CHAPTER 5

PREPARATIONS IN THE MIDDLE EAST, 1940

On 15th December 1939 the staff of an overseas base embarked from Australia and early in January 1940 this base was established in Jerusalem, the first elements of the Second A.I.F. to reach Middle East. Colonel H. C. Disher, A.D.M.S. of the overseas base received full and friendly cooperation from Colonel D. T. M. Large, R.A.M.C., who was British D.D.M.S. in Palestine. Large had prepared an appreciation of the medical situation and plans for the medical care of the Australian force, which was submitted to Disher for his concurrence. It was expected that when the remainder of the 6th Australian Division arrived the strength of the force would be about 20,000. This was to be disposed of in six tented camps from Gaza to Qastina along the coastal road running north. On a basis of a sick rate of 0.3 per cent a total of 900 beds would be required which could amply be supplied by the 2/1st and 2/2nd General Hospitals coming with the division. The immediate plan provided for the establishment of the 2/1st A.G.H. at Gaza Ridge near Gaza, and pending the preparation of this hospital, camp hospitals could evacuate patients to the British general hospitals at Sarafand or Jerusalem. It was suggested that in emergency the civil hospital in Gaza and the Hadassah Hospital at Jerusalem might be used, but this was never necessary, though the latter gave great assistance later by making available the services of some special departments, such as X-ray therapy. The resources of the hospital of the Church Missionary Society at Gaza were also used through courtesy of the Chief Medical Officer, Dr Hargraves.

In general the Australian policy was that Australian patients should be treated as far as possible in their own hospitals. As there would be another general hospital and a casualty clearing station available when the second convoy of the A.I.F. arrived, it did not seem likely that the second hospital would be employed as an entire unit for some time after its arrival. The only difficulty in the plan was the question of ambulance transport, for which it was necessary to use R.A.M.C. ambulances until motor ambulances should arrive from Australia. Ambulances were placed on loan for this purpose at the principal camps. Colonel Large requested that all deficiencies of equipment and supplies should be notified, and that estimates should be made of the needs of medical units. A lag of one month was allowed for the time necessary for producing supplies from Egypt.

By the time the first units of the Second A.I.F. arrived in Palestine, in February 1940, arrangements had been made for their reception. On 13th February the 16th Brigade began to disembark at Kantara, so familiar to the First A.I.F. in Egypt. The entry of the Second A.I.F. into Palestine was very different from that of the First A.I.F. In March 1917 the Anzac Mounted Division of the First A.I.F. groped through fog to participate in
the first battle of Gaza, but the advance units of the Second A.I.F. made their entry peacefully by train from Kantara under a cold wintry sky. Heavy rain had fallen just before their arrival; indeed it was doubted if tents could be pitched and other arrangements completed in time. However, despite muddy ground and meagre comforts, hot meals were ready, prepared by friendly British units, and the 16th Brigade soon settled in camp.

Local conditions in southern Palestine were favourable. Racially and politically the country was quiet, though there were known areas of unrest. The Australian troops were well received by all parties. Within a fortnight of the arrival of the first flight of the Second A.I.F. temporarily unsettled conditions arose owing to feeling over the ratification of the British White Paper of 1939, and it was necessary to cancel leave for security reasons. Occasional isolated incidents occurred in the early months, but it was soon possible to relax the precautionary measures, which included limitation of movements even on permitted roads to daylight hours, and the carrying of arms in all parties.

**Features of the Country**

The diversified climate of Palestine exposed the men to considerable cold and periodical heavy rain during the winter months, and to intense persistent heat in the summer. The "khamsins" were unwelcome with their unpleasant gale force and their blinding dust, but did not have the severity of the awful dust storms of the Western Desert. The only potentially serious disease likely to cause high sick wastage was dysentery. The northern part of Palestine contained some highly malarious regions, as the A.I.F. learnt by personal experience later, but except for some endemic areas needing supervision, the southern portions occupied by the Australians were well controlled. Tribute must be paid to the civil administration, whose health services effected striking improvements in the hygiene of a country which had remained primitive during the centuries of Turkish rule before the 1914-1918 war. The scientific influence of the Hebrew University of Jerusalem and the efforts of Jewish settlers in some of the northern parts of Palestine also did much to raise the standard of hygiene. The habits of the poorer element of the Arab population favoured fly breeding and the dissemination of bowel-borne disease. Ankylostomiasis and schistosomiasis never proved a danger in Palestine. Sandfly fever was a minor scourge during the summer months. Rabies was endemic, occurring both in dogs and in the jackals whose nightly howling earned them unpopularity in the camps.

During the 1914-1918 war, water supply was a problem in some places, but the deep wells which have been used with success in irrigating citrus orchards gave very satisfactory supplies. The nature of the soil in most of the camps was such that sullage water was not readily absorbed, and special measures were needed for its disposal. Instructions were promulgated at once to all ranks, but in particular to medical officers, informing them of the possible hazards to health and of the customs of the country.
Cautions were given to all ranks about the risks of eating unwashed fruit or vegetables, and care was taken to see that these were immersed in a weak solution of permanganate of potash before use. As might have been expected, not even the plainest speaking would always deter soldiers from buying fruit surreptitiously by the wayside and eating it on the spot. It is upsetting to catch patients convalescent from dysentery bargaining with Arabs for forbidden fruits over the boundary wire, but such is human nature.

**EARLY MEDICAL ARRANGEMENTS**

In the first few months a great deal of work had to be done by the medical pathfinders. The medical units available were the 2/1st Australian General Hospital, 2/1st Field Ambulance, 2/1st Field Hygiene Section and the 2/1st Convalescent Depot. Camp reception stations were established in the chief camps and facilities were extended for the holding for a few days of mildly ill men who did not need hospital treatment.

The 2/1st A.G.H. under the command of Colonel J. Steigrad, fostered by the 1st Hampshire Regiment, found a hospital site with well made and drained main roads and buildings erected for kitchens and messes, ablutions and latrines. Most of the area consisted of ploughed fields, on the tenacious mud of which the members of the unit proceeded to erect tented wards. The staff had been hastily assembled shortly before departure from Australia, and knew little about such matters, but soon learnt through a process of self-education. Reviews by Mr Anthony Eden and General Sir Archibald Wavell, though most stimulating, were somewhat of a military ordeal to medical units with little formal training in drill.

A camp hospital was established at once and within a few weeks all types of patients could be handled, except those requiring full investigation or surgery. By the beginning of April extemporised accommodation in a mess erected for the 2/2nd A.G.H. was used for an operating theatre and for a pathological laboratory. X-ray work was delayed by serious damage sustained by the plant in transit, but before long, temporary quarters were found in a building that was much more useful for this purpose than that for which it was designed, a sick officers' mess. Delays in planning and erecting a quite elaborate operating block led to the trial of a mobile operating hut of French design. This had the advantage of being prefabricated, and could be taken down and packed for removal, but was not thought suitable for a general hospital sited in an exposed and dusty environment, and was not used.

Important sanitary problems had to be solved, particularly in relation to a dysentery ward. Flywire was almost unprocurable, and it was not possible to make wards flyproof, even when an excellent type of hutted ward was built. Sanitary annexes for tented wards were at first only small tents: later annexes were built integrally with the wards, and later still when stringency in building materials made tented wards again necessary, separate hutted annexes were provided. A device found to be educationally and hygienically useful in these wards was to cover all door
handles and other fittings likely to be handled, by cloth kept moist in an odoruous antiseptic solution such as lysol or cyllin.

Otway pits, valuable for general purposes in Palestine, were also useful in hospital areas, but the ideal method of disposal of excreta in hospital was incineration, using an incinerator of a type introduced by a New Zealand hospital in the 1914-1918 war. Flyproof boxes were used for the storage of bed pans. Used pans were placed in one box, and removed by an Arab sweeper, who burnt the faeces with sawdust in a home-made incinerator, flushed the pans in 3 per cent cyllin, boiled them in a Soyer stove and finally replaced them in the clean box. It was assumed that the menial who performed this lowly office was immune from infection. The supply of sawdust failed after a time, and boiling was carried out in an open mud fire place using sump oil and water in a flash burner. Later a special boiler and burner were obtained by local supply. Specimens of faeces for inspection were kept in small containers, usually cigarette tins and specimens for microscopic and bacteriological investigation were sent to the pathologist in closed wax paper cups. Modifications of these methods formed the bases of the routines followed in all units holding patients with dysenteric and similar diseases. It was later found by experience that a deep trench latrine could be used safely for disposal provided the flyproofing was adequate. The experience gained by all the A.I.F. hospitals in Palestine and Egypt was most useful and was helpful in producing the design ultimately accepted as standard for dysentery wards and annexes. It was found that with due care even a tented dysentery ward need not present any risk of spread of infection; the staff, if well trained, were probably exposed to no greater risk when on duty than in the presumed safety of a mess.

