Screens

Various types of projector have been mentioned; it is necessary also briefly to discuss the screen. In most lecture theatres this is a neglected piece of apparatus, dirty and sagging. Yet as much care should be given to its selection as to the projector. The screen surface may be *silvered* (approximating to a mirror and therefore suited only to a long narrow room); *glass-beaded* (efficient, but costly and difficult to keep clean); or, best of all, a pure *matt white*, sprayed rather than brushed with zinc or titanium white, which does not darken in an industrial atmosphere. The size is a matter of some importance, and must be related to the projection equipment and to the room (Fig. 12).

FIG. 12.—The recommended proportions of a projection theatre using a matt white screen.

The picture should not be wider than half the distance from the front row of seats, nor less than one-sixth of the distance from the back row. The frame should be of dead black material, to absorb any "overspill" of the projected picture. In many of the older theatres it will be found that certain side seats are quite unsuitable, as they put the observer at a very oblique angle to the screen. When possible, these seats should be removed. With a matt screen the permissible angle is 30 degrees either side of the projector axis.

Screen brightness is an involved subject, and it is not proposed to discuss absolute levels in foot-lamberts, but a practical test should aim at permitting a level of house-lighting which will allow the student to make essential notes without noticeable degradation of the screen image (*B.M.J. Supplement*, 1950). Where a higher light level is required, the possibility of *rear-projection* on to a well-hooded translucent screen should be considered. Many local education authorities have provided this equipment so that the teacher may have greater control over the class than is possible in a darkened room.

Television

The latest newcomer to the field of instruction is the television camera (*B.M.J.*, 1949; *Lancet*, 1950) (Fig. 13), now transmitting colour over closed circuits. It would seem that this is likely to be of value to the postgraduate audience in surgery, but that its applications to medicine beyond this will be rather limited, and its very novelty may make it dangerous—in the same way as the motion picture.

FIG. 13.—Television equipment in an operating theatre at Guy's Hospital.

Certainly television from the operating theatre permits of no cutting or editing, and it may well prove to be merely boring—as so many operations already are to the onlooker.

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REFERENCES

- Beale, C. (1949). *Look and See*. Edinburgh House Press, London.
British Medical Journal (1949). 1, 909.
 — (1950). 1, 482.
British Medical Journal Supplement (1950). 1, 182.
 Dillon, R. A., and Murphy, W. P., jun. (1949). *Amer. J. Roentgenol.*, 61, 847.
 H.M.S.O. (1938). *Optical Aids* (Educational Pamphlet No. 115). London.
Lancet (1947). 2, 486.
 — (1950). 1, 475.

A G.P. ON HIS CLINICAL TRAINING

BY

DONALD McI. JOHNSON, M.B., B.Ch.

My opening gambit in this article must be to shift the responsibility for what I have to say to higher authority in the shape of my friend, the Editor. First, in that he asked me to write this account of "what I found both good and bad" in my own hospital education as a preparation for general practice. Secondly, in that, despite my evasive assurances that anything I could possibly say seemed to be covered by those numerous excellent reports that are the feature of these enlightened times, he has insisted on my delving back into those dark ages of 25 years ago when, no doubt in expiation of the sins of some former incarnation, I was for the space of two years and six months a hospital student at one of our older teaching hospitals.

Though I have a natural reluctance to make sweeping remarks, particularly when they are damnatory, in a scientific journal, I have no alternative as regards the hospital part of my education 25 years ago, for I believe it was wholly bad. It had certain minor features that might be described as good, but they did not redeem the whole.

Surgical Training

Let me recall myself, therefore, in January, 1924, as the somewhat unwilling, but not entirely uninterested, student of medicine who, after completing the primary subjects at Cambridge, took up his first hospital student appointment as junior dresser in the Bart's surgery. "Somewhat unwilling," since I had, like many another, had my medical career chosen for me rather than choosing it myself, owing to my being a doctor's son. All the same, I had become interested enough in the primary subjects to obtain the entrance scholarship to Bart's in the previous October.

I was an unusual type perhaps, but not so unusual as all that. The Bart's surgery of that day, on the other hand, did not overcome unwillingness or stimulate interest. The sudden and unprepared jump from the cosy realms of theoretical learning to the harsh realities of human pain and suffering was a mental shock the effect of which persisted for some time to come: certainly it coloured my outlook throughout my hospital years. Every morning for three months I had the experience of seeing and inflicting pain in the Bart's surgery, entirely unaccompanied by any form of teaching. All I learnt during that time was a painful and unsatisfactory method of treating carbuncles, septic fingers, and so on (a method which I quickly taught myself to discard as useless once I was able to acquire experience for myself)—for it was to this offal of surgery that our experience was confined, except on those rare occasions when it was our firm's duty turn and our own personal turn on a roster of some six or eight dressers to see the fresh cases that arrived in the casualty department.

