Green College Lectures

The National Health Service, the universities, and the research councils: the future of academic medicine

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Academic medicine in this country has a relatively short history. When Sir William Osler became regius professor of medicine in Oxford in 1907 there were no clinical academic departments in any of the medical schools and nowhere was there any institution comparable with the Johns Hopkins Medical School in the United States where with Welch, Halsted, Kelly, and Franklin Mall, Osler had had the unique opportunity "to blaze a perfectly new road, untrammelled by tradition, vested interest or medical deadwood." In 1911, the year that he was knighted, he gave evidence to the Haldane commission on university education in London. There he had no hesitation in roundly condemning the London medical scene, the schools having no clinical laboratory base, little or no link with the university, and no paid staff. His conclusion was that the only solution was "an active invasion of the hospitals by the universities."¹

Between the world wars a start was made in encouraging the development of clinical academic departments in the medical schools in this country. This process was greatly accelerated following the recommendations of the Goodenough report which were implemented in the period following the ending of the second world war. At the same time clinical research was given strong support by the Medical Research Council (MRC) whose secretary in the post war years was Sir Harold Himsworth, the only practising clinician to have served as secretary to the council since its foundation in 1913; he was naturally concerned to encourage clinical research.

By the early 1970s the progressive expansion of the academic sector of medicine had created a widespread spirit of optimism and hope. In the universities throughout the country there were well found clinical departments staffed by men and women with a full time commitment to teaching and research. The old rivalries between academic and part time staff had largely disappeared, and in the best schools part time staff were also developing their own laboratories and research programmes, in some instances doing rather better than the professors themselves. In Oxford the Nuffield professorships had been influential in developing an outstanding clinical school. The Postgraduate Medical School had by now become royal and in 1968 the historian Noel Poynter, recalling Osler's opportunity to "blaze a new trail" at Johns Hopkins, praised the school's success as "an example of what can be achieved when the restrictions imposed by tradition and vested interests are loosened."² The MRC's Clinical Research Centre (CRC) at Northwick Park, an entirely novel venture, had been opened by Her Majesty the Queen in 1970. It was also a reflection of the money

available in those heady days that the MRC had been able to set up a series of research groups in the universities, the resources being provided by the MRC for an initial five year period, with a *guarantee* by the University Grants Committee (UGC) to provide takeover funds at the end of that time.

It is from this historical background that we turn to today. It is profoundly disturbing that from those euphoric days of the early 'seventies we have passed to a position when the question is not just the future of academic medicine but whether in its present form it has any future at all.

Reverse in fortunes

In the past decade there has been a profound reverse in the fortunes of academic medicine. Academics in this country might have been prepared for a period during which the development of their subjects stood still. Instead they have had to deal with a situation in which everything has been put effectively into reverse. As Sir Maurice Shock put it when he was chairman of the Committee of Vice Chancellors and Principals: "Everything built up since the war is in danger of being dismantled unheedingly. . . ."³

What, then, is the way ahead? We cannot just sit and wring our hands hopelessly; we must take effective and radical action. The first requirement is obviously staff. The progressive reduction in clinical academic staff in our medical schools must be halted (fig 1). The most urgent requirement for revitalising British academic

FIG 1—Full time staff numbers in clinical academic departments in Britain 1939-86. Source: Universities Statistical Record.

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medicine is the creation of several career posts for talented research workers who wish to spend almost all their time in research. Sir David Weatherall, in his evidence to the House of Lords Select Committee on Medical Research called for the immediate creation of "perhaps a couple of hundred full-time research posts, preferably within university departments." The Association of Clinical Professors of Medicine has gone further and requested that at least 250 career posts be created in academic medicine at senior lecturer level and has drawn attention, too, to the equally pressing need for up to 100 career posts for basic scientists working in clinical academic departments. It has been suggested that such a development could be channelled through an organisation similar to that which was jointly organised by the UGC and the MRC for "new blood" lectureships. The cost of these developments would, as assessed by the Association of Professors of Medicine, be relatively modest, since the association has estimated that it would cost less than £18 million a year.

There is then the problem of how clinical academic departments should be organised in order to be in a position to exploit the remarkable opportunities opened up by the new biological sciences. It is clear that given existing financial constraints it will not be feasible for every university clinical department to develop the staff, laboratory equipment, and space required for modern molecular biology, for example. The answer could well be to create common user facilities which could be shared within medical schools. Individual clinical departments could have access to space in such laboratories which would have a core of expensive equipment and scientific staff to maintain them.⁵ This pattern of research management already exists in MRC institutes and it is important for the future that universities develop this type of approach. It is a development that requires of university professors that they give up their long cherished hegemony over their individual empires, but as Weatherall has argued the idea of a "research hotel" provides an environment where clinical scientists from a variety of individual specialties can work under one roof and use common technology and expertise. In such a way a body of investigators can be built up to achieve a critical mass. It is also an environment which is more attractive to non-clinical scientists who do not feel that they are isolated as they are in small clinical academic departments. It is heartening to see this vision of the future being so actively pursued in the Institute of Molecular Medicine in Oxford.

