession. A real difficulty was found in providing dental mechanics. There was then a shortage in civil practice; therefore steps were taken to train mechanics in the services, and the Director of Manpower was approached so as to ensure that qualified mechanics would not be allowed to enlist in the forces.

COORDINATION OF PHARMACISTS

A sub-committee of the central committee was formed to advise concerning the need for control of pharmacists. Some States wished regulations to be gazetted for the purpose, but the pharmacists themselves, like the dentists, wished to avoid control by regulation if this was possible. A *questionnaire* was drawn up for issue to all pharmacists, but without an enabling regulation there was no certainty that the necessary information would be obtained. Advisory sub-committees were recommended in each State to advise the State committees, and the Director of Manpower was asked to exempt indentured pharmaceutical apprentices from being called up in December 1942. There was considerable delay before the desired regulation was gazetted. In May 1943 the Director-General of Manpower agreed to take steps to utilise advisory committees for control of pharmacists entering the services, and State committees were asked to submit information about any who might seem unnecessarily called up for service.

COORDINATION OF NURSES

The demand for nurses was so great both by the services and the civil hospitals that the central committee in 1942 agreed that the nursing profession should be controlled by regulations similar to those gazetted for the Emergency Medical Service. The administration of this was originally planned to be carried out by the Department of Health, but by reason of the bulk of work demanded it was met by an expansion of the secretariat of the central committee. It will be remembered that the original coordination plan included nurses, voluntary aids and physiotherapists, but was restricted later to medical practitioners. Now the scope was widening again. In September 1942 a sub-committee of nurses drew up a report which recommended control of nurses on a Commonwealth basis, under the Central and State Coordination Committees. It was also suggested that a salary scale for nurses should be fixed. Early in 1943 General Burston, who as chairman of the central committee had had interviews with various authorities, reported that the position needed reconsideration. The mechanism for controlling the nursing profession was

already in the hands of the manpower authorities, and, although this lay body had drawbacks in the control of a profession, with appropriate help a satisfactory form of control might be achieved. The Director of Manpower agreed to consult the C.M.C.C. and therefore, with this safeguard of consultation on matters of policy, the committee agreed to control by manpower. Dr Cumpston was empowered to negotiate with the director; it was thought especially important that general nurses and especially obstetric nurses should be distributed evenly and fairly through the civil community, and that such powers as might be necessary should be exercised, but that a nurse should not be refused permission to enlist without good cause. These arrangements were made satisfactorily and State advisory committees were set up which included a representative of the nursing services of the armed forces and of the nursing profession.

MEDICAL EQUIPMENT CONTROL IN 1941 AND 1942

Service requirements of medical equipment imposed more strain on the mechanism of supply after the end of 1940, with the growth of the I Australian Corps and its committal to action. During 1941 the retreat of the force from Greece resulted in an almost total loss of the medical equipment of the 6th Division, including that of two hospitals, one of 1,200 and one of 600 beds. Before the end of March 1941 all initial equipment had been supplied for four divisions, four casualty clearing stations, eleven hospitals, a hospital ship and additional medical units needed for expansion of the growing corps. The unexpected diversion of troops to England had made necessary replenishment of part of the stock of two advanced depots of medical stores, and also replenishment of the equivalent of half an advanced depot for the A.I.F. in Malaya. In addition to these were stores for general hospitals and camp hospitals for troops in Australia, then approaching 200,000 in number, and equipment for medical units called up for full-time duty, for troops in isolated ports. Great delays had been experienced through complicated Contracts Board procedure, and the routines of authorisation, ordering and approval. Some types of equipment previously handled by ordnance had been taken over by the medical services with a view of expediting their supply.

The organisation and stimulation of production were of course not an army function, but the Medical Equipment Control Committee with the cooperation of the Department of Supply had brought about admirable cooperative organisation of the surgical instrument and drug trades, set up a system of continuous record of quantities of all essential and important medical equipment, built up greatly increased reserves, established relations with buying organisations in England and America, which in association with the relevant Commonwealth Government departments, increased the ease of supply, and had enlisted the aid of the medical profession in the cause of economy. General Downes, writing to Major-General Stantke, stressed the further need for a long range programme of supplies, which would assist manufacturers and supplies and for expedition of the building up of further reserves necessary for mobilisation.

In July 1941 a Treasury circular was distributed dealing with the importation of goods from the United States of America. Separate estimates were now asked from all war departments for all goods which it was expected would be obtained under the *Lend-Lease Act*. An accounting procedure was also laid down. Orders placed in America were of two classes, lend-lease procurement and direct orders involving dollar expenditure, and procedures were adopted to deal with these on merits, owing to dollar stringency. Delays were apt to occur owing to incompleteness of information as sometimes received by the Treasury, and to complicated procedures in the United States administration.

It will be seen from the above that while needs for medical equipment were growing, avenues of procurement were increasing at home and overseas, though the complexities of procedures also increased and threw more strain on administration in Australia.

A summary of the work and policy of the M.E.C.C. at the end of 1941 may be made as follows: The committee had kept continual surveillance over returns of the stock position of essential items of medical equipment. These returns were regularly made by wholesale firms, and particular attention was paid to imported items and those which were scarce. It was felt that no rigid rationing could be instituted for medical supplies, as the demands were not predictable by reason of constant changes in the incidence of disease. Where it appeared wise to govern the sale of drugs, as in the instance of the sulphonamides, a medical prescription basis was found to be the most effective method. Where export was contemplated it was necessary to ensure that the items were in surplus supply. For example a Russian medical aid and comforts committee desired to purchase certain medical stores, and the M.E.C.C. decided to recommend gazettal of a regulation confining these items to those of which there was an exportable surplus.

Measures which had proved very successful were (1) the encouragement of wholesale firms to import and hold stocks of essential items, an example followed by the Defence Services, Government medical stores and the hospital buying associations; (2) increase in local production, helped greatly by the establishment of a surgical instruments panel, which had made a great difference to the position; (3) advisory relations with the Department of Trade and Customs concerning the advisability of importing or exporting certain items of medical equipment; (4) voluntary rationing instituted by wholesalers with the cooperation of the committee; (5) an economy campaign, which as already described had been very fruitful; (6) close cooperation between the services and the civil community so that the legitimate needs of the latter should have due consideration. A most successful procedure was the regular attendance of an officer of the M.E.C.C. at meetings of the Contracts Boards with the service equipment officers when tenders were being considered; (7) reserve supplies were kept of essential items which as a matter of policy were not to be drawn upon till all other supplies were exhausted.

Some difficulties were still outstanding. Surgical dressings, particularly gauze and bandages were scarce throughout the world; so too was yarn from which they were made. Both in Britain and U.S.A. the position was one of stringency. Suitable yarn was not made in Australia but samples from India were being examined for suitability. The committee at the end of 1941 still had three million yards of gauze, one million of which was reserved for use by the army. Syringes had been perforce imported from America, but suitable glass tubing was now being made in Australia, and the position was expected to improve. Production of syringes in Australia was in sight, but it was not expected to reach any quantity for several months. Syringe needles were now made in Australia, but only from imported steel tubing of which the committee held a small reserve. Quotas had been granted, but stocks were still awaited. Forceps of the Spencer Wells type were being made in Australia, the drop-forging of these and other instruments being done by the Newport Railway Workshops. Few skilled workers were available to finish the drop-forgings after their delivery at instrument factories, and production could not as yet fill the demands of the services.

In 1942 important additions were made to the staff of the M.E.C.C. Colonel F. H. Moran, who had joined the staff in 1941 became the Deputy Chairman and Executive Officer of the Surgical Instruments Panel. In May 1942 Mr Kent and Mr Jewkes were released for other important work, and Mr F. W. Ritchie, on loan from Parke Davis and Company became secretary. Mr E. P. Ackman reinforced the surgical instruments panel staff, and Dr C. V. Mackay became the committee's chief executive officer.

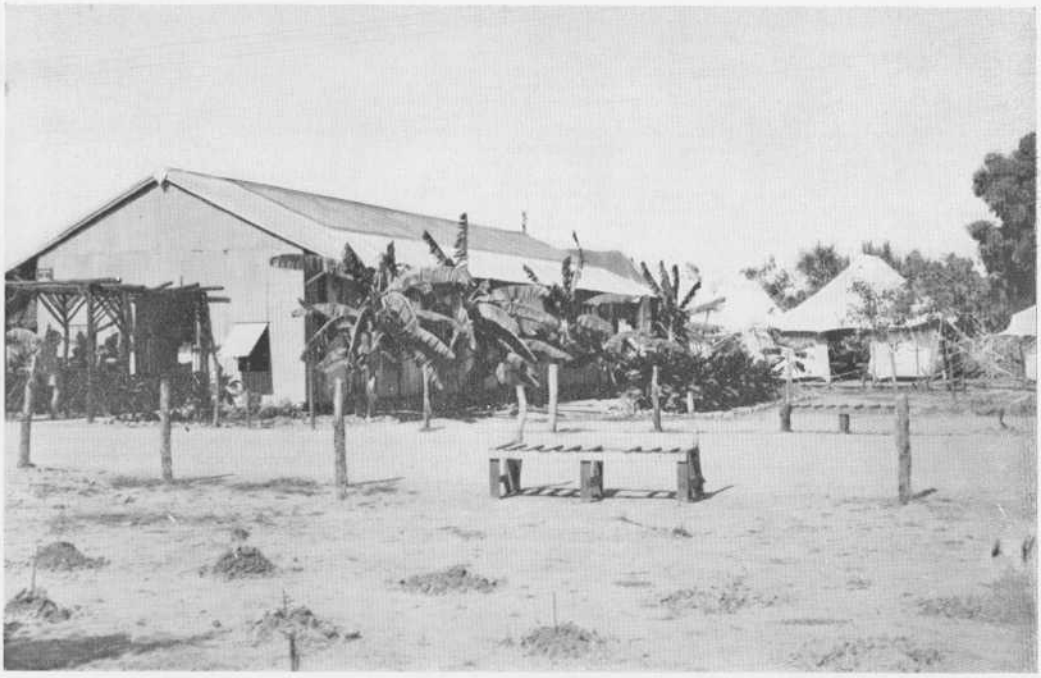
The committee met only at infrequent intervals, and its executive work was carried out by practically daily consultations between the chairman and the members associated with the various departments and subcommittees. The medical services sent their equipment officers to attend committee meetings, and close liaison was maintained with them. The Director-General of Health was kept informed of the committee's work, and this was reported also to the National Health and Medical Research Council, thus ensuring contact with the State Director of Health. Subsidiary committees were found essential to cope with the diversity of the main committee's work. These were (a) the Surgical Instruments Panel, which included representatives of all the armed Services (b) the committee of Scientific Liaison Officers, which correlated scientific research with commercial production and included members from the Universities of Sydney, Melbourne and Adelaide, linking up with scientific workers throughout Australia (c) the Pharmaceutical Advisory Panel under the direction of Dr B. L. Stanton and (d) Federal Committee of Wholesale Drug Firms. The work of these committees was of obvious importance. The production of surgical material in Australia was of great significance in the work of all medical practitioners in and out of the services. The local manufacture of new drugs or drugs not previously made in Australia was only made possible by the labours of scientific workers. By

