James Mackenzie and the future of medicine*

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I FEEL greatly honoured at being asked to give this important lecture and I hope that what I am about to say will be found worthy in comparison with the themes which have been dealt with by my 14 distinguished predecessors.

James Mackenzie died in January 1925, and Sir Humphry Rolleston, the President of the Royal College of Physicians, at the end of his customary obituary speech, delivered at the college in April of that year, which was both long and eulogistic, said: "At present it must be admitted that his later views were not as clear to others as they apparently were to him. But who can tell how far the future will show that he was on the right lines."

Mackenzie had published, in 1919, a short book called *The future of medicine* in which he presented his views on the state of medical training, education and practice at that time and made suggestions on how these should be improved and changed in the future. He set out what he recognized as the four stages of disease—the predisposing stage, the early stage, the advanced stage and the final stage—which is the stage of death. He recognized how important the study of pathology and of surgical procedure had been to the recognition of diseased processes, and remarked that:

> Ample provision has been made for the study of disease, after it has killed its victim. . . . If we seek to find out—he continued—what are the facilities offered for the detection and cure of disease in the stage when it has not damaged the tissues, we discover that there is little consideration given to this aspect of the matter.

A little further on he writes again, referring once more to the large amount of knowledge now available pertaining to the third stage of disease:

> It must be recognized that this development is to all intents and purposes restricted to the recognition of disease after it has advanced so far as to have damaged the tissues, a stage which except in rare instances, does not permit of our attaining one of the great aims of medicine—cure.

A great deal of progress in medicine has, since he wrote, been directed towards this third stage: even organ transplants are only meant to deal with disease in its third—or even almost its fourth—stage. And here I think it worth pausing for a moment to consider how far we have got our medical priorities right. We have now to decide whether money should be spent to enable a young worker with, for example, a hernia, to obtain prompt treatment and so return quickly to productive work, or to spend a large, a really large, amount of money on temporarily patching up a person whose cardiovascular system is already gravely diseased by giving him the heart removed from the eagerly-awaited body of the healthy victim of an accident. Thus, a moribund person is given a new heart to enable him to shuffle round for a little longer in a macabre dance of death. I am glad that this decision does not lie within my own powers of resolution: but I have an idea into which direction I should direct the necessary funds. One may well ask whether, under a National Health Service, money needed for pure research should come out of the same pocket as that for proved and accepted forms of therapy?

How far are these criticisms made by Mackenzie 50 years ago true now? How far

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have methods unknown then made possible a cure now, even when the tissues have been damaged? This is a difficult question to answer in general terms, but by looking at one or two types of disease one may get an answer. Take cancer first: little was known, 50 years ago, of the curability of this disease. Patients who had been successfully treated often did not bother to see their doctor again and the majority of those who saw their own doctor, or the surgeon who had operated on them, were those in whom the treatment had failed. Then, in 1929, to celebrate the recovery of King George V from a serious illness, a large stock of radium was purchased, in part by public subscription and in part by means of a grant from the Government, and vested in the hands of a voluntary body known as the Radium Commission. This radium was lent to 14 hospitals, subsequently increased to 23, under strict conditions for its use, for the treatment of patients suffering from cancer of suitable organs—suitable, that is, for treatment by radiotherapy. Among the conditions laid down for a loan was that a careful 'follow-up' of all patients so treated should be maintained for a minimum of five years: a follow up rate of over 95 per cent was expected by the commissioners. By this means it was discovered that a large number of patients suffering from cancer remained in good health and free from symptoms for five years or more.

Recent investigations of survival have shown that for cancer of a large number of organs the outlook, if treated promptly and well, is good. For example, cancer of the breast, when treated early, shows a survival figure, or cure rate, of 80 per cent, of the cervix 70 per cent, of the larynx 90 per cent, of the rectum 75 per cent. When all stages are analysed together the percentage naturally falls, and we find that the figure for breast is only 35 per cent, of the cervix 30 per cent, of the larynx 15 per cent, and of the rectum 12 per cent. In a large number of patients with cancer of the cervix, originally collected and collated by the League of Nations but now supervized by another form of international control, it was found that out of 262,548 patients who were seen, 243,471 were considered suitable for treatment: those whose disease was still at an early stage showed a 75 per cent five-year-cure rate, while for the whole sample the figure was in the neighbourhood of 50 per cent.