The 2/1st Field Ambulance under Lieut-Colonel A. J. Cunningham camped at Qastina and at once began ambulance training. Considerable assistance and stimulus were obtained from training tests with the officers of the 168th British Cavalry Field Ambulance. In May, on the arrival of the second convoy from Australia the unit moved to Julis, where special training was begun in nursing procedures, with the help of nurses from the 2/1st C.C.S. The 2/1st Field Hygiene Section under Captain R. Drummond also camped at Qastina, and found much to do. The native quarters in contractors' camps were bad from the sanitary point of view, and the hygiene of kitchens and butcher shops in the battalion lines of some camps was unsatisfactory. The unit constructed samples of various hygienic devices, and began to build up a hygiene museum at Deir Suneid, which was found to be most useful in training. The 2/1st Convalescent Depot, commanded by Lieut-Colonel L. G. Male, began planning the unit's activities, and inspecting sites; finally an attractive site with good diversional facilities was chosen at Kafr Vitkin on the coast of North Palestine.

A difficulty arose in connection with the early administration of medical affairs. Colonel Disher as A.D.M.S. overseas base naturally worked in close association with the other members of that formation in Jerusalem.
Brigadier Allen commanding 16th Brigade kept in touch with local medical affairs in the camps through Major N. H. Saxby, acting as D.A.D.M.S. A certain lack of full liaison was inevitable until later when Disher was able to work from brigade headquarters. No difficulty would have been experienced had a clearer indication been given at the beginning that the A.D.M.S. of the overseas base would also act as the senior medical officer and adviser of the force when the first brigade arrived.

By 18th May there were 228 patients in the 2/1st A.G.H., but in a few days the figure rose to 430 when the second convoy of the A.I.F. arrived, bringing a good proportion of the remainder of the 6th Division. This mild test of powers of expansion was made rather sharper by the fact that this coincided with the laying of concrete floors for the wards, which necessitated moving all the wards to other areas. By the middle of June there were three brigades and attached Australian troops in Palestine, with an average daily strength of 13,500. The average daily sick rate was 3.6 per cent, and the average daily hospital admission rate 0.25 per cent.
EARLY ORGANISATION

The commander of the Australian force in the Middle East, General Sir Thomas Blamey, arrived on 20th July by air with his staff, which included Colonel S. R. Burston as D.D.M.S. Colonel Disher now became A.D.M.S. of the 6th Division which was commanded by Major-General Iven Mackay, and Colonel Burston as D.D.M.S. Corps was promoted brigadier. Some difficulty was caused by the necessity for diversion of one part of a convoy of Australian troops to England, in addition to a forestry unit sent to the north of England. With these troops was the 3rd Australian Special Hospital, and from the staff of this unit, with various additions was built up a general hospital, the 2/3rd Australian General Hospital, which worked as such for the period of service of these troops in England. This is described in Chapter 6. The A.I.F. in the Middle East was thus unexpectedly deprived of some of the medical staff which might have been absorbed in work in Palestine or Egypt. It was regrettable too that much wanted equipment brought from Australia by an advanced depot medical stores originally bound for the Middle East, was now in England, pending opportunity for return to its correct destination.

Under the changed conditions the I Australian Corps took over the administration of the base medical units, the 2/1st and 2/2nd General Hospitals, the 2/1st Australian C.C.S. and the 2/1st Convalescent Depot. It was necessary now to raise a new advanced depot medical stores, as the 2/1st A.G.H. was in the position of acting as advanced depot medical stores not only for one brigade group as heretofore, but for three brigade groups with six camp hospitals and two field ambulances. Major N. W. Francis, who had been in charge of the Venereal Disease Annexe in the 2/1st A.G.H. was placed in command of the 2nd Australian Special Hospital, raised to replace the 3rd A.S.H. diverted to England.

The establishment of the headquarters of the I Australian Corps and the 6th Australian Division in the Middle East coincided with a momentous period. The day after the second convoy arrived in Palestine, the Nazi forces were streaming across the Meuse, and Holland had already capitulated. The Australian division hardly more than equalled in numbers the casualties evacuated from Dunkirk; more than twice as many people were killed in Rotterdam alone. Italy now entered the war and it was evident that the Middle East would be more than a training ground for an European adventure; it was to be a battleground. It was of interest to medical observers to see the effect of these events on the spirits of men in an army hospital, where many of the inmates regarded their physical misfortunes either as a temporarily annoying or depressing episode or as providing temporary haven from the rigours of military training. The German sweep across Europe caused some depression, but the incredible retreat from Dunkirk was a great stimulant. Italy's declaration of war on 10th June was welcomed as bringing closer the day of actual participation. It was noticeable that far more forebodings were caused by the fall of Paris, which at once introduced a feeling of instability as to the future of
Syria. These were but brief, however, and enhanced the realities of work and training.

One immediate local effect of the declaration of war by Italy was the imposition of a black-out in Palestine. On moonless nights movement about camp areas which were still under construction or expansion was distinctly hazardous, and in a tented hospital the difficulties of work were intensified. The profusion of ditches, trenches, mounds and heaps of building materials in the camp areas stimulated agility considerably, but also produced numbers of injuries, particularly at night. Traumatic affections of the knee joint at this time were almost solely due to falling into gutters and trenches and to injuries received in sport.

The reorganisation of the Australian forces now began on an expanded scale, as it was expected that by the beginning of 1941 a full corps would be in training in the Middle East. The preliminaries were over; the next phase had begun. This was evident from the air raids on Haifa, the isolated attacks on Tel Aviv and more significantly the Italian occupation of Sidi Barrani, well within the Egyptian border. The British had also evacuated British Somaliland following invasion by the Italians. The general tempo of the war was quickening, for by the end of August London had suffered the first all-night air raid. Soon after this the 6th Australian Division moved to Helwan in Egypt to complete its war equipment and further training.

**TRAINING**

In medical units training is of several kinds; members of the staff may be trained in technical or administrative procedures, partly by routine experience or by organised instruction, and specially trained instructors may be used to educate members of other units, either medical or non-medical. During 1940 all opportunities were taken to use the full resources of the medical units for teaching purposes. It often happened that medical officers were employed in work of a kind somewhat remote from their professional interests, but though the needs of the service had to come first, they were encouraged to make contact with other branches of work when possible. The professional standard of the medical services was high, and on the staff of all the medical units were medical men of established reputation as consultants and teachers. General hospitals were encouraged to discharge the important function of higher medical education, which always reflects favourably on the standard of practice within a hospital. Brigadier Burston, D.D.M.S. of the I Australian Corps, and the A.Ds.M.S. of the three A.I.F. divisions gave every help and encouragement to these professional activities.

In addition to the holding of staff rounds in the medical and surgical divisions, the staff of the 2/1st A.G.H. arranged series of demonstrations, and medical officers from other units were given facilities for attendance. Clinical meetings were held at hospitals, organised on the usual civilian hospital lines. After the arrival of the 2/2nd A.G.H. in May 1940 an Australian hospitals' clinical group was formed and on 13th July 1940
a highly successful clinical meeting was held at the 2/1st A.G.H. This had some far-reaching results. It was attended by the D.D.M.S. Corps, the A.D.M.S. 6th Division and forty-six British and Australian medical officers. Guests included Professor Adler, protozoologist from the Hebrew University of Jerusalem, and Dr Rachmilewicz, senior physician of the Hadassah Hospital, Jerusalem, and a number of other senior practitioners from Tel Aviv. Great assistance and cordial cooperation had already been given by these medical men, some of whom had organised special courses for medical officers, and further evidence of their interest was afforded after this meeting by the offer of Dr Jassky and the governing body of the Hadassah Hospital to hold monthly clinical meetings at that institution, to which all British and Australian medical officers were invited. These meetings became a regular feature of the service medical life of Palestine; transport was made available for as many officers as practicable, and the gatherings were looked forward to as combining hospitality under ideal conditions and a high standard of post-graduate instruction from a distinguished staff. The attachment of numbers of Australian medical officers to British army hospitals for duty during the earlier days of the Middle East work resulted in acquaintance of many colleagues in R.A.M.C. and A.A.M.C. to mutual advantage, and these contacts were renewed and strengthened by such meetings.

In addition to these hospital educational activities opportunities were afforded where possible for medical officers to attain such further experience as might equip them for special work. As more work was required of medical units these opportunities became fewer, but an army career in medicine and surgery has proved most stimulating for many medical officers. While many of them were by necessity forced to occupy themselves in routines requiring little specialised knowledge, many also equipped themselves for future days of civil practice. Regrets were sometimes felt by medical officers who were engaged in administration and thought that they were losing in the clinical field. This could not be helped; at least they gained in general experience in the handling of men and affairs and there were often opportunities of promotion.

The technical medical and surgical training of orderlies and other lay assistants was a most important function of all medical units holding patients, from camp hospitals upwards. More will be said of this later, but it may be pointed out that it is absolutely essential that those capable of giving instruction, both medical officers and nurses, should regard this duty as most vital.

