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President's Address

SOME THOUGHTS ON MEDICAL EDUCATION

BY

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Let me begin my address to you to-night by expressing again my thanks to the representatives of the British Medical Association for electing me to the Presidency—and you will permit me to add my appreciation of the warm and confident friendship of my colleagues in Northern Ireland who nominated me for this high office.

Our Association is not a mere trade union for collective bargaining. It is taking upon itself, it is having forced upon it, important public functions. It has advised on the formulation of policy and has assisted the plans of administrators. In this age of public health service it speaks with the authority of the medical profession behind it and is an important factor in affairs. While it has always maintained the honour and the interests of the medical profession, a review of its policy shows that it has never in that interest betrayed the community.

The Presidency of such an Association is no mean honour, and it is an honour enhanced by the distinction of those who have held the office before me. I have no intention of inflicting upon you a bead-roll of my predecessors, but it is my pious duty to commemorate the Presidents at your two previous meetings in Belfast. I do so with the more pleasure as both of them were my teachers, and of one I was for many years a colleague.

Presidents at Belfast in Earlier Days

When the Association first met here in 1884 Professor James Cuming was President. He was a physician of a type perhaps more common in those days than in these, a type which owed to the humanities and to medicine at least an equal allegiance. As an undergraduate one felt that a knowledge of Horace was possibly a better passport to his good graces than an acquaintance even with Fagge and Pye-Smith. His wide knowledge both of men and of medicine, his fundamental common sense, and not least his commanding presence made him a court of appeal as a consultant, and his judgements were delivered in measured phrase, in logical sequence, not seldom with ironic humour. In therapeutics he was not merely a sceptic—I speak now of his later years—he was an iconoclast. There is a story, probably apocryphal, that after a consultation he discussed at great length the diagnosis with the patient's doctor, who finally grew restive and said, "But what treatment am I to give him?" Cuming lifted a Burroughs Wellcome price list from his desk, handed it gravely to the

inquirer, and said in his most impressive tones, "Begin at A and work through that."

In 1909 Sir William Whitla sat in the President's chair—also a physician, but with a difference. One evening he described to me at some length how he had almost persuaded the reader of his publishing firm that the split infinitive, as he used it, was an enhancement of English. In his own subject of *materia medica* and therapeutics he was a recognized authority. But his chief claim on the gratitude of his fellows was that he was a pioneer in a path of medical literature on which he has since had many followers. His *Dictionary of Treatment* came as a boon to many a harassed practitioner who had reached the end of his therapeutic resources. It was an immediate success, and retained its popularity through successive editions. It gained the distinction of translation into more than one foreign language, and one of Sir William's cherished possessions was a beautifully bound version in Chinese.

To his own profession Sir William was most generous. Besides his private kindnesses to his brethren in need he built and presented to the Ulster Medical Society as its permanent home the Medical, since his death the Whitla Medical, Institute. At its opening he told us that he had built it out of the profits on his *Dictionary of Treatment*.

His benefactions did not end with his life. He had been one of those who in the face of much opposition advocated the establishment of Queen's University. He had served it as Professor, as Senator, as Pro-Chancellor, as member of the Imperial Parliament. When he died he left to the University his house and grounds as a residence for the Vice-Chancellor, together with a large share of his considerable fortune. The money has been earmarked for building, and when the Association next visits Belfast my successor will deliver his address in the Whitla Hall of the University.

Interest in Medical Education

The subject on which I have chosen to address you is that of medical education—partly because I am much interested in it myself as a teacher of graduate and undergraduate students of medicine ever since I got my qualification; partly because, if one may judge by the numerous criticisms of our present system of education I have read, my interest is shared by many others; and lastly, because medical education should be a matter of vital concern to

every practitioner and to every member of the B.M.A. Our profession cannot afford to recruit at a C3 standard. In this health-conscious age of ours public authorities are constantly launching one health scheme after another. As experts we ask for our collective advice to be taken and for our collective services to be employed. But the administrator has the last word, and while the specialist or the whole-time officer is practically immune from criticism, the incompetence or the carelessness of a few can be alleged as a reason for excluding the whole class of general practitioners from participation in a service. We are asking for our rights; but rights involve responsibilities, and if we are to enjoy the one we must be prepared to the last man to discharge the other.