Financial restraints on MRC

For such developments it is essential that money be available for developing research initiatives. The MRC, as is well known, faces serious financial constraints. The council has made a major contribution to the Oxford venture, but at a time of generally declining resources there is evidence that clinical research nation wide is now receiving proportionately less support than a decade or more ago. Clinical scientists lost their Clinical Research Board in the early 1970s when the MRC's board structure was reorganised into three major boards—neurosciences and mental health, cell biology and disorders, and physiological systems and disorders. The difficulty with this arrangement, so far as clinical research is concerned, is that everything which is regarded as clinical research tends to be pushed on to the Physiological Systems Board, whose name in 1988 is a trifle outdated and which therefore comes to be seen by MRC administrators and others as a bit of a hotch potch board dealing with the softer ends of science. There are those who have argued that the present MRC board structure has been inimical to clinical research. It is clear that the proportion of the council's commitment to clinical research has been falling steadily for at least a decade, as evidenced by a reduction in the number of research units and programme grants devoted to clinical subjects. It is also not surprising, given the swingeing cuts in the staff of clinical academic departments in the past decade (approximately 25% in all), that there has also been a progressive fall in the number of applications for project grants in the clinical field, particularly in those that are successful. All these factors point to a sad but marked decline in clinical research in this country, a state of affairs that can

only be viewed with alarm at a time when the prospects for clinical research have never been so exciting or challenging, and when the quality of potential recruits, as evidenced by applications to the MRC for clinical research fellowships, has never been so high.

With such problems facing medical academe it is the charitable organisations that have come to the rescue. The Wellcome Trust, with its imaginative programmes of support for clinical research, has been of major importance. The British Heart Foundation, the Imperial Cancer Research Fund, the Leukaemia Research Fund, the Cancer Research Campaign, and a host of other charitable foundations have also supported academic medicine nobly in recent years, but it must be emphasised that the allocation of money for staff working on short term projects is no substitute for UGC funded positions. Furthermore, the charitable trusts are in general subject oriented so that disorders high in the public perception, such as cancer and heart disease, receive and give on a scale which can imbalance the research development of a medical school. Unpopular and Cinderella subjects, such as mental illness and geriatrics, and those that are more or less taboo—for example, diarrhoeal illness or sexually transmitted disease, with the notable exception of AIDS—find it very much more difficult to establish themselves in the public mind.

Comparison with America

It is, however, the organisation of our clinical academic departments themselves that is most deserving of attention. Paul Beeson, when Nuffield professor of medicine in Oxford, frequently said that our clinical academic departments are simply not big enough, when compared with their American counterparts. Were the government to respond to the urgent need for increasing staff numbers expressed by Weatherall and the Association of Clinical Professors of Medicine to the House of Lords committee, we should have gone a small way towards remedying an increasingly critical position. But can we go further? As Beeson implied the fundamental distinction between the highly successful American academic department in its teaching hospital and in our own is one of scale. The American clinical professor is chief of service and therefore controls developments in the entire range of his field. By contrast his British counterpart is simply another consultant, equal, and in some instances regarded as inferior by his consultant colleagues. Our medical schools have always depended on a close and harmonious relationship with the health departments. There have even been suggestions that the medical schools should be taken over by the Department of Health and Social Security. I do not favour this, but I do favour the reverse. If we really seek to achieve that "active invasion of the hospitals by

FIG 2—Suggested organisation of future clinical academic department in a medical school.

Some important areas of health care requiring the application of the scientific method

Vascular disease*
 Mental illness*
 Cancer
 Accidents
 Behavioural disorders
 Drink*
 Drugs
 Diet*
 Smoking*
 Genetic disorders*
 Infections and disordered immunity*
 Perinatal and child health*

*Active programmes at CRC

the universities" advocated by Osler why can we not make the clinical professors chiefs of service in their own teaching hospitals so that they control developments across the whole range of sub-specialties within their subject? (fig 2). Health authorities could go further and reimburse medical schools for the payment of salaries to consultant staff, as now occurs at the Royal Postgraduate Medical School in association with its special health authority at Hammersmith. Such a radical development would run counter to the standard dogma that in hospitals all consultants are equal. That, however, is itself an outmoded view. The term consultant, as applied to senior medical staff in the modern era, is increasingly inappropriate, dating as it does from the old days of the voluntary hospitals when such staff did in fact act as consultants. Now, however, they are managers of teams forming multidisciplinary groups and there is an urgent need for integration of activities rather than centrifugal dispersion. This task of integration in medical schools, if it is to be undertaken at a clinical level by the professors as chiefs of service, would require the imaginative support of both the Department of Education and Science and the DHSS. That would be the right way to go. And if such a move were to develop momentum in teaching hospitals how much more need is there for a similar chiefs of service system to be developed within district hospitals throughout the health service where the present system of management of medically controlled resources leaves a great deal to be desired.

