

## THE SCIENTIFIC OUTPUT OF OUR FIRST DECADE---A RETROSPECT

By Professor Raymond A. Dart

It is now approximately a decade since the University of the Witwatersrand came into existence and with it the real beginnings of our Medical School. This period has been characterised by momentous movements in numerous directions. Structurally we now possess a building which is a source of pleasure as well as study, and may one day grow into a source of pride. By the generosity of the Carnegie Foundation, added to our initial efforts we now have the "makings" of a Medical Library. The welding of a portion of the clinical resources of Johannesburg and Pretoria into a teaching organisation has been a matter of steady and regular growth. The Dental School has sprung from the loins of the Medical School and bids fair to keep pace with, if not outstride, its parent. Post-graduate work, especially in Public Health, has become a regular feature of our daily life. Vacation courses for general practitioners and for district surgeons have been carried through successfully and will be recurrent phenomena of our academic history both in medicine and in dentistry.

Much pedagogical water has run under the bridges that separates us from the year 1922; and it has been suggested to me that I should indulge in a retrospect, not of the aforementioned phenomena but upon another less patent, but in some respects, even more significant outgrowth which the presence of the Medical School has fostered. That is the influence which has found and is finding expanding expression in the scientific and other publications by staff and students of the School.

It is not suggested that the whole of this literary outflow of the decade which,—according to the lists of publications entered annually in the University Calendar,—now totals in the vicinity of 300 papers (from the staff and students of departments beyond the first year of the medical course), has risen directly from this school on the stimulus which it alone has exerted. That would be claiming far too much. The members of our staff have been drawn from all corners of the earth and many are far from being full time officials at the University. The primary factors that have led

to their literary and scientific productiveness are legion, just as the present incentives are not always those arising in the course of their duties and studies in the University. Nevertheless the fact remains that the majority of these papers would never have seen the light if the School had not existed, that the preponderance of the papers deal with local animals, diseases and problems, that they have given concrete expression to a South African scientific point of view and that they have demonstrated the existence of a research capacity and investigational awareness not only amongst the full-time members of our medical institutions, but also the professional practitioners of Johannesburg and our students.

I am not overlooking here the facts that for a considerable number of years a purely medical journal flourished in Johannesburg and that the commencement of scientific and medical research in this city antedated the appearance of the medical school. I am merely drawing attention to the impetus that such beginnings suddenly received with the calling into being of this Institution. It has acted as a pivot around which vigorous yearnings to advance our knowledge have automatically come to gyrate. Not the least important feature of this scientific output is that it represents no spasmodic effort of five or six individuals. What is most significant of all is that of these at least twenty-five per cent. are medical students who have received their entire training within this country—significant, because the products of the brains of our graduates are emblematic of the directional training they have received as students.

There are those who are never tired of repeating (until the very repetition of the phrase lulls them, by auto-suggestion, into the complacent feeling that it is fully and wholly true) that the business of a medical school is to train general practitioners. This is one of those half-truths that can be more malignant than a lie. As Stephen Leacock said during a speech at Edinburgh University Union in 1921, "half the truth is better than the whole truth because, like half a brick, you can fling it further." A medical school does exist to

produce general practitioners; but woe to that school if it produces only general practitioners! It is also (I had almost said equally) the duty of a medical school to produce contributors to, as well as appliers of knowledge—inventors as well as craftsmen. It is but a truism to say that, from the point of view of reputation, the discoverers rather than the technical experts tend fame to a school. Padua is famous to-day for Vesalius, Fallopius, Fabricius, Harvey and their kind, not for the prodigious number of practitioners it has produced down the centuries; and many other examples of the same truth could be cited. A single great man can lift an unknown institution to the loftiest pinnacle of fame.

Such banal facts are worthy of remembrance lest we, as students, fall into the all too common error of regarding our eccentric fellow student—who is more interested in discovering something new, something unheard of, something revolutionary, something staggering, than in making himself examination perfect—as a silly ass or a blithering fool. In such a case you may rest assured there is a fair prospect that when you have gone down to your grave "unwept, unhonoured and unsung" his memory will still be fresh and green in the annals of a grateful adoring posterity; to say nothing of the "kick" he secures from life while you receive so little out of existence.

These are facts in whose spirit we, as teachers, require to live so that the surgent spirit of research in our students shall be recognised, stimulated and provided with unchecked opportunities for its exercise and display.

But lest this review lose itself in reflections on immortality let us examine a little more closely the nature of the products of our brief decade to learn its character and its promise. From the Physiology Department we have had publications upon ventilation, eye-strain in cinemas, tests of physical fitness, arterial pressure and cardiac mortality, body temperature variations, altitude, blood counts, vitamins, keratomalacia, blood-sugar and diabetes, ultra-violet light, actinometry and actinotherapy, the nutritive value of various South African and other agricultural products, the application of chemistry to clinical medicine, gastric ulcer in its physiological aspects, the effects of light on physiological processes, and various other subjects too numerous to cite in detail.

