The Paradox of Medical Care

SIR DOUGLAS BLACK, MD, FRCP
President, Royal College of Physicians of London

That outstanding contemporary philosopher of science, Karl Popper, has maintained a life-long struggle against linguistic philosophy, which concerns itself with analysis of the meaning of words rather than with the problems they imperfectly describe. In defence of his own position, which he describes, with less than total transparency, as 'anti-essentialism', he develops an interesting argument in Chapter 7 of his intellectual autobiography, *Unended Quest* (Popper, 1976). Just as letters, which have no meaning in themselves, can be used to form words, so words, which have no conceptual force in isolation, can be put together to form meaningful statements. To put it another way, letters play only a technical role in word-formation, and similarly, words play only a technical role in the formulation of theories. These theories are meaningful in so far as they can be tested by criticism—as is well known, Popper's test of a good theory is that it can withstand serious attempts to falsify it, though of course it can never be absolutely 'verified' by the accumulation of no matter how many failed attempts at falsification, even though each of these does give it some added strength. Even if knowledge in the last resort is bound to be probable rather than certain, there are still real things to be known, and such knowledge is worth having. Therefore, I am concerned to develop the thesis that medical knowledge, imperfect and incomplete though it may be, is nevertheless part of that collectively accumulated human store of 'problems, theories and critical arguments' which Popper denotes as 'World 3', in contradistinction to his 'World 1' of 'physical objects' and 'World 2' of individual 'subjective experiences'.

In the face of considerable denigration of medicine and of those who practise it, I would maintain that we have two great strengths—the knowledge that constitutes an important part of Popper's 'World 3' and the compassion that drives us to apply it in the best interests of our patients. Like all good things, both of these are vulnerable—our store of knowledge is threatened by anti-intellectualism and shallow dogmatism; our compassion by cynicism and selfishness. That these dangers are to be taken seriously may be shown by a paradox that may be summarily expressed thus: 'Whereas the potential of medical knowledge for preserving and restoring health has never been greater and is still increasing, the systems for applying it have never been so sharply criticised'. Certainly, some of the criticism is well-informed and constructive, but much of it is neither, seeming to have its roots in envy, or in a Panglossian belief that this world can be purged of all the ills that are native to our race. I shall be returning to some of the criticisms, but first I would justify my belief in the value of medical knowledge, whose contribution has been claimed to be marginal by comparison with improvements in nutrition and in the environment, notably by McKeown (1976). It might have been easy to sustain such a claim fifty years ago; it is less easy now. A somewhat related argument takes the form that while there have been great advances in medical technology, any resulting benefit is both problematic and expensive.

On the first point, no one would seek to deny that good nutrition and hygiene are vital to the health of the people; I am concerned only to show that good medical care also brings substantial benefits. On the second point, there is, again, legitimate worry about the growing cost of health care, but my contention here is that a great part of modern medical treatment is highly cost-effective, and that medical progress should not be condemned wholesale because at the margin there are procedures that are highly expensive and whose effectiveness remains uncertain.

The assessment of medical advances can be made less confusing if they are grouped into three broad categories, in terms of what it is fashionable to call their 'pay-off'—

1. Advances that can be applied at a modest cost to prevention of or to the actual cure of disabling and even fatal diseases.
2. Advances that allow health and efficiency to be maintained, again at modest cost, even though the disorder responsible for the disability cannot be said to be 'cured', because it persists, and would reappear as a cause of ill-health were treatment to be discontinued.
3. Advances that allow a reasonable level of health to be preserved, but at the cost of considerable resources, either human or material, or both.

It is, of course, predominantly in the third category that major problems arise, for medicine and for society—so much so that the unquestionable gains arising from the first two categories of advances are at some risk of being taken for granted, to the extent that they may be quite innocently ignored by those who question the value of modern medicine, with which they may have had little contact for several decades. When the obvious is in danger of being overlooked, for whatever reason, it becomes necessary to state it—so bear with me while I give a few examples to indicate that advances in the first two categories do in fact exist.