I need not remind members of this Association of the many practical ways in which it shows its interest in medical education, "both postgraduate and undergraduate."

The critic of the medical curriculum assumes generally that we teachers at the end of five years should turn out a finished product, and goes on to blame us because we do not produce a finished general practitioner. No one expects us to turn out at the end of the five years a finished surgeon or anatomist or pathologist. Everyone recognizes that to form a specialist years of postgraduate study and experience are required. Are we to take it that the path which the general practitioner must follow to reach the mastery of his art is shorter and less steep than that trodden by the specialist? I should say "No." The specialist must know almost everything about his subject; the general practitioner must know something about almost every subject. He must learn to make his diagnoses without the skilled help which the specialist commands, and to carry out his treatment with makeshift appliances and with amateur nursing. He must acquire sufficient diplomacy to deal with unreasonable patients, with suspicious relatives, with inquisitive neighbours. He must keep in touch with the demands of public authorities and of public services. His responsibilities are if anything greater than those of the specialist, for he is the court of first instance, and on his decision the life of a patient may depend. His word may put a man in the dock or may even send him to the gallows.

Just as the finished surgeon must have had responsible experience of surgery, the finished general practitioner must have had responsible experience of general practice. The undergraduate's horizon is limited by the threatening figures of a court of examiners. Only when that grim spectre has faded is he free to take a view of the responsibilities which he must shoulder throughout the rest of his professional life—responsibility to his patients, to his own reputation, and, most important of all, to his own private conscience. The better trained the young graduate, the more quickly and the more competently does he take up the burden.

I may very pertinently be asked how, if practice is essential to form a good practitioner, can licensing bodies be justified in giving a licence to practise to those who have not had this experience. I can only reply that after many years as an examiner and as an inspector of final examinations I am satisfied that the dominant question in the mind of every examiner is "Is it safe to the public to allow this candidate to practise?" and that only when that question can be answered in the affirmative is he permitted to pass.

Clinical Study and the Undergraduate

As the practice of clinical medicine is the most important factor in forming the young practitioner and is to be his chief pursuit in after-life it is but natural that would-be

reformers of the curriculum should demand that yet more clinical study should find a place in the education of the undergraduate. I should be the last to disagree, but do not let us be led into the fallacy of thinking that clinical training is the be-all and end-all of medical education.

A probationer nurse and a medical student have each approximately three years of clinical experience. The nurse's opportunities for clinical observation are infinitely better than those of the student. She probably sees at least as many patients, and she does not merely see them during a ward visit. She lives with them hour after hour and day after day, watches the course of their disease, notes its changing phases, and the effect of the methods of treatment that have been employed. She assists at consultations, and has the benefit of listening to clinical lectures. And she makes full use of her opportunities. Every one of us must acknowledge with gratitude the debt that we owe to the trained nurse for her help in diagnosis, in prognosis, and in treatment. But does her unrivalled clinical experience qualify her to take on the function of a medical practitioner? She would herself be the first to say "No." She lacks the background, the background of human anatomy and physiology and pathology, of knowledge of the human body in health and in disease, which the medical student has gained with much toil and sweat and against which his clinical observations are composed and the picture interpreted. It is the main business of a medical education to provide an adequate background and to teach how it should be used, and the more competently that work has been done the more valuable will his clinical experience be to the practitioner.

Importance of Practical Anatomy

I have put human anatomy in the first place as a necessary preliminary to clinical study. Teachers of anatomy are usually the most popular of professors among medical students, so it is only poetic justice that their teaching should be a favourite point for attack by the critics. And perhaps the commonest criticism is that such an unconscionable time is wasted by the student in the dissecting-room.