Schools for medical officers in many subjects were begun early. A school in tropical medicine was held even during the busy weeks of preparation at the close of 1939 at the School of Public Health and Tropical Medicine in the University of Sydney. This work was continued on all the transports carrying troops to the Middle East. As far as possible medical units travelled together, though the need for appointing experienced medical men as senior medical officers of transports prevented the entire realisation of this ideal. Lectures and discussions were
held every day for all ranks, though possibly their value was sometimes reduced by the competing noises of a windy deck, or the somnolent weather of the tropics.

The value to men and officers, after their arrival in Palestine, of practical courses in hygiene was increased by the assistance of the experts of the Hebrew University, the Hadassah Hospital, and the Palestine Department of Health. Field work was included in the schools as far as practicable. During 1940 and 1941 the schools held for medical personnel covered a wide field, including the diagnosis of malaria and dysentery, malaria control, water duties, disinfection, sanitation, administration, pathology, tropical diseases, rabies, chemical warfare, passive air defence, chiropody, blood transfusion and resuscitation, physical training and cookery. Special courses of training in staff work were also arranged, particularly for officers likely to be engaged in administration. Colonel Disher pointed out that there was a dearth of trained instructors who could help to improve the standard of practical knowledge of officers in field ambulances; that militia experience was not enough and that more training in the conditions of warfare was required.

**HOSPITAL ACCOMMODATION**

During 1940 most patients were treated in the 2/1st A.G.H. The 2/1st C.C.S. held a limited number of patients, and carried out a small amount of surgical work, which was instructive from the viewpoint of training the staff. However, this unit had no settled abode for long and only began to exercise its real functions at a later date. The 2/2nd A.G.H. of 1,200 beds was only able to move the main body of the unit to its site at Kantara on 15th December 1940, and began to take patients on 29th December.

The building of hospitals presented difficulties. Tentage had not been brought from Australia, and, though it was available in the Middle East the most suitable types, such as the large hospital marquees, were scarce. E.P.I.P. tents, largely used for personnel, proved admirably adapted for this purpose. In some instances concrete floors were supplied, as for the use of nurses. These tents were used also for accommodation of the sick, either singly as for sick officers and nurses or for isolation purposes, or "brigaded". Many variants of method were used for brigading. The double walls and roofs make these tents very comfortable, but it is hard to exclude the weather when they are erected in series, though this may be fairly satisfactorily done if the overlap is drawn tight and lifted some six feet from the ground by taking ropes from the lower cross pole through the ventilators at the end of the tent. Brigading of this useful tent may be done side to side also, which leaves a corridor unobstructed by poles. Large hospital marquees were usually supplied for main wards, and these make good wards especially if on a concrete base, though in Palestine the earth could be rammed down or even trodden in to make a good surface. Where concrete floors were approved it was found a great advantage to have the floors ready first. The 2/1st A.G.H. for example, had the
experience of removing all its tented wards while the floors were laid, and then of shifting them back again during a period of rapid expansion. Later again the whole hospital had to be moved temporarily while hutted accommodation was built. Hospital marquees are not so well ventilated as the expanding hospital tents, though these were not readily available, but by rolling back the sides of the tents the prevailing breeze could be used for cooling and lighting was improved.

Black-out conditions are trying at any time, but especially so in tented wards, though with careful policing the ends of efficiency and security can be reasonably met. Passive air defence requirements were met by sinking personnel tents some two feet and adding an earth revetment. This could be done only in the summer, but fortunately it is possible to forecast the onset of the wet season accurately in Palestine, and surface dwelling was resumed in the winter. Tent ed wards usually had their permanent floors on ground level. Protection was given to the wards in the event of air raids by sand bags in some places, but as bags were scarce it was easier to build walls of mud bricks, which were simply made after the Arab fashion, the local tenacious soil being used with stubble as a binding agent. Mud brick construction was also found convenient for other buildings, such as sanitary annexes.

When permanent hatted wards and other buildings such as offices and medical inspection centres were built material was at first a problem in Palestine. Excellent wards were, however, built of light silicate brick up to window level, and the wall panels were made of plaster based on wire mesh. Floors were concrete in some cases, but very good floors were made of local cement tiles laid on sand. Medical units had no electric generators at that time, but local supply proved adequate, and even the tented wards had electric light. Requisition was made for fans, and British Force approved a tropical scale which proved very generous, once the necessary fans were produced.

Heating was always a problem in the wards. The "primus" type of wick-less kerosene stove was useful, but when only two of these stoves were available for heating water for washing and sterilisation in a ward of seventy to eighty patients great inconvenience was caused. Fortunately many of these men were more or less ambulatory. Immersion electric heaters were available later and proved useful. The use of the "primus" stove in Palestine was also somewhat hampered by the scarcity of methylated spirit and of spare parts. Stoves of the "Coleman" type were used for a time and worked well, provided they were not handled roughly, but spare parts were lacking and unleaded petrol became unobtainable. Wood fuel was so scarce that its use in the open was not possible. "Butagaz" supplied in steel containers proved an excellent fuel for cooking, as an ordinary gas range could be used in the kitchen: it was also used for ward purposes. The cylinders came from Egypt, and had to be sent to Haifa for charging, as the gas was produced there. Later enemy action limited the output and some of the older methods were resumed perforce.
Hospitals in the base areas were not widely dispersed. Originally this was intended, but the great expansion that took place in hospitals made closer settlement imperative. Hospitals like the 2/1st and 2/6th A.G.Hs., originally of 600 beds capacity, were later running hospitals of 1,500 to 2,000 beds, the 2/2nd A.G.H and the 2/7th A.G.H. also expanded well beyond their nominal capacity of 1,200. In addition the Gaza Ridge area where the 2/1st A.G.H. was situated, housed also another hospital medical staff and sometimes two, during periods of inactivity, and at times the nurses of as many as three hospitals also had to be accommodated. Under these conditions dispersal was not very practicable. At Kantara on the eastern bank of the Suez Canal the 2/2nd A.G.H. should ideally have been dispersed, as it was in a target area, and raids occasionally came close to its boundaries. The desired degree of dispersion was however not possible owing to the shortage of water piping, which imposed a limit on the distances between buildings. Similar shortages in building materials affected hospital policy in others ways. It may have seemed contradictory for Australian patients to be in the British and New Zealand hospitals when the declared policy was for them to be treated in Australian hospitals, and especially when staffs and equipment were available, but stringency in building supplies, unavoidable delays and unexpected movements raised difficulties that were hard to surmount.

Experiments were tried with various designs for wards. A sanitary annexe was built with each ward. In the Palestine pattern the annexe was the vertical limb of a T shaped plan. In the 2/2nd A.G.H. the annexe was built between the two halves of the ward, but this was found to be a disadvantage as it meant more work for the nursing staff. These early trials helped towards the adoption of standards in the later years of war.

Theatre blocks were constructed for the hospitals so that work could go on regardless of weather conditions. These were costly. The cost of theatre buildings at the 2/1st A.G.H., which allowed two major operations to proceed simultaneously and included a plaster room and the X-ray department, was estimated at £4,500. But, as was pointed out at the time, why hesitate when camp cinemas, built of silicate brick, cost £3,000 each and camp hospitals £1,500? Pathological services were housed in a separate building large enough to allow for the various branches of work and sterilisation of glassware et cetera. Largely through the insistence of orthopaedic surgeons the importance of physiotherapy was rightly recognised, and efficient cubiced space was allotted for this work. Equipment was meagre at this stage, and often extemporised, but the foundations were laid for a greater employment of physical and occupational therapy.

Camouflage was ordered in hospital areas, but the pigments laid down in the original instructions for tents were not obtainable, and a thick suspension of Palestine mud was substituted. Red cross emblems were used in addition to the Geneva flag; large crosses were laid out on the ground and were reasonably conspicuous from the air. Later red crosses were painted on the roofs of some of the buildings just within the
perimeter of the hospital area, but these were not officially approved. In any case the quality of the locally bought paint was so poor that the once vivid red soon faded completely. Measures for passive air defence could only be partially adopted. Offices and stores were made splinter-proof, wards were revetted with mud bricks or sand bags, but shelters could not be provided. Consideration was given to making some of the administrative centres gas-proof, but no actual steps were taken. However, regular instruction was given in anti-gas drill and precautions, schools were arranged, and regular practices were held. Fortunately there was never need to put the efficacy of these measures to proof. It was estimated that ideally some protection should be provided for some 30 per cent of the patients.

