TEACHING AND RESEARCH IN OPHTHALMOLOGY

BY

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Recent discussions and correspondence reveal some confusion of thought among ophthalmologists with regard to the roles of teaching and research. This confusion seems to permeate the discussions and planning of medical education in general. It may therefore be worth while to analyse the concrete example of ophthalmology. Before doing so, however, certain general principles of medical education should be stated and be firmly kept in mind. The primary functions of the medical man are the alleviation and prevention of bodily ailments; and, important though research may be, it is not derogatory to it to assert that, so far as the practice of medicine is concerned, it is ancillary and secondary to those great primary functions. Of course, medical research may be carried on as a branch of pure science, but too great stress upon this aspect is not free from danger in dealing with medicine as an applied science. As an example one may point out that physiology has tended more and more to become a pure science, relatively independent of medicine; and however beneficial to medicine this may ultimately be, it does not appear to have been immediately beneficial to the teaching of medical students.

In his excellent article on "Some Principles of Reform in Medical Education" (*B.M.J.*, 1944, 1, 173) Dr. F. M. R. Walshe, after reference to the universal dissatisfaction with the present curriculum, says: "It is the fundamental defect of our teaching that we have not given the student a firm grasp of general principles, we have not taught him to weigh evidence, to discriminate or to think logically, and we have too often failed to imbue him with that keen desire for understanding that is the essence of true education. We have been content to preoccupy him with feats of memorizing and with the acquisition of an increasing number of techniques." He summarizes the essentials of reform as follows:

"(1) A carefully thought out pruning of the amount of factual knowledge we seek to impart, ruthlessly undertaken in order that

"(2) the student may be enabled to develop a more thoughtful and critical attitude, and a deeper understanding of the causes and manifestations of disease.

"(3) An explicit recognition of the necessity of a leaven of theoretical medicine, side by side with its vocational aspects, and the provision of a category of teachers who shall develop it."

In an article on "Medical Education of the Future" (*Lancet*, 1940, 1, 420) I expressed the opinion (1) that the teaching and curriculum for the qualifying examination should be designed to produce the best type of general practitioner; and (2) that the teaching hospitals should cater for both undergraduate and postgraduate students. So far as I have been able to gather from conversations with members of the various planning organizations, the first principle has been definitely accepted, but I have been able to obtain no evidence that the extremely difficult task of initiating radical changes in the teaching and curriculum which this reform demands is being embarked upon. As Dr. Walshe remarks, "In addition to this rebuilding of the very foundations of medical education, there can be no doubt that an urgent need is a quite ruthless pruning of the range and amount of factual knowledge we expect of the student."

The Teaching of Ophthalmology

Applying these general principles to the teaching of ophthalmology, it is immediately apparent that this specialty is essentially a postgraduate study, and that the undergraduate student should be taught only those parts which are necessary for a general practitioner—e.g., the diagnosis and treatment of external diseases, the use of the ophthalmoscope, and, last but not least, when to call in the help of an expert. This course will be best carried out in the ophthalmic department of the general hospital.

It is unnecessary to deal here with postgraduate teaching, except to state that medical ophthalmology should receive more attention than at present and that it would be best carried out

in an eye hospital, and most efficiently in one closely related topographically and corporately with a general hospital. The regional distribution of medical teaching which seems likely to obtain in the future will facilitate such a scheme. Each region should have its ophthalmic institute incorporated with the central teaching hospital and school. Two such institutes would suffice for London: one in the north, near University College, formed by the amalgamation of Moorfields, the Central London, and the Western Ophthalmic Hospitals; the other in the south, near King's College Hospital, formed by the amalgamation of the Westminster and the South London Ophthalmic Hospitals. Other such units should be established in the large provincial towns.

Research in Ophthalmology

When one considers research in ophthalmology it is equally necessary firmly to bear in mind certain general principles. Here again the fundamental principles have been clearly set forth by Dr. Walshe in his article on "Strategy and Tactics in Research" (*B.M.J.*, 1943, 1, 467). While it is impossible and most inexpedient to divorce so-called "basic" from "clinical" research, there is sufficient disparity between them to justify considering ophthalmic research under these headings.

Clinical research has long flourished in eye hospitals, and should be encouraged in every way, financial and otherwise. It should not, however, in my opinion, be under the control of a whole-time professor, except in the very rare instance of the advent of a man specially endowed by temperament, originality of thought, skill, and training (see below).