Unfortunately, cancer of the lung and cancer of the stomach do not show anything like the same encouraging results.

Careful recording and 'follow-up' was one of Mackenzie's basic requirements for increasing the knowledge of the significance of early signs of ill health. When the Ministry of Health was first established, out of the Local Government Board in 1919, Mackenzie had a long correspondence with Sir Robert Morant, the able permanent secretary, and with Sir Walter Morley Fletcher, the secretary of the Medical Research Committee, on the nature of the medical records which should be kept in order to obtain useful information on disease in its early stages. Unfortunately, the three men did not agree on the method to be adopted, and Mackenzie's advice was not taken.

When Mackenzie first opened the Institute for Clinical Research at St Andrews in 1917/18 one of his objects was to obtain good records of the complaints of all the patients who attended: he hoped that in time this record would cover all the inhabitants of that small Scottish town which had, as he had first found out, a relatively stable and static population. In 1920 he wrote that satisfactory records were impossible to attain until a great deal of preliminary research had been undertaken and that two years had been spent at St Andrews in finding out the best method of keeping records, and he hoped that by its use knowledge would be obtained of the few vital processes which lay behind the production of an infinite number of symptoms. This may have been written as a result of a suggestion made by Morant that he, Mackenzie, should be the chairman of a committee to decide the type of general record needed: it was expected that the meetings and other business would not take more than three or four weeks, with one meeting each week.

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In 1963, an analysis was made of the records of those children who attended at the institute between 1920 and 1927, and who were suffering from catarrhal conditions of the upper respiratory tract to see if there was any evidence that such people developed chronic bronchitis in later life more often than was found in a corresponding control sample. It was possible to trace all but 12.6 per cent of these children with little difficulty. But, on analysis, it was found that the people traced were too young, as yet, to draw any firm conclusions: it is hoped to be able to carry out another 'follow-up' on this sample in some years time. But even a small investigation like this shows that it is possible to keep track of a large number of people over a long period of years.

The institute was in many ways the precursor of what has become known as a 'health centre'. All the practitioners in the town, eight in number, agreed to co-operate and were given facilities to practise from the institute, where there were consulting rooms, secretarial assistance and a small pathological laboratory and an x-ray department. There was a reference library and rooms where the doctors could meet and where clinical and other meetings were held. The institute, in its original form, did not long survive its founder's death, but it was not finally wound up until 1949, when its funds were used to establish chairs of Social Medicine and Child Health in the University of St Andrews. It is interesting to know that there is a proposal under consideration at the present time to establish a new health centre in what is now the cottage hospital at St Andrews. The need for a careful follow-up of all disease is becoming obvious and more and more accepted by most investigators: but how the mass of material that has become and is at present becoming available can best be used to advantage it is difficult to tell. Records kept for the sake of keeping records rarely prove of value to future investigators, and unless it is known and understood from the start for what purposes the information sought is being collected there is often little point in keeping endless piles of elaborate records.

Mackenzie always wished to see the role of the family doctor, the general practitioner, increased in importance, for it is to the family doctor, rather than to the hospital physician, that the patient will turn for advice when he is first 'conscious that there is something wrong with him'. The role, and status, of the hospital physician has changed since Mackenzie wrote, and it is likely that these changes will become more marked as the years go on.

In the branch, for I will not call it a 'speciality', of medicine in which I have practised, the position of the hospital physician has so changed that he might now almost be regarded as the chairman, by virtue of age and seniority, of a working party, to use the phrase in its truest and most correct sense, to which the care of elderly sick patients has been entrusted. Who can say, with certainty, whether it is the physician, the registrar, the occupational therapist, the physiotherapist, the medical social worker or the ward sister who really plays the most important part in restoring any one patient to his normal place in society? The physician is the accepted mouthpiece of the group, for there should not be more than one channel of communication between the various hospital departments. In dealings with the local authorities and the many, valuable voluntary societies the same does not apply. The work of the general practitioner can be helped and encouraged by contacts of the type which I have indicated. A geriatric department can now, rightly or wrongly, be regarded as the only department of what can be called real general medicine, in its widest sense, in a large general hospital. It is at the same time one of the most important departments from the point of view of the general practitioner. An interested and good general practitioner will want to work as closely as possible with the geriatric department, and, at the same time, a good geriatric department will be an encouragement and stimulus to a general practitioner: the work of the one is complementary to the work of the other. The geriatric department, unlike many others in a general hospital, welcomes the arrival—as indeed it should—of an

