Papers and Originals

University, Medical School, and Community*

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Deans of medicine must be born. They are certainly not made. There is no teacher from whom they can learn; no course of instruction, nor apprenticeship; not even a correspondence course exists for medical deans, at least on this side of the Atlantic. For a dean of a new medical school the situation is even more alarming because the most recent precedent of a new medical school in the United Kingdom to which he can turn is the Welsh National School, which opened at Cardiff in 1893 (our sister school at Nottingham does not open until next October).

One reaction to such a situation for a novice is to go back to first principles and consider the nature and functions of a medical school from the beginning. The danger will be that one will find nothing to say which has not been said before and better by Flexner, Haldane, Goodenough, or Todd. On the other hand, these Olympians made their deliberations calmly and with detachment, or so it seems to the reader. Here confronted with students, and buildings imminent, dire and immediate necessity may mother some small invention. My own approach, though it cannot be based on experience, may gain something in freshness, for I must confide in you that before my appointment I had never read the *British Journal of Medical Education*.

Of what then does a medical school comprise? In Britain there are at present two main models, which are illustrated in Figs. 1 and 2. The first is the model on which most of the London medical schools are based (Fig. 1). The teaching hospital with its board of governors directly referable to the Department of Health and Social Security is the principal partner. The basic medical sciences exist as a more or less diminutive appendage. The senate and other faculties of the university are remote geographically and administratively. The second model (Fig. 2) illustrates the structure of most provincial medical schools. There is a faculty of medicine on equal terms with the other faculties in the university and a teaching hospital which, through its board of governors, discharges a service role and provides facilities for clinical teaching of undergraduates and research. The appropriate equation is as follows: faculty of medicine plus teaching hospital (and its satellite hospitals) equal the medical school.

One of my principal themes will be to suggest that a third model (Fig. 3) is more appropriate to current needs. In this an additional factor is introduced into the equation. Faculty of medicine plus teaching hospital plus teaching community care units equal medical school. Granted many medical schools are already developing *ad hoc* relationships of various kinds with the medical services outside the hospital. I will suggest that there would be advantages in making these relationships formal at least to the extent that lays a statutory duty on the local medical services to provide facilities for teaching and research, and an obligation on the University Grants

Committee to provide funds for building and staffing such units as they do for teaching units in hospital. But before considering further what I will call for the moment community medicine I should like to examine briefly the relationship of the medical school to the university, and the service role of the medical school.

Medical School and University

It intrigues me very much to know how medicine came to be one of the four foundation faculties of the original European universities. If we turn to twelfth century Paris and the first university Charter we find the *universitas magistrorum et scholarum* set up by Gregory IX giving licences to teachers in theology, law, medicine, and the arts. Why did universities tolerate medical men in their midst from the very beginning? What gave the mediaeval medical man prestige equal to the cleric, the lawyer, and the philosopher? What role did medical men fulfil before they had the means to alter for the better the course of almost any disease? The lesson we learn here is that there is more in medicine than applied science and technology. These came much later. As Dame Annis Gillie (1970) has written of medicine: "Its practice involves a

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personal caring relationship as well as the use of scientific and technical skills. No other profession offers this combination in such a range of applications."

So far as I know, though medical schools were set up outside universities no university in Britain was founded without a medical faculty until well on in the twentieth century. The experience, for medicine, of being the "new boy" in an established university is an entirely novel one, at least in this country. With eight centuries of history behind us, is it necessary to reiterate that the roots of a medical school should be deep within the university? Unfortunately it is. In Britain in spite of Haldane, Goodenough, and Todd almost one-half of the 25 existing medical schools have connexions with a university which are still tenuous. To be specific it would be fair criticism to say that it is possible and indeed likely that a medical student at any of these schools might go through his whole course without meeting a student or a teacher of another faculty.

It is not enough to be administratively and geographically part of the university; channels for the communication of ideas in both directions must be developed not only with science but with engineering and with law, arts, and the social sciences as well. It was Abraham Flexner (1930), himself a classicist, who wrote, "The roots of medicine go deep into the cultural soil; its ideals are fundamentally humanistic and philosophic" as well as scientific. In the coming decades administrative, economic, and above all ethical problems will press on the doctor. I regard it as a sign of the times that the first series of open lectures given by my colleagues and myself in the university were, by request, on the theme "Ethical Problems of Modern Medical Practice." The State will continue to place the responsibilities of the gods as well as the duties of men on the shoulders of the medical man. The dominant question in clinical practice is often no longer what to do, but how much it is right to do.