Advances Leading to Cure

When I was a house physician, I saw many patients in their twenties, admitted to hospital with lobar pneumonia; one in five of them was doomed to die, in spite of the highest standards of nursing care. Nowadays, death from lobar pneumonia in the young is a rare event. At the same period, subacute bacterial endocarditis was uniformly fatal. Tuberculosis was widespread, both in its crippling bovine form, and in sanatoria for pulmonary tuberculosis throughout the land; treatment and prevention have now lifted an immense burden from the community. Deafness from suppurative otitis media, and long-continued disability and occasional fatal amyloidosis from osteomyelitis are no longer seen. Diphtheria is vanishingly infrequent in developed communities; and smallpox may soon have a place only in medical history. Anaesthetic advances, and better understanding of pre- and postoperative care has made surgery much safer for the patient; and surgeons can now carry out life-saving procedures that would have been unacceptably hazardous even a decade ago. In obstetrics, improved antenatal care and the on-going analysis of maternal deaths have contributed to a massive lowering of maternal mortality; and the dangers to the infant of Rhesus incompatibility can be made negligible, thanks to the work of Sir Cyril Clarke and his colleagues in Liverpool. It is worth noting, in passing, that the exploitation of these advances calls for high standards of clinical care, which often means a high degree of specialisation—another favourite target for those who denigrate medical progress. For example, the mortality of three common surgical conditions was substantially lower in teaching hospitals than in non-teaching hospitals (Lee *et al.*, 1957).

Advances Leading to Effective Palliation

Desirable as it may be to eradicate, or better still prevent, disease, it is commonly not possible to do so. Nevertheless, we can take advantage of our greatly increased knowledge of the mechanisms by which a number of diseases damage well-being, so as to ensure for the patient a virtually normal life, though at the cost of continued treatment. It may happen, too, that treatments that were initially very exacting for the patient can be refined by further advances into a readily tolerable regime: for example, the first patients to be salvaged from pernicious anaemia had to consume massive amounts of raw liver, whereas their more fortunate successors can be maintained in sound health by a monthly injection of B_{12}. This easing of the patient's burden is largely due to work carried out in the pharmaceutical industry, and it is not an isolated example. Another effective long-term therapy based on applied physiology is insulin treatment of early-onset diabetes; an occasional patient becomes sensitive to insulins of animal origin, and recent advances in molecular biology have opened the possibility, not yet realised, of bacteria being programmed genetically to produce 'human' insulin. Effective endocrine substitution therapy is likewise possible in Addison's disease, myxoedema, and hypogonadism. Replacement of missing or defective factors necessary to health is perhaps the most straightforward type of effective palliation, but it is not the only possibility. Hypertension can generally be prevented from causing organ damage by what is now an extensive range of hypotensive agents; and the disorders of coagulation of the blood can be palliated, both in haemophilia and in the converse states of heightened coagulability. The prerequisite of all these approaches is accurate diagnosis; and this must be followed by life-long expert supervision, since the disease may change in intensity, the agents used are potent, and even the best physician is an inferior substitute for the normal feed-back controls.

It is, of course, arguable, and has been argued, that these impressive advances make little impact on the statistics of disease and death. We must all die in the end, and the great killers, arterial degeneration and neoplasia, are increasingly with us in an ageing population. But neither the patients who benefit from modern treatment, nor the doctors who see its effects, will be greatly discouraged by this line of argument. The great majority of patients and doctors are pragmatic existentialists, accepting what they feel and see as being worthwhile, giving to many a good life, even if to none immortality.

Advances of Daunting Cost

I come now to the more taxing problems, or set of problems, posed by advances which open up prospects of effective treatment, but which are also daunting in their costs. These include procedures with a high 'one-off' cost such as organ transplantation and coronary artery surgery, and costly long-term treatments such as maintenance haemodialysis and the chemotherapy of leukaemia. There is certainly no easy general solution to this class of problem, other, possibly, than the platitude that each case must be judged on its own merits; a platitude which does, however, recognise that what is right for one patient may be wrong for another. Another general consideration is that last year's correct decision to do nothing may not be valid for all time; the risks of innovation have to be balanced against that form of betrayal of posterity which consists in self-styled 'masterly inactivity'. The character of the dilemmas posed for medicine and for society by the more expensive potential forms of treatment can perhaps be best illustrated by considering a couple of specific examples.