1942 no less than twenty-two drugs or types of drugs and other scientific equipment had been examined, and where possible initial steps taken towards production. The pharmaceutical panel had produced an *Australian War Pharmacopoeia* which was distributed throughout Australia. While conforming to all requirements of wartime economy this offered therapeutic substances or combinations for all ordinary purposes. It was designed to supersede all other pharmacopoeias for the duration of the war. The scientific and therapeutic aspects of the committee's work was firmly reinforced by the wide administrative network which linked departments, manufacturers, distributors and consumers. In one of its reports the committee drew attention to the many steps that were necessary before a drug not previously made in Australia was available for consumers. A method having been evolved by the scientific workers, negotiations were opened with a firm for its production, priority obtained from the works priorities sub-committee for the erection of a factory, and approval of the Department of War Organisation of Industry, the Ministry of Munitions persuaded to release materials and plant, and the manpower authorities workmen, the Department of Supply and the Service Medical Equipment Branches informed, steps taken to remove the item from the lend-lease list when production reached the point of meeting requirements, and arrangements made with the Department of Trade and Customs to refrain from approving imports from other sources. Finally the price-fixing Commissioner determined the sale price and the cycle was complete. An interesting side light on the efficiency of the modest organisation which controlled medical equipment is shed by a letter originally sent by a firm to one in another State, which said that

> the M.E.C.C. is more helpful and manages its affairs in a more business like way than dozens of other wartime departments. We are fortunate that we are placed in the position where we have to deal so much with an efficient Government Department as the Medical Equipment Control Committee.

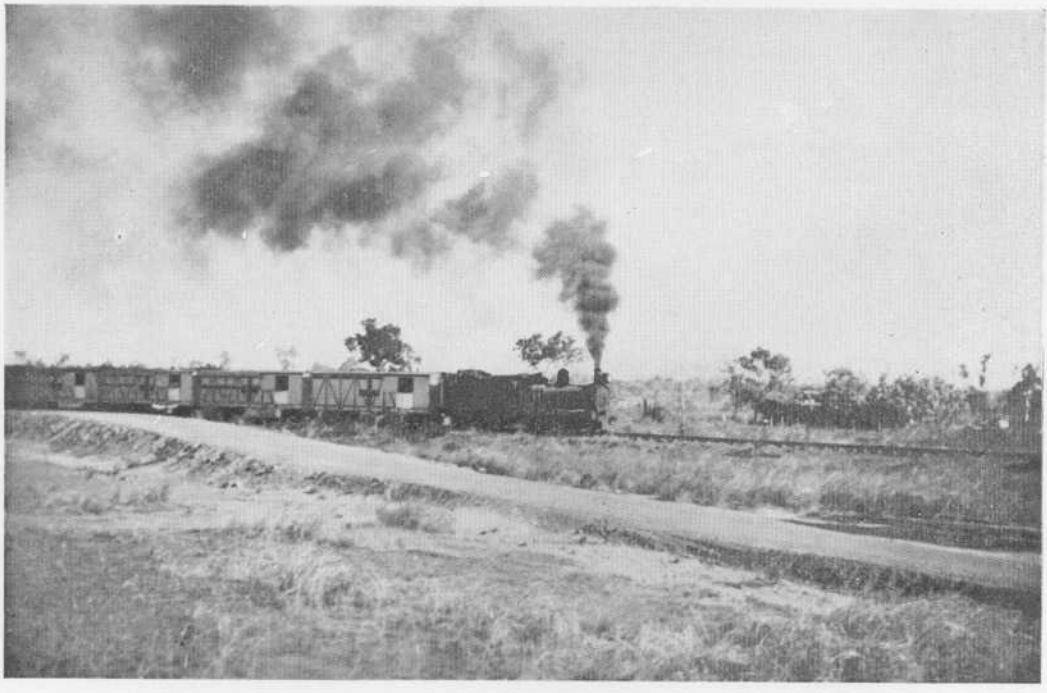
In the eighteen months following on 31st December 1940, a great increase was made in the stocks of material held in Australia and supplies available for the services and the civil community. Perusal of the drug list shows percentage increases amounting in most instances to several hundreds. The stocks of alternative drugs were also increasing considerably. The position about some proprietary lines was not so good, but was helped by the introduction of a system which reduced the innumerable differences in doses, containers and packages to a common factor.

Supplies of anti-malarial drugs gave anxiety. Quinine was largely in the hands of the Japanese after the close of 1941, and attempts to bring a large reserve from Java to Australia failed through an unexplained, though sinister incident, when this stock, after being loaded at a Javanese port, was unloaded at another port. General Burston as D.G.M.S. of the Army and Colonel N. H. Fairley, his Director of Medicine took prompt steps to accelerate production of atebrin and plasmoquine. Quinine was conserved by action of the committee; stocks were reserved for civil use, which was legally restricted to malaria.

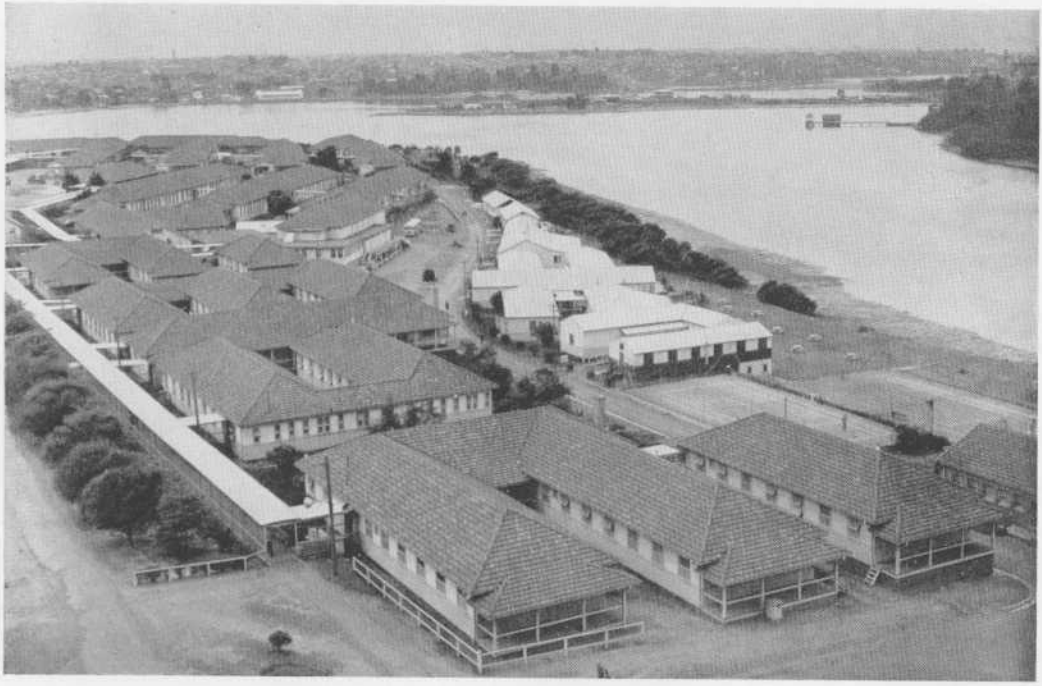


(*Australian War Memorial*)

The 119th Australian General Hospital, Northern Territory.



Ambulance train Adelaide River, Northern Territory.



Concord Military Hospital. *(Department of the Interior)*

Numbers of drugs made in Australia from 1941 onwards included specifics for various tropical diseases, such as amoebicides, vermifuges and schistosomicides. Much of the preliminary work involved was carried out by the Australian Association of Scientific Workers, and expansion of the manufacture of industrial chemicals must also be given due credit, which made many processes possible and enabled laboratory work to be turned to practical account. Some of the sulphonamides, such as sulphaguanidine, were now being produced in Australia, and Professor Macbeth in Adelaide evolved methods for making heterocyclic derivatives of sulphanilamide. Eventually sulphamerazine was chosen for Australian production, and was the subject of special anti-malarial research, as well as being widely used for the same purposes as sulphadiazine which had hitherto been imported. Surgical dressings were still in short supply in 1942, and stocks were not at the desired level, though rising. To help the position the committee issued an order restricting gauze material entirely to medical and surgical uses. Negotiations with the cotton control committee were successful in increasing the allocation of Australian yarn to Australian manufacture. This was expected to increase the annual output to three million yards. Care was also taken that passive air defence, a new responsibility arising from the entry of Japan into the war, did not absorb an undue share of available stocks. Adhesive plaster was now being locally made, but rubber shortage compelled its rationing.

Surgical instruments were now in 1942 being manufactured in increasing numbers: the annual output of the trades concerned rose in value from £5,000 to £300,000. All rubber appliances were of course strictly controlled, and the committee felt bound to recommend that rubber be employed only for essential medical purposes. The rubber position was worse than the public knew at this time.

Dental requirements were in the main met locally, but certain essential items such as artificial teeth, hand pieces and burrs were imported. Stocks of some types of artificial teeth were almost exhausted, and further supplies were being urgently requested under the terms of lend-lease. The introduction of acrylics together with their manufacture in Australia was of assistance in the saving of rubber. Pathological and radiological supplies were improving, though the position of X-ray tubes was very serious, and attempts were made in 1942 to place indents in U.S.A. to provide for the needs of 1943 and 1944. Stocks of film chemicals and veterinary supplies, helped by the new manufacture of some veterinary drugs, were then satisfactory. The committee had added to the "nest-egg" drugs it held in reserve, and on the outbreak of war with Japan dispersed this and other valuable stores over various centres in Eastern Australia to obviate risk of loss by enemy action.