One starting point from which to consider improvements in medical education is the current shortcomings of the profession. High up on any list, I fancy, would be our ignorance of, and often our contempt for, techniques of management, and our lack of understanding of the economic constraints within which we must operate. And yet whatever branch of medicine our students choose to enter, they are almost certain to be confronted with problems of management and of a limited budget. If we are to equip our students to meet these problems we must seek help from teachers in law and the social sciences.

Relationship between Faculties

The establishment of a mutually satisfying and stimulating relationship between the other faculties and medicine cannot be guaranteed by propinquity alone. It requires deliberate and careful cultivation. My own view is that it is sufficiently important to justify the appointment of special members of staff, at least in respect of those faculties where one is breaking relatively new ground. These co-ordinators should have a major rather than a peripheral interest in medical problems and should have a training and experience acceptable to both faculties. They may require to have two offices, one in each faculty, so that they may be seen to belong to both. In addition to co-ordinating teaching and exploiting all the local talents, these co-ordinators have the task of opening up channels of communication and facilitating the exchange of ideas. I envisage such joint posts between engineering, social sciences, and medicine. Why not between law and medicine as well?

Ideas flowing freely between medicine and the other faculties are shown in Fig. 4. This naturally looks at the situation with medicine in the centre, but diagrams could equally well

FIG. 4.

be made centred on other faculties. With such channels of communication open, medical school and university will draw nourishment from each other. Sir Harold Himsworth (1969) has shown how the advancement of a science depends on the inflow of a stream of questions from the "applied" end of the subject leading to the development of new methods which in their turn revolutionize the application of the science. In his Foundation lecture to the Royal College of Pathologists entitled "Administration and the Structure of Scientific Knowledge" he drew examples from the common territory between the biological sciences and medicine. Exactly similar reasoning may be applied to engineering and the social sciences. We have the problems; they have special skills. In this way we may help to keep our colleagues from what Sir Macfarlane Burnet (1953) called "the sin of infinite and futile elaboration" while they may help to keep alive in us the spirit of doubt, criticism, and inquiry.

Service Role of Medical School

This brings me to my second theme: the service role of the medical school. In addition to the familiar duties common to the university as a whole, to preserve and to extend knowledge and to teach, a medical school has a service role in preventive and therapeutic medicine. This stems from the simple fact that a practical subject like clinical medicine cannot be taught, nor can some aspects of knowledge in it be advanced unless the teacher practises. It is for this reason that all clinical university teachers have contracts to treat patients and indeed spend a substantial part of their working week "eyeball to eyeball" (to use a fashionable phrase) with the sick. If I may digress for a moment it is because of the burden of this additional duty that an unnecessary committee or an unduly discursive committee meeting is an even greater disaster for a medical academic than for his colleagues in other faculties.

Flexner (1930) described the service role of the clinical professor thus: "The professor of medicine needs patients just as the social scientist needs his environment . . . but . . . he has not the slightest obligation to look after as many sick people as he can; on the contrary, the moment he regards his task as that of caring for more and more of the sick he will cease to discharge his duty to the University—his duty to study problems, keep abreast of the literature, to make his own contributions to science, to train men. . . ."

There must therefore be a limitation to the professor's service role. But his must be much more than occasional clinical practice. Ideally he should excel. The clinical professor who does not have the professional respect of his patients and of his colleagues is in a sad predicament.

While the clinical teacher must obviously be free to select his field of interest and study, what of the teaching hospital? One of the principal functions of a job I once had was to select from the emergencies offered to a teaching hospital cases thought to be of teaching interest and to decline the rest. In case there should be any misunderstanding I must add that this was in a large city where there were many alternative hospitals. Interesting cases were thought to consist of

unusual conditions, of patients manifesting obvious signs of disease, and, most important of all, of cases which would not stay too long. You will have concluded correctly that not many of the very elderly with their multiplicity of problems, their strokes, and their broken hips were admitted. In retrospect I am convinced that this policy, which at the time was thought to be in the interests of medical education, was the reverse. It cut the students off and, equally important, cut off key groups of teachers from many of those problems which, just because they are commonplace, intractable, and defy easy solution, are precisely those the student will be confronted with for much of his career. I am not for a moment suggesting that all cases are equally suitable for teaching purposes—many lessons may be learnt from rare diseases, and a deaf or confused elderly person is not the best introduction for the student meeting a patient for the first time. But I am convinced that by and large the right place for the clinical student is in the press of medical events, largely unselected, which derive from the society of which he is a member; that society for whose service the medical school has a duty to prepare him.