DENTAL SERVICE

The dental units had a busy time from the first. After campaigning had started the question of the future of the dental services became more pressing, as it appeared to the A.D.M.S. (Dental) Colonel J. E. Down, that dental officers in part-time work were comparatively little use in their specialty, as they were used for many other duties. But in quieter times and in static camps or during periods of training dental officers were hard put to it to do all the work that lay before them. Lack of supplies hampered dental officers in the early months of 1940. Lieut-Colonel Finnie had arranged for some stores to be acquired for the 16th Brigade to leave with the first convoy, but there was no way of supplementing these except by local purchase in small quantities until adequate stores arrived with the corps headquarters. Dental material was available for purchase in Palestine; a factory near Tel Aviv made artificial teeth of good standard; some of this material had found an export market before the war. Finnie reported on arrival in Palestine that the complete dental unit with the 2/1st Field Ambulance had to deal with 2,000 troops, though the skeleton unit of the convalescent depot had to care for only 250. Convalescent depots are of course busy places for dentists, as opportunities are given there that do not readily occur in other units, provided the patients remain long enough. The same applies to some extent to hospitals, but here the dental units are busy in servicing neighbouring troops, as there are usually a considerable number in a hospital area. The men of the 2/1st and 2/3rd Battalions and other units camped at Julis in February 1940 were found to have had little treatment in Australia and none on the voyage. There was obvious need for more dental officers for this work.

The 3rd Special Dental Unit arrived in Palestine in May 1940 and reported that the dental condition of the 16th Brigade was "awful". Only some 20 per cent of the men were dentally fit, and the dental officers were concerned about catching up the leeway, for most of their time was already occupied with "sick" parades. The dental state of the 17th Brigade was found to be better than that of the 16th; this was no doubt due to the greater time available before embarkation. This unit eventually was transferred to Egypt, and after working for some time in Amiriya, in spite of
the difficulties with dust, later went on as far as Salum with the 2/7th Field Ambulance, being the most forward dental unit.

After a year of service it was reported in December 1940 that the dental conditions of the troops was still poor. The 2/5th Battalion for example had needed 1,200 fillings and 120 dentures, the 2/6th 800 fillings and 130 dentures, and yet with the staff and equipment available, dental services could not catch up with the work still to be done. At the end of 1940 the D.D.M.S. of the British forces in Palestine presented to the A.I.F. four out of six dental trailers captured from the Italians.

EQUIPMENT AND SUPPLIES

From the beginning of 1940 there were some troubles with equipment and supplies. Even before the first convoy of troops arrived Disher remarked on the shortage of drugs in the Middle East, and expressed the hope that all medical units would arrive fully equipped. Medical officers of transports were forced to purchase some drugs at Perth and Colombo, and in spite of criticism in Australia this action was necessary. The ships’ hospitals sometimes had to be called upon, for example for anaesthetics for unexpected operations. Faulty handling of cargo on arrival in Egypt also caused temporary shortages: a number of cases of medical supplies for the 2/1st A.G.H. were missing, though most of these were recovered later. Misunderstandings arose at this stage between medical units with the 16th Brigade and the medical headquarters in Australia. Some of the equipment sent away such as instruments, plaster and gloves, was of unsatisfactory quality, and frank complaints were made. Actually, efforts were made to provide equipment of good standard grade, but the departure of the convoy in January was so hurried that in the end it was necessary to make good certain deficiencies with second grade material rather than leave serious gaps. The real mistake lay in not informing the medical officers who used the material. Unfortunately complaints and criticism leaked through the unofficial channels, as they always do, and there were well meaning attempts to supply privately alleged deficiencies from Australia. Still worse, inaccurate articles appeared in the Press.

The ordnance equipment was on the whole satisfactory. Difficulties with tents have been mentioned. Hospital beds were supplied of two types, the simple tubular frame on which was stretched an integral wide wire mesh with folding supports, and a more elaborate bed with a movable steel back rest. The first type sagged and stretched after a time and tended to rock. They were reasonably comfortable, but had no head rest: the Red Cross Society supplied an adjustable wooden attachment which enabled patients to be propped up. The special and expensive Zimmer bed was found to be very valuable in hospitals nursing members of the R.A.F. in England. Sir Thomas Dunhill strongly recommended it in his reports on surgical affairs in England, and later the Australian Red Cross Society supplied several of these beds for orthopaedic work in the 2/2nd A.G.H. By the end of 1940 strain was being felt in supplying both expendable and non-expendable medical equipment in the Middle East. Each addi-
tional medical officer appointed to new or expanded units needed equipment. The establishment of a base depot medical stores was expected to be of great assistance, but in the meantime the D.D.M.S., M.E. sent out an instruction to all hospitals to reduce reserves of medical stores from three months to one month. Lists of Australian deficiencies in the Middle East were sent to the D.G.M.S. Melbourne. It was thought in the Middle East that all R.M.Os. leaving Australia should be equipped as though serving with a newly-formed unit, thereby providing equipment for new units.

CONSULTANTS

As previously mentioned, consultants in medicine and surgery had been selected for the A.I.F. in the Middle East. Colonel N. Hamilton Fairley was appointed as Consulting Physician as from 22nd February 1940 and arrived in Palestine on 5th September 1940. For some time by mutual arrangement between the British and Australian Medical Services he also acted as Consultant in Tropical Diseases to the British forces in the Middle East. Colonel W. A. Hailes was appointed as Consulting Surgeon to the A.I.F. and also took up duty during 1940. Both of these consultants exercised a very stimulating influence on the medical services and did much to coordinate medical and surgical practice in the expeditionary force and bring it to a high state of efficiency.

Routine consultation services were established at the larger static medical units, chiefly the hospitals. The consultants were the heads of medical and surgical divisions, or the medical and surgical specialists. Some coherent organisation was essential; an uncontrolled service tended to encourage unit medical officers to pass on their responsibilities in decisions which would preferably be made by themselves. Therefore approval of the A.D.M.S. was required before a man was sent for consultation, and an appointment system was found desirable. Transport of men to and from hospital often presented some difficulty, and delays were often encountered in the receipt of the consultant’s opinion by the medical officer. Though it was easy for a consultant organisation to be abused, it was a very valuable service, and saved many men from being needlessly admitted to hospital or submitted to a medical board. Considerable numbers of men attended these consultative clinics; ophthalmologists in particular were kept very busy, and the extra work entailed for all officers acting as consultants often imposed a definite burden in areas where large bodies of troops were camped in the vicinity. During 1940 it was observed at the 2/1st A.G.H. that when the volume of consultations grew too great to be handled easily on one day of the week and two days were allotted, the number of men seeking consultation was immediately doubled. A review showed that nearly 80 per cent of the consultations were really unnecessary. Radiological, pathological and biochemical examinations were not carried out on request of medical officers except after approval of a senior physician or surgeon.
When training began in Palestine the general condition of the troops was good. There was a noticeable improvement of the physique of the young and immature, but the over-age group showed signs of not standing up to the work. Complaints were made that some obviously unfit men had been enlisted. It has been pointed out in Chapter 2 that these complaints reached Australia, where Lieut-Colonel H. H. Turnbull had been appointed to report on and supervise the standard of medical examination. It appeared from this report that not more than half the unfit men accepted had been passed through careless or inadequate examination. Even a period of training in Australia did not ensure that all the unfit would be eliminated. Both original and reinforcement drafts sometimes included men who had defects of locomotion; some of these men had never done any marching. The answers supplied by men seeking to enlist were frequently misleading and inaccurate; even greater care in securing answers to the questionnaires presented to each recruit did not ensure accurate replies. After a few months in Palestine numbers of men were submitted to medical board for reconsideration of their classification; and those found unfit for further service increased in number. As the 2/1st Hospital Ship *Manunda* did not arrive till November 1940 many of these men were held pending return to Australia. A few of these had been allowed to leave Australia in error as X-ray examination before embarkation had shown evidence of tuberculous lesions of the lungs.

An analysis of the first group of men returned to Australia from the Middle East was carried out by army medical officers on the *Manunda*. This differentiated the men with disabilities existing before enlistment from those whose disabilities originated on active service. The analysis showed that few cardio-vascular diseases occurred in this series, no doubt owing to the favourable age group and to care in examination. A feature of the small number of diabetics observed (5 out of 208) was their severity; this too may have been related to the predominant age group. Peptic ulcer was an important cause of disability; forty-two cases occurred in the series, 80 per cent being duodenal. Study of these men showed that a history suggesting dyspepsia of the ulcer type should exclude a recruit from acceptance for active service, and that any dyspeptic history other than of a temporary kind should be regarded as an indication for further investigation before enlistment.

Lastly, forty-five patients had orthopaedic conditions of some kind. There were few disabilities of the feet, owing no doubt to the satisfactory pattern of service footwear, and the higher standard of prophylactic and therapeutic orthopaedic care in the army of the day. It will be noted that the ability to march is not an outworn function in armies, though the use of motor transport has been an important factor in saving considerable physical strain. Lesions of the knee joint accounted for twelve patients, part of a large group with injuries, usually treated with success. The greater number of orthopaedic conditions were associated with backache.
In fact backache and indigestion were two of the commonest complaints of soldiers parading sick. Twenty-five men had low back pain, concerning which a special instruction was promulgated later. The similarity of the symptoms and signs in patients of this class suggested that the common causes were age and vulnerability to strain, though it must be admitted that lesser grades of such a disability do not render a man unfit for all types of service. One of the most interesting features of this survey was that it revealed that 74 per cent of the invalids gave a long history of pre-existing disease aggravated by service. It is significant that in the first year of war the wastage of men through disabilities not due to wounds or to serious acute disease was very considerable: some of this wastage was inevitable, but some was preventible. Impersonation could account for a certain number of men who appear in an armed force overseas, but incomplete examination must have accounted for others.