In the closing months of 1942 the committee was able to feel some satisfaction that all essential work using medical supplies had gone on without at least serious interruption. Three periods could be distinguished in looking back on the past. The first extended to the end of 1941; during this period supplies from overseas, though restricted were reasonably

adequate. The second stage began late in 1941, when lend-lease began. At very short notice the committee had to revise its procedure and plan a two years' programme of requirements which could not be satisfied locally. This stage was one of intense activity which necessitated the coopting of a huge staff of voluntary workers in order to compile the information required by the Government within a brief specified period. More will be said of this stage presently. It was followed by the third stage of complete Government control, when consent had to be obtained from the appropriate authorities before export of essential medical equipment was permitted. Goods derived from lend-lease could not be exported.

One result of these changes was that the rapid rise in stocks accumulated ceased, and the committee then aimed at maintaining a steady level. The future of medical supplies obviously depended not only on the continued production of all possible goods in Australia, but also the smooth operation of lend-lease. The operation of lend-lease was in fact not always free from trouble, and simplification was found necessary. Even in the sphere of medical equipment, the necessary expansion of production in the United States to meet needs of the Allied Nations created great difficulties. In May 1942 advice was received that most of the drugs contained in the estimates drawn up by the committee would be received in progressive deliveries from June onwards. These estimates involved great labour in their compilation, which demanded over 20,000 separate entries. However, none of these goods arrived, and on 17th August 1942 a cable from Washington stated that a sharp distinction was observed between military and civil requirements, much more attention being paid to the former. As it had been impracticable for the equipment committee to separate all items in this way at short notice, the Division of Import Procurement agreed to send a cable to Washington protesting against further delay. Information came in reply that orders were being placed which it was hoped would be filled before the end of the year. For further orders a special procedure had to be followed which included review of the British Ministry of Supply Mission, clearance by the War Production Board, procurement by the Surgeon-General, and check by the International Supply Department of Foreign Requisitions. This last step involved analysis for content of raw materials. Before goods could be assigned stocks were examined by the Surgeon-General's Department, and consideration given to the requirements abroad in special regard to the strategic situation. A further rule laid down that lend-lease material, if not loaded to ships within forty-five days of notification of availability was repossessed by the United States War Department, when steps had to be taken to obtain reassignment. The committee found it advantageous to place orders also with the United Kingdom for such items as were available from there. This, though not the usual procedure with goods indented under lend-lease, was approved by the Ministry of Supply, through the High Commissioner in London, allowing some British preparations to be obtained, thus removing them from lend-lease.

Rationing was still used as an economy measure, by controlling output, limiting usage on a prescription basis, and also by voluntary limitation in collaboration with wholesale drug firms. It may seem curious that one of the drugs subject to voluntary rationing was aspirin; though freely available to the services, to hospitals or on medical prescription, it was only sold in limited quantities to the public. This was necessary to control the supply of acetic anhydride, the only imported raw material in its manufacture. Though exports were now drastically curtailed, exceptions were made for New Zealand, with regard to essential drugs. Some perplexity was caused by proprietary preparations, some of which afforded an avenue for unnecessary wastage of scarce components. This was solved by invoking a *National Security Regulation* which required all formulae of patent and proprietary medicines to be revealed, and gave power to prohibit or limit production according to the need. This was properly a function of the Department of Health, but for this purpose was discharged by the chairman of the M.E.C.C.

When the year 1942 closed the work done in the earlier years laid a sound foundation for the heavier trials imposed by the Japanese war. A notable feature was the cooperation of all departments, both in administrative and technical matters. In some of the purely scientific work necessary to initiate production of drugs in Australia most of the hard work was done by a few, but in other instances the combined efforts of numbers were needed, often with the great assistance of the National Health and Medical Research Council and the Council for Scientific and Industrial Research. The Plant Industry Division of the C.S.I.R. began investigations early in the war associated with the cultivation of drug-producing plants, and the utilisation of indigenous plants. The early stages of this work, described in Chapter 3, were promising but had not reached finality in 1942 because of a certain lack of coordination of laboratory, botanical and horticultural work. The laboratory investigations required more facilities than were available in the early stages, but under Professor R. D. Wright in Melbourne the plan took shape. The scientific position with regard to chemicals was summarised by Professor E. Ashby, the Chief Scientific Liaison Officer in a report on the 12th June 1942. Work was then in progress on a number of substances in various University laboratories, in attempts to initiate or improve methods of manufacture. These included colloidal kaolin, magnesium trisilicate, plaster of Paris, formaldehyde, ammonium carbonate, tartaric acid, citric acid, coramine, adrenaline, chlorine, carbon tetrachloride, chloroform, aniline needed for sulphanilamide production, paraldehyde, some of the barbiturates, gentian violet, and fouadin. Research was also being carried out on atebrin, though there was no intention of attempting the task of commercial production in Australia.

OTHER CIVILIAN MEDICAL SERVICES

The defence of Australia was inevitably wrapped up in the significance of the mainland as a large military base. The throwing of vast and

increasing forces into the Pacific war by the United States of America made joint efforts necessary both in civilian and military undertakings. On 17th February 1942 the Australian Cabinet established the Allied Works Council, under the direction of E. G. Theodore, to meet the demand for construction of defence works and to give full scope for the forces and equipment arriving from America. Cooperation between Australia and America was ensured by the setting up of an administrative planning committee, whose decisions were implemented by the Allied Works Council. Then, to cope with the demand for manpower the Civil Constructional Corps was formed by *National Security (Allied Works) Regulation,* gazetted 14th April 1942. This body enrolled 53,518 men in the carrying out of the projects committed to it, and special arrangements were necessary for medical attention. Over the period of the existence of the C.C.C. 132,000 men were medically examined, placed in appropriate categories and given treatment when necessary.

A north-south road was completed to link the Northern Territory with South Australia, many other important roads were built, and airfields were created and extended. Medical planning was called for in each State, and by December 1942 greater coordination was needed under a Director of Medical Services for the A.W.C. Dr H. Leighton Kesteven, at first Chief Medical Officer for the C.C.C. in New South Wales, was appointed as Director for the Commonwealth.

Every project employing over 100 men had medical services arranged for the staff. The considerable distances often called for the installation of radio-telephones between road camps, arrangements were made for evacuation for all projects, and medical attention was provided by civilian practitioners at strategic points on agreed terms. To illustrate the magnitude of the problem of caring for these men, we may note one project, a road 431 miles long in North Queensland (Duaringa to Charters Towers), on which 2,380 men were employed, ranging in age from eighteen to sixty years. A special hospital of thirty-three beds was provided at Clermont, with four trained nurses and three orderlies, and all medical and surgical facilities. Where special investigations were necessary these could be provided in any area by sending men to centres where these were available. Deputy directors of medical services were appointed in New South Wales, Queensland, Victoria, and an assistant deputy in North Queensland. In all twenty-two doctors, thirty-seven trained nurses and fifty-three orderlies were employed in this work. Men who had been in contact with tuberculosis or whose clinical symptoms were suspicious, especially if they were going to the Northern Territory or North Queensland, were radiologically examined. Those employed north of the tropic of Capricorn were also blood grouped. Some of the men in the C.C.C. volunteered, some enrolled on the job, some were called up for service. All men were vaccinated and inoculated against tetanus and the enteric infections. The discharge rate was naturally high in such a force, medical unfitness being the predominating reason. Up to February 1945, 16,577 were discharged as medically unfit out of a total of 59,163.

At this time too military occupation of certain areas, such as the northern parts of Australia, in particular the Northern Territory was accompanied by some shift of civilian population, and for these adequate medical supervision and treatment were necessary. The subsidised service of the "Flying Doctor" organisation, a civilian organisation due to private initiative and enterprise, was during the pre-war years a model and an outstanding achievement. In the Northern Territory arrangements were made in June 1942 to provide in-patient and out-patient treatment by a medical officer who would also act as Flying Doctor when required. The Commonwealth Department of Health on its part undertook to supply an aeroplane and pilot stationed at a central point such as Daly Waters. The medical health officer at Darwin was called up for army duty, but it was agreed that he should still be located at Darwin and keep in direct touch with the Director-General of Health about matters relating to civilians, such as quarantine and the disposal of cases of leprosy and other conditions of local importance. Malaria was occasionally discovered amongst aborigines, and both chronic and acute fulminating tuberculous infections were also found. A special problem occasionally arose which was on the borderland of service and civilian medicine. When it became necessary to move a labour force from one area to another for a specific purpose, this purpose and the destination of the force were sometimes under the veil of security. This had drawbacks, for men living and working in a large civilised centre were frequently quite fit for average labouring work while in their home environment, but they could not always adapt themselves to the no doubt adequate but very different conditions of working camps. Such men could be largely eliminated from a labour force by an experienced examiner, provided he knew the conditions under which they would be expected to work. This is part of a larger question of the estimation of medical fitness which can often only be made if sufficiently full information is available to the examiner.

PHYSICAL STANDARDS FOR SERVICE

General Maguire, on assuming office as D.G.M.S., reiterated the advice of his predecessor concerning the importance of enlisting only fit men for military service. Attention has been drawn in previous chapters to the numbers of men who proved unfit to cope with the life of a soldier on active service.

In 1941 the classification of class I, IIA, IIB were still official in Australia, but later amendments altered this and substituted the A, B, C, D, notation. The 1941 classification had added a further category class III which was designed for labour units in the Commonwealth Military Forces and permitted relaxation of the usual standards for vision and hearing, allowed acceptance of men with controlled herniae, and painless kyphosis or scoliosis, and omitted previous clauses concerning cardiac irregularities and asthma. The A, B, C, D notation defined the classification as follows:

A1. Medically fit for all duties.

A2. Medically fit for all duties for which the particular disability is not a bar. (Such disabilities were entered in pay book or record of service book.)

B. Medically fit to carry out certain duties which require only restricted medical fitness. These duties were shown in war establishments.

