

THE EVOLUTION OF MEDICAL RESEARCH IN SOUTH AFRICA

J. F. BROCK, D.M., F.R.C.P., *Professor of Medicine, University of Cape Town*

Until the founding of the South African Institute for Medical Research in 1912 there was very little, if any, organized scientific investigation of the medical problems of the country. There always were, of course, individual doctors in whom the itch to know 'how and why' overcame all obstacles, including the absence of facilities, and led to interesting and original observations and studies. Some of these are recorded in Burrows' *History of Medicine in South Africa*.¹

Milestones

Among the milestones in the development of medical research in South Africa are the following:

Dr. Alexander Edington started work at the Colonial Bacteriological Institute in Grahamstown in 1891 and made important contributions to the study of horse-sickness. In 1897 the Natal Government opened the Allerton Veterinary Laboratory for bacteriological research. This development followed the work of Surgeon Major (later Sir) David Bruce who demonstrated the trypanosomal origin of the epidemics of *naqana* which occurred in Zululand between 1894 and 1897. Other famous bacteriologist visitors to South Africa included Koch who worked on rinderpest in Kimberley in 1896 and Bordet and Danysz who visited Dr. A. Theiler in the Transvaal at about the same time.

Organized veterinary research was greatly encouraged by the founding of the Veterinary Research Institute at Onderstepoort in 1908. The first director Dr. (later Sir) Arnold Theiler had been appointed by the Transvaal Republican Government in 1893 as veterinary officer and gave invaluable service in the rinderpest epidemic of 1896 - 8.

Owing to its obvious economic implications there was at first a tendency for veterinary research to be more strongly encouraged than medical research. This lack of balance began to be reversed with the founding of the *South African Institute for Medical Research* in 1912. Its first director, Watkins-Pitchford, had come to South Africa as a British military bacteriologist in 1900 after having served as a plague officer in India.

The origins of the Institute were described by Cluver² in 1944. It arose from the need for investigation of diseases

such as silicosis and pneumonia—another example of the effect of economic forces on medical science. Its purposes were defined as: (1) Researches and investigations into the causes and methods of prevention of human diseases; (2) laboratory examinations of a diagnostic nature for health authorities, hospitals, the mining industry and others; and (3) the preparation of biological products for the prevention and treatment of diseases, including vaccines, antitoxins, antibacterial sera and similar products (*South African Year Book*).

The Institute has a proud record of achievement in medical research. Dr. James Gear, an eminent South African virologist, has just succeeded to the directorship.

But however brilliantly the Institute might have tackled the problems of medical research in South Africa, its contribution must have remained limited were it not for the awakening of the research spirit in the medical schools.

The first medical school in the country was established in Cape Town in 1918 and Dr. Simpson Wells³ in his article on 'Medicine in the Cape in the early days of the century' traced some of the early scientific work which led up to it.

A medical school which is not continuously engaged in an active and imaginative programme of research is dead, will not advance, and will probably deteriorate in its general standards and efficiency. One need only cast back one's thoughts to the sterility and credulity of medical practice in the 17th century, before the advent of the great experimentalists such as Harvey and Claude Bernard, to picture what a modern medical school would be like without research, and how the standards of medical practice in the community would deteriorate. The spirit of controlled scientific enquiry is a leaven which permeates every activity of a department of medicine, and without it the resultant bread is flat. It is easy to argue that the main function, at least of an undergraduate medical school, is the training of medical practitioners, and that research is therefore not a strictly necessary activity. This facile argument is at first not easy to answer, but the answer is very definite when it is found, and is fundamental to the whole spirit of university

education. Teaching and training which are not continually enriched by the leaven of research become flat and unimaginative and eventually fixed in outmoded concepts. Even the worst undergraduate medical school must have a small number of students in whose blood the research spirit runs actively. They are likely to be the intellectual leaders of the medical school and without stimulus and example of research among their teachers, their promise will be aborted.