elderly patient: the practitioner can now feel that he is not fighting a lone battle for the proper care and management of his elderly patients, and he will be encouraged to take a renewed interest in their care and welfare, secure in the knowledge that help is available should he need it. At the same time it is an advantage if the geriatric consultant himself does some private practice: this work will probably not develop greatly, for practitioners are, on the whole, conservative and tend to send their elderly patients to the same consultants as they send their younger or middle-aged ones: no one will grumble at that. But it is a great advantage, spiritually, to a geriatric physician to be called in to see, for example, an elderly lady, living alone in a small flat, with an elderly spouse, who has suffered a recent stroke, who cannot afford to go into a nursing home, and does not wish to go into hospital, where there may be no bed immediately available. The consultant then has to think what are the best practicable measures he can take, or what advice he can give to help both the patient and the practitioner: and it is very good for a consultant to be made occasionally to think for himself.

To give this full feeling of security to both the practitioner and to his elderly patients it is necessary that the head of a geriatric department should be of senior consultant status: this has now become generally recognized. There has been a tendency in some circle to regard the geriatric department as a rather second class affair, into whose beds unwanted old people could be dumped by greater beings who felt that their beds were being unfairly blocked by the presence of these elderly sick people. There has been, and still is, a good deal of muddled thinking where elderly persons are concerned: all too often one has come across occasions when an old 'chronic sick' ward, of poor law origin, has been renamed the 'geriatric department' although the changes in staffing, equipment and, indeed, outlook have been minimal: but local honour and pride are satisfied—"we have a geriatric department: we are now up-to-date". The fact that this department is starved of money, equipment and staff is not considered a matter for interest or concern. And here it may be worthwhile commenting on an unfortunate and increasing tendency in the press and elsewhere to label any ward, institution or home which houses or takes care of old people as the 'geriatric' ward, etc., a misuse of a term which is both misleading and confusing. Not so long ago the word 'geriatric' was virtually unknown, and it came into use when a number of doctors, horrified at the conditions under which old people were cared for in poor law or public assistance institutions came together and agreed that it was time that this should cease. New geriatric departments were, with some difficulty, established in general and other hospitals and there are now over 150 of these in the country. Most of these have shown a marked improvement in the care of elderly persons, although, as might be expected, there is some variation of standard: on the whole the improvement has been great. It is sad, therefore, that the word 'geriatric' has assumed, or is assuming, an almost pejorative quality and has become synonymous with the word 'old': in this way some of the encouragement to improve has gone, and the world at large is lulled into a feeling of complacency, or of indifference until some new shock comes from outside to indicate that all is not as well as it was, rather dreamily, hoped to be. The British public, and maybe other publics, too, have a tendency to sweep under the bed things they either don't want to see or of which they are vaguely ashamed.

But in the administration of a well-run geriatric department there seems to lie something of the pattern for a good deal of the medicine of the future. And here I must interrupt for a moment with a cautionary tale. At a recent meeting of the British Geriatric Society a paper was read by Professor Revans, of Manchester. He had been asked by the Regional Hospital Board to investigate why it was that in some of the hospitals in Lancashire—and there are a number of these, of roughly the same size, in towns of roughly the same size and dealing with a roughly similar population—the number of student nurses who failed to complete their full training varied so widely. After a long enquiry Revans attributed the reason for this variation to the attitude of the consultant

medical staff. Where the consultant treated the ward sister more as a colleague than as an inferior being, so she, in her turn, treated her junior staff, and the result was a happy hospital where the junior nursing staff proceeded, for the most part, to qualification. Where, however, the consultant behaved in the old-fashioned god-like manner, this attitude spread through the whole nursing staff, and wastage, to use a horrid word, was high. Here I think that we, in the geriatric world, can afford to be a little complacent. It is difficult, as I have already said, to assess the order of importance to our patients of the various members of the hospital staff, or team, to use a more up-to-date word: but there is not much doubt that the value and work of the nursing staff overshadows the value and work of everyone else. The occupational therapists and physiotherapists occupy a high place in the hierarchy, but the poor physician comes, as himself, a long way down. In so far, however, as he acts as chairman of the group he can by his own interest and enthusiasm encourage all of those others to give of their best, or more, if such a thing were possible.