C. Temporarily medically unfit (the estimated period of unfitness was to be stated).

D. Medically unfit for military service.

In the instructions issued on 31st January 1943 the minimum permissible height for recruits was 5 feet 0 inches, and the minimum expanded chest measurement 32 inches. No recruit below a height of 5 feet 4 inches was accepted unless of good physique and judged capable of carrying ordinary equipment (about 60 lbs.) and doing ordinary military work.

Visual standards required for class A1, 6/18 with each eye or 6/12 with one eye and 6/36 with the other, in each case without glasses. For classes A2 and B these standards were accepted with the help of glasses. A recruit with one eye or with strabismus and vision of less than 6/6 in the defestive eye was not accepted in a higher category than A2. The standard for hearing was amended to allow acceptance of men who could hear a strong whisper with each ear at 15 feet for A1, or hear ordinary speech with both ears open at 15 feet for A2, and at a distance of 5 feet for class B. A most important proviso was that a man required for a special position but not conforming to these standards had to be examined by an otologist to determine if his lesion was progressive. Final decision was made by the D.D.M.S. of the area or a delegated officer.

The directions given to examining officers were more detailed in the instructions used in 1942 and succeeding years, definite guidance was given about specific disabilities, and more use was made of specialists in coming to a decision.

Difficulties still arose with regard to recruits called up for periods of universal service, who were often examined under sub-standard conditions by doctors who could spare only limited time from their practices, in which they were busier than ever. In a well organised recruiting centre, preferably in charge of and staffed by senior experienced medical officers, it was much easier to maintain a high standard of examination. The importance of leisure and thoroughness cannot be overstressed in this work; adequate inspection of each recruit is necessary, so too is careful examination of eyesight and hearing. Skimping of cost in providing facilities at the beginning was not an unimportant cause of invalidity thereafter.

In this connection too may be mentioned the value of a brochure of instructions for medical officers. This was officially published in March 1942 and contained an account of all routines in the duties of a unit medical officer, and all details of administration necessary for him to know, important details of methods of hygiene, and preventive medicine including such conditions as meningitis and psychiatric illness. Though

in theory all medical officers underwent specific instruction early in their military career, this was not always possible, and until schools of instruction were more fully organised as the army grew in size, this booklet supplied some needs not otherwise fully met. Among a number of other service pamphlets another which was of value at this time was the War Office *Memoranda on Medical Diseases in Tropical and Sub-tropical Areas* published in 1941.

During 1941 and 1942 the health of the general public remained satisfactory in Australia. From time to time there were outbreaks of specific infectious diseases in the civil community, such as meningococcal infections and influenza. Certain epidemic diseases appeared in the Services and among civilians alike, but neither morbidity nor mortality rates gave cause for alarm.

Shortages of civilian doctors became more apparent after the close of 1941. These matters are dealt with in the serial sections on coordination, as are also the organisation of an Emergency Medical Service, for which complete plans of practice and procedure were drawn up.

MEDICAL ASPECTS OF TRAINING

By 1941 camps were firmly established, standards of accommodation were reaching the desired level, and living conditions were on the whole good. Camp reception stations and hospitals were well equipped and routine procedures of prophylaxis and treatment could be efficiently carried out. Military movements sometimes interfered with schedules of training as was inevitable, and the A.A.M.C. rank and file were still frequently deficient in knowledge of their duties when they were sent overseas. The health of the troops in camp was good on the whole, though the preventible diseases still occurred as a reminder of deficiencies in hygiene.

The formation of armoured divisions in Australia gave rise to special medical problems. Light field ambulances were raised and training was begun in the light of the altered requirements of distance and transport. The Australian establishment of an armoured division included two brigades, a support group and divisional and non-divisional troops. Among the divisional troops were the medical services, headed by the A.D.M.S. with his two deputy assistants. There were three light field ambulances each of a strength of about 180, with seven medical officers, and possessing fourteen motor ambulances and thirty-six other vehicles. Each light field ambulance consisted of a headquarters and four self-contained sections. A light field hygiene section was planned to look after the sanitation of the division. Each of the four regiments in the support groups had a medical officer, and an R.M.O. was attached to other formations such as workshops and engineers. The principle of self-support was carried still further in that each sub-unit had its own first aid kit, and so too did each fighting vehicle. Each medical orderly carried a medical kit and a hypodermic syringe.

Ten motor ambulances were of the four-berth type, the other four carried two berths only, and were smaller and less conspicuous. All had light armour protection. The most difficult problems in evacuation of wounded were the rapid covering of distances which led the medical personnel well up into the battle zone, and the handling of casualties in armoured fighting vehicles. When the training of armoured units began many of these matters, including the design of vehicles were experimental. Research was proceeding in Australia on the mechanical and physiological aspects of armoured fighting vehicles, under the general control of Colonel C. H. Kellaway, and the effects of environment on crews were studied.

In the field different methods were tried to effect the removal of casualties from tanks without inflicting undue pain or damage on the injured men. It was evident that some effective method of administering analgesics must be used, preferably the hypodermic injection of morphine. After this first phase the rescued casualties were treated at the squadron collecting post, and thence removed to the R.A.P. by ambulance and on to the A.D.S. of the forward section of the light field ambulance. After treatment the wounded were taken to the clearing post at the M.D.S. It was obvious that this general plan was subject to constant change, and communications were made by radio-telephone to the R.M.O. and through brigade headquarters to the A.D.S. Training gave ample scope for cultivation of a high degree of efficiency in the medical services, rapid decision, a capacity to improvise and an aptitude for navigation. Exercises were held in the northern parts of New South Wales, and the lessons of hygiene were early impressed on the formation, when outbreaks of diarrhoea occurred more than once due to neglect of necessary precautions.

Later the 1st Armoured Division removed to Western Australia and became a well trained efficient body of selected men. Colonel H. C. Disher was amongst a number of senior officers who were returned to Australia for special duties in connection with home defence, and became the A.D.M.S. of the 1st Armoured Division. Later he was succeeded by Colonel R. H. Russell. Though much admirable work was done by this and other armoured units raised in Australia in the 1941-1942 periods, much of the training, medical and otherwise was never applied in the field, for with the return of the A.I.F. from the Mediterranean theatres of war the future of the armoured divisions was changed. The strategic and political picture altered with the coming of war to the Pacific, and except for a limited employment of armour in isolated instances in the islands this particular effort was largely dissipated.

EVACUATION OF THE SICK AND WOUNDED

Hospital Ships. With the involvement of the A.I.F. in serious if brief campaigns in the Middle East further arrangements for the return of sick and wounded to Australia were necessary. The 2/2nd H.M.A. Hospital Ship *Wanganella* was commissioned and the internal arrangements were completely remodelled for the purpose. Half the space of "A" deck and the whole of "B" and "C" decks were used for wards

for officers and men, and departments for medical and surgical specialties were provided. Two wards had swing cots, where the most seriously ill were nursed; other wards had two-tiered mobile cots. The air-conditioned operating theatre and adjoining X-ray department were completely equipped. This ship was ready at the end of July 1941 and sailed at the beginning of September, taking the 2/13th A.G.H. to Singapore and returning with invalids. The *Wanganella* normally carried 436 patients and had emergency accommodation for 150 more.

Meanwhile the new fast motor liner *Oranje* was being prepared for use as a hospital ship. On 4th February 1941 the Australian High Commissioner in London cabled to the Prime Minister in Australia that the Government of the Netherlands East Indies offered the use of this palatial 20,000 ton ship for service as a hospital ship. The *Oranje* had previously been reserved for service as a potential auxiliary cruiser, but now the N.E.I. Government proposed to give expression to their appreciation of the cordial relations existing between them and the Governments of Australia and New Zealand by manning, equipping and operating this ship at their own expense. The ship was to act under instructions from the British military authorities, but was operated by a Dutch staff. This generous offer was accepted, and a mission which included Major J. D. Galbraith as the medical representative, flew to Batavia on 28th February 1941 to arrange details of equipment and personnel. Conversion was carried out in Australia, and on 2nd July the ship was ready and left Sydney for the Middle East *via* Singapore. The medical staff of the *Oranje* was Dutch, but an Australian and a New Zealand officer were appointed to be O.C. troops, being responsible for discipline and for advice to the C.O. about treatment of patients. The appointment of Australian medical and surgical liaison officers was found to be a convenient arrangement. General Maguire, D.G.M.S., doubted if the general professional arrangements would work in view of the Australian attitude about the care of their own men by their own medical staff. On 7th June 1941 he commented that he concurred with the arrangements (referring particularly to the finality of the commanding officer's decision) "at the minister's expressed desire for international amity". Even with the appointment of tactful liaison officers he still regarded it as an experiment. Shortage of hospital staff in N.E.I. led to the provision of Australian and N.Z. medical staff (in proportion 60/40) with a Dutch crew and ship's officers. The first trip to the Middle East was made in August 1941, when 431 Australians were brought back to Australia under admirable conditions of comfort and medical care. Some 670 patients could be carried and 850 in emergency.

Difficulties occurred, chiefly of an administrative kind. The combined Australian-New Zealand War Establishment was recognised as a composite one, and worked harmoniously. Matters of discipline and leave were not so simple, as these were decided by the O.C. hospital, who had to surmount difficulties in language and of unfamiliar army rules. Where different viewpoints were found in technical matters these were

usually adjusted by the liaison officers. The costs of pay and allowances were borne by the N.E.I. Government until 7th March 1942 but after this date these were debited to the British Ministry of War Transport. A year later the Adjutant-General directed that the Australians should be withdrawn from the *Oranje* because all Australian troops had then returned from the Middle East, and medical personnel were then badly wanted in Australia. They were replaced by British officers. During the period when the *Oranje* was used for Australian invalids the whole military picture changed owing to the return of the A.I.F. and the tremendous convulsion of the Japanese invasion of the N.E.I., but this most generous gift to the Australian people gave many Australian sick and wounded transport to their home country under conditions of a high degree of comfort and technical skill. A point may be mentioned here with regard to the blacking-out of hospital ships. This was discussed at the end of 1941 in Singapore with reference to the *Oranje,* since attacks had taken place on hospital ships in some belligerent areas. The procedure adopted in northern belligerent areas was to show only the red cross and green lights, but no others, so as to lessen the visibility of the ship: these areas included the northern part of the Red Sea. Extra look-outs were maintained at switches to extinguish the red and green lights in the event of attack.