**MEDICAL BOARDS**

It soon became necessary to institute medical boards for reclassification of members of the A.I.F. overseas. When the 16th Brigade left Australia exact procedures had not been as yet settled, and in the absence of a standard AAF D2 the British Army form B179 was used in Palestine. Two boards were constituted and sat at the 2/1st A.G.H. Inevitable delays occurred at first through the lack of local facilities for investigation, as this had to be carried out at the 12th British General Hospital at Sarafand nearly forty miles away. Once the Australian ancillary services were established the work was done more expeditiously. The first boards appointed included Lieut-Colonel A. S. Walker, and Majors T. Y. Nelson, G. B. G. Maitland and R. V. Graham. The documents were submitted through the D.D.M.S. of the British Force in Palestine, Colonel Large, and lack of familiarity with the British forms caused difficulty at first. Later a revised version of the Australian D2 forms was approved by the D.G.M.S. in Australia, and these were available for use. These employed the classification which conformed to British practice and which with modifications was used throughout the war. In this system those fit for active service with field formations were classed "A"; those fit for active service other than with field formations, "B"; those temporarily unfit, "C"; or if temporarily unfit for a period likely to exceed six months, "C2"; and those unfit for military service, "D". This terminology eventually replaced the original classification for recruits, class I and class II A and B. During the war period constant changes were made in the method and definition of classification. The important subject of medical classification will be further discussed in the light of later experience. At first some men were submitted to medical boards by unit medical officers, but this practice was soon stopped and the regular routine was adopted whereby the medical officer filled in the first two parts of the D2, approval was given by A.D.M.S. or other delegated authority, and final confirmation was given by D.D.M.S. or deputy.
The first standing medical board was constituted on 15th December 1940 by the seconding of Major W. E. A. Hughes-Jones of the 2/2nd A.G.H. and Major J. H. Halliday of the 2/5th A.G.H. to this work. These officers could not cope with all boards, especially as the total of troops in Palestine was 27,000 at the time of their appointment, but they did excellent work and set a high standard of thoroughness of examination and accuracy of record. Most of the medical officers attached to hospitals were employed in the work of boards at one time or another. The advent of a unit such as the 2/2nd A.G.H. helped greatly in this as in a number of other forms of medical activity, and without the tie of simultaneous clinical ward work, did much to bring this work to a high level of efficiency. Later it was found necessary as well as helpful to have boards carried out in hospitals by the medical staff.

Brigadier Burston directed that men not likely to be restored to the “A” class standard within six months were to be returned to Australia. It was important to have decisions about a man’s medical future made early where this was possible, and medical officers in hospitals were often in a position to reduce the strain on beds by early classification of patients with long-term disabilities. Finally Lieut-Colonels J. Gray and C. K. Parkinson were appointed as a permanent standing medical board and proceeded to the Middle East where they coordinated this work and were ultimately instrumental in having a number of reforms and amendments made in procedure. These officers carried out a considerable amount of instructional work in addition to those labours which can be appreciated only by those who have had personal experience. The confirmation of medical boards alone is a colossal labour when the numbers are large, yet the faithful and accurate performance of this dull work is vitally important to the army.

HYGIENE

Within a few days of disembarkation unremitting surveillance of the camp areas was begun by the 2/1st Field Hygiene Section and later continued by the others. Steady policing is always necessary to keep awake the hygienic conscience of men when assembled together. Courses were begun in the various branches of hygiene, in particular water duties. As the cold weather passed fly breeding began to increase and was particularly troublesome where native quarters or settlements were adjacent. The great activity in preparing camp sites and erecting buildings made close contact with large numbers of Arab labourers inescapable and their insanitary habits were hard to control. In the main for sanitation in the camps a conservancy system was used. Otway pits were prepared or in course of preparation when the first convoy arrived, intended for use in conjunction with a conservancy system. When well constructed these were on the whole very satisfactory, though they were at times somewhat of a nuisance, especially in the summer, and were affected in efficiency by the entry of heavy rain, which occasionally would cause collapse of the walls. Conservancy areas needed close supervision of the contractors, whose ideas
of the details of the disposal of refuse or excreta were sometimes easy-going. They were not always deterred by the fines laid down in contracts. Deep trench latrines were used with success in some areas. The disposal of sullage water was troublesome, for the tenacious soil did not readily absorb water and this defect in soakage made sullage pits overflow readily unless they penetrated to the sand levels below the surface layers of the soil. These levels were often deep, and it was necessary to sink the pits to a depth of from 30 to 100 feet and line them with fenestrated concrete blocks. These so-called "Tel Aviv pits" were fairly satisfactory, though it was found that periodical visits from a mobile pumping plant were needed. This rather odorous procedure ensured reasonable surface drainage.

It was constantly necessary to police all camp areas whether occupied or not, for it does not follow that an area in good order will remain so if unsupervised. For instance Gaza Airport camp which had been an occupied and well controlled area, was reoccupied by some 1,000 troops, when numbers of deficiencies and faults in hygiene were soon discovered. The cleanliness of canteens was not above reproach at times. The employment of Arabs in the kitchens involved a certain health hazard, and their methods were often open to criticism and needed constant supervision. In November 1940 the C.O. of the 2/3rd Field Hygiene Section reported that in the Gaza and Qastina areas the washing of glasses and crockery were unhygienic, an unsatisfactory three bucket system being used. Food was not always protected from flies and fruit was not always washed as directed. The milk in Palestine was not only limited in supply, but it was not always bacteriologically pure. It was not easy to secure a good and adequate supply of fresh milk for hospital patients A little later this risk was emphasised when cases of enteric fever occurred, and advice was given by the medical services that pasteurised milk should not be allowed in A.I.F. canteens, and that all milk should be boiled.

**PREVALENT DISEASES**

On the whole the sick wastage of the A.I.F. during 1940 in the Middle East was not unduly high. With an average strength of 14,258 during this period the rate per 1,000 yearly strength was 988 hospitals admissions, of which 920 were due to illness. The remainder were chiefly due to injuries as there were only 27 battle casualties recorded. The total represents a daily sick rate of about 3 per 1,000 or 0.3 per cent per day, which is about the expected rate in the circumstances. Most of the sick wastage was accounted for by mild types of seasonal, epidemic or constitutional disease. Rates per 1,000 are shown in the accompanying table.

In the infectious group the figures for dysentery are certainly underestimated. So much dysenteric infection of a mild order occurs in the Middle East that even non-immune persons may during a mild attack of diarrhoea act as carriers of a potentially toxic dysentery. The importance of these sources of infection was proved many times in the succeeding
years, particularly of those associated with the handling of food. About half the respiratory disease was due to pneumonia, strictly speaking infectious, but this was usually of benign type. Possibly some cases of the so-called "atypical" pneumonia occurred, but in the majority a good response to sulphapyridine was noted. The economy demanded in the use of drugs encouraged a modest dosage of sulphonamide which seemed to be sufficient. In one series of lobar pneumonia a total dosage of some 20 to 25 grammes was effective. Measles and mumps came with the troops. Mumps in particular was important, for as usual, it was a significant cause of invalidity. Its fairly long incubation period and its disabling metastatic complications are always troublesome in the adult male. Fortunately there were few worrying cases, and only a small proportion of instances of involvement of the central nervous system were seen. In a few men evidence of mild meningo-encephalitis were observed, which soon subsided without sequel. At a later stage more infections of the nervous system were seen either in relation to declared epidemic infectious disease or independently. This will be referred to later, but it may be remarked that from the beginning cases of peripheral neuritis were seen in Palestine. Some of these caused familiar syndromes such as facial, radial or peroneal paralysis. In some instances investigation showed the dissociation of cellular and protein content of the cerebro-spinal fluid familiar in the Guillain-Barré syndrome. These affections which presumably are due to a virus infection are of course observed sporadically in all communities, but it is important to point out that a noticeable number of them were observed in the Middle East in 1940, because in the earlier stages of the Pacific war cases were seen both in Australia and the Islands and false deductions were drawn. It was assumed by some that these conditions were appearing for the first time: it was even suggested that there might be a relationship with malaria.