I have already referred to the vital importance of the MRC in developing clinical research in this country and I would like to turn now to a question of immediate and topical importance—the MRC's in house support for clinical research. The records of the MRC show that from its earliest days the council sought to encourage "not only disinterested or pure science, but also clinical research and experimental medicine." Sir Thomas Lewis's department of clinical research at University College Hospital, supported by the council for so many years, and continued after his death in 1945 by Sir Edward Pochin, was always regarded as the clinical wing of the basic science programmes developed at the National Institute for Medical Research (NIMR).⁶ The MRC has always recognised that research and teaching, although necessarily and rightly inter-related in the medical schools, have needs which are to some extent in conflict. As one of their early reports recorded: "For teaching purposes, beds must be so filled . . . as to illustrate as completely as possible the whole normal range of medical work in all its fields."⁷ For full time research workers, however, the position is different. "Research work, on the contrary," the report went on, "requires concentration upon some particular disease or some specific aspect

of disease." The council report continued, "The purposes of clinical education are in this sense not wholly compatible with those of clinical investigation."

Foundation of the CRC

Lewis had a clear vision of clinical science as a discipline in its own right and it was he who in 1929 suggested to Sir Walter Fletcher, then secretary to the council, that the MRC should develop a clinical institute comparable to the NIMR, "within which the workers would be free from the distractions presented by the petty and mainly diagnostic problems of diverse and obscure cases and in which they can settle down to a more profound and uninterrupted study of the natural history of selected diseases."⁸ His views were reiterated in a memorandum to Sir Edward Mellanby in 1942,⁹ and it was Sir Harold Himsworth, with the support of the Clinical Research Board, who gave practical expression to Lewis's concept with the foundation of the CRC at Northwick Park. It was deliberately sited at a district general hospital, firstly because it was thought that at a teaching hospital there would inevitably be conflict in terms of beds and research policy, and, secondly, so as to ensure that the research workers would be exposed to the common problems of human disease as occurring in a defined community. There was clearly a compelling logic to that argument in the 1960s when so many teaching hospitals in London were tertiary referral centres frequently concentrating on the rare and esoteric. The CRC was never intended simply to do what was already going on in clinical academic departments.

The hospital at Northwick Park provides a comprehensive service to a defined community in Harrow. It is a district hospital of 800 beds, of which 160 have been allocated to the MRC for research purposes. These beds are available for the study of "the natural history of selected diseases," to use Sir Thomas Lewis's phrase. The CRC model (fig 3) is, therefore, as Himsworth had wished, quite different from that in the universities in this country. It is also

FIG 3—Organisation of clinical research at Northwick Park.

rightly different from Hammersmith, for the dedicated research worker has no desire to be distracted from his work by being a chief of service on the American model. The facilities have been particularly valuable in encouraging long term studies of commonly encountered human disease, as envisaged by Lewis, and the programmes of research (see box) have included the biology of the brain in schizophrenia, alcoholism and its prevention, vascular disease, sexually transmitted disease, obesity, allergy, arthritis in children, diarrhoeal illnesses, and diseases as banal as the common cold, for the MRC's Common Cold Unit in Salisbury has been an important outstation of the CRC. The CRC has also been flexible

enough to change its research direction relatively rapidly. For this reason it has been possible to develop coordinated programmes in cell and molecular biology in a way that would have been difficult, if not impossible, in a traditional clinical academic setting.

From the start, however, there was controversy over the founding of the CRC. There were academics in the medical schools who thought that it should not have been set up at all, others who believed it had been set up in a wrong way. The *Lancet* greeted the Northwick Park development with a leading article in 1969 that referred to "mutterings about guinea pigs and monstrous white elephants,"¹¹ although later in 1980, on the centre's tenth anniversary, it paid tribute to its "excellent reputation for clinical research in psychiatry, dermatology, allergic asthma, anaesthesia and communicable disease—to name but a few."¹² There is undoubtedly a national need for an institution for clinical research, funded by the MRC, where those rare clinical scientists who wish to devote themselves predominantly if not exclusively to research may do so.