War with Japan introduced fresh elements into the problems of sea evacuation of the sick and wounded. When the greater part of the A.I.F. left the Middle East there were still commitments there for the remaining 9th Division and base troops, and there was a very confused and, unhappily, a rapidly deteriorating position in the Far East. At the end of 1941 no Australian hospital ship had called at Singapore since the *Wanganella's* last trip there on 17th September, but this ship had called at Colombo twice before 29th December 1941. Both the *Wanganella* and the *Oranje* had picked up men in the Middle East at Port Tewfik, in the same period. The staff of the *Manunda* were warned to be ready on twenty-four hours' notice after 25th December 1941. The A.D.M.S. of the 8th Division A.I.F. then involved in the desperate struggle for Malaya, again asked for a hospital ship to be sent to Singapore; it was unfortunate that this was not done.

Though this is anticipating later events to some degree it is convenient here to point out how the area which might require service from Australian hospital ships had expanded, reaching from Egypt to Malaya, thence through a long chain of islands to Rabaul, and including Darwin, and other northern ports on the Australian mainland. Further there was a possible danger in sending the *Oranje* into part of this battle zone.

The *Manunda* was ordered to sail from Sydney to Darwin, and arrived there on 14th January 1942. During a period of five weeks this hospital ship remained there, with its staff fretting at their inaction, and the forces in Singapore in great need of assistance, though the ABDA Command headquarters in Batavia signalled Australia on 12th February "Hold *Manunda* at Darwin until further notice".

Ambulance Trains. In 1941 more attention was paid to ambulance trains, as the need grew for transfer of patients between different hospitals, especially those in capital cities. In 1942 the need was even greater, and more consideration was given to the design and staffing of these trains. Trains were fitted up in all States, those running between Victoria and South Australia being a joint effort by the two systems concerned. Break of gauge between States was a troublesome archaism. General specifications were drawn up at army headquarters covering design of the cars and setting down all equipment. A train usually consisted of a staff car, a personnel car, an administrative car, a dining car, ward cars and a brake van. Ward cars were provided with upper and lower berths; a car carried thirty to forty or forty-five cots. Up to eight ward coaches were used in some trains.

BASE HOSPITAL ACCOMMODATION IN AUSTRALIA

In a previous chapter the troubled beginnings of plans for base hospitals in capital cities have been described. Though a comprehensive programme of hospital construction was submitted for ministerial approval on 21st November 1939 it was only on 10th July 1940 that a recommendation of the military board for multi-storey hospitals in Sydney and Melbourne was approved. These structures were additional to pavilion hospitals of 1,200 beds and 1,000 beds respectively. Pavilion hospitals were approved also for Brisbane and Adelaide. A multi-storey hospital of 100 beds at Perth was also planned, but later a 200 bed pavilion type was approved instead, by reason of suitability and economy.

At the end of 1940 the following base hospital beds were available in capital cities: Brisbane 200, Sydney 240, Melbourne 240, Adelaide 150, Perth 200, Hobart 200. In civil and repatriation hospitals 340 additional beds were available in Sydney and 395 in Melbourne, and smaller numbers in other cities. In February 1942 these numbers were increased to Brisbane 511, Sydney 1,440, Melbourne 1,350, Adelaide 206, Hobart 310, Perth 530 and Darwin 372. The R.A.N. had 372 beds independently and the R.A.A.F. 1,750. With 4,000 camp hospital beds in Australia a theoretical total of 8,739 beds was available, but a number of these in Concord and Heidelberg were expectations and not actual realities at the stated date. However if we anticipate the bed states attained during 1942 we find the total of 8,739 swelled to 17,217 in June and 21,664 in October.

It was agreed that all Services would use the large base hospitals, but as the navy had other beds available and was in any case little in home waters for the early years of the war, its needs were limited. The Australian Red Cross Society on request provided a number of convalescent homes, and for a considerable period could supply 1,200 beds in these.

With regard to hospital accommodation the 1941-1942 period had two phases, 1941 up to the time of Japan's entry into the war, and 1942 when urgent questions of defence arose. When Australia entered into a state of war with Japan approximately 6,000 beds in base and camp

hospitals were available. Full mobilisation then took place, and the number of troops mobilised in Australia rose from some 120,000 to about 450,000, with in addition 120,000 in the R.A.A.F., and the maximum naval establishment of 36,000. Hospital accommodation was then required on a 4 per cent basis in the base areas, but on a basis of 8 per cent in the more forward areas, which for the purposes of defence included Darwin, North Western Australia, North Queensland and Moresby.

The multi-storey building at Concord was officially handed over on 19th September 1942, with a capacity of 596 beds: by 31st October 782 beds were ready and 587 were filled. The corresponding building at Heidelberg was opened in December 1943. It was of different design to the Concord building which was erected on a restricted site, and therefore on the vertical plan, whereas the Heidelberg Hospital was planned on a more horizontal model. It was fortunate that pavilion hospitals of a good type were erected while the multi-storey buildings were being discussed, planned and erected. Eventually all available accommodation in both sections of these hospitals was welcome.

Greenslopes Base Hospital in Brisbane, as has been previously told, underwent some vicissitudes owing to delays in the selection of a site and in preparing plans, and then was retarded by doubts as to the wisdom of placing a base hospital in the northern coastal district of Australia which might well be a target area. This possibility had important reflections on the whole problem of military hospitals in Australia. Nevertheless, a balanced view was maintained. A suggestion was made early in 1942 that the Prince Henry Hospital at Little Bay, south of Sydney, and situated in an isolated position on the coast, should be evacuated, owing to danger of attack. This hospital in addition to all kinds of general work was the chief infectious diseases hospital of Sydney, and carried out some of this work for the army, but fortunately the suggestion was never regarded seriously. At Daws Road in Adelaide a pavilion hospital of 150 beds was built capable of expanding to 700 beds, though considerable discomfort was experienced in the summer months when overflow was necessary into wards of a temporary type of prefabricated construction. In Perth too a pavilion hospital was built of 200 beds capable of expansion to 400 beds. In Tasmania a new hospital, the 111th A.G.H., was built at Campbelltown between Hobart and Launceston, previously arrangements for accomodation were made in the older part of the Hobart Hospital and in the Launceston Hospital.

Experience showed the great difficulties and indeed absurdities in building a hospital capable of expanding to several times its original size, as the administrative sections and those used for basic and special services could not be enlarged without great trouble. Rapid expansion of base hospitals was of course well nigh impossible except by temporary structures, for which room was not always conveniently to hand, and the central necessary services also needed enlargement. This was to a good extent overcome by establishing or siting hospitals at various strategic points in Australia, which provided beds in centres of military population,

away from the potentially hazardous coastal areas, and also utilised the thoroughly experienced staffs of the A.I.F. general hospitals.

In Queensland a hospital, the 117th A.G.H. was established in Toowoomba, which was a good site away from the coast, but considerable delays occurred before its accommodation could be expanded to 1,200 beds. This was due to difficulties in finding suitable buildings, altering these and constructing additional wards and general service blocks. The Downlands and Glennie Schools were adapted as hospitals, but the experiment of separating medical and surgical divisions in two completely sundered and relatively distant buildings was not encouraging.

A number of other general hospitals were established in Queensland and worked by militia or A.I.F. units as follows: Warwick 600 beds, 2/11th A.G.H.; Redbank near Brisbane 600 beds, 2/4th A.G.H.; Watten Siding 15 miles west of Hughenden in Central Western Queensland, 1,200 beds, 2/2nd A.G.H.; and Charters Towers, 800 beds, 116th A.G.H. Later the Atherton Tableland, on a plateau 2,000 feet above sea level, in the hinterland of Cairns in Northern Queensland, was made an important centre for resting and training troops in a safe and healthy area, with no malarial mosquito vectors. An area capable of taking two divisions called for two general hospitals, and here the 2/2nd and 2/6th A.G.Hs. were stationed.

In the Northern Territory a need for more hospitals was recognised. Two general hospitals were set up there, the 121st A.G.H. at Katherine, and the 119th A.G.H. at Berrimah. In January 1942 the headquarters of the 119th A.G.H. was moved to Berrimah when the work on the hospital there was sufficiently advanced. The previously occupied hospital at Bagot was used for surgical work, as the theatre was not ready at Berrimah, and also for X-ray work, ophthalmic and venereal diseases. There was also a wing of the 119th A.G.H. under Lieut-Colonel Ingram at Adelaide River. Additional wards were kept ready at Bagot for the reception of refugees expected from overseas. Further details will be given later, at this stage February 1942 it will be seen that general hospital accommodation was available in the fortress area at Kahlin Civil Hospital, at Bagot and Berrimah, at the inland wing at Adelaide River and at Katherine.

In New South Wales the base hospital was at Concord, with a maximum of over 2,000 beds, and other general hospitals at Baulkham Hills, 103rd A.G.H., Bathurst, 104th A.G.H., Goulburn, 114th A.G.H., Tamworth, 102nd A.G.H., and temporarily at Armidale, 2/5th A.G.H.

In South Australia two general hospitals were in Adelaide, the base hospital 105th A.G.H. Daws Road, and the 101st at Northfield. In Western Australia the base hospital the 110th A.G.H. was at Hollywood in Perth, the 118th A.G.H. at Northam and the 2/1st A.G.H. in two sections, Guildford and Merredin.

In addition to these general hospitals there were camp hospitals at all points on the mainland where military concentrations were present or where medical attention was necessary in areas of scattered service popula-

tion. These varied greatly in size and equipment. Some were model hospitals on a small scale, capable of expanding in emergency by the use of verandah beds, others were of more modest construction. However the rapid expansion of a number of hospitals in inland sites was greatly assisted by the presence of these camp hospitals, and later when the need for such precautions lessened, the general hospitals were reduced in size without much trouble.

Some of these hospitals had a quiet time, others were very busy, some remained in commission throughout the war, others were closed. Some were developed as special hospitals. Thus at Glennie in Toowoomba an orthopaedic hospital was established; the 114th A.G.H. at Goulburn was planned and run chiefly as a psychiatric hospital, and the 106th at Bonegilla concentrated on tuberculosis. At Tamworth the 102nd A.G.H., a neurosurgical centre was established, but it never proved practical to concentrate large numbers of such cases there, and later this work was done at base hospitals. Facio-maxillary and other varieties of plastic surgery were done in special departments in the large base hospitals. Plastic units were established in Melbourne, Sydney and Brisbane, with a facio-maxillary component in Perth, and at later stages in two others in the islands to the north.