Calculations (Black and Pole, 1975) based on the Registrar General's Statistical Review for 1972 indicated that ischaemic heart disease accounted for just over a fifth (21.5 per cent) of the total loss of life expectancy—somewhat similar to that attributable to tumours of all kinds (20.6 per cent). The choice of strategies for dealing with this major epidemic is wide, and subject to much disagreement. In the area of prevention, smoking, obesity and lack of exercise are firmly established as risk factors to be avoided; but the relevance of psychological stress and of specific foodstuffs is uncertain, in spite of a good deal of fervent advocacy. The protection a good life-style gives to the prudent minority is relative, not absolute; and when the 'heart attack' occurs, there are widely differing views on management. Studies from Bristol and Devon (Mather *et al.*, 1976) and from Nottingham (Hill *et al.*, 1978) suggest that the outcome in patients treated at home differs little from, and may even be better than, the outcome in patients admitted to hospital. On the other hand, in the early phase of myocardial infarction, dangerous arrhythmias may require defibrillation and bradycardia may call for the insertion of a pacemaker. In response to these demands, we have coronary-care ambulances, pioneered in Belfast (Pantridge and Geddes, 1967), and in hospital we have coronary-care units, which allow the control of arrhythmias and bradycardia before they have led to irreversible pump failure. After many, but conflicting, controlled trials, the place of anticoagulants remains uncertain; and it is at least possible that earlier ambulation has diminished the need for them. The place of surgery in the management of coronary artery disease is still uncertain, in spite of the pleasing directness of the idea that you find a blocked artery and replace it with a patent vessel. The necessary preliminary of coronary angiography itself carries a mortality of 0.2 per cent, and the subsequent operation a mortality 'which should not exceed 4 per cent for good operative candidates' (Popio, 1978). A successful operation can certainly relieve intractable angina, which is a useful gain, even if life expectancy, given the operative mortality, is not improved. I am sceptical whether the various dilemmas that I have indicated can be resolved by clinical trials; when factors such as arrhythmia which can influence outcome are both multiple and unpredictable, effective randomisation becomes impossibly complex. Even in a disorder as common as ischaemic heart disease, important cells in the matrix may not be adequately filled. To put it more simply, the essence of the dilemma lies in the vastly different and often unpredictable course run by different patients. Some die before aid can be summoned and others recover after a short period of bed-rest at home; but there is an important intermediate group who develop complications needing prompt and skilled intervention. There is no place here for sweeping generalisation, only for detailed and sympathetic attention to the clinical state and social circumstances of the individual patient.

While the choice of strategies for dealing with ischaemic heart disease has an appreciable economic dimension, the essential difficulties of decisions between them are predominantly clinical rather than economic. The balance is somewhat different in my second example, the prevention of death from chronic renal failure; you would not, of course, expect me to say that the management of chronic renal failure is devoid of clinical problems, but in that situation we have in maintenance haemodialysis a relatively standard technique for the preservation of life, whose application is clearly resource-limited, not primarily by the hardware, but by accommodation and people. Fortunately, this is not a problem on the scale of ischaemic heart disease, since it accounts for less than 1 per cent of the total loss of life-expectancy; nevertheless, in its various forms, chronic renal failure is responsible for over 2,000 deaths annually in this country. The very effectiveness of haemodialysis contributes to the magnitude of the problem it sets, in that the load of patients accumulates from year to year. For this reason among others, a hospital-based programme of maintenance haemodialysis has to be supplemented by the development of home dialysis, and by an expansion of renal transplantation. In addition to expanding these escape routes from hospital-based haemodialysis, nephrologists have to remain active in the clinical detection of potentially reversible causes; in the management of complications that accelerate renal failure; and, at a more basic level, in the study of the early stages of renal disease, so that in the long term the number of patients entering end-stage renal failure may be diminished.