"Basic" research—the investigation of the nutrition of the eye, intraocular pressure, glaucoma, cataract, etc.—demands a knowledge and a training which few ophthalmologists possess. Such notable exceptions as Donders, Leber, Priestley Smith, and, more recently, Duke-Elder and Mrs. Dorothy Campbell, are *rarae aves*. Such research requires extensive, profound, and up-to-date knowledge of many branches of pure science—physics, chemistry, biochemistry, and so on—together with prolonged training and familiarity with laboratory techniques. These attainments are more likely to be found among young physiologists than among ophthalmologists. As Dr. Walshe so well says, "No planning can provide us with these men or determine the goal of their labours"; and again, "It is round the man and not round the plan that the wheels of research revolve most rapidly." This all-important fact was clearly recognized by Sir Walter Fletcher, and the phenomenal success of the Medical Research Council probably owes more to it than to any other. Encouragement, opportunity, financial assistance, and a free hand to a man who has shown originality, skill, perseverance, and enthusiasm in research may well eventuate in "a sort of spontaneously arising organization that has grown round a personality and has owed little or nothing to deliberate planning. When this comes into existence it is the richest of all sources of original knowledge" (Walshe).

The Research Professorship

It is a fallacy, only too prevalent at the present time, to imagine that the lavish endowment of whole-time *ad hoc* professorships and their multiplication will solve the problem of research. It does not follow that this is not the ideal method of procedure in appropriate conditions. The most important of these are (first and foremost) the man; and then intimate association with other research workers, especially those engaged in ancillary sciences; and, of course, adequate facilities.

For reasons already stated, the most suitable man is likely to be found among the younger physiologists. Dr. Lythgoe was an outstanding example of the success of nursing up and ensuring an adequate livelihood for a young physiologist interested in visual problems. But for his untimely death he might well have founded a school of research. Even he was lacking in clinical ophthalmic experience. I thoroughly endorse the opinion of Dr. Walshe: "I cannot believe that any medical research worker can afford to divorce himself from clinical studies. When he does so he invariably loses touch with reality."

The qualities required for a "basic" research professor in ophthalmology are exacting. The Medical Research Council have been fortunate in obtaining Dr. Hallpike as head of an

otological research unit, and I have reason to think that they would be prepared to institute a similar ophthalmic unit if a suitable man could be found. If found among the physiologists it should be made a condition of his grants that he should obtain clinical experience in an ophthalmic centre. In the meantime it would be wise to devote financial support to grants in aid of clinical and basic research, and to defer the appointment of a whole-time professor until a suitable clinician or a suitable basic research worker is discovered.

Some reference should be made here to the Oxford Ophthalmological Research Endowment scheme. The conditions at Oxford fulfil most of the requirements for a whole-time professor. There is an eye hospital next door to a large general hospital. All the facilities of the University science laboratories are available, and these provide the requisite "atmosphere" of research. Moreover, the senior surgeon to the eye hospital, Miss Ida Mann, is of proved skill as a research worker. One has here the nucleus of an ophthalmic research institute which more than any other at the present time justifies support.

Reports of Societies

SINUS TROUBLE IN CHILDREN

At the Royal Society of Medicine on Feb. 25 a discussion was held on sinusitis in children.

Mr. H. BEDFORD RUSSELL said that failure to detect sinusitis after the infections of childhood might condemn the patient to a long train of apparently unrelated diseases. The earlier the treatment of sinusitis the greater the hope of achieving complete cure. The vicious circle of swelling, lack of ventilation, and more swelling must be broken. The indication was to reduce the swelling and introduce some harmless vasoconstrictor to every available part of the mucous membrane. Medical men were disinclined to use cocaine because of its habit-forming properties, but he had not met with addiction after its use in the nose. The risk of absorption through the mucosa was reduced by mixture with some vasoconstrictor. In children with sore noses it was important not to use the speculum unsupported. Nor was it desirable to use the spray with the patient supine; if the patient would not sit up the head should be turned to one side so as to avoid the need for tilting the spray. He demonstrated on a small patient his palliative displacement method. Though the aim of displacement was simply the introduction of fluid, its use was often immediately justified by the voidance of a huge blob of mucus. In judging the results of displacement note should be taken of the cessation of nasal breathing and relief of headache.