The 2/1st A.G.H. when in Western Australia found the experiment of dividing into two sundered units was unsatisfactory: amongst other difficulties a wastage of officers was felt in administrative posts. The 2/2nd A.G.H. almost literally in the desert at Watten, was committed to a role of modified activity, but a violent cyclonic storm which blew down many of the tented wards and other accommodation, severely damaged huts and then flooded the hospital area, gave an opportunity of demonstrating how a practised unit may cope with an emergency. The hospital was evacuated and left Watten just as "permanent" buildings were nearing completion, and was transferred to Rocky Creek on the Atherton Tableland without any regret.

The accommodation used in these hospitals varied. In some, huts were already in use for wards and administration, in others schools were taken over for hospital purposes. In either instance huts or tents could be used for extending the accommodation, depending on the availablity of material. Tents had the obvious advantages of speed of erection and mobility, but their durability was limited, in the northern latitudes particularly their period of useful life was limited, especially when fungus growth invaded them. Special proofing was necessary to ensure tents a reasonable viability in the tropics. Buildings already existing provided immediate shelter, at least in theory, but experience with long used buildings has proved that vast jobs of cleaning and repair await the new tenant. Moreover, buildings like schools need a great amount of adaptation and even then are often unsatisfactory. Personnel accommodation was often as big a problem as the housing of patients and even in base hospitals with all the magnificence of the specially designed quarters for staff, more humble huts were necessary for the increased staff required

to run the units when fully extended. The women's services, while affording great relief in the supply of men for duties as well, or better performed by women, also brought their own difficulties of housing.

DIFFICULTIES IN ESTABLISHING BASE HOSPITALS

Though many problems were encountered in equipping, staffing and organising the large multi-storey hospitals these were not so great as those confronting the pioneers who started the original pavilion hospitals. These were known as general hospitals at first, and for a considerable time, until the official term military hospital, embodying the location name was introduced. The term base hospital is convenient, and borrowed from civil practice, but actually most hospitals were known by their place names, e.g. Greenslopes, Concord, Heidelberg, Campbelltown, Daws Road and Hollywood. The position in the Northern Territory was so confused that no true base hospital was recognised there. In Sydney, when the site of part of the old "Yaralla" Estate was acquired for a military hospital the name "Yaralla" was used for a time, but the name officially adopted was "Concord".

Some of the trials of the original commanders and their staffs of Concord and Heidelberg may with some advantage be recalled. These hospitals passed through their most difficult phase while measures were being taken for the defence of Australia, when the possibility of attack from without was still live, and when the separation of the two parts of the Australian Army was emphasised by the return of two divisions of the A.I.F. The enthusiasm and loyalty of the staffs which organised these hospitals was beyond question; many of the men had some physical handicap and were "B" class, and a number of them veterans of the 1914-1918 war. Establishments were drawn up after consultations between the commanders, registrars and quartermasters of Concord and Heidelberg, but the difficulty was to obtain approval of these suggestions. Perhaps the retention of the term "A.G.H." was a tactical mistake, for the conditions of an A.G.H. in the field, often perforce submitting to temporary arrangements, are vastly different from those of a base hospital in a capital city. This difference seemed to be difficult of realisation by the senior officials of the ordnance department; the fact was that the equipment of a field hospital was completely inadequate and unsuitable for a base hospital. Beds had no foot elevator to allow free movement, over-bed tables were flimsy and too low to pass over the bed, and the wooden bed lockers were fragile and unpractical. Eventually a satisfactory scale was adopted and gradually, with the help of equipment officers from the N.S.W. Hospitals Commission and an equipment specialist generously loaned by Stephenson and Turner, architects, suitable equipment was designed and obtained. Similar difficulties were encountered with staff. The dispersal of the pavilion wards was wasteful of staff. It was computed that it took a man twelve minutes to push a food trolley from the kitchen to the farthest wards of one hospital. Self-help was found the most fruitful method of acquiring staff, and various semi-

official or unofficial methods were used; advertising in the daily Press produced quite a number of men who were not always fully physically fit, but gave valuable help.

Specialists such as physiotherapists, biochemists *et cetera* were not provided for at first, and the general conditions of enlistment of specialist members of staff were unsatisfactory. When, as will be told later, women with high attainments were brought under the general control of women's services, without regard for special qualifications, the base hospitals felt keenly the difficulties so caused. Medical staff was scarce in the early days too; in Heidelberg local practitioners were pressed into service in a part-time capacity, and it was necessary also to use medical officers from neighbouring camps.

Medical boarding was on an unsatisfactory basis at first, and the same difficulties were felt as in the general hospitals. Visiting medical boards of review were assigned for part-time duty to the base hospitals, but as the members of boards could only visit the hospital at stated intervals, and often could average only seven or eight boards per visit, the work could not be overtaken. Later, different arrangements were made. It must of course be realised that the great expansion of medical services intensified all these troubles. When the medical headquarters was also expanded to meet these growing needs the increased staff dealing with hospital accommodation, staff and treatment did much to ease the way for these big hospitals. It is no light matter to spend millions of money in erecting huge modern hospitals and establish them as efficiently running concerns during a period of great military development and national need. Various patriotic bodies also gave generous assistance in the form of voluntary service, gifts of equipment, amenities and entertainment. Sporting bodies, various societies organised groups in businesses and factories, local councils, returned service men's organisations, the Comforts Fund, and of course the Red Cross Society and the Order of St. John gave help that often made the work possible.

Some criticisms were made of the buildings themselves when the pavilion hospitals came into use. No provision was made for taking large numbers of patients in convoys, though this was the common routine. The problems raised by dispersion have been mentioned: their solution lay in the provision of staff and special equipment.

When the 6th and 7th Divisions returned to Australia a number of entire A.I.F. medical units were employed in areas in which they were needed for the medical side of Australian defence. In some instances full-time militia officers were introduced into A.I.F. units; in others A.I.F. medical officers were posted to militia units. The same principle of using the most apt men for particular tasks was applied in the administrative sphere. There was, however, no dispersal of the A.I.F. medical units, and these retained their integrity. The general hospitals carried out their work much as they had overseas, but in a very different environment, and at a temporarily lowered intensity. In the main and for some time the base units were allowed to follow the lines already laid down.

RELATIONS OF THE A.I.F. AND THE MILITIA

Early in 1942 there were some differences of outlook between the branches of the medical and nursing services of the A.I.F. and the A.M.F. in Australia. That these should exist is readily understood. The A.I.F. overseas had built up an organisation which had proved its capacity to deal with medical problems of all sorts, in the field, in advance, in retreat, in lines of communication and in base areas. To these tasks the force had brought a profusion of medical talent, which could have been equalled by the profession at home, but which was singularly fortunate in its even quality. A self-contained force had been evolved, and each component of this had also evolved its own methods, adapted to the tasks in hand. Its members worked in a degree of isolation from affairs on the home front which sometimes increased difficulties many fold, they sometimes faced danger and had suffered losses. The members of the A.M.F. often performed part-time service under conditions of considerable strain, and those who were on full-time work were either carrying out routine duties, necessary, but often monotonous, or were discharging responsibilities of professional administrative or organisational kind which were equally important and often as worrying as those falling to the lot of colleagues overseas. It is unquestioned that there was no difficulty in picking out numbers of returned officers who could amply fulfil duties for which it had been impossible to spare a militia officer adequate for the task, and the infusion of the A.I.F. into the medical units engaged in Australia undoubtedly produced more efficient working. It would have been strange if this had not been so. However, it was inevitable that the fusion of these forces could not be accomplished without some difficulty. In individual instances it was only a question of personality: many will recall units where no trace of difficulty was ever felt, but perhaps in both there was a trace of superiority discernible, and a trace of resentment when criticisms were implied. Of course a common need and the inextinguishable fraternity of a profession strengthened the bonds of service, in spite of the unfortunate sundering of purpose between the two divisions of the Australian Army. Even the expedient of allowing units to "become A.I.F." if a sufficient percentage had transferred from the militia to the A.I.F. had little more influence in medical circles than any other political expedient.

A couple of small matters may be mentioned in illustration of the lack of psychological insight inherent in some official decisions. Returning officers from oversea service, once they had been severed from their units and from the A.I.F., were sometimes permitted, if fit, to resume service at home, but they were not allowed to remain in the A.I.F. Some of these were of senior rank and status, and were brought back to Australia to perform certain specialised services. They usually welcomed opportunities to rejoin the A.I.F. by later transfer, but in the meantime it would be idle to deny that there were heartburnings and resentment. Similarly nurses volunteered for the A.I.F., and were accepted, but were not technically admitted to the A.I.F. with a coveted "X" number unless and

until they were placed as members or reinforcements of oversea units of the A.I.F. The situation arose when nurses were needed for the Northern Territory, and no doubt with the best intentions nurses at a base hospital were asked if they would volunteer for service there. A number took the stand that they had already volunteered for service anywhere and that further volunteering was superfluous.

These instances show the problems which arise with special forces. In the case of base hospitals there is some reason to believe that the appointment of full-time officers in charge of medical and surgical divisions of the base hospitals was delayed longer than might have been because of some difficulties in aligning the views of hospital administrators and staffs in Australia with the views and experience of the A.I.F. hospitals overseas.

CONVALESCENT DEPOTS AND HOMES

Convalescent depots and convalescent homes were also needed in greater numbers as hospitals grew. About 32,000 hospital beds were needed in Australia when the risk of Japanese attack appeared to be at its height in 1942; a saving of "acute" beds could be effected by sending men to less elaborate units for convalescence, but this was somewhat offset by the greater number eventually requiring a period of rest before being returned to their units. A certain difficulty appeared in some of the larger cities and towns. The need for convalescent depots was great in the early years, yet they did not have a high priority compared with that of field and hospital units. This led to the adoption of the expedient course of using sites like showgrounds, which were usually not suitable for the purpose and had the added drawback of being near the temptations of towns. A further result was that there was a greater call on convalescent homes, for which the Red Cross Society was responsible. These homes were intended for men who needed some degree of comfort and personal, rather than medical care, and no organised methods were adopted, other than diversional therapy, to harden the men and return them as early as possible to their units. For the latter purpose the convalescent depot is adapted, by reason of its selected staff and its military atmosphere. Women service patients were more appropriately treated in Red Cross homes during convalescence, and the three medical services combined in providing medical supervision and nursing care and guidance. The Red Cross Society responded with enthusiasm to the increasing need for convalescent homes and for services in medical units, and supplied transport facilities on a large scale.