Is his time really wasted? The successful clinician takes little upon trust, and so far as is possible checks all his facts by his own personal observations. But in almost all the sciences which the medical student must study he is compelled to take most of his facts on trust. Practical classes permit him to verify a few of them, but he has neither the time nor the technical skill to go further. When he takes up practical anatomy he is not merely permitted and encouraged, he is required by his own personal observation to verify the statements of his teacher and of his textbook. This is an invaluable discipline, even if a knowledge of anatomy were of little use in practice. But anatomy is the large-scale map of the human body, and we have it on the authority of one who was both a scientist and a statesman that if we wish to get an understanding of peoples and of events it is essential to study large-scale maps.

Lectures and Lecturers

If the anatomist is Public Enemy Number One of the medical student, Number Two is undoubtedly in the eyes of the critics the lecturer. We who lecture might conjugate the verb something like this, "We are dull, you are falling asleep, they think we should be painlessly exterminated." The pity of it is that the critics are to some extent in the right. There are dreary lectures and dull lecturers, and that is a pity, for after one has

listened to a master of the art one is left in no doubt as to the superiority of the spoken word above the printed page in rousing interest in a subject and in presenting it in the round.

Teaching and lecturing are arts that can be learned, and nowadays a training in them forms part of the preparation of all primary and of many secondary school teachers. Would it not be possible that an institution such as the Postgraduate Medical School should give a course in lecturing, and that those who have designs on the teaching posts in our medical schools should be encouraged to take it out?

I do not propose to take up your time with further discussion in detail of the medical curriculum and of its critics. Doubtless it could be improved, but, so far as I have been able to find out, our medical students get a training certainly not inferior to that given in any other civilized country. Of course the curriculum is overcrowded, but fortunately the brain of the undergraduate is elastic and has a well-developed protective mechanism of forgetfulness, not likely to atrophy through disuse.

The Young Physician

However much or little the young graduate has retained of the many sciences he has become acquainted with, he has had a training in observation, in the use of his critical and his reasoning faculties, and in dealing with men, women, and examiners. He has the key to the vast storehouse of knowledge contained in medical literature, for he is familiar with its idiom. He now enters on the most important stage of his lifelong medical education. He now becomes his own teacher and taskmaster. He has had to learn to think like other people, he must now think for himself. Only thus can he transmute the ore of scientific knowledge into the gold of clinical wisdom.

In all but a few instances the neophyte begins his career under the tutelage of one of his seniors, either a member of a hospital staff or a general practitioner, and that senior has a great responsibility, for by precept and still more by example he may make or mar a promising practitioner. Both in this stage and later, when he has at last hoisted his own flag, the young physician need not want for aids in self-education. Nothing is more helpful than a circle of medical friends who are not ashamed to talk shop. Of much the same kind of value is the consultant who is willing to discuss cases at length. Lectures in a class-room may be indigestible fare for the undergraduate; delivered in a medical society they seldom fail to provide food for thought for the graduate student. His journals may be relied on to add to and to correct his store of knowledge.

Postgraduate Training

We have long had the postgraduate course for the few, but the National Health Insurance Act has now made it available for the many. If I might be permitted to criticize I think that most postgraduate courses try to administer to their medical patients what used to be called a "blunderbuss prescription," and that too much is attempted in too short a time. But these courses are still in their infancy. Some day we may see the general practitioner going back to his old school or to another school for a month, for three months, even for a sabbatical year, both to learn and to teach. And he will come back to his patients as he does from our present courses, not merely with his skill enhanced, but, what is perhaps more important, with his interests freshened and his enthusiasm rekindled.

There are possibilities of postgraduate training in the linking up of practitioners with hospitals, as Sir Farquhar Buzzard suggested last year. Leaving aside the difficult question of interference by one practitioner with the patients of another, there are many administrative problems to be overcome. With good will on both sides these should not be insoluble; but it will, I am afraid, be a long time before administrators can be brought to believe that a panel of doctors is just as efficient and reliable as, and gives no more trouble than, a whole-time officer.

