THE ARMY PATHOLOGY SERVICE, 1948-1958

BY

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Since 1949 the ever-widening scope of Army pathology and the development of new techniques have necessitated many changes in all aspects of the subject to provide the fast and efficient pathology service which modern Service medicine demands.

The decade has seen memorable developments in technical equipment resulting in many additions to the authorised scales of our laboratories which now include modern colorimeters, flame photometers and electrophoresis apparatus. The Mobile Pathology Laboratory has been redesigned to fulfil present-day requirements, and attracted considerable attention when first demonstrated at the Director General's Autumn Exercise in 1957.

The Army Tumour Registry, set up at Millbank, is ten years old and is now a part of the Royal Army Medical College. It has proved an invaluable asset in dealing with malignant disease and provides with all possible speed the highest grade of specialist advice on histological matters. Specimens which have been sent by air are collected on arrival at any hour of the day or night and reports are sent to overseas centres by signal. It has also contributed much to the teaching and training of both medical officers and laboratory technicians by making available sets of slides to laboratories and individual students.

A Virology Laboratory has been added to the Pathology Department of the Royal Army Medical College and was recently in the news when it identified as Virus A the first strains of Asian influenza to reach this country, which came from Hong Kong. It is proposed to extend the scope of this laboratory to the study of diseases due to arthropod-borne viruses, and the present officer-in-charge has recently visited the United States on a preliminary period of study of this group. A pathologist has also been seconded to the Colonial Office and is now attached to the Federal Laboratory Service, Nigeria, to work on the development of 17D mouse brain yellow fever vaccine. Looking to the future, a need is foreseen for all our larger central laboratories at home and overseas to have a service capable of undertaking diagnostic work in this important and expanding subject.

In the Transfusion Departments at The David Bruce Laboratories and at our Central Laboratories overseas continuous work has been done on the design, assembly, and packing of equipment. Following recent trials, in which the Army took part, the giving set is being replaced by commercially produced plastic sets. Plastic bags in place of bottles are also to be given an extended trial in certain overseas stations.

While the Army overseas collects blood, carries out the blood grouping involved and issues special Army donor cards to the donors, in the United Kingdom the blood used in military hospitals has, with rare exceptions, been obtained from National Blood Transfusion Centres and Army donors have in
consequence been bled by these centres. Recently, however, Army blood collecting teams have been formed in Southern and Northern Commands to co-operate with the National Blood Transfusion Service in the collection of blood from military donors in the larger military stations. This affords the best possible training facilities and enables our personnel to maintain the highest standards when dealing with our overseas commitments. A further stimulus to the general training of our technicians has been given by the reciprocal recognition of qualifications which was made with the Institute of Medical Laboratory Technology.

As a result of investigations into the prevention of tetanus, the use of tetanus toxoid, as employed during the war years, has been revived in peace time for all personnel. The toxoid has also been combined with T.A.B. vaccine to be used under certain conditions as a combined prophylactic (T.A.B.T.).

Much work has been done in relation to enteric infections. The apparent failure of alcoholised vaccine, rich in the Vi antigen, to control enteric fever in spite of the improvements in health measures which had taken place, called for a comparative survey—particularly in view of the controversy on the relative merits of alcoholised and phenolised vaccines which arose following this failure of control. A field trial was therefore carried out between 1949 and 1954, but while no significant difference in effect was shown, the attack rate in the trial groups was too low for a convincing assessment. A solution to the problem was also sought in the laboratory where the relative values of the Vi and O antigens as vaccines against *Salmonella paratyphi* C infection in mice were compared. This approach led to the conclusion that, contrary to the evidence afforded by mouse protection tests against *Salmonella typhi*, the O antigen may well prove the more important. Subcutaneous T.A.B.T. has now been introduced as a routine procedure and more recently intradermal T.A.B. has been used for the third and subsequent immunising doses after subcutaneous T.A.B.T. for the first two doses. Possible developments in this ever-changing field which are now under active investigation are the exclusive use of intradermal T.A.B. or T.A.B.T. and, in view of the problem posed by mass inoculation, multipuncture inoculation with T.A.B. Of these projects, however, only the use of intradermal T.A.B. shows promise.

Poor keeping properties have always been a difficulty inherent in the use of glycerinated vaccine lymph, and on this account the Army participated in trials of dried vaccine and adopted it for routine use when the trials proved successful.

Before vaccination with B.C.G. vaccine was generally accepted in the United Kingdom, the Army adopted it for certain tuberculin-negative reactors who were at special risk. The use of this vaccine for susceptible recruits has now been extended throughout the Regular Army. The Heaf test was early adopted as a very suitable means of mass tuberculin testing.