These two examples are merely indications of the type of problem that comes in the train of increased opportunities for medical intervention. While each situation differs in detail, and from one patient to the next, they all require expert assessment. They tend also to involve deeply personal issues, perhaps most notably in the borderland between obstetrics and paediatrics. It is possible by chromosome analysis to establish whether a child will be born with Down's syndrome. The detection of raised levels of α-fetoprotein in maternal serum makes it likely, and raised levels in amniotic fluid virtually certain, that the child will have anencephaly or spina bifida. The procedure of amniocentesis carries a small but definite risk of an end to the pregnancy, with the consequence that some normal children will be lost. Should the tests be done at all when the mother has a conscientious objection to termination of pregnancy? How does one relate the burden, to the family and to society, of a handicapped child to the small risk of losing a normal child? How do we ensure that the parents, who must make the ultimate decision, do so in an informed way? These are questions that concern primarily the patient, but also doctors and nurses, and ultimately society as a whole. The medical component is to provide the fullest information on the rate of 'false positives' and 'false negatives' at different levels of 'cut-off point' in the tests on serum and on amniotic fluid. Pressure for the generalisation of services to carry out the tests, and to terminate pregnancies when they are positive is not always helpful, since acceptable results in special centres, fully equipped with ultrasound and laboratory facilities, may not be replicable in other areas. There is also the 'opportunity cost' of deploying limited resources in one area, to the necessary detriment of other areas of need.

I would sum up what I have written so far by emphasising that medical advances of the first two types have brought great benefits to individual patients, and hope to society; the problems posed by the third type of advance are many and various; but they must be regarded as challenges to medicine and to society, and not as excuses for imposing a moratorium on the advance of knowledge.

Provision of Health Services

As I enter the more controversial section of my article, I think it is necessary for me to confess, and possibly to some extent explain, my personal bias. For by far the greater part of my professional life I held clinical responsibility, and this has always seemed to me to be the core activity of our profession. The great majority of doctors are dealing, as best they can, with individual problems in individual patients. It so happens that in the early part of my career I was privileged to engage in biomedical research, and in the latter part of it I was given an unexpected opportunity to interest myself in the wider problems of health and of the provision of services. In no way would I wish to diminish the importance of biomedical research, which has brought great benefits in the past and holds great promise for the future; also, I am fully convinced of the importance of health education and of study of better forms of health care. But I still regard those activities, important though they are, as peripheral to the main contribution of medicine, which is to care for sick people. We will assuredly go on learning more about the nature of disease and the social factors that may contribute to it. Doctors are likely to play a leading, though certainly not an exclusive part, in these advances. But the unique task of the doctor is to advise individual people who turn to him for help. His task is often difficult, and I do not think I am being unreasonable if I suggest that one criterion, among others, by which we should judge pronouncements on medical matters, is contained in the question 'Will this make the doctors' task easier, or more difficult?' Even to say such a thing is likely to brand me as the complacent advocate of an easy life; but, having done it for years, I know that the practice of medicine is not greatly assisted by being conducted in an atmosphere of criticism and suspicion.

It would clearly be wrong to give specific clinical examples, but perhaps I could mention a recent experience, illustrating the liability of doctors to come under criticism, when they are only trying to help. Acting as we believed in the public interest, our College drew attention to the risks of applying 'strict liability' to adverse effects of medication, as recommended in the Pearson report. We emphasised the inescapable complexity of a situation involving the interaction of a patient, an illness, and one or more—it might even be many—drugs. We foresaw an epidemic of defensiveness on the part of both pharmaceutical firms and doctors; and, of course, at the end of it all the unattainable goal of absolute safety could not be reached. The list of foods a patient taking monoamine oxidase inhibitors should avoid might be half as compendious as Mrs Beeton's cookery book. There could be endless wrangles between doctor and patient as to what had, or had not, been said by way of caution. Law-suits and tribunals and pressure-groups would flourish. Would anyone be better treated, as patients became more anxious, and doctors more timid? We held a press conference on this theme, and the general response of the media was almost uniformly favourable, and our comments were accepted as being made in good faith, and as having considerable substance. The only exception that came to our attention was an annotation in that generally excellent periodical, the *New Scientist,* which attempted no rebuttal of our arguments, but nevertheless concluded that they 'come perilously close to a justification for, if not an inducement to, irresponsible prescribing' (Lesser, 1978). Now, the improvement of prescribing is one of the College's major interests, furthered by regular conferences on therapeutics, and by our committee on clinical pharmacology, whose members had given time and thought to preparing the arguments thus brusquely dismissed. Aside from the injustice to my colleagues, I would not be greatly concerned by this isolated comment, were it not indicative of a disposition to seize on sticks with which to beat doctors, irrespective of the merits of the case.