Service, Teaching, and Research

Now let us examine the administrative implications of the medical school's service role. A favourite metaphor for the teaching hospital is a three-legged stool, the three legs representing respectively service, teaching, and research; an equal importance for each being essential for the stability and proper function of the whole. The problem is to translate this metaphor into administrative terms. To ensure administrative balance. To see that the organization of the services is compatible with efficient teaching; that teaching never compromises an efficient clinical service; and that the need to provide clinical service and teaching—and this requires special emphasis nowadays—never overwhelms research.

The system at present in favour in Britain is that the teaching hospital should be financed from two sources in terms both of capital and revenue (from the Department of Health and Social Security and the University Grants Committee). Is this the best system? Its inevitable consequence is a double system of committees and subcommittees, one responsible to the senate and council of the university through the faculty of medicine, the other to the management committee and the regional hospital board. Further, it tends to encourage a segregation of function which is against the interests of either partner. The temptation is to accommodate, for example, the professorial unit of anaesthetics or paediatrics and so on in one part of the hospital building, and the health service unit of these disciplines in another. This may simplify bookkeeping but I doubt whether it makes efficient use of resources or advances medical education. Would a unified system of finance such as Professor Peart (1970) has suggested prejudice that intimate relationship with the university on which I have set so much store? And where would such a system of financing end? How would it relate to the associated teaching units outside the main teaching hospital which all medical schools now require and which we have already started to develop in hospitals throughout the region; and to the financing of postgraduate medical education?

These are not questions which we can hope to settle today. They are difficult and important questions. I believe that the enormous goodwill on both sides that exists in Southampton and in Wessex is enabling us to find our own local pragmatic administrative solutions. Nevertheless, I do think that, looked at from a national point of view, they deserve far more serious consideration than they have been given in recent years either by the various royal commissions or by the Department of Health. The recent report on the organization of hospital work (Ministry of Health, 1967) takes no account whatever of

the need to reconcile service obligations with teaching and research opportunities, and there is no evidence that the needs of medical education received more than the most cursory consideration in the Green Paper on the organization of the National Health Service. For the meantime we are committed for good or ill to a system where a part of the teaching hospital can be described as "belonging to the university" and another part "to the National Health Service." And some of the staff are paid by the National Health Service and some by the university; though, thank goodness, the salaries for posts of equal seniority are now identical. And yet the whole must run as a single organic entity.

My own belief is that the only rational policy is to integrate: to consider the staff as a continuum with an involvement in teaching and service work differing in degree rather than in kind. For this reason I am grateful for the generous way in which the Wessex Regional Hospital Board has helped us by allowing vacancies in their service establishment to be used for professorial posts, and I am glad that the Senate and Council of the University have awarded clinical academic titles to members of the National Health Service staff not only in Southampton but throughout the region. It is to foster integration that we are appointing physicians and surgeons jointly paid by the Board and University. It is to foster integration that we are shunning the concept of "university departments" of medicine or surgery which might carry the implication that other parts of the hospital in the same discipline are not associated closely with the university. It is also to foster integration that we will insist that university and National Health Service paid staff working in the same field (say anaesthetics or child health) be accommodated as close together as possible in the new buildings.

Community Medicine

My final theme is the role of "community medicine" in medical education. I am bound to start with an attempt to define this term. The last thing I wish to do is to bore you with a terminological discussion for its own sake, but the fact is that "community medicine" is used in so many different ways that it is essential to explain my own personal view of it. I believe that within this term as it is widely understood are contained and confused two separate but closely related streams of thought. Together they constitute a tide which is flowing in medical education at least as strongly as did the tide for integration of the clinical and preclinical portions of the curriculum in the 1950s. And like the tide for integration the movement is world-wide.

The first of the two streams I am going to call community care. The second, which I will speak of in a moment is population medicine.

Community Care

Within the term "community care" I include all the overlapping systems of personal medical care which exist outside the hospital; prime among these is the general practitioner who is the doctor of first contact and is, or should be, the coordinator of continuing care. With him works an increasingly varied and complex team of professional people. I prefer as an overall term "community care" to "general practice" because it includes more than general practice. Furthermore, the term "community care" has the advantage to a medical school which will produce its first mature doctors in the 1980s that it carries no commitment to any particular system. It is as valid a term to describe personal medical care outside the hospital in California or New South Wales or Israel as it is to describe that operating in Hampshire. General practice, on the other hand, connotes a particular system, a good system, a system which many feel will prevail in its present

form, but a particular system existing in a particular place at a particular time.