Perhaps in the future all difficulties will be solved by the establishment of a State medical service. Like good democrats we shall always oppose it. But every fresh instalment of social and of public health legislation, every new chapter opened in the volume of State control, brings us steadily nearer to the totalitarian ideal, and when that has finally arrived I suppose we may say good-bye to the general practitioner as we know him.

The G.P. Past and Present

But he is still with us, and I ask myself, How does he compare with his predecessor of a generation back? His equipment is undoubtedly better, he has for the service of his patients a store of knowledge and an acquaintance with technical resources not even dreamt of when I was a medical student. But I take down a volume written more than forty years ago by one who had been a patient of many doctors, and when I read his judgement on our profession I realize that in the eyes of the patient—a critic who must not be lost sight of—qualities are at least as important as technical accomplishments. Let me quote a part of that judgement to you:

"There are men and classes of men that stand above the common herd; the physician almost as a rule. Generosity he has such as is possible to those who practise an art, never to those who drive a trade; discretion, tested by a hundred secrets; tact, tried in a thousand embarrassments; and what are more important, Heraclean cheerfulness and courage. So it is that he brings air and cheer into the sick-room, and often enough, though not as often as he wishes, brings healing."

One is proud to belong to the profession which merited such a tribute from Stevenson, for he was anything but a fool; but how little he says of the skill and of the training on which we set such store, and how much of virtues and of qualities unmentioned in any curriculum, and which no teacher whom I have ever met would undertake to impart. Does our scheme of education do nothing to foster them?

Medical practice and medical education has its repellent side, often sordid and sometimes disgusting. I do not think that many youngsters take up the drudgery of medicine unless they have as part at least of their motive a lively interest in humanity and some sympathy with human suffering. A hospital is the best of soils to foster such good qualities and to encourage them to develop into the most admirable of medical virtues. Close contact with men and women, the constant witness of their fortitude, their patience, their unselfishness in the face of pain, of disability, of death itself, is a more impressive lesson than the skeleton at the Egyptian feast, and only the most careless or the most callous can fail to benefit by it. Attendance in the wards and in the out-patient rooms, still more a residence in hospital, long a feature in Irish medical schools and soon to be introduced in the United Kingdom generally, is an education in behaviour no less than in clinical medicine. It is the better school for that,

as patients in British hospitals are treated as men and women with feelings which can be hurt and a personal dignity which can be outraged.

Conclusion

But I must bring to a close these disjointed remarks on medical education. I have no anxieties about our students. Their standard is as high as it ever was, and they are getting and taking an excellent training. To the seniors, of whom I am one, the two-edged compliment may be paid that it is impossible to improve us. But I do feel uneasy about the most important class in the profession, the young general practitioner in the twenties and the early thirties. Is panel practice giving him an assured income too soon? Is it taking away the incentive to study and to improve the standard of his practice? Is he sitting down at ease in Zion? I trust not, for it is upon him that we depend to maintain and to raise the prestige of our profession.

ELONGATION AND DILATATION OF THE COLON*

BY

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An approach to any problem of colonic disease must inevitably take into consideration the embryological origin of the large bowel, its adult anatomy, and its physiological duality.

Development

The colon is developed from two sources: (1) the midgut, supplied by the superior mesenteric artery; and (2) the hindgut, supplied by the inferior mesenteric artery, the juncture in the adult being about the middle of the transverse colon. Until the end of the first month the future small and large intestines are approximately of the same length, and the colonic rudiment is actually narrower than that of the small intestine. The second month sees the beginning of the rapid elongation of the primitive small bowel, but it is not until the fifth month that the calibre of the colonic rudiment begins to enlarge. The alimentary tube, originally straight, is rearranged after the second month by the rotation of the primitive bowel about the superior mesenteric artery; when this stage is completed the future caecum comes to lie anterior to the right kidney, the future splenic flexure has attained its adult position, and the future descending colon has been forced from its median position into the left flank by the rapid elongation of the small bowel. From this time until just after birth, when the adult anatomical arrangement is reached, there occur two processes which appear to be correlated with man's upright position: (1) descent of the caecum to the right iliac fossa as a result of elongation of the proximal part of the primitive colon, and (2) the disappearance of the dorsal mesentery from certain segments of the colon.