CHANGES IN ORGANISATION AND ADMINISTRATION

One of the most outstanding changes which followed the return of the A.I.F. to Australia was in the central administration of the army. General Blamey was appointed as Commander-in-Chief of the Australian Military Forces, and the defence organisation adopted on his recommendation included two armies, the First and Second Australian Armies. Each of these required a Director of Medical Services, and a Director-General of

the Medical Services was also appointed at the General Headquarters in Australia.

On 8th May 1942 the following senior A.A.M.C. appointments were made:

Major-General Burston, D.M.S. of the A.I.F. Middle East, became Director-General of Medical Services, at the General Headquarters (Australia); Major-General Maguire, who had been D.G.M.S. was offered, and accepted a position as D.M.S. of the First Australian Army, but owing to ill health was placed on the retired list on 14th April 1942. Brigadier R. W. W. Walsh was appointed D.M.S. First Australian Army with temporary rank of major-general, and Major-General Downes D.M.S. of the Second Australian Army.

Brigadier Johnston was appointed D.D.M.S. I Australian Corps, and Colonel Disher, who had been recalled from Australia to be A.D.M.S. of the 1st Australian Armoured Division, was appointed D.D.M.S. of the II Australian Corps with temporary rank of brigadier; Colonel D. W. McWhae D.D.M.S. of Western Command was appointed as D.D.M.S. of III Australian Corps, with temporary rank of brigadier; Lieut-Colonel MacCallum was appointed as Deputy Director-General of Medical Services at General Headquarters, with temporary rank as colonel.

At this time Colonel Fairley recommended to the D.G.M.S. the appointment of full-time regional consultant physicians to cover the areas of Victoria and Tasmania, New South Wales and Queensland. South Australia and lines of communication and Western Australia should be covered by part-time appointments. This he considered necessary on account of the great areas involved and the varied problems presented. The D.G.M.S. agreed that immediate appointment should be made for the Victorian and New South Wales areas, and recommended that Colonel H. H. Turnbull and Colonel A. S. Walker be appointed. These appointments were ratified after several months delay, during which these officers carried out their duties on an unofficial basis. The principle of regional consultants was not fully accepted at that time, but in the later stages of the war the ever widening distances made it imperative in certain sectors.

THE EFFECTS IN AUSTRALIA OF THE JAPANESE WAR

The effect on the size and the functions of the armed Services, in particular of the army, following the threat of attack from Japan is too wide a subject to be dealt with here, and is partly political. We are, however concerned with this great expansion as it affected medical services. The early months after a state of war appeared imminent with Japan fell into two phases, that of the threat, and that of the actuality of war. The danger was early realised in Australia, and defence forces were placed accordingly. Some of these were token forces only. Others were of reasonable size, but not really equipped in the event of serious attack.

THE NORTHERN TERRITORY

The Northern Territory Force was a formation which expanded from the troops based on Darwin on the outbreak of war. From the beginning medical administrators had a difficult task there. To combat the inertia which permitted poor hygiene and imperfect control of medical conditions needed strong personalities and adequate support. Had it been possible to build a good military hospital and to staff it adequately in the early period of the war things would have been better, but approval could not be obtained. The accommodation at length obtained at Bagot Compound was poor, and temporary only. A detachment of the 2/5th A.G.H. under Captain Brooke Moore arrived in Darwin in July 1940 and remained there till the end of the year, when they were able to help with an outbreak which was thought to be of meningitis, but was apparently in the main due to dengue fever. The Bagot Compound was opened on 9th December with Major N. W. Markwell as senior medical officer, and Captain W. T. J. Harris in charge of the hospital. Major W. Russell was D.D.M.S. of the 7th Military District and Dr W. B. Kirkland, chief medical officer. The hospital was known as the 19th A.G.H., but in April 1941, as 119th A.G.H. it was sent to Katherine, with Colonel E. Culpin as commander. The 2/12th Field Ambulance under Lieut-Colonel N. D. Barton settled near Darwin and supplied detachments which undertook the medical care of troops of the 23rd Brigade A.I.F. sent to Timor and Ambon. Lieut-Colonel Ingram was sent from the 119th A.G.H. to Adelaide River to organise a wing of this unit for emergency purposes. The medical services thus were expanding in 1941, but the position was not satisfactory. Occasionally severely ill patients were sent south by air, and others by ship, but most of those with medical disabilities were transferred from the 119th A.G.H. to Bagot and thence to Berrimah. Surgical cases were kept at Bagot, where the conditions were uncomfortable. At the end of 1941 the 300 bed hospital authorised at Berrimah was incomplete but was partly occupied when the open break with Japan came.

During January there was an increasing possibility of numbers of sick or wounded arriving as refugees from the Japanese invasion and some preparations were made. The fitness of the troops was not satisfactory; of 119 men who arrived in April 1941 by sea 42 had been transferred back by January 1942, chiefly on medical grounds. There was a widely held belief that the area was an exhausting part of the tropics, and that the isolation and endemic diseases begot a neurosis peculiar to the place. Early in 1942 there was an impending feeling over most of the Australian mainland, the Northern Territory was naturally no exception. To the north and the west the Japanese had overrun Malaya and the N.E.I., farther east all the slender defence forces insulating Australia from the Japanese were dissipated excepting the as yet untouched force in Moresby. On 15th February Singapore fell. Four days afterwards Darwin was attacked from the air.

THE AIR RAID ON DARWIN

The 2/1st Australian Hospital Ship *Manunda* arrived at Darwin on 14th January 1942. Instructions were received to reduce the intensity of lighting during the dark hours, but as this was difficult to carry out, a complete black-out was rigidly enforced by the Master. Merchant ships were also blacked-out, and the American naval units, but the Australian naval ships remained lit. As the work of the port had to go on, in view of its urgency, the limited wharf space available and the extremely slow rate of the work by the civilian labour at hand, the wharf was also lit at night. A danger commented on by the ship's officers on the *Manunda* was the existence of only one oil and one water line, which ran under the wharf without any lines moored to floats, or otherwise, and thus limited the facilities for fuelling and watering ships. Some cargo was shifted by lighters, but this was very slow. The crew and military staff of the *Manunda* were unoccupied except for routine duties. On 18th February a convoy of ships carrying troops which had left the harbour some days earlier returned after having been turned back by an air attack at sea. The ships were unable to reach their destination though their escort ensured a safe return with some casualties on board. The Japanese at least had knowledge of military movements.

On the morning of 19th February at 1005 hours a bomb fell near the wharf. Observers on the *Manunda* agreed that this was the first warning: it was immediately followed by the air raid sirens on shore. The bomb was the first of a series from a Japanese formation which flew over and returned to the attack regardless of anti-aircraft fire. Within ten minutes the wharf was burning, two ships at the wharf had been hit and one was on fire. Ships in the harbour were also hit, some were on fire, others damaged and one sinking. A Catalina flying boat was in flames, and two American destroyers were blazing; one bomb narrowly missed the *Manunda*. The hospital ship crew manned the motor life-boat and picked up over thirty badly wounded and burnt men. Other boats picked up more a little later: they too were taken to the *Manunda*. On the second perfectly coordinated run the enemy planes hit the *Neptuna* which later blew up, fired the *Zealandia* and sank the oiler *British Motorist*. Dive-bombers then arrived while boats were putting off to pick up more survivors. In this attack the *Manunda* suffered a near miss which killed four on board and inflicted severe damage on the plating and upper works. Another bomb struck the ship and just missed the bridge but did immense damage to the navigation instruments, and the forward parts of the music room and "B" and "C" decks. A few fires were started on the ship: one was troublesome. One aid post was hit, another was set on fire but continued working. Great damage was inflicted on the parts of the ship receiving the direct hit. The quarters of the medical officers and nurses were destroyed. Worst of all, twelve were killed, one officer, one nurse, and one corporal and two officers and seven ratings of the crew. Eighteen were wounded and forty more received slight wounds and remained on duty. Nineteen bodies were taken ashore for burial the next day, and

fifteen more were later buried at sea. Many of the patients suffered severe burns, and the shortage of tannic acid and triple dye was felt. A supply of plasma or serum would have been very helpful. Though an alarm was sounded later in the day the commanding officer, Lieut-Colonel Donaldson and his medical staff were able to work on without hindrance other than that imposed by the circumstances. The engineer staff managed to restore the essential services to the hospital sections of the ship and all of the staff worked tirelessly. Surgical work continued till after midnight. Difficulty was found in carrying the patients up and down stairways, as the lift for cots was out of action, but canvas emergency stretchers which had been provided were found most useful. A question which has raised some discussion in connection with the Darwin raid centres round the Geneva Convention. It will be recalled that, although the *Manunda* was anchored about a mile from the wharf, the ship was in the centre of a group including the *Peary* and the *William B. Preston,* the *Zealandia* and the *British Motorist.* The damage was inflicted by one or two dive-bombers only, the remainder left the hospital ship alone. Donaldson suggested that the pilots may have lost their heads during the excitement; had the Japanese wished to destroy the ship surely they would have done so, as the bombing was extremely accurate. This was the case also in the town area, but it is harder to explain the machine-gunning of Berrimah Hospital, shortly to be described, as other than deliberate. In the harbour however, it must be admitted that the *Manunda*'s anchorage was not well chosen for safety.

The next afternoon patients began to come in from the shore, and 190 were embarked on this day. Survey of the ship showed that though badly damaged, the *Manunda* was seaworthy; accordingly she sailed at 11.30 p.m. on 20th February, bound for Fremantle. An injured naval reserve officer was able to help with the difficult task of navigation; the Third Officer had been killed, and the Second Officer wounded, and the Fourth Officer was wounded, though remaining on duty.