That distinguished lawyer, public servant, and student of society Sir Geoffrey Vickers (1967), in a lecture delivered at the London School of Hygiene in 1966, got to the heart of the matter. He said: "The purpose of inpatient medicine is to cure the patients sent to it from the world of the well and to return them to the world of the well as quickly as possible. The purpose of community medicine (or as I would say community care) is far wider: it is responsible for managing in the world of the well the human estate of sickness and mortality . . . including aid in living with disability . . . and the limitation of disturbance in all the social systems which an illness disturbs. . . ."

Sir Geoffrey goes on to say, and from his standpoint of layman his statement carries additional weight, "both layman and doctor should reject the idea, the novel and mischievous idea that 'inpatient' medicine is the only 'real medicine'."

It is interesting to note that in the plans of new medical schools as far apart as Tromsø in Norway, Haifa in Israel, and Canberra in Australia there is a determination that a substantial part of the resources of the school will be devoted to introducing the undergraduate to medicine outside the hospital. Even more interesting to me is the fact that the deans of two of these schools are clinical professors expert in hospital-based medical techniques. When I asked Professor Barzilai, who is an endocrinologist in Haifa, why he was committed to building teaching units in community care his succinct reply was "hospitals do not solve diseases." Neither do they, at least so far as chronic disease is concerned. Like wars, hospitals create a whole set of fresh problems. Most of these are carried back to the patient's home and his place of work. Professor Hjørt, dean of the medical school planned for Tromsø, saw the same problem as a haematologist in relation to his own special interest, which is haemophilia. The social and genetic effects of the discovery of antihaemophilic globulin and its influence on the survival of the more or less incapacitated haemophiliac are formidable: the inpatient treatment of the acute episode of bleeding is relatively simple.

Community Teaching Units

The function of the community teaching units which I believe should be incorporated formally within the medical school, and for which capital and revenue should be supplied as a matter of course as it is for the building of teaching hospitals, is not to train general practitioners or any other particular class of doctor. This duty to "guarantee the possession of knowledge and skill required for the efficient practice of medicine, surgery and midwifery" (I quote the Medical Act of 1886) at qualification is one from which the undergraduate curriculum is at long last being relieved. That is now the function of postgraduate professional and vocational training. The academic function of the community teaching units, which must be based on general practices, is to supply every medical student, whatever his future career may prove to be, with an essential part of his basic experience. This is to show him what has been described as "the before and after" of disease as well as the "here and now" (General Medical Council, 1967); to introduce him to the patient in the home, family, school, and work place; to introduce the problems of case finding, of continuing care and resettlement; to give the student a balanced notion of the incidence, prevalence, severity and prognosis of disease; and above all to help him develop an understanding of his relationship not only with the patient, but with his partners in the long-term care of the patient; wife, daughter, friend, mother, and colleagues in the team drawn from other professions.

If these units are to discharge these functions adequately it will be important that hospital doctors as well as general prac-

tioners should teach in them. By inviting physicians, paediatricians, geriatricians, psychiatrists, and obstetricians to teach in the community care units and general practitioners to teach at the bedside in the hospital it may be possible to demonstrate the complementary roles of hospital and community medical services.

The successful management of "the human estate of sickness in the world of the well" requires the mobilization of the skills of rehabilitation and resettlement. Unfortunately these are the cinderellas of the medical schools in terms of both teaching and research. This is not surprising when one recalls that medical schools have been based almost exclusively on hospitals. Attention is naturally focused on the often heroic technology of the hospital episode rather than on what happens afterwards. There are rich harvests to be won from the study of the factors (largely non-clinical) which determine, for example, whether a man goes back to work two weeks or six months after a hernia operation, and which determine whether patients with the same disability are incapacitated or independent. The Wessex Region is one of the few areas in the country which has a Regional Rehabilitation Service. I hope we will build on this academically.

Research

The community care units also have a research role. An important aspect of this is to examine and experiment with the relationship between the hospital and medical care in the community. Economists studying the soaring costs of hospital care, planners studying medical manpower and emigration, believe that development of a more satisfying role intellectually for many doctors outside hospital and a re-examination of the role of the hospital itself are problems of the first importance. The medical schools have a duty to study, to criticize, and to innovate in the system of medical care in which they operate. To whom better than the universities with medical schools should a government turn for constructive criticism of the health services? Or is the whole Health Service to suffer every twenty years or so a paroxysm of reorganization, a sort of grand-mal seizure without preparation or experiment? As Professor Bishop (1967) wrote in his inaugural lecture at Birmingham: "The pattern of medical education is to a considerable extent dictated by the pattern of the health care system currently in operation. The pattern of this health care system is in turn largely influenced by the pattern of medical education to which its doctors were exposed. How this cycle is to be broken appears to be of the greatest importance for medicine in the future."