It is often said that it is difficult to obtain nurses to work in geriatric departments. There is no reason why this should be so. The General Nursing Council has agreed that all student and pupil nurses may do part of their training, three or four months, in a geriatric department. It is up to the matrons in charge of the training schools to put this into action. Many, however, refuse to 'waste their young nurses in such wards'. Yet, and I can talk here from personal experience, I do not think any student nurse, however apprehensive she may have been at the start, has disliked her work in the geriatric wards at University College Hospital. They knew they had only to work there for three or four months and their cheerful youthfulness was of immense value in making these wards into happy places, where it was a pleasure to work. Furthermore, if their future work is to lie in private nursing they will find that more and more of the patients in their care will be from among the aged.

In these ways, in the recognition of the value of the supplementary professions of all sorts, in the relegation of the consultant from his old fashioned status to being one of *primus inter pares* and in emphasizing the importance of the inter-relationship between the general practitioner and the hospital department, I feel that the geriatric service has played almost more than its fair share in indicating the pattern of hospital work for the future.

What one wants to teach the young is, surely, how to develop their powers of observation, for it is by the use of this power that both doctors and nurses are able to give of their best to their patients. Mackenzie's great contribution to medicine came from his power of observation, and of teaching himself, or working out for himself, what was worth observing and recording and what was not. I have already referred to his correspondence with Morant over records, and it was because he early worked out what were the significant facts that he needed for his work at Burnley that he was able, in what must seem now a very short time, completely to revolutionize and simplify our knowledge of diseases of the heart and of how that organ works. Observation must be closely linked with the ability to convey to others what has been observed, and here I would like to quote a story which seems to me to illustrate lack of observation and communication. A medical social worker was asked to pay regular visits to a woman in London and, among other things, to make sure she did not do too much or over exert herself, for she lived on the fifth floor of a modern building where there was no lift. She found herself hampered in her work by the woman's husband who would insist that she took a daily walk in the nearby park. After some time it transpired that the doctor at the hospital at which the patient was attending had advised that she should take a little gentle exercise each day, with long periods of rest: no one at the hospital, it seems, knew that the patient lived on the fifth floor with no lift.

Attachment to a small hospital has always seemed of great advantage to the general

practitioner and it is with regret that one sees the threat to close many, if not all, of the cottage hospitals. It is claimed that they are uneconomic to run and to staff: this may well be so, but it seems a matter for sorrow that economic conditions should now be the sole criterion for the existence of a hospital, and that the idea that these small hospitals might be performing a useful piece of social service has no place in the modern planned economy. No one will deny that the large general hospital which is planned for the future will be more efficient at carrying out the more complex investigations and forms of treatment which have been developed recently, but no one in their senses has ever claimed that these smaller hospitals should rival the large ones in this way: I remember how shocked I was to come across, shortly before the war, a patient who had recently been operated upon for cancer of the rectum by a general-practitioner surgeon in a small cottage hospital in Co. Durham. But these small hospitals surely have a role to play in the treatment of minor illness which is not always practicable at home and for the care of the long stay patient, old or young, for whom no further active treatment is possible, but to whom regular and frequent visits from family and friends mean so much. These patients should remain under the care of, and be visited regularly by the consultant from the district general hospital: in this way, they will not be neglected. It is also said that not only would it be difficult to obtain nursing staff at such hospitals, and that any girls who were available for training should be sent for this to the district general hospital. This ignores the fact that there are often a number of young girls who do not wish to take the full nursing training or who, and the same applies to older people who, after their children have gone to school, would like to have some part-time job to do: this type of nurse has proved to be regular and reliable in her attendance. This is surely what was the intention, in part at least, behind the establishment of the role. While it is obviously not possible to bring all types of medical treatment to the patient's doorstep, there seems to be no reason why none at all should be provided.