A summary of the losses in the harbour showed that eight vessels, including the American destroyer *Peary,* and three flying boats were lost; eleven ships, including the U.S.S. *William B. Preston,* H.M.A.S. *Swan* and H.M.A.S. *Platypus* were damaged. The *Manunda* arrived at Fremantle on 27th February, and temporarily disembarked patients from some of the wards while repairs were undertaken. It was found that the damage was too extensive for full immediate repair, and after embarking these patients and a number of others already in hospital on shore, thereby relieving the local bed space, the *Manunda* continued her voyage to Adelaide. There all the patients were disembarked and the medical staff of the hospital ship were marched into the 105th Military Hospital in Adelaide.

We must now return to Darwin and consider the medical aspects of the raid from the point of view of those on shore. The warning given by the return of a military convoy of ships to Darwin Harbour was even more forcibly repeated by the arrival on 18th February of eleven casual-

ties from the air attack on this convoy. The next day Berrimah Hospital was attacked by an enemy formation from the air, and four wards were machine-gunned from low level. Most of the staff and patients dispersed in the bush; one patient, too ill to move far, was fatally wounded while sheltering under a bed. A nurse showed bravery in sheltering another patient with her person during this attack. The less ill patients were moved out of hospital to make room for casualties. The civil hospital was also attacked and damaged, and about sixty patients and staff were transferred to Berrimah. Surgical teams under Majors Mack and Coles worked all night. By next day five patients had died in hospital: a number of others were sent to Adelaide River, and some sixty patients, mostly on stretchers were transferred to the *Manunda*; Major Arnott and three nurses accompanied them.

Summing up the events of the 19th February, whatever may be said of the lack of reality in the organisation existing there at that time, the medical side of the emergency was well handled on sea and land. On the hospital ship in particular the value of practising the staff in manoeuvres necessary in emergency was evident. From the view point of medical observers it cannot be said that the general morale of Darwin was as high as it might have been. The distant effects of the raid were perhaps good in the end, but it is open to question if the withholding of the true position in official statements made later was wise even from the psychological point of view.

On 24th February Lieut-Colonel Pomroy was appointed S.M.O. of the fortress area; examination by Culpin and Pomroy showed that the Kahlin Hospital had been badly damaged and in addition had been looted. Bagot wing was practically emptied of patients, and arrangements were made for preparing the hospital in the fortress area for further work. Work was also proceeding on the site at Adelaide River. It was decided to evacuate Berrimah. Looking back on the medical affairs of Darwin there can be no doubt that the reiterated complaints of the medical directorate at headquarters were justified. It was always difficult to get things done at Darwin, which did not readily catch the eye of the finance authorities. Moreover, in the Northern Territory at this time it seemed difficult for the various service and civilian interests concerned to be fully reconciled to a common effort. In November 1941 Culpin complained that the shortage of staff was hampering work at the 119th A.G.H., and that this was exaggerated by the discontent of the troops in the area because their service in the 7th Military District did not entitle them to A.I.F. status. Further, relations between the A.D.M.S. and the senior medical officers of the area were often not satisfactory, even after the air raid.

Later events in the area may now be briefly mentioned. In April 1942 Major-General Herring, who had just arrived in Australia in command of the 6th Division A.I.F. was sent to take command of the Northern Territory Force. The components of the force were then a militia brigade, plus the 23rd Brigade A.I.F. less its three battalions, which had been sent to Rabaul, Ambon and Timor. The A.I.F. troops in this brigade

were then the 2/4th Pioneer Battalion, the 2/14th Field Artillery, and such part of the 2/12th Field Ambulance as had not gone to Ambon or Timor. The 17th Field Ambulance under Lieut-Colonel R. G. Worcester had then also arrived in Darwin. A full-sized hospital of 600 beds was built at Katherine, and Colonel A. W. Morrow arrived in May to take command, with Lieut-Colonels J. M. Buchanan and J. P. Horan controlling the surgical and medical divisions. At Adelaide River Colonel J. R. Donaldson commanded the 119th A.G.H. with Lieut-Colonels C. A. M. Renou and J. H. Halliday in charge of the surgical and medical divisions. In both hospitals the appointment to the staffs of relatively senior officers with oversea experience was felt to be advantageous.

In August 1942 the number of men in the three Services in the Northern Territory was R.A.N. 1,875, Army 27,000, R.A.A.F. 9,000, a total of 37,875. These numbers called for the services of large hospitals, and in addition to those mentioned there were field ambulances, and camp hospitals necessary where considerable distances intervened, and the R.A.A.F. also had their own service.

PRISONERS AND INTERNEES

Increasing numbers of persons, civilians and members of services were held in internment camps throughout Australia. Some of these were suspects interned for motives of security, the majority were prisoners of war. Many Italian prisoners were brought to Australia, and a number of Germans also. The medical problems in these camps were not complicated nor did they on the whole give rise to much trouble or anxiety.

In January 1942 the Military Board laid down the arrangements made in respect of prisoners of war and internees shipped to Australia. The usual precautions were taken on transports and in ports of arrival, and if necessary quarantine was instituted. As far as possible prisoners from the Middle East where dysenteric diseases were endemic, were disembarked at Sydney and sent to Cowra, a sewered camp, for observation. Suspected infections or carrier states were investigated in a special compound. In Volume I in the section on amoebiasis the measures taken to combat the risk of spreading this disease are described. Observations showed that after a period of care and observation, and treatment of frank infections, there was no evidence of risk having been imposed on the civil community. No prisoners were employed on projects outside their camps for six months after arrival. Rigid hygiene arrangements were laid down for all these camps and these were strictly supervised. Medical officers regularly attended all the compounds and regular inspections were carried out by senior medical officers. Arrangements were made for protected personnel in special camps. Occasional problems arose when alien medical officers prescribed proprietary or exotic compounds for fellow officers in these camps, as such substances were often extremely scarce and sometimes unobtainable. However, the principle was respected that, provided no hardship was inflicted on the general public, facilities were given for the medical officers to obtain material they desired, if it was considered

essential by the army medical services, and supply was not unduly restricted.

Japanese internees were carefully examined. One group of 228 was examined for parasitic infestation, and 3.1 per cent were found to harbour *E. histolytica,* 15.8 per cent *Anchylostoma,* and 13.6 per cent *Ascaris.* Experience showed that careful hygiene was sufficient, as subsequent tests showed that the number of carriers lessened considerably without specific treatment.

Indonesian internees needed special supervision also. Malaria was a most important disease in this respect, and to reduce carrier risk men, women and children evacuated from malarious areas were carefully examined. In the Northern Territory particularly, every care was taken to treat any infection discovered so as to avoid the real risk of introducing any of the types of malaria into Australia. In general no serious medical position arose with prisoners and internees: their nutrition and general medical condition remained satisfactory.

In May 1942 the National Health and Medical Research Council specially considered the measures necessary for the safeguarding of Australia from the introduction and spread of disease in this way. A special report was presented by Colonel M. J. Holmes, Director of Hygiene at the General Headquarters. The Council found that the results of supervision, investigation, and where circumstances warranted and permitted, treatment, dealt satisfactorily with the problems.

Early in 1942 the presence of prisoners of war in Australia made necessary the appointment of a medical commission to examine prisoners under the terms of the international conventions, to ascertain if any of them should be repatriated on medical grounds. A truly international "mixed medical commission" was not available, but the following were appointed and approved for the purpose, Lieut-Colonels S. O. Cowen and Walker and Hon. Colonel P. Fiaschi. The personnel of this commission was later varied as some of the original members became unavailable. The internment camps were visited in turn, all prisoners of war who desired to appear before the commission were examined and reports made on their physical condition, and as is prescribed in the convention concerned, special attention was paid to psychological states which might suffer deterioration by reason of captivity. In general the health of prisoners and internees was found to be satisfactory.

LIAISON WITH ALLIES

The outbreak of war with Japan meant the basing of military preparations on the mainland of Australia, especially the coastal areas, and the seas to the east, north and the west. This meant close liaison with Allies, especially the Americans and to a less extent the Dutch. At the end of April 1942 the United States forces in Australia numbered 58,526. Some months before this it was reckoned that the arrival of U.S.A., forces in Australia involved arrangements for 40,000 naval personnel in all ports, and 67,000 army. The American medical arrangements were then six

general hospitals of 1,200 beds, three of 600, three C.C.Ss. and three convalescent depots, ten field ambulances, one mobile bacteriological laboratory, sixty dental units and three hospital ships. Some of the requirements could be met with existing units. In the capital cities excellently staffed and equipped American units were able to take over, by special arrangement, sections of hospitals, in one instance, the new nearly complete Melbourne Hospital. The United States Government was asked to send forward all army units with full medical establishments and to supply equipment and stores for twelve months. The most friendly professional relationships were established between American and Australian physicians and surgeons. American medical officers were attached for duty to Australian units, such as hospitals and hospital ships, with mutual benefit. Extensive constructional programmes were begun. As the events of 1942 shaped themselves it could be seen that the centre of gravity of joint efforts was moving farther north, and although base institutions continued to be necessary in the southern parts of Australia, the greatest activities were seen in Queensland, and in growing areas of New Guinea under Allied control. Liaison with the Dutch medical services was needed more closely in 1942 and the early periods following, when Australia received numbers of Dutch civilians and servicemen who had been forced south by the extending thrust of the Japanese. Later forces were organised in Australia with the purpose of training for oversea fighting, and in these and other activities the Australian medical headquarters gave what assistance was possible.

CONCLUSION

At the end of 1942 the last battle of the A.I.F. in the Middle East had been fought, and the 9th Division and base troops, following the successful rout of the German forces at El Alamein embarked in the "Liddington" movement and returned to Australia. This brought back two general hospitals, a C.C.S., three field ambulances, a convalescent depot and a field hygiene section, all highly experienced in action conditions. The Services were now faced with the deployment of much larger forces over a much greater area, in difficult terrain, and with medical problems of serious nature. Meanwhile nearly a year had passed since another force, the 8th Division A.I.F. and some components of the 7th Division had, after a brave fruitless struggle disappeared into the oblivion of captivity. We must follow the trials and hardships of this division, and describe the story of the medical corps, whose opportunity for service was even greater under the cloud of defeat than in the flush of victory.