The problem of mass immunisation and the need to develop safer methods has received much attention, the unacceptability of certain previously used methods with their attendant risk of transferring hepatitis and other infections being recognised. A prototype needleless injector has been used, but more
extended employment of this apparatus remains in abeyance pending decisions on the dose and route for administration of different vaccines. Gispen’s valve, Gross’s syringe, and the Fleming and Ogilvie technique have all been submitted to tests, none of which proved entirely satisfactory; the possibility of multipuncture methods is also being fully tested.

A Memorandum on Immunological Procedures was published in 1952 and was well received by the medical press; a second revised edition was issued in 1956.

The use of pre-sterilised surgical packs was first advocated after the 1914-18 war but was not developed on a large scale until recent years. Central supply services are now being set up in military hospitals and the operation of this type of service calls for close and continuous co-operation from the pathologist. The possibility of diminishing the weight of sterilisation equipment intended for field use and of effecting improvements in technique is always under active consideration. The most recent investigation has been one into the efficiency of sterilisation by gaseous agents without the need for high temperature or pressure. Developments in the field of radiation sterilisation are also being studied.

Service pathologists have been engaged on a number of research projects both in their own subject and in conjunction with workers from other branches of medicine. Worthy of particular mention are the special investigation into the epidemiology of enteric fever which was carried out in the Canal Zone in 1953 and, also in the Middle East, the investigation into septic skin conditions. Other projects perhaps of more specialised interest have been carried out on rapidly induced non-specific immunity, and on comparative lethal doses of enteric organisms administered to mice by different routes; on different enzymes for the treatment of erythrocytes in the detection of incomplete antibodies; on methods of treating sputum before culture for Mycobacterium tuberculosis; on the keeping properties of the reagent for the Price Precipitation Reaction; on the use of membrane filters in the isolation of pathogens and on the comparative merits of the Mantoux and Heaf tuberculin tests.

Officers continue to be attached to the Chemical Defence Experimental Establishment at Porton; others have also been attached to the Microbiological Research Establishment there and a pathologist is attached to the Medical Research Council’s unit at the Atomic Energy Research Establishment at Harwell; a Committee on the Medical Aspects of Nuclear, Biological and Chemical Warfare has been set up under the Chairmanship of the Deputy Director-General, Army Medical Services.

In addition to routine duties time has been found to survey the world of pathology at large, and to visit our neighbours at home and overseas. Information has been disseminated and views exchanged at annual conferences. Army pathologists have continued to attend international conferences and scientific meetings in various foreign countries and in the United Kingdom. It is also a great pleasure to record the most cordial relations which exist between our pathology service and those of the United States Forces. Each successive Director of Pathology has visited the United States, two having been invited by the Surgeon-General of the Army of the United States, to visit research units and
laboratories and attend meetings of Commissions of the Armed Forces Epidemiological Board. These visits proved as valuable as they were enjoyable.

The advice and assistance of the Army Pathology Advisory Committee which was formed in 1921 have continued to prove of inestimable value. The members, both from their first-hand experience of Service conditions and from their position in their own particular field, are especially well qualified to advise on the wide range of modern problems.

A very successful international practical seminar in clinical haemoglobinometry, sponsored by the Association of Clinical Pathologists, was held at the Royal Army Medical College in 1957, but perhaps the most memorable event of the period was the celebration in 1955 of the centenary of Army Pathology, the foundation of which dated from instructions issued on 27th April, 1855, by Lord Panmure. This was celebrated by a dinner at the Royal Army Medical Corps Headquarters Mess on 27th April, 1955, and special commemorative articles were published in this Journal and in The Times. By a happy coincidence the centenary of the birth of Sir David Bruce also occurred that year and this was marked by a reception at The David Bruce Laboratories, a centenary lecture delivered by Dr. Muriel Robertson, F.R.S., at the Royal Army Medical College, and by a special number of this Journal.

ARMY PSYCHIATRY, 1948-1958

BY

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In the ten-year period covered by this short account of the work of Army Psychiatry the Army increased in size from 418,000 to 450,000, the Korean War took place, and the total strength of military and civilian specialist psychiatrists employed by the Army was reduced from 82 to 42. Nevertheless, by the concentration of our potential on the maintenance of mental health and the prevention of mental illness it has been possible to reduce the numbers referred for psychiatric out-patient opinion from 2.7 to 1.7 per 1,000 strength per month.

Factors contributing to this reduction are the measures which have been taken to instruct all medical officers in charge of troops in the elements of simple psychotherapy, and the close liaison maintained between Army psychiatrists and commanders at all levels, so that the contributory causes of neurotic breakdown can be eliminated. These causes are mainly due to the immature, inadequate personalities of men who have never been separated from family and home, and young married soldiers who are over-concerned about the ability of their wives to survive while they are separated.

Much depends on the type of unit in which the soldier is serving; if in a combatant arm and at duty in an overseas command where active service or