<table>
<thead>
<tr>
<th>Infectious</th>
<th>Not classed as Infectious</th>
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<tbody>
<tr>
<td>Sandfly fever</td>
<td>Digestive System</td>
</tr>
<tr>
<td>&quot;Influenza&quot;</td>
<td>Skin</td>
</tr>
<tr>
<td>Venereal Disease</td>
<td>Respiratory</td>
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<tr>
<td>Mumps</td>
<td>Nervous System</td>
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<td>Measles</td>
<td>Genito-urinary</td>
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<tr>
<td>Dysentery</td>
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<td>Malaria</td>
<td>Rheumatic</td>
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<tr>
<td>Diphtheria</td>
<td>Circulatory</td>
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<tr>
<td>Enteric Fevers</td>
<td>0.49</td>
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Malaria in Palestine and Egypt during 1940 was not of epidemiological importance. During the year only 131 cases were reported. However, as might be expected, its significance was not always realised at first in non-medical circles. Southern Palestine was so well controlled in most areas when the A.I.F. entered it that the possibilities of malaria following night
exercises were rather waved away at first. Little pockets of infection were evident, however, during the summer months, proving that in areas of potential risk precautions are not only necessary in order to reduce sick wastage, but to initiate that anti-malarial conscience which is an essential part of the equipment for a campaign in areas where malaria is even slightly endemic.

Limited outbreaks of diphtheria occurred in 1940, but it was not thought that there was need for wholesale immunisation, though it was recognised that the highly toxic and even lethal type of infection might occur in a military force. Only fifteen cases of cerebro-spinal meningitis occurred during the year, with one death. Even allowing for the vast improvement in treatment with sulphonamides, it was felt that so low an incidence was fortunate.

Of the infectious diseases two groups remain for special comment. Sandfly fever made its appearance in the early summer and struck hard. Clinical accounts have been given in Volume I of this and the other related short-term fevers: at present we are concerned with the effect on a force of an epidemic infection borne by an insect vector. The official records of the incidence of sandfly fever in 1940 far under-estimate its true extent. Not only was the 2/1st A.G.H. almost filled with patients, but all the field medical units and camp reception stations were also overflowing. Medical officers of combatant units held a few patients in their tents, and others with mild infections managed to carry on without succumbing. Probably the amount of camp construction which had gone on up till early summer accounted for a certain proportion of the epidemic, for the sandflies were thereby presented with many breeding grounds. It was noticed that sandfly fever would appear in non-medical wards after patients had been admitted to hospital, and once the purely local sandflies had become infected men admitted to these wards with other complaints would continue to acquire sandfly fever. One thousand one hundred and forty-five cases were officially recorded during the summer months: without doubt there were very many more. Had it only been practicable to point the moral of this epidemic perhaps the possibilities inherent in disease carried by the bites of insects might have impressed an army destined to face the problem of malaria. But at that stage the increase of case incidence of an infectious disease by geometrical progression was regarded as only a nuisance and the lesson was still to be learnt. Cases of infective hepatitis occurred during the year, but only in moderate numbers. During the epidemic of sandfly fever confusion was not uncommon during the early stages. Some fairly severe cases were encountered, but most of the infections were mild.

The other group of diseases calling for special comment includes the venereal infections. The numbers did not appear high at first, but as the number of troops increased and local security could be relaxed and leave made a more liberal privilege, the position became less satisfactory. Each campaign had its individual experience in this regard. Later it will be shown how the period following the Syrian campaign gave rise to con-
siderable anxiety. A general discussion is premature at this stage, but it may be pointed out that the official figures for venereal diseases even in 1940 exceeded those for dysentery, which was recognised to be the principal endemic disease risk in Palestine. At first treated in an annexe of the 2/1st A.G.H., patients with venereal disease were later transferred to the 8th Special Hospital, where diagnostic and therapeutic work of a high standard was carried out. Reference may also be made to the so-called "non-specific urethritis". When contracted in the usual way this is, strictly speaking, one of the venereal diseases and should be so regarded.

During 1940, the staff of the 2/1st A.G.H. early noticed that non-bacterial pyuria was by no means uncommon. Some of the cases of mild urinary tract infection were thought perhaps to be related to the prevalence of oxaluria, and the relatively high incidence of calculus in the Middle East was also recalled. But the occurrence of some instances of the so-called Reiter's syndrome, in which the association of urethritis, arthritis and conjunctivitis suggested other possibilities than local infection. Involvement of the eye or of joints was occasionally observed in bacillary dysentery, but the fully developed syndrome was seen without concomitant diarrhoea. It was possible therefore that abacterial pyuria might be the primary lesion, and might arise from both venereal and non-venereal sources.

Two other forms of disability were of outstanding importance in the Middle East, those due to digestive disease, and those affecting the skin. Digestive disorders afforded a good example of psychosomatic disease, ranging from the functional dyspepsias to proven peptic ulcers. Diseases of the skin were expected to cause considerable sick-wastage. Indeed the medical staffs of the A.I.F. hospitals had voiced this opinion even before embarkation. Perhaps there was still some traditional mistrust of "specialists" in service circles, as there was a feeling that their enthusiasm might not always be directed along military channels. But the need became more apparent, and dermatologists were found of great value in hospitals, even though they were not at first officially recognised as such on the establishments.

The most common skin lesions in the Middle East were the sensitisation or allergic type, the fungus infections and their imitators, and "septic sores" known by many other sobriquets. Precautions were taken to limit the spread of tinea of the feet in ablutions and living huts. Under static conditions this is not very difficult, provided regular and adequate inspection of the men's feet is made, and all those objects with which they make contact, including such diverse things as socks and "duck boards". On one occasion inspection revealed twenty cases of tinea in a brigade headquarters in which no foot inspection had been carried out for twelve months. Active campaigning among medical officers was necessary to prevent over-activity in treatment.

Septic sores caused considerable disability at times, particularly if chronicity was established. As the condition is discussed in Volume I it is only necessary here to state that streptococcal and staphylococcal infec-
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Tons were found to be common, that these skin ulcers most commonly affected areas likely to be traumatised, and that they appeared more often under conditions when water supplies did not permit regular washing of the skin. They were relatively uncommon among officers. No direct connection was established between these lesions and deficiency of vitamin C.

Scabies occurred to some extent during the colder months. Disinfection was carried out at convenient centres, and sulphur ointment was most commonly used for treatment. Benzyl benzoate was not obtainable. Some trial was made of nascent sulphur obtained from a thiosulphate solution, but this was found less effective and inconveniently cold during the season of greatest prevalence. Chemical dermatitis occurred at times from excessive and prolonged use of ointment, and it was found that constant supervision in this as in all details of dermatological work was necessary.

**Accidents.** The frequency of accidents must be mentioned, since they were a cause of wastage. Orthopaedic surgeons were called upon to treat many fractures of the scaphoid bone of the wrist, owing as a rule to indirect violence, and internal derangements of the knee joint, and other traumatic lesions of the lower limbs. Some accidents were due to the playing of games, but far more to the hazards of tent ropes and slit trenches encountered during a black-out. The prognosis of removal of a meniscus was of particular interest in relation to fitness for service. The after-treatment of these patients, and those treated for fractures of bones of the limbs increased the demands on physiotherapy, and the important changes which took place in later years in organisation and equipment of these services were in part energised by the experiences of the Middle East.

Road accidents began to be disturbingly frequent as transport and travelling increased, and during 1941 caused an appreciable wastage of men. Though an important cause was possibly the unfamiliar rules of the road, there also appeared to be a regrettable tolerance to the risks of road travel, as civilian experience still emphasises.

**Psychiatry.** Early in 1940 men were seen with psychiatric disabilities. Some of these were sent back to Australia in the *Manunda* at the end of the year; a minority who had mild anxiety states, were able to continue work, sometimes after transfer to a lower category of fitness. A few men were seen with obvious mental deficiencies, such as should have been apparent on routine examination. The number of true psychotics was small, but among these were several who had a history of previous episodes, certainly schizophrenic in type. In the first few months a tented ward in the 2/1st A.G.H. was the only accommodation available. Even with an annexe for a noisy patient a tent presents difficulty in handling of psychotics, and on several occasions when all hypnotic drugs were scarce and the most suitable barbiturates were unobtainable mechanical restraint was necessary. Even with the assistance of orderlies skilled in
mental nursing the situation was trying. Later huts were available, and after the arrival of the 2/2nd A.G.H. arrangements were made to hand over to medical officers of this unit the psychiatric and infectious blocks. With improved facilities for treatment and more amenities numbers of these patients did well, though the long delay in securing sea transport back to Australia was unhelpful for those with depressive states. No psychiatrist was officially appointed or recognised in the A.I.F. at this stage but the advice of Colonel J. K. Adey, when commanding the 2/1st C.C.S. and later the 2/1st A.G.H. was available and most valuable. At one stage when attached to the A.I.F. headquarters Colonel Adey acted as adviser to the D.M.S. on psychiatry.

The question of neuroses was discussed by a committee of physicians appointed by Brigadier Burston during 1940, and methods of classification and handling were recommended. The recognition of the acute combat neuroses as exhaustion states was important at this stage; it helped to establish correct lines of treatment and to remove the mistaken ideas of the 1914-1918 period.