The "teaching" part of our day started when, at 1.30 p.m., we gathered in the Square to embark on the ward rounds as the least important part of the hierarchy which constituted the "firm." Here horror became replaced by boredom as one shambled round on the outer fringe of the cortège accompanying the chief, gathering up such crumbs of wisdom as one's general ignorance of what was going on allowed one to appreciate—one's appetite for this being sadly impaired by the ache in the leg that ensued during these many weary hours.

However, there was but three months to wait before I was promoted as senior dresser to the inner circle of this gathering. The principal advantage of this, so far as I was concerned, was that I could edge nearer the bottom of the patient's bed, where I could surreptitiously find support for each leg in turn on the horizontal rail which is the fortunate feature of most hospital beds. But, alas, there was no convenient bed rail in the operating theatre, which claimed my presence for so many hours a week during this appointment, where I stood, shifting from one foot to another, either doing nothing or perhaps, if particularly honoured, being allowed to hold one end of a tourniquet, and only occasionally, very occasionally, being allowed to look at what was going on, and still less often having this explained to me.

Thus passed six months of hospital education which seemed to lack any guiding principle behind it other than that common to most educational establishments of that day—namely, giving the neophyte a bad time to start with. As a summing up, I can lay claim to having learnt very little—a certain amount of operating-theatre drill, a certain amount of system in physical examination and taking case notes, and a small amount of surgery, though probably not as much as could have been learnt in a few afternoons' intelligent demonstration. There was no attempt at systematic teaching whereby the new opportunities of practical experi-

ence could be correlated with what had been learnt in the primary subjects. I believe that at Bart's we had one lecture on surgery a week, at 5 o'clock in the evening, but this was of a general nature and unrelated to what we had been doing during the day, so that, as attendance was optional, one did not often attend after spending a day in the surgery or the wards. Meanwhile the hard-learned knowledge of primary subjects slipped away.

Who among those educated at one of the older teaching hospitals can doubt that the monastic tradition has descended in strong measure through the hundreds of years from their early foundation? Who but is conscious of the feeling that, once within these portals, one must acknowledge that the entire universe has contracted itself to the area within these walls, and that one is expected to make the mental surrender to this cosmos before partaking of such gifts as this foundation may confer? To the majority this mental surrender perhaps comes easily; it is made temporarily in most cases, permanently in some. In others, however, the reaction is the opposite, and I was one of the others. I became the victim of a wild, tearing claustrophobia.

Once through the ties of my surgical dressership and with my finals still in the distance my main object in life was to pass as little time as possible in hospital and, during the remainder of the considerable amount of time available, to gather the widest range of alternative interests. Literature, art, drama, sociology, all the things that in a liberally run educational establishment, however specialized its purpose, could have been used to build up and promote an interest in the main subject being taught, became in my own case escapist diversions that served to take me as far as possible from the narrow confines of the world in which I found myself.

Medical and Pathological Posts

My medical clerkship (spent amongst obscure diseases which, for the most part, I was not to see again) occupied the next three months. Here, at least, I picked up a certain amount of knowledge of chest signs and methods of examination. To a large extent I was free to pick and choose what I should do and to arrange my further activities as I saw fit. Reasonably confident that I could pass my final examinations by the acquisition of book knowledge, I was therefore concerned only with what I felt would be of use to me in the future—general practice being my acknowledged destination during my whole time at hospital. As I looked with a discriminating eye at the curriculum that lay before me, it seemed that most of the appointments suggested for me were just as little related to what I would be doing later as to what I had done before I came to hospital. With scarcely a sigh, and using all the artifice known to the medical student, I ruthlessly eliminated one after the other from my own programme. I soon concluded that special departments consisted merely of desultory standing on the fringe of a crowd in an overcrowded out-patient department—I eliminated special departments.

Pathological clerking promised but a further three months' tedium in counting blood cells, and, since my heretical mind told me that this was an occupation in which I was never likely to indulge, I took (in this case) the legitimate alternative of a pathological course at another hospital at which I not only saved some six weeks of my time but had the advantage of learning some pathology.

It might be argued that, in adopting these tactics, I missed something that might have been invaluable to me,

but I did not miss very much—certainly nothing that would have filled in the gaps of my education as a doctor. I passed my final examinations, as I had expected, by the acquisition of book knowledge, combined with an element of practical experience culled from demonstrations in surgical out-patients—the one part of my training in which every minute seemed to be of some value and in which at least one could sit around on chairs in reasonable comfort and absorb useful knowledge. Here I actually learnt something about tumours and the necessity for their early diagnosis.