DEVELOPMENTS IN MEDICAL SCHOOLS

In the light of these principles the developments in our medical schools since the end of the Second World War are distinctly encouraging. The progress made can, in my opinion, be attributed in considerable part to two administrative developments:

1. *The South African Council for Scientific and Industrial Research*

This Council was established after the last war, through the wisdom of the late Field Marshall J. C. Smuts.

Under its first President, Dr. B. J. Schonland, the Council soon set up a Medical and Dental Research Committee. The early work of this Committee was reviewed in 1948 by its first Chairman, Prof. S. F. Oosthuizen,⁴ who has himself played a significant and valuable part both in early planning and in later development.

The effect that this organization has had on research in general and particularly on medical research over the last decade is quite incalculable. For the first time it became possible to obtain money for apparatus and equipment and for the payment of research technicians. The Council's policy from an early stage was to encourage fundamental and applied research equally, and particularly to look for and support those men who were active in research in spite of the lack of facilities. As part of this policy the Medical Units were set up.

In his review Oosthuizen refers to the establishment of liaison officers abroad, financial support for the South African Institute for Medical Research, and to the establishment of an applied Physiology Research Unit to cater for the medical needs of the mining industry. But nothing was more significant for progress than the proposal to set up Medical Units in the medical schools. This policy has been most fruitful. The 8 units originally envisaged has now become 14.⁵

The extent of financial support will need to be steadily increased if the growing research potential of the medical schools is to be developed. University medical research in South Africa has been fortunate in escaping the drift to centralization of research in CSIR institutes in Pretoria which has occurred in the pure and applied physical sciences. These institutes serve a valuable function, but if they result in the starving of university research training they will soon become sterile seats of uninspired repetition. Until the South African Government gives more liberally to research, the University departments will continue to be starved in the physical sciences.

2. *The Joint Medical Services*

Since 1950 the Provincial Administrations, which are responsible for hospitalization, have entered into agreements with the universities to staff the teaching hospitals on a basis of partnership. The honorary system of medical staffing of the teaching hospitals has been replaced by salaried officers. These are engaged full-time, part-time or on a sessional basis. The clinical professors appointed by the Universities nominate for appointments and are responsible for allocation of duties and general integration and maintenance of standards. The most significant effect of this new system has been that men of high academic achievement and research potential are more frequently being attracted into full-time appointments. There they can devote their thinking to the raising of standards and the advance of knowledge without the inevitable distractions of private practice. A real partnership between full-time and part-time staff has developed and brings mutual benefit. The influence of the part-time men prevents any tendency to ivory-tower outlook and keeps the real and total needs of the patient in the forefront of attention. The presence of full-time men, who are productive in research, constitutes a continual challenge to replace outworn concepts by new ideas. The joint effect on standards of medical practice has been remarkable; a glance at the programmes of the last few Medical Congresses will show the fertilizing effect of new ideas.

THE NATIONAL NUTRITION RESEARCH INSTITUTE

Problems of human nutrition are at the forefront of medical attention in South Africa. Four medical research units are built around such problems. The need became apparent for a central institute or laboratory to ensure an integrated and comprehensive approach to the problems of malnutrition and to assist the Government in the application of remedies and prevention. Within a few years of its inception, and with an impressive list of achievements, the National Nutrition Research Institute has now been housed in a fine building on the new site of its parent organization, the Council for Scientific and Industrial Research outside Pretoria. There is no doubt that this Institute will bring an advance in the application of knowledge in the field of nutrition. This in turn will remove one of the most potent causes of ill-health among the underprivileged sections of all racial groups in the country.

THE ADMINISTRATION OF MEDICAL RESEARCH IN SOUTH AFRICA

This important subject was fully investigated by a committee under the chairmanship of Dr. P. J. du Toit, a Vice-President of CSIR, and a former director of the Veterinary Research Institute at Onderstepoort. The Government has not yet declared its policy in regard to this interesting report; on this policy may depend the future health of our medical research productivity.

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