From the Pharmacology Department papers have appeared on renal blood-flow and glomerular filtration, native medicines and poisons, the practice of therapy amongst

natives, the chemistry of various South African plants, the pharmacological actions of local plants and proprietary products, to mention all of which would fill a long page of descriptive terms. A work of profound historical practical and ethnographical importance is that undertaken by this department in making a full inventory of all the information that can be gathered concerning native remedies and medicines and therapeutic practises, the results of which will doubtless finally emerge in numerous articles and volumes in the early future.

With respect to Pathology, Bacteriology and Parasitology the increments in knowledge in these fields that have accrued are closely wrapped up with the systematic research and routine work pursued in the Institute from which our teaching staff in these subjects is drawn. Papers relating to blood groups amongst natives, hepatic carcinoma, typhus, mycetoma, gall-stones, enteric fever, pneumonia, and phthisis, blood-vascular diseases, cysticercus, ascaris, flukes, insect larvae, the life-histories of various parasites, their hosts and numerous other subjects have been produced by the members of our teaching staff.

In the surgical field attention has been called in numerous papers to curious conditions and personal experiences in the treatment of new growth, gall-bladder disease, cancer of the stomach, bone-grafting for cranial defect, transplantation of ureters, intracerebral calcification, head injuries, tumours compressing the spinal cord, mesenteric cysts, congenital clefts of the hard palate, thromboangiitis and gonococcal endocarditis, abdominal emergencies, self-inflicted wounds, surgical diseases amongst the Bantu, radio-surgery, calculi, varicose veins, anæsthesia in general, colonic anæsthesia, gonorrhœal infections, duodenal ulcers following burns and rupture of the spleen.

In the medical field there have been fewer papers. These have however dealt with hyperpiesia, aneurysm, tumors compressing the spinal cord, cerebral hæmorrhage, hemiplegia, diabetes, hookworm disease, heat-stroke, diseases, accidents and medical and sanitary organisation on the gold mines, Stokes-Adams syndrome, cardiac disease in S.A. Non-Europeans, epilepsy, oral immunisation in enteric fever, heat injuries amongst natives on the mines, epidemiology and prevention of malaria, hookworm and bilharzia and so forth.

In Anatomy various general anatomical, anthropological, neurological and embryological papers have been published. These have revealed many hitherto unsuspected facts in

general anatomy and particularly in that of our native races as well as disclosing a modicum of the prehistory of our country. It is unnecessary to detail the titles of the seventy or more papers that contain the information.

From the foregoing facts it is more than apparent that when the first decade of our youthful growth has been so fruitful (and I have little doubt that a similar analysis of our sister institution at Cape Town would display similar if not more impressive data) our expectations relative to future South African contributions to medical knowledge and skill can afford to be sanguine. Here is no dry twig attempting to put forth a stray bud but a healthy sapling in the full vigour of its youthful growth.

Most thrilling of all to those who revel in the accumulation of exact knowledge,—and what that accumulation portends for our future in South Africa,—are those works which have been presented here or elsewhere as these and have received the encomiums to which they were directed. I refer in particular to Dr. A. Lee MacGregor's splendid thesis on *The Third Inguinal Ring*, to Dr. A. Stutterheim's original and practical thesis on "Indications for kinetic treatment to the Eyes"; to Dr. Middleton Shaw's masterly thesis on "The teeth, the bony palate and the mandible in Bantu races of South Africa," to Laurence H. Wells' illuminating thesis on "The foot of the South African native" and finally to Dr. G. Slade's important thesis on "Pulmonary Asbestosis."

These works are all of a high order and have set standards in academic and scientific achievement of which any school could rightly be proud. All save the last-named and most

recent have already appeared in print. Unfortunately only one, i.e. Dr. Shaw's, has been published from South Africa and even it had to be printed in London. The others have all been forced to appear in overseas' journals in England or America, where they have been gladly welcomed. It is a great misfortune that we still lack the financial facilities in Johannesburg for the systematic and unified publication of our local scientific medical works. Will the work of our School be scattered always broadcast to enrich the journals of scientific associations in other countries or will the day come when locally, or by co-operation with our South African medical and scientific colleagues, the whole of our worthy local scientific product will emerge through our own printing presses within our own borders.

The medical students and graduates of our University made a bold historical step forward a few years ago when they initiated "*The Leech*," as the organ of their life in all its varied and colourful aspects. Their courage has been justified in the method of its maintenance. I seem to see a time ahead when the initiators of that movement or their lineal successors, the inheritors of their confident enthusiasm will conceive and bring forth for African medical science in its widest connotations—something more than the Journal of the Medical Association of South Africa, which is necessarily restricted in its outlook to the interests of the Association it serves—a Journal of Journals to which the Anatomy, Physiology, Pathology, Medicine, Surgery, Gynæcology and Obstetrics, Public Health and Forensic Medicine of Africa, together with their sister and daughter sciences will find local and lasting expression.