Naive and superficial report

In 1986, however, the MRC published the report of a council committee chaired by Sir Michael Stoker, which was charged "to consider the original concepts and objectives of the Clinical Research Centre (CRC) and, if required, to propose for the future new objectives and organisational changes to support them."¹³ It is not my purpose here to explain the shortcomings of that report which now, two years later, is seen to have been both naive and superficial, a not surprising eventuality since the committee troubled neither to make any site visit, nor to consider the scientific achievements of the centre. The committee seems to have been inspired by the Cartesian concept of *cogito ergo sum* rather than by the scientific empiricism of Locke and Newton. Suffice it to say that the overall recommendation of the report was that in an ideal world a new and larger centre for postgraduate medical education and research was needed in this country and that it should be created by joining together the CRC, the Royal Postgraduate Medical School, and the National Institute for Medical Research on one site. This conclusion, though not the report itself, was strongly supported by CRC staff,¹⁴ who would appreciate association with a university providing they can continue to enjoy the facilities which permit them to concentrate on research as their major activity; more importantly they would welcome closer association with basic scientists at NIMR. There was, however, one important piece of evidence given to the committee by a witness sheltering behind the protection of anonymity that must be challenged. That witness stated that the study of common diseases did not accord with the way in which clinical research had been going in recent years. The Stoker committee went so far as to comment that it was particularly impressed by that evidence. The history of the MRC's activities in clinical research, however, has shown that the frequency of occurrence of human suffering has always, and rightly, been a matter of major concern, as it was when the council specifically encouraged studies of the epidemiology of cancer of the lung—set up the Pneumoconiosis Research Unit in response to the pleas of South Wales coalminers grievously afflicted with respiratory ailments—coordinated the studies of the treatment of hypertension in general practice, and more recently has supported a wide range of research into coronary heart disease.

Furthermore, if common diseases were not to be of major concern to the council's clinical research workers there would remain the question of what sort of research a clinical scientist, working at a national centre, should undertake. Sir Peter Medawar in his *Advice to a Young Scientist* confidently stated "that any scientist of any age who wants to make important discoveries must study important problems. Dull and piffing problems yield dull or piffing answers. It is not enough that a problem should be 'interesting'—almost any problem is interesting if it is studied in sufficient depth."¹⁵ Unquestionably in the applied field of clinical research what is most important is what is most common. It has often been said that the discoverer of the penicillamine treatment for Wilson's disease might

have got a Nobel prize if Wilson's disease had been a common disorder.

It is also worth reflecting that it is from a deliberate decision to study a very common disease, arterial atheroma, that the division of molecular medicine at the CRC has now shown something truly remarkable—there is a sequence change in the messenger RNA which expresses the intestinal form of apolipoprotein B, which is *not* coded in the genome.¹⁶ Clinical research does not, as so many basic scientists suppose, derive its impetus entirely from basic science. We owe a great debt to basic scientists and particularly to molecular biologists, but as Brown and Goldstein pointed out in their review of the CRC work¹⁷ and the American studies published subsequently showed,¹⁸ just occasionally we repay that debt.

If we are to achieve standards of the highest quality in clinical research we require, in addition to our university academic departments, professionally managed research facilities such as the MRC has set up at the Clinical Research Centre. I believe that clinical research workers have just as strong a claim on the MRC for such facilities for full time research as any basic scientist.

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What is the role, if any, of long term anticoagulation in preventing embolic stroke in an elderly patient with paroxysmal atrial fibrillation reasonably well controlled with amiodarone at present?

Anticoagulant treatment virtually abolishes the risk of embolic stroke in patients with atrial fibrillation, but against this treatment's important advantage must be set its hazards and the constraints on lifestyle imposed by the need for strict control. Thus the likelihood of an embolic complication must be assessed carefully before making recommendations for individual patients. The older standard recommendations for anticoagulant treatment in patients with atrial fibrillation emphasised the underlying cause, especially mitral valve disease.¹ But the arrhythmia—paroxysmal or established—carries some embolic risk even in the absence of valvular or overt myocardial disease.² Amiodarone can abolish paroxysmal atrial fibrillation in many patients, and it usually reduces the duration and frequency of attacks in the remainder. If the arrhythmia on treatment occurs only rarely and briefly, and seems not to be associated with periods of atrial standstill, anticoagulant treatment may not be indicated. Advanced age is also a relative contraindication to treatment, while weighing in its favour are factors such as mitral valve disease that increase the possibility of stroke. For patients with paroxysmal atrial fibrillation who do not receive anticoagulant treatment the doctor should consider giving low dose aspirin, though there are no reliable data on efficacy for this indication.—D A CHAMBERLAIN, Brighton.

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