In 1919 Mackenzie stated that, "Our ability to prevent disease is extremely limited, and that the advance made merely touches the fringe of the subject." He hoped that rapid and important advances would be made as more and more disease was recognized at its earlier stages, before such damage had been done to the tissues as to make the presence of disease at once obvious. But many of the striking advances in preventive medicine that have taken place since 1919 have been far more the result of progress in environmental hygiene. Going back to Snow's masterly piece of deductive logic convicting water as being the unsuspected vehicle for the spread of cholera, the great advances made in the improvement of housing and in the hygiene of water supply, sewage disposal and of food have greatly reduced the incidence of infectious diseases of all sorts. Bad as slum conditions may be considered now, they are nothing to what was swept away in the early slum clearances. But the value of environmental hygiene is now so much taken for granted that little or no protest was raised when Aneurin Bevan, in 1950/51 separated the Ministry of Housing and Local Government from the Ministry of Health, leaving the former in control of all matters involving environmental hygiene, but with no skilled, experienced medical staff to advise on their actions and decisions. The situation can, and does, have its disquieting side.

Large sums of money are spent every year on research into the cause and life history of cancer: the two main research bodies in this country—the Imperial Cancer Research Fund and the British Empire Cancer Campaign have, between them, an income of over £5,000,000 a year, drawn in various ways from voluntary sources. I have sat on the council of the former for a number of years, and have nothing but admiration for the valuable and important work that it carries out. But so far little attention has been given, till recently, to preventive work. In industrial and occupational cancer, where industrial processes can be convicted of causing cancer of some organ—going back to Henry's classic work on the cancer of the scrotum that was found among the mule spinners of Lancashire—much, it is true, has been done by the Home Office and Ministry

of Labour to eliminate these causes; but the number of persons involved are small, and their elimination has had little effect on the cancer mortality figures in general. A good deal of publicity has been undertaken in an attempt to secure treatment at an earlier stage for patients suffering from cancer at sites which are both easily accessible and whose response to treatment is good. But this propaganda is directed more at the prevention of death than at the prevention of cancer.

The association between cancer of the lung, a notoriously untreatable form of the disease, and cigarette smoking is widely recognized, but little has been done by anyone to check the widespread advertising of cigarettes and of their being smoked in public places. Admittedly, the annual sum paid to the Treasury in tax from the sale of tobacco is large, over £1,000 million in a year, or two thirds of the cost of the National Health Service; one can only hope that this is not a factor in the feebleness and supineness of the official attitude towards smoking. Obviously there are other factors involved as well as tobacco, air pollution is probably one, but ever since Wydner's original work was published in 1950 tobacco has been an important link in the production of this disease. The geographical pathology or epidemiology of cancer makes a fascinating study, on which work is now being done in various countries in an attempt to discover why cancer appears to attack different organs in different countries. Similarly, the differences in organs affected as shown in the Registrar General's five social classes and in various parts of the country and, indeed, in the different countries of the world, all point to the need for more research along these lines. One wonders whether the human being has not sometimes been forgotten in the millions of valuable and important investigations which are carried out on mice, guinea pigs and hamsters? After all, the patient suffering from cancer wants, first of all, to know: "What will happen to me?" and, secondly, "What can I do to prevent this disease from affecting other members of my family?" To the first question, an answer is usually possible, to the second—rarely, if ever.