As I go on to look at the criticisms made by various groups, I would emphasise that I am not suggesting that either our profession, or the services it helps to provide, should be immune from criticism. Indeed, I regard constructive criticism as a necessary, even if not always a sufficient, condition of progress. The groups of critics whose standpoints I propose to consider are sociologists, economists, academics in social medicine, and radical publicists who see patients, Andromeda-like, as needing rescue from the toils of the medical monster.

Sociological Insights

The conventional wisdom, among doctors and patients, has been to look on the doctor-patient relationship as an alliance designed to overcome the adverse effects of illness. Faced with the myriad concrete tasks of his professional work, there is little inducement for a doctor to question the assumptions on which this view is based; in recent years this omission has been repaired, almost to overflowing, by the studies of sociologists, whose standpoint is detached, and occasionally hostile. Some of the hostility may stem, paradoxically, from what was originally a sympathetic analysis by Talcott Parsons in the fifties. He regarded what he called 'the sick role' as a form of 'social deviance' in which the physician became 'an agent of social control'. The not inconsiderable number of sociologists who view society with a less than divine discontent, sometimes on a basis of Marxism, will not warm to the activities of physicians, regarded in this light. They will look for—and, regrettably, may find—evidence of the self-seeking to be anticipated in the corrupt upholder of a corrupt society. Their natural and commendable sympathy with the patient will not, however, be at all alienated, but rather reinforced, by Parsons' model; they tend to see him as properly rebellious against a wicked world, and justifiably antagonistic to society's agent. They are sceptical of the professional approach of doctors, regarding it as not only élitist, but predetermined to be authoritarian. They seize happily on the large elements of uncertainty that still persist in our understanding of disease, and particularly of mental illness (Davis, 1960). They emphasise the anomalies of selection that bring one person to medical attention, and not another (Zola, 1973). They describe and illustrate the imperfections of communication between doctors and patients (Stimson and Webb, 1975).

It is easy to become impatient with these and similar formulations, particularly if read in the original. This, in my view, is a mistake. The general operation of seeing ourselves through the eyes of an observer with an alien perspective is salutary. Many of their analyses of particular situations can teach us valuable lessons—to keep in our minds the fears, rational and irrational, of patients; to recognise the frightening unfamiliarity of large institutions; to recognise, and hopefully to overcome, the difficulties of communication across the barriers of class and culture. The behavioural sciences are now an accepted part of the medical curriculum. I welcome this, but I am also awed by the responsibility placed on those who are charged with teaching them to medical students. I hope they will not overburden them with theory, but concentrate on concrete instances where things can be improved, to the common benefit of patient and doctor. As Goethe said, all theories are grey and drab, but life's fruitful tree is green—*Grau, theurer Freund, ist alle Theorie, Und grün des Lebens goldner Baum.* I hope they will remember that human beings are basically decent, so that the contact between doctor and patient does not have to conform to the 'adversary situation' postulated by some theorists.

Economic Concern

In order to discount the effect of inflation on absolute figures, it is conventional to describe health service costs as a percentage of the gross national product (GNP). Even on this basis, health service expenditure in this country rose by 50 per cent over a recent five-year period, from 4 per cent to 6 per cent of the GNP. The causes of this are complex, and certainly include a substantial element of wage increases to workers who had previously been very poorly rewarded. Similar or even greater increases have occurred in other developed countries, and the proportion of GNP spent on health care in this country is still substantially lower than in the USA. Whether this represents our economic efficiency or our economic starvation is a question whose answer depends more on prejudice than on evidence. If there is a criterion that should dictate the ideal proportion of GNP to be spent on health services, I am not aware of it, though my natural sympathy lies with the Oliver Twists rather than with the Bumbles. But the sums of money being spent are already very large, and the NHS is the largest single employer in the country. In view of this, it would be naive not to expect economists and politicians to be intensely interested in health service matters, and to look for criteria on which to base an estimate of whether we are getting value for money. The central difficulty of such an exercise lies in this, that costs are all too easily expressed in money terms, whereas benefits are much less tangible, without, however, ceasing to be real. This is well appreciated by economists who have made a special study of health service matters. For example, Alan Williams (1978) exposes the fallacy of denying value to activities and economic 'goods' that are terminologically stigmatised as 'unproductive', 'non-tradeable', 'non-marketable', or 'non-industrial'. As he says, 'Good health is enjoyable for its own sake. It improves the quality of life generally, whether for working or for leisure activities'.