A Qualified Doctor

Eventually, of course, I became a general practitioner—a reasonably competent general practitioner, so I flatter myself. However, “reasonably competent” was scarcely the description that would have applied to me when, a qualified doctor, I returned home and was sent out by my father, who was still in practice, on an evening emergency call to see an elderly workman who had that afternoon started to lose the use of his right arm and right leg. I seem to remember recognizing hemiplegia, but so wrong was my prognosis that I remember even more clearly my surprise when the family attended the surgery next morning for a death certificate after having called on a near-by doctor later the same night. This was, of course, the first case of its kind that I had seen.

It is a sobering thought that I would have shown the same lack of knowledge if faced by a rash or, in fact, any skin trouble, whether of an infectious or non-infectious character. Words such as papules, macules, and erythema merely swam round in my head in meaningless fashion as the result of a short course in fevers. My lack of knowledge would have been the same had I been asked to write any prescription, other than that of plain mist. gent. cum rheo or perhaps mist. bismuth., in its composite form—I had no idea what the ingredients were. It would have been the same if faced with a sick baby, or if I had had to give even a hypodermic injection, or if I had been asked to give detailed instructions of any of the more elementary nursing treatments.

All this I eventually acquired: that is, with the exception of the last-named, which had to be replaced throughout my days in practice by a particularly haughty look of omniscience when ordering douches or other nursing treatments. But I did not gain my knowledge through teaching hospital or in any way remotely connected with it. My general diagnostic knowledge was won through trial and error when I had the good fortune to obtain a six-months appointment as casualty officer at the Metropolitan Hospital, Kingsland Road. My knowledge of the medical treatment of minor complaints, which was, after all, the means by which I was to make my living, I learnt from the “old-timer”—a graduate of Dalhousie University, Halifax, Nova Scotia, in the late nineteenth century—from whom I bought my practice. The treatment of skins and skin troubles I absorbed from my dispenser, a former warrant officer in the R.A.M.C., with many years’ overseas service to his credit. Thus, in this highly fortuitous way, did I pick up my complement of knowledge that equipped me as a doctor.

What did I learn from my three years at hospital? The answer is: almost nothing, except for being impressed with the importance of systematic note-taking and of the early diagnosis of malignant disease; some chest signs and, again, the necessity for systematic examination. These, after all, are something, but they are scarcely enough to produce as a result of three years’ training. To say that

I also learnt to pass my exams will not do, for I could have passed these by virtue of book knowledge, regardless of anything I learnt in hospital.

Some Suggestions

Society, shocked at the incompetence and inexperience of its newly qualified doctors, has determined in the new Medical Act that they shall have a further year in hospital as “interns” before being unleashed on to the public. Proposals are put forward for increasing the period of tutelage even longer than this. However, it would seem that, before these are seriously considered, equal consideration might well be given to the possibility of taking some of the “slack” out of the existing curriculum, or to the improvement of the teaching methods adopted therein.

Frequently, since my student days, I have asked myself in the innocence of my own heart why some of those dreary hours spent in the operating theatre gazing at the back of the white gown in front of me, in the wards sidling up to beds with a view to gaining a foothold on the bed rail, or in making blood counts (this refers to others, if not to me) could not have been used in the inculcation of knowledge that would be of use in medical practice.

Also would it not have been possible, perhaps by a more gradual transition, to have made the new atmosphere of hospital more acceptable to the student coming in from the academic atmosphere of Cambridge or Oxford? Surely it would have been better to engage his interest first rather than to “throw him in at the deep end” and make him fend for himself? Instead of this, however, I was left to grope in haphazard and unguided fashion through an existence of boredom, and even worse, because of the lack of any systematic attempt to organize my studies so that they related to what I had done before or to what I knew I was going to do afterwards.

In my criticism of the teaching process it has not been my intention in any way to disparage the distinguished gentlemen in whose steps I followed: they were the victims of the system as much as I was. But inevitably the student had to take his place in their world, and in the world of hospital routine, as one of several competing interests. The first interest of a physician or a surgeon is naturally to be an expert physician or surgeon, it cannot be otherwise: the first interest of a hospital must be the cure of the sick. Into this *métier* the student must be fitted. However, even when the surgeon or physician is transformed into the teaching unit we still find competing interests that take precedence over the work of education. As in all scientific establishments, there is the pressing claim of research—a claim that is bound to take prior place so long as the teaching staff not only have to combine research with teaching but in addition have to depend on research results rather than on teaching prowess for their prospects of advancement. We inevitably find this position reflected in the nature of the cases that fill the beds in the hospital wards where the student must, or at least should, gain his experience that is to stand him in good stead in his future struggles with the commonplace of general practice. This in turn can but be a reflection of the position which the student occupies in the minds of those who instruct him. He is apt undoubtedly to come a rather poor third to the claims of practice and research, and real improvement cannot be expected until he is “upgraded” in the attentions of at least some of his instructors. It is not to be denied that many of the distinguished gentlemen who make up senior hospital staffs have developed in empirical fashion their own reasonably effective manner of imparting

knowledge; but who has so far had the temerity to suggest that, before they are qualified for their appointment, they should undertake a course at a teachers' training college to learn the elements of modern teaching methods? Who can deny that medical education would be much improved thereby?