SURGICAL SPECIALTIES

As some references have been made to the recognition of certain specialties in the Australian medical services in the Middle East it may be pointed out that an organisation was set up to provide centres for the most important surgical specialities in the A.I.F. On 15th August 1941 an administrative instruction was issued by the D.M.S. from the medical headquarters in the Middle East on the subject of special surgical centres. These consisted of:

1. Orthopaedic (or physiotherapy) centre at the 2/2nd Australian General Hospital in charge of Major J. B. Colquhoun.
2. Facio-maxillary and plastic centre at the 2/2nd A.G.H. in charge of Major B. K. Rank.
3. Thoracic unit at the 2/1st A.G.H. in charge of Major E. S. J. King.

Conditions were laid down controlling the types of disability dealt with at these centres and the physical state of patients to be transferred. Experience showed that only a certain proportion of patients with these disabilities could be easily transported, and changes in the disposition of the A.I.F. during 1941 altered local conditions. For these reasons a considerable amount of special surgical work was carried out at well equipped hospitals apart from the special centres. The objects of these centres were twofold, firstly to concentrate as much special work in centres as possible so that skilled surgical and nursing teams should be built up, and secondly so that their influence could be diffused through the medical units of the force. Thus the aim of surgeons was more and more directed towards the need to look to the physiological and anatomical end in view. Though
circumstances did not allow some of these special branches of surgery to flourish as much as they might in delimited centres, recognition of their particular value was most helpful as the war went on.

**OTHER CONDITIONS**

There were several other matters of general medical interest, notably certain questions were raised which closely concerned operational conditions. One was the occurrence of heat disturbances in troops undergoing training during the summer months. A technical instruction was circulated as soon as the heat of summer began and cooperation of all ranks was invited in the prevention of heat collapse, hyperpyrexia and the various manifestations of this special and important type of environmental disturbance. Later an expanded account was promulgated in a technical instruction, which emphasised the necessity of maintaining a reasonable water balance. Actually not much trouble was experienced at this stage; and though Palestine and Egypt can produce fierce and sustained heat, neither its intensity nor the conditions under which the men worked in 1940 were comparable with those met with in Mesopotamia in the previous war. During battalion training exercises occasional instances of heat exhaustion and salt depletion were noted by field ambulances. These occurred on very hot days with a hot wind. A suggestion was made at one time that the water ration of troops training in hot weather should be deliberately restricted in order to accustom them to deprival of a generous supply, but the opinion of medical services was that, while it was part of a soldier's training to discourage him from drinking copious water especially if unsalted, it was not wise suddenly to limit his ration during an unaccustomed exercise. The reduction of water ration through local stringency, as happened later in the Western Desert, accomplished this acclimatisation successfully in most cases. In hospital it was found advisable in dysentery wards in very hot weather to delegate an orderly to the duty of preparing sufficient glucose drinks and seeing that the patients took them.

The question of glare was also introduced, and a medical decision was asked on the advisability or otherwise of troops wearing dark glasses. The answer was decidedly "No", not only because this would be impossible for fighting troops, but also because it was possible and desirable to become accustomed to glare. Only in certain instances would headache be likely to occur, and then the likely cause was astigmatism. Drivers of motor transport and anti-aircraft gunners like aircraft pilots and “spotters” often needed dark glasses. Another question was whether it was advisable for transport drivers to be allowed to take “Benzedrine” to counteract fatigue on long journeys. The answer given in this instance was also “No”, because special circumstances such as those of pilots of aircraft on sustained missions had not arisen. It was felt that under the prevailing conditions the relief of drivers on long journeys would be a better method of combating fatigue.
MIDDLE EAST AND FAR EAST

CONVALESCENCE

As previously mentioned the 2/1st Australian Convalescent Depot was not established till towards the close of 1940. In November 1940 the maximum number accommodated was 16 officers and 550 O.Rs. This unit was organised on a part-military part-medical basis so far as its activities were concerned, had the usual amenities, and began to organise occupational therapy. This relieved the hospitals in Palestine greatly, and besides the recuperative work of a convalescent depot useful dental work was carried out, and, at intervals, medical boards were convened there.

In addition to the facilities for officers at Kafr Vitkin arrangements were made for a limited number of convalescent officers on the Nile steamer Victoria, moored near the Ghezireh Club, Cairo. This “House-boat” under command of Major S. Crawcour was a popular resort for convalescent officers and served a useful purpose. Arrangements were also made for convalescent officers in the 4th New Zealand Hospital to be sent to the New Zealand Convalescent Depot at Moascar.

CONDITIONS ON TRANSPORTS

With the arrival of the second convoy in May 1940 the question of the health of the troops on board sea transports was examined. Reports had been made in February, and some anomalies of supplies and of matters of administration had been rectified. Later in the year, as other ships arrived from Australia, experience accumulated. Most of the Australian troops were transported on ships of large size and excellent appointments, but nevertheless not always well adapted to troop carrying for a relatively long voyage. Quarters for officers were often quite luxurious, but the men were perforce accommodated on lower decks where the ventilation was often defective and heat excessive. Cabins normally designed for two persons often carried four to six, and similar conditions prevailed in the other types of accommodation. Hospital accommodation on the transports was inadequate. In the Mauretania for example, the senior medical officer objected that the ship’s hospital could accommodate only twenty-one, less than 1 per cent of the troops. About ten days after sailing there were 150 cases of mumps and measles on board. These discomforts were accentuated by passage through the tropics and still further by black-out conditions at night. Some of the larger ships, such as the Queen Mary and the Queen Elizabeth were magnificently appointed in their usual condition, but were primarily designed for Atlantic crossings. Water supplies were often restricted on these ships, since the number of troops carried far exceeded the passengers normally accommodated. In these circumstances infections transmitted by the respiratory tract tended to multiply. Anxiety was felt for a time about cerebro-spinal meningitis when this disease broke out in the camps in Australia, but careful examination, and if necessary segregation of possible sufferers prevented trouble. Epidemics like measles, rubella and particularly mumps were troublesome, not only during the voyage, but by reason of their spread.
through the camps in Palestine. A minor trouble on the transports arose with the men’s feet. Military boots were not ideal footwear for shipboard, and sandshoes which were the alternative tended to produce some strain in feet unaccustomed to unsupported exercise.

HEALTH AND AMENITIES

The general health of men in camps was good on the whole, though the sickness rate was not inconsiderable. In July 1940 the D.D.M.S. of I Australian Corps reported to the corps commander that daily average admissions to hospital for the previous month was 2.2 per 100. The daily average of troops sick in hospital was 4 per cent of the force.

The conditions of the troops were good in the camps. Care was taken to avoid overcrowding either in an area or in individual accommodation units. Most of the men slept in good weather-proof tents, and adequate hut accommodation was provided for meals, amenities and sanitation. Diversionsary activities were encouraged, and full facilities given for sport, for which units were encouraged to arrange an organisation chiefly in the hands of the men themselves. Swimming was popular, and was practicable in some of the areas near the sea, the chief difficulty being transport. Special transport was provided by the Australian Red Cross Society for nurses and convalescent patients. The beaches were good, but the surf was often dangerous on account of channels and strong currents. A few deaths occurred from drowning. All possible care was taken of men indulging in swimming and in one or two larger areas such as Gaza a life-saving organisation was built up, equipment from Sydney beaches being used through the generous assistance of surf clubs. A most successful surf carnival was held at Gaza during the summer.

Good postal facilities were provided, and after a time concession rates for air mail were granted. The excellent effect of letters upon the spirit of troops was well illustrated among patients in hospital. Chaplains and Red Cross workers gave most valuable assistance in helping sick men with correspondence, and in seeing that their relatives at home had word from them, a very valuable service whose importance can easily be overlooked.

Cinemas were built in the chief camp centres which accommodated large numbers of men. In these pictures were regularly shown, and when possible visiting concert parties gave entertainments of that kind usually thought suitable for and appreciated by troops. Performances by the Palestine Symphony Orchestra were also arranged, and large audiences attended performances by this organisation of world standard.

RATIONS

The rations supplied to the A.I.F. in the Middle East were based on a generous scale which gave 4,100 Calories. The basis of shipments to the Middle East is shown in the appendix.

This scale was altered by equivalents and variants to suit different circumstances under which issues were made. The British ration in the
Middle East gave 3,950 Calories: it contained less fresh vegetables, butter, cheese, sugar, jam and milk, which were replaced by fresh fruit, margarine and bacon. The butter was not always palatable when it arrived in Palestine or Egypt. "Marmite" and ascorbic acid were contained in the British ration. The difference was only slight, and when the Commander-in-Chief in the Middle East suggested that in order to simplify rationing the British scale should be regarded as satisfactory for Australian troops ready assent was given by the medical services. The Red Cross Society was very helpful in supplying various items for the sick which could not be readily obtained otherwise. For example, in the early summer of 1940 the 2/1st A.G.H. was very short of glucose, used in quantity for patients on fluid diet. The preparation supplied was also expensive and contained vitamin D, which was not necessary, but Colonel H. Cohen, the Red Cross representative in the Middle East, soon produced a drum of commercial glucose by local purchase.