A general justification of relatively high expenditure on health services does not, of course, extend to every particular instance of proposed expenditure. The doctrine, or harsh necessity, of 'opportunity cost', which recognises that if we use resources in one way, we lose the opportunity of using them in another, is again well expressed by Williams—'The golden rule is that only when we can be satisfied that the *most* valuable thing that we are *not* doing, is less valuable than the *least* valuable thing that we *are* doing, can we be sure that we are being efficient in the pursuit of welfare'. And, characteristically, he adds: 'I guess we have a long way to go yet'.

This last wry comment is certainly true; but in recent years there has been a welcome tendency at least to consider the cost-benefit aspects of innovations, even though the economic process of prior evaluation is commonly outstripped by the rush of 'me-too-ism' when something has been shown to be possible, leaving aside its comparative desirability. The criteria for economic evaluation are relatively straightforward in general terms, and I have described them in a little detail elsewhere (Black, 1977). Here I will only repeat Drummond's four key questions:

What is the cost of treatment?
What is the benefit from treatment (or what is the cost of illness)?
What is the most economical way to treat a given condition?
Is the treatment worthwhile?

Although these questions are cast in the treatment mode, similar considerations apply to investigative procedures. As an example of the type of investigation needed, we may take a recent enquiry into computerised tomography (Stocking and Morrison, 1978).

Simple tomography has been in use for many years to produce a relatively sharp image of radio-opaque structures at a selected depth from the surface; it has been used, for example, to assess kidney size with minimal interference from gas in the bowel. Since radio-opacity is a graded phenomenon, and not an 'all-or-none' affair, there was the dilemma of much quantitative information going to waste for lack of the power to analyse it fully. It was Hounsfield's brilliant achievement to replace the relatively insensitive photographic film with a bank of sodium iodide detectors, and to invoke the computer to make the maximum use of the greatly increased available information, thus giving a much higher degree of resolution. Brain-scanning using computerised axial tomography (CAT) has added a new dimension to neuroradiology, and may be regarded as firmly established. Not only is it capable of showing brain lesions previously undemonstrable; it also spares many patients the trauma of invasive techniques, such as carotid angiography and air-encephalography. Although the technique is certainly costly, both in the capital cost of equipment and in running costs, the clinical benefits would certainly be judged by all clinical neuroscientists to outweigh them. Wisely, therefore, Stocking and Morrison decided to focus their analysis on whole-body CAT, regarding brain scanners as already well-accepted, whereas, in the case of whole-body scanners, 'decisions about resource allocation are still in the process of being made'.

I am conscious of a certain rashness in attempting to summarise their detailed and perceptive analysis of the problem. On the cost side of the equation, the present position is reasonably clear, with a capital cost of around £250,000 and running costs of around £50,000 p.a. for each installation; however, they recognise that hardware costs of computers, in real terms, are becoming less; that the use of microprocessors might lead to further economies; and that a larger market might bring economies of scale. On the benefit side the picture is much less clear. The high resolution, at present unique to CAT, may be challenged by developments in nuclear medicine and in ultrasound. Imaging techniques of all kinds may be less appropriate than endoscopy in many diagnostic problems of the respiratory and alimentary systems. They make the further point that the diagnosis of conditions for which there is currently no effective treatment will not lead to improved outcomes. They are careful, however, to emphasise that analysis at a single given time cannot reasonably hold for all time, in view of price changes, development of the method, development of other methods, and development of effective therapies for currently incurable conditions. In their concluding discussion, they focus on the need for a mechanism to evaluate new technologies; on the possible risks of philanthropy in providing capital equipment, without covering high running costs, which will then fall on the service; and on the need for close co-operation between the NHS and industry, in relation to both the home and the export markets.