Mr. S. E. BIRDSALL said that the developmental continuity of the nose, sinuses, and middle-ear led to the logical conclusion that sinusitis was likely to be just as common as otitis media in children. It was not so regarded because of three obvious corollaries in middle-ear disease which made its recognition easy and were not found in sinusitis in children—namely, pain, loss of function, and visible external disease. In adults sinusitis might exist without any appreciable formation of pus. The essential in diagnosis was anterior rhinoscopy. In 80 cases of indisputable sinusitis in children, the clinical features of which he had tabulated, the aetiology was hard to assess, and in only 13 was there good evidence of antecedent cause. Of specific infections, unless the common cold was regarded as such, whooping-cough was the most common. The important symptoms in these 80 cases were, first, nasal obstruction, and, secondly, cough. Cure of sinusitis in children depended only on recognition of the disease. Ephedrine was very often successful. Operation was necessary in fewer than 10%.

Mr. A. WELLS held that defective respiration was the root cause of a great number of cases of sinus trouble, particularly in children. The blocked nose meant increase of pathogenic organisms in the nasopharynx. Most infants breathed perfectly freely through the nose in spite of the fact that the adenoid tissue in the nasopharynx was present at birth. At some stage the child developed a cold in the head and became for the time a mouth-breather. In due course resolution took place

and the tissues returned to normal, but in a proportion the mouth-breathing continued as a habit or a necessity. He recommended the simple treatment of diastolization as being likely to prevent the need for a great deal of after-treatment. The apparatus consisted of hollow rubber bougies of various sizes, shaped to adapt to the nasal canal. By compression of a bulb the bougie dilated. Saline solution was introduced into the nose, and a massage of the nasal mucosa was brought about. Out of over 2,000 children with defective hearing severe enough to fail in the test on three consecutive occasions, 57% improved after a course of diastolization sufficiently to enable them to pass the test.

Dr. W. GUNN said that he had searched the records of fever cases at the North-Western Fever Hospital in a recent year and found sinus infection only in 8 out of just over 2,000; 5 of these 8 were associated with infectious diseases, 3 of them being measles.

Dr. R. CRUICKSHANK said that the cases of sinusitis he had seen were cases which had defeated both physician and surgeon and had come as a last resort to the bacteriologist in the hope that some vaccine might be found. He uttered a word of warning about *Staph. aureus*, which was present in the nasal cavities of from 60 to 80% of children; therefore the discovery of it in the nasal swab did not necessarily mean infection in the nose or associated sinuses. It was remarkable how frequently the patient did not refer the symptoms to the sinus. Persistent sore throat, headache, general mental weariness, and recurrent attacks of pneumonia might be associated with the primary focus in the sinus. On the bacteriological side of this problem the nasal carrier as a possible source of infection should not be forgotten. If examination was confined to throat swabs, more often than not the actual source of infection would be missed.

A Question of Terminology

Mr. T. B. LAYTON asked what was sinusitis. What would be thought of the Section of Medicine or the Association of Physicians if they spent two solid hours talking about "rheumatics"? Yet it was something corresponding to that that Mr. Bedford Russell and Mr. Birdsall had done. They had lumped together a number of different pathological conditions under the term "sinusitis." Pus in the sinuses was, in his opinion, rare in children. When it did occur it was very difficult to eliminate. He had still under his care a girl aged 20 who developed it after either scarlet fever or measles at the age of 5. The nasal cavity was even yet not quite free from pus, but during the interval she had developed normally in mind and body, and had none of the numerous disabilities which were said to be attributable to sinusitis. Early in the 'twenties it became appreciated that instead of polypi in the nose being secondary to sinusitis, there was a polypoid reaction in the lining of the maxillary and other sinuses. Presumably that reaction was inflammatory, and one could rightly apply the term "sinusitis" to it, but when there were two distinct lesions to which the same term was applied it was well to use a qualifying adjective. Polypi were not common in children; in the rare cases in which they occurred they were secondary to a suppurative reaction in the sinuses on which the original teaching was based. The sinuses were involved in the great majority of cases of rhinitis, and he thought this rhino-sinusitis should be treated on physiological principles, the first object being to restore nose-blowing as the swelling of the mucous membrane in the acute invasive stage began to pass away. He urged that before children were discharged from a fever hospital the nurse should take care to establish nose-blowing. This would be of greater value "than all the cultures and swabs in the world."

A meeting of the Joint Tuberculosis Council was held at the London School of Hygiene and Tropical Medicine on Feb. 19, with Dr. James Watt in the chair, when among much other business the following resolution of the Tuberculosis Association was reported: "The Council of the Tuberculosis Association be instructed to approach the Councils of the J.T.C. and the N.A.P.T. with a view to a joint request to the Minister of Health to make B.C.G. available for trial in this country." In the discussion which followed Prof. W. H. Tytler expressed the view that, if an investigation was asked for, the general use of B.C.G. would be delayed for a considerable period. Though the majority of members were of the