In Southampton I would like to see a long-term research unit into the nature of community care based on at least two teaching community care units with contrasting relationships with the local hospitals. For example, in one, Professor McKeown's (1965) concept of the organization of general practice might be tried out with doctors responsible respectively for children, the adult, and the aged, both in the community and in the hospital. In the other the more orthodox approach might be tried with a group of doctors each responsible for the care of all age groups, and with their area of responsibility confined to the community as at present. In this way the medical school would go forward in an atmosphere of criticism and inquiry about the health care system within which it operates.

Population Medicine

Finally a word about the other current of thought which seems to be contained in the term "community medicine." This I would prefer to call population medicine. It is to medicine what population genetics is to genetics. Just as human variation and natural (and iatrogenic) selection cannot be

studied with an electron microscope, neither by the examination of a single individual may such concepts as normal height or blood pressure, the prevalence of disease, herd immunity, the definition of subgroups vulnerable to certain diseases, differential survival, and prognosis be studied. This is the world of Galton and Snow, Farr and Graunt; the world to which Fisher, Ryle, and Bradford Hill have contributed so much in this century. It includes not only epidemiology but the scientific basis of prognostication, and some of the techniques used in the assessment of the effectiveness of prevention and treatment.

As it is my own personal interest I would be embarrassed to have to argue the importance of population medicine in the curriculum. I hope it is now a respectable science which can argue its own case. I would simply say this: that when the medical student is introduced to the study of man at the cellular and personal level he should at the same time be introduced to the group as a unit. He must learn to think in terms of populations and groups with the same facility as he thinks about the structure function and diseases of the individual.

Population medicine of course bears a close relationship to the other current of thought, to community care, particularly in the unique British system which fortunately gives to each general practitioner a more or less definable population at risk for whose health he is responsible. As populations are the basic unit for this discipline, so information about people healthy and sick is its stock-in-trade. A modern medical school must therefore be associated with definable populations which it can sample and study, and create for itself efficient systems of medical information. This is one of the reasons why, with generous help, we have created a chair of medical information science in the formative period of the medical school.

Conclusions

From all this I draw the following conclusions.

Firstly, the place of the medical school remains, as always, squarely within the university. Indeed, there are indications that in the next decades the medical school will draw more widely on the skills of the university than it has ever done before. It will draw nourishment not only from science but from engineering, the social sciences, economics, law, and philosophy, and to each of these we hope it will contribute the stimulus of ideas. Juxtaposition alone will not guarantee

the establishment of a free flow of ideas between medicine and the other faculties. A deliberate effort must be made to foster the appropriate type of relationship with each faculty.

Secondly, the administrative and managerial problems of medical schools, and in particular the reconciliation of the functions of teaching and research with service needs, require a major independent investigation. May I suggest that such a study might usefully be initiated by one of the charitable foundations?

Thirdly, a medical school can no longer reasonably be considered to consist of a faculty of medicine in a university and a teaching hospital and its satellites. In addition a substantial part of the resources of the school should be devoted to introducing the undergraduate to medicine outside the hospital. This requires capital for building and revenue for staff. The reorganization of the National Health Service which is shortly to take place would be a suitable occasion formally to recognize this fact and to lay a statutory duty on the proposed area health boards to provide facilities in the community, just as a similar duty is currently laid on boards of governors and regional hospital boards to provide facilities in hospital. Such formal recognition is not intended as a device to force co-operation. This is always forthcoming. It is to give public recognition in an unmistakable manner to the essential part which must be played by the community medical services in undergraduate education in the future.

My fourth and final conclusion can be expressed very briefly. It is that the modern medical school has a duty to study, to criticize, and to experiment with the system of medical care in which it operates.

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Symptomless Haematuria in Childhood

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Summary: The clinical, laboratory, and renal biopsy findings in 47 children with symptomless haematuria are reported. In 41 the haematuria was recurrent. Local causes were excluded by means of intravenous urography, which was normal in all but one child, who had a horseshoe kidney.

Since all the patients had presented in a similar manner

they were classified into four groups according to the severity of glomerular changes on renal biopsy. In group 1 the glomeruli were optically normal. In group 2 they showed a variable degree of mesangial thickening with absent or minimal cellular proliferation. In group 3 there was diffuse mesangial thickening and proliferation—an appearance indistinguishable from that of subsiding post-streptococcal glomerulonephritis. Compared with groups 1 and 2, more patients in this group had persistent proteinuria, as well as evidence of streptococcal infection preceding the initial haematuria. Only two patients showed severe proliferative glomerulonephritis on biopsy (group 4); both had heavy proteinuria and one repeatedly had low serum β_1 -globulin levels.

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