The discovery of insulin in the 1920's, the liver treatment of pernicious anaemia, followed by the discovery of prontosil, of the sulpha drugs and antibiotics have made possible the cure, or control, of many diseases which in Mackenzie's day would have been among those in his stage 3. Antibiotics have proved of enormous benefit to the large number of patients for whom they have been successfully prescribed: some of their side effects can, however, be unpleasant. Whether they have been so beneficial to the medical profession, I am not so sure. They have in many cases removed the need for the doctor to think, and here I am not only referring to general practitioners. A dose of some wonder drug for an ill-defined but probably infective disease often results in a cure; but no one necessarily ever knew what was wrong with the patient. The profession has always believed in wonder drugs—it was not so long ago that it was confidently prophesied, happily falsely, that the time would soon come when all doctors would carry a little bit of radium in their waistcoat pocket. But antibiotics, in their turn, have brought problems, which are not so welcome, involving the management of life and death. Allegations of medicated survival are clearly exaggerated, but there are times when doctors should know when to hold their hand and to realize that, although further active treatment is possible, that this is neither in the best interest of the patient, nor maybe, of their relatives. To ensure a proper relationship between a patient and his doctor the patient must know that his doctor will enable him to leave life in peace and with dignity when the time comes. And this state of affairs is not reached when a senile, confused, incontinent, helpless wreck, whose brain has been so damaged or is so diseased that no recovery or improvement is, with our present knowledge, possible, is treated with antibiotics, or even by more heroic measures, for any chance chest, or other infection, he may develop. Nothing can be more disruptive of family life. But even here the patient often has the last word, for anyone who has had experience of the care of elderly persons must be aware of the relative frequency with which an elderly patient, of the type I have described, and who has been treated with no more than customary

skilled medical and nursing care, makes a surprising, unaided recovery from what would have seemed to have been a fatal illness. It is important that medical students, and young doctors, should be as wisely taught when not to treat as they are now wisely taught when and how to treat: this is not a difficult lesson to learn, although it may seem at first to be opposed to the whole of the rest of medical teaching.

If the young are not taught in this way and do not practise in this way, the cry for legalized euthanasia will become louder, and this is something, I think, we all wish to avoid. The practice of geriatrics does not involve a drive to prolong life at all costs. We try, because life is prolonged, to make that life as enjoyable to the individual as possible. Sometimes geriatrics may even shorten life, for by encouraging elderly persons to live an active, independent life, one is encouraging them to live a more dangerous one.

Recently, the introduction of drugs and other methods for the management of pain have enabled doctors to avoid the deadly effects of opium and morphia in the treatment of patients who suffer pain in their final illness. Here there is often a place for hostels, or homes, for the dying: a valuable prototype has recently been opened at Sydenham, St Christopher's Hospice, under the able and intelligent guidance of Dr Cicely Saunders, where remarkable work is carried out on those patients whose relatives find it difficult or impossible to care for them during their final illness.

The search for the prevention of ill health has taken a different line from that which Mackenzie envisaged. Elderly persons have become the target for much new and useful work directed towards keeping them on their feet and leading as normal a life as possible. There have been several reasons for this new direction, among which dismay at the state of the chronic sick wards in the old poor law institutions and a realization that it is both more compassionate and more economic to treat the elderly as one would younger persons and to assist them to live at home, with or without their family for as long as is possible. In a recent debate on the provision of residential care of hostels for those who need them held in the House of Lords on 10 July of this year, out of 18 speakers nine made the care of the elderly the main burden of their song, and only one, myself, did not this time follow that line at all: I have talked on this subject many times in the past, and I thought I could well give the subject a rest, in view of its obvious popularity with other speakers. I spoke instead about the care of the younger chronic sick or disabled person. My attention had first been drawn to this by the magnificent work carried out by Sir Ludwig Guttman at Stoke Mandeville. Here, young people with broken backs can be got back to work within seven months of their injury: if they have a small piece of their latissimus dorsi left, they can walk again, and Sir Ludwig does not consider his patients free from his responsibility until they are once again paying income tax. The spirit behind the work at Stoke Mandeville is spreading, and will continue to do so unless unemployment reaches a dangerous level. For the maintenance of both the young and old disabled persons whether living at home or in hostels depends upon there being suitable employment available to them: for work and the receipt of a weekly, or monthly, pay packet are two of the most important factors in the prevention of disease and the enjoyment of good health.

I have tried to take a quick look at what has been the future of medicine as it has affected myself between 1919, when I first became a medical student, and 1968. There have been startling changes in the curability of disease and in the prolongation of life: but I wonder how much further we have come to an understanding of Mackenzie's first two stages—the predisposing stage and the early stage of disease. Of course we have got some way on the search, but it seems to me that we still have a long way to go before we have even begun to solve the problem which he posed 50 years ago.