SOME COMMENTS ON MEDICAL EDUCATION IN GREAT BRITAIN

BY

A LONDON MEDICAL STUDENT

This article was written when the author was a final year medical student. He found on inquiry that the curriculum varied so greatly in the medical schools of this country that it was impracticable to write an article which would represent student opinion as a whole. But, though he is to some extent expressing a personal point of view, the first draft of the article was read and discussed at a meeting attended by representatives of students from a number of medical schools in London, Scotland, and the provinces, and they expressed general approval of the theme.

The state of flux in British medicine at the present day is inevitably reflected in the unsatisfactory state of British medical education. The curriculum has been under discussion since organized medical teaching began, and during the past 30 years this debate has become increasingly heated. In the meantime, however, the training of the medical student continues to follow much the same lines as it has done since the beginning of the century. As each new report appears, some minor adjustments, amounting to no more than running repairs, are made. The system is patched up here and there, but remains essentially unaltered. Looking back, with the memory of the six-year course still fresh in one's mind, the feeling that medical education in this country is adrift becomes inescapable. Much of the time was wasted, much energy was misapplied, and the ultimate goal of qualification seems to have been achieved more by good luck than by effective training.

What are We Training For?

The test of any system of training or education is empirical—Do the means serve the ends? Does the system turn out good doctors?

Much heat has been generated in a fruitless argument about the kind of doctor which our training should produce. This is not the place in which to discuss the merits or demerits of general practice as it obtains in this country. It is enough that the general practitioners support the whole edifice of British medicine, that they far outnumber doctors in any other field, and that the medicine which they practise is the basis of all other medicine. Of the 2,000 doctors who qualify each year in the United Kingdom, about one-half become general practitioners. It is imperative that the remainder, whether destined to become consultants, public health workers, or any other breed of doctor, should first master the basic knowledge which is the stock-in-trade of the G.P. The further training required by specialists of all kinds (be they research workers or surgeons) should be additional to the basic knowledge required for general practice. For this cogent reason, and in accordance with a principle that underlies all forms of education, first things must come first, and the first things are the simple things.

Do First Things Come First?

If the above argument is accepted the newly qualified doctor should know more about sore throats than large spleens. He should be capable of treating the common cold, but he may be forgiven some uncertainty about the therapy of myasthenia gravis. In fact, however, the newly qualified man or woman can discuss at length the aetiology and treatment of acute osteomyelitis, but finds himself unable to advise his friends, relatives, or patients when they consult him about their corns. He is often incapable of composing a simple prescription, and may even be unfamiliar with the use of the *National Formulary*. To say that he will learn these things in general practice is to beg the question. The object of any training is to impart the knowledge required for the job, not to turn out glorified graduate apprentices. Furthermore, if it is agreed that the principal task ahead is to raise the standards of general practice, then it is essential that the appropriate knowledge should be acquired during training rather than picked up in the field. It is the latter practice which perpetuates the use of outmoded methods. One of the reasons for the demoralization of the general practitioner is the fact that he is doing a job for which he was not trained.

Where Does the Fault Lie?

The General Medical Council exercises its control over medical education in this country through the examining authorities. It lays down the courses which the student must have attended before presenting himself for the qualifying examination, and it approves the standard of the examinations that are set. It might be thought, therefore, that the weaknesses of our medical education could be attributed to the examination system. It is true that certain features, such as the unnecessarily long time devoted to surgical dressing, are based upon the stipulations of the G.M.C. So far as the actual examinations are concerned, however, it must be admitted that the questions set in the papers and asked in the "vivas" are usually simple and straightforward. The training of a medical student makes it unlikely that he will know much about the treatment of constipation, yet it is surprising how often the examiners set this very question. In fact, more students fail from ignorance of simple things than from inadequate knowledge of obscure conditions. It does not seem probable, therefore, that the examining bodies are responsible for the orientation of the student's learning, though it might be argued that the ever-present danger of a compulsory question on a rare disease necessitates the acquisition of much relatively useless knowledge.

On the whole, however, the atmosphere of his teaching hospital is the factor which ultimately determines a student's outlook. It is a mistake, often recognized but never corrected, for students to be taught solely by specialists; it is a calamity when these teachers fail to appreciate that most of their pupils are preparing for general practice.

"Appointments"

Turning from the general to the particular, it is not hard to discover specific weaknesses in the detailed working of the medical curriculum. Clinical teaching in the English and Welsh schools is based upon a series of student "appointments" to the various departments of the hospital. Our teachers like to think that this enables their students to acquire at first hand the practical and theoretical