Normal Anatomy

To the complete peritoneal coat of the caecum may be added a short mesentery; the ascending colon is uncovered by peritoneum posteriorly. The transverse colon has a mesentery of varying length, which confers corresponding

mobility on this segment. The descending colon lacks a mesentery, and the iliac colon up to the brim of the true pelvis is fixed to the parietes, whereas the pelvic colon forms a long free loop with a fan-shaped mesentery which allows a wide range of movement, the loop being four to ten times as long as the root of the mesentery.

Developmental Anomalies

It is not a surprising matter that a tube having such a complicated development should be a site of anatomical anomalies. Thus Treves found a mesentery to the descending colon in 36 per cent. of 100 cases, and to the ascending colon in 26 per cent. According to Dott's (1923) classification, anomalous development which might lead to elongation of the colon may be due to excessive growth in length of a segment, to deficient fixation of a segment to the abdominal wall, or to deficient fixation of the common mesentery of the terminal ileum and caecum, so that the caecum, or an ileo-colic segment, possesses a wide range of mobility. To this list may be added the plication of a segment of the tube which occurs when its mesentery is congenitally short, although the tube itself is of normal length or even elongated (Bernard and de Tayrac, 1935).

The Nerve Supply of the Colon

As a part of the alimentary canal the colon is innervated by both sympathetic and parasympathetic fibres. The "midgut" colon (caecum, ascending colon, and right half of transverse colon) derives its nerves from the plexus accompanying the colonic branches of the superior mesenteric artery; this is made up of contributions from the semilunar ganglia (sympathetic, from the thoracic splanchnic nerves) and from the right vagus nerve (parasympathetic). The "hindgut" colon (left half of transverse colon, descending and pelvic colon, and rectum) is innervated by nerves accompanying the inferior mesenteric artery, which are derived from the pelvic splanchnic nerves (sympathetic), and by branches arising from the hypogastric plexuses (parasympathetic, from the second, third, and fourth sacral nerves). The latter nerves pursue an independent course unrelated to the vessels, and have been traced (Mitchell, 1935) as far as the splenic flexure. Thus the proximal part of the colon is influenced by the cranial parasympathetic outflow (right vagus nerve), whereas the distal part is influenced by the sacral parasympathetic outflow. It has been shown (Learmonth and Markowitz, 1930) that stimulation of the sympathetic nerves is followed by inhibition of colonic activity. The parasympathetic nerves are motor to the distal colon.

The sphincter apparatus at the anus has two components: an internal sphincter, of unstriated muscle, which in man contracts on stimulation of the pelvic splanchnic (sympathetic) nerves (Rankin and Learmonth, 1930), and an external sphincter, of striated muscle, supplied by the (somatic) pudic nerves.

Physiology of Defaecation

Little need be added to the concise description of the mechanism of defaecation given in the admirable paper by Garry (1934), which I quote: "As in lower animals, eating food increases the activity of the human colon and frequently initiates a mass peristaltic action leading to defaecation. This response was first noted by Macewen in patients with caecal fistulae. Subsequently the name gastro-colic reflex was applied by Hurst and by Hurst and Newton. . . . For our knowledge of the movements of the large bowel in *man* we are deeply indebted to Hurst. . . . Three or four times a day a massive peris-

* Read in opening a discussion in the Section of Diseases of Children at the Annual Meeting of the British Medical Association, Belfast, 1937.