Canteens were set up in Palestine and Egypt at which extra items of food, toilet articles and the like could be bought, including beer. At first the facilities of the British "N.A.A.F.I." were available to Australian troops, but soon the Australian Comforts Fund financed Australian canteens. Beer as an amenity was no doubt of value to men far from the comforts of home in a hot climate, but the controversial question of alcohol for troops was not solved so easily. Without strict policing even army canteens could be trouble centres, and drunkenness was seen in towns among troops on leave, for which the poisonous potency of some of the forms of alcohol obtainable even in the vicinity of some camps was largely responsible. Colonel Johnston, D.D.M.S. I Australian Corps in correspondence with General Downes, Inspector-General of Medical Services, pointed this out, and said that the idealisation of beer among Australians as a nation as well as a fighting force was responsible for a bad outlook on the problem. A few unpleasant episodes occurred at times with inebriated patients or convalescents, who had escaped from hospital precincts, and with offensive behaviour of battalion guards due to drink. The importance of alcohol in relation to venereal disease, well known in civil practice, has been mentioned elsewhere.

CLOTHING

Clothing needs only slight mention during the early training period. Troops were issued with a cloth service uniform and two working dress uniforms while in Australia; in Palestine shirts and shorts suitable for tropical wear were issued, though it might have been preferable if these had been available before embarkation. After some months of wear most of the drill working uniforms were unserviceable and some men had no suitable trousers for wearing after dark. Fortunately malaria was well controlled in most areas of Palestine. Stationary medical units sometimes found that patients arrived with little useful clothing in their possession, causing a strain on the units' stores. Incidentally the not uncommon losses of personnel equipment of men sent to hospital caused trouble in the
PREPARATIONS IN THE MIDDLE EAST, 1940

matter of cutlery, which would mysteriously disappear from hospital wards. In spite of regular checks only twenty sets of cutlery could sometimes be mustered to feed seventy patients. Footwear did not give much trouble, provided a correct selection of boots was made for each man. In general the army boot proved very satisfactory, and an improved boot with a block toe introduced during the Middle East period was even better. Major E. F. West introduced a measuring board which became a standard ordnance issue. Orthopaedic surgeons helped greatly by carrying out careful surveys of footwear, and instituting courses in chiropody. Chiropody schools were organised towards the end of 1940; these were based on a scheme drawn up by Major R. V. Graham, and provided a twelve days' course for ten men. No claim was made that the men so trained became skilled chiropodists, but they were able to work in field units, carrying out simple procedures and implementing some of the important principles. The nurses who embarked early in 1940 were equipped with very poor shoes, though these were supposed to conform to an approved standard. Only ten out of fifty-four were passed by an orthopaedist as fitting correctly. Fortunately more satisfactory shoes could be obtained locally at a lower cost.

THE SITUATION AT THE END OF 1940

The medical headquarters of the A.I.F. was organised in general correspondence with the army headquarters system. The A.D.M.S. and D.A.D.M.S. corresponded with A.M.D. 1 and 2, dealing with personnel and supplies, and hospital care and accommodation. The Matron-in-Chief and the A.D.M.S. Dental were attached to the staff of the D.M.S., Brigadier Burston, under whom the base area and lines of communication area were also administered. Hygiene remained as a direct responsibility of the corps.

Part of the 7th Australian Division had reached Palestine at the end of 1940, and with this formation were the 2/5th Australian General Hospital and the 2/2nd C.C.S. On the 26th December 1940 the 2/5th A.G.H. was established at Kafr Balu near Rehovot in Palestine for purposes of administration, but was not able to start work as the buildings and other facilities were not ready. The 2/2nd C.C.S. moved from Dimra in Palestine to Amiriya in December and was ready to move forward from there.

The 2/2nd A.G.H., after disappointments and delays due to difficulties of siting and construction, began to take patients on 29th December 1940, at Kantara. The 2/1st A.G.H. at Gaza was then accommodating 700 patients. A suggestion was made at this time that the area comprising Kantara East and West should become an Australian hospital centre, but changes in the military position ordered events otherwise.

In the late summer of 1940 the 6th Division moved to Egypt. Arrangements were made for Australian troops to be admitted if necessary to the 10th British General Hospital or the 4th New Zealand General Hospital. Attempts were made to supply deficiencies in equipment, both general and medical, but there were still some shortages of transport and of certain
ordnance supplies. The immediate role of the 6th Division was to be the defence of Alexandria and the north-west part of the delta in case of a break through by the large Italian army on the border of Egypt. Before the end of September a pact had been concluded between the "Axis" powers, Germany, Italy and Japan. It was evident that the position in the Middle East was unstable, and that changes must be imminent.

The senior officers of field ambulances toured the Western Desert as far as possible, and saw the conditions under which the medical elements of the Western Desert Force were working. Points from their reports are interesting as a foreshadowing of the events lying before them. They found a British field ambulance acting more or less as a C.C.S., other field ambulances disposed with a view to maximum mobility, with sections budded off so as to give both movement and efficiency, and witnessed the struggles of motor transport in sand navigating what seemed trackless wastes. There they felt the bitter cold of the desert nights, calling for extra blankets and bivouac sheets, saw dressing stations effectively blacked-out, and experienced every-day living with minimum of water, with extemporised sanitation, and in a state of general discomfort.

The Australian division was first to camp at Amiriya, a stony undulating desert swept with dust by every wind. Acutely ill patients were to be sent to the 5th British Hospital at Alexandria. The question of medical arrangements were discussed with General Blarney, in view of the difficulty in realising the Australian ideal of treating Australian servicemen in their own hospitals. He pointed out that in present circumstances this was impracticable, as under action conditions it would involve large hospitals being unoccupied for long periods, owing to the long distances and necessary dispersion of men and material. He felt that at the time it was not advisable to place a C.C.S. in the delta area. Certain minor difficulties arose over conducting patients from the 4th New Zealand General Hospital to the convalescent depot at Moascar, but these were overcome by placing a non-commissioned officer in charge of the parties. There was a suggestion made of siting an Australian convalescent depot along Lake Maryut at Ikingi Maryut, or Burg el Arab, but no move was made at this stage. A "Box" exercise was carried out on 16th to 18th October as a trial of desert manoeuvres. It is of a certain interest that the ambulance commanders thought that they should be attached to brigade headquarters as liaison officers so as to be able to act personally as soon as any change of plan was made. Essential men were instructed in map reading and desert navigation, and by November training was well advanced. At the beginning of December three field ambulances were in the area around Amiriya and Burg el Arab, waiting for movement orders.

On Christmas Day all medical arrangements were concluded for the forthcoming battle, which was expected within a week. So closed 1940, with some units of Australian medical services establishing and equipping in Australia, others in England, some working and training in Palestine, and others in Egypt and Libya, where their proving was to be in the cold gritty discomfort of blowing sand.
### Ration Scale

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Scale in Ounces</th>
</tr>
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<tbody>
<tr>
<td>Bread</td>
<td>16</td>
</tr>
<tr>
<td>or biscuit once weekly</td>
<td>12</td>
</tr>
<tr>
<td>Frozen meat</td>
<td>16</td>
</tr>
<tr>
<td>or preserved meat once weekly</td>
<td>10.5</td>
</tr>
<tr>
<td>Fresh vegetables</td>
<td>16</td>
</tr>
<tr>
<td>or peas or beans or lentils</td>
<td>4</td>
</tr>
<tr>
<td>Potatoes</td>
<td>12</td>
</tr>
<tr>
<td>Onions</td>
<td>3</td>
</tr>
<tr>
<td>Bacon</td>
<td>2</td>
</tr>
<tr>
<td>Cheese</td>
<td>1 1/7</td>
</tr>
<tr>
<td>Butter</td>
<td>2</td>
</tr>
<tr>
<td>Tea</td>
<td>4</td>
</tr>
<tr>
<td>Sugar</td>
<td>2 1/2</td>
</tr>
<tr>
<td>Milk</td>
<td>2</td>
</tr>
<tr>
<td>Jam or marmalade or golden syrup</td>
<td>2</td>
</tr>
<tr>
<td>Salt</td>
<td>1/2</td>
</tr>
<tr>
<td>Meat loaf once weekly</td>
<td>4</td>
</tr>
<tr>
<td>Salmon twice weekly</td>
<td>3</td>
</tr>
<tr>
<td>Herrings twice weekly</td>
<td>3</td>
</tr>
<tr>
<td>Pepper</td>
<td>1/100</td>
</tr>
<tr>
<td>Mustard</td>
<td>1/100</td>
</tr>
<tr>
<td>or curry powder once weekly</td>
<td>1/6</td>
</tr>
<tr>
<td>Flour or rice or oatmeal</td>
<td>2</td>
</tr>
<tr>
<td>Dried fruits</td>
<td>1</td>
</tr>
</tbody>
</table>

In addition 1½d per man per day may be expended by units to provide extra perishable items of foodstuffs. On medical advice a weekly issue of 16 ounces of fresh oranges or 12 ounces of fruit juices containing anti-scorbutic elements may be made.