Their report is written in a style to stimulate discussion rather than to command assent, so I am encouraged to make a personal comment. I wholeheartedly agree with their proposed plan for an agency to review new technologies, which is also endorsed by Sir Andrew Kay in his foreword. I welcome their appreciation that innovations are to be encouraged, and that thorough clinical evaluation should precede generalisation. In my view, the economic dimension should enter critically at the stage between evaluation in selected centres and widespread use, rather than at the earlier stage of making a good idea work. And in view of the near sanctity of the randomised controlled trial (RCT), I particularly welcome their gloss (p.63) that a single RCT should not settle an issue for all time.

Medico-social Beliefs

If it be right—as I am sure it is—that the beliefs of clinicians (commonly described as dogmas, though seldom now so formulated) should be subjected to healthy criticism, then no doubt the same salutary process will be desirable for the beliefs held by those in the field of public health. Before I embark on this self-imposed healing task, let me confess to a difficulty of terminology. The discipline which, when I was a student, was known as public health became social medicine, and is now becoming known as community medicine. By this latest change, its practitioners have gained a useful compound noun—'community physician'; but they will have some difficulty in finding an adjective. Unaccustomed as I am to the American habit of using nouns as adjectives, and at the same time wanting to have an adjective available, I shall step in at the mid-point of the slide in nomenclature, and use the term 'medico-social' where a descriptive adjective is needed. I suggest this is preferable to 'socio-medical', as being less likely to be confused with 'sociological'.

Before being critical, I acknowledge that the discipline of social and preventive medicine is one of the highest importance and that the first change of terminology, from public health to social medicine, was a necessary recognition of the increased breadth of the discipline. The contributions of epidemiologists, and of doctors who have studied the social factors concerned in disease, have led to notable advances in the theory and practice of medicine. Because of my foible about the use of nouns as adjectives, I am less happy about the newest term, but no doubt it is here to stay, at least until the next change.

After this digression, it is high time to look at some actual medico-social beliefs.

The first of these, expressed in proverbial form, long antedates the scientific discipline—'Prevention is better than cure'. This is not only undeniably true, it is even part of government policy. Priority is rightly attached to study of preventable risk factors in particular diseases, difficult though such study can be; and to making the public aware of them through health education. But let me draw attention to two reservations.

In a report from the Medical Services Study Group of the Royal College of Physicians (MSSG, 1978), mention is made of 'an astonishing statistic, which can stand much repetition'—so let me repeat it, in their words. 'In 1930-32 the SMR for ischaemic heart disease in social class 1 was 237 (normal 100). Over the next four decades it gradually fell to 88 but between 1951 and 1971 the crude mortality rate from ischaemic heart disease in all males almost doubled'. I agree with their comment that this is probably due to advice on health matters being heeded by social class 1, and not by the remainder. This factor, so far as it operates, must have a considerable effect in maintaining the inequalities of health that obstinately persist between social classes. My reservation then is that preventive measures against major killers such as ischaemic heart disease and bronchial carcinoma, while they can be promulgated, depend for their actual effect on being carried out; and large numbers of those at risk are currently unable to do this. The hope, of course, is that this reservation will lose its force, as the Health Education Council and similar agencies find methods of popularising their appeal to enlightened self-interest. They are very conscious of this problem and are trying new methods of making their advice more available and acceptable to the educationally deprived.

My second reservation is that the pursuit of prevention should not be so whole-hearted as to obscure the need for, if possible, cure and, at least, care for those who have already contracted disease. The importance of cure and care is not diminished, or indeed greatly altered, by describing them as secondary and tertiary prevention. Since primary prevention of everything is not possible, cure and care must not be overlooked.

The second belief, widely current in social medicine, and persuasively expressed by McKeown (1976), is that the impressive fall in mortality since 1700 is due mainly to a reduction of deaths from infectious diseases, and that this, in turn, is due to better nutrition, with improved hygiene making a later and smaller contribution. There is a great deal of truth in this, though the relative importance of nutrition and of improved sanitation is perhaps a matter of opinion. My reservation comes in when this belief is made the basis of a criticism of the effectiveness of clinical medicine. Beeson (1977) and Lever (1977) have criticised particular points raised by McKeown and I have tried to marshal more general evidence that clinical medicine, while not without its problems, does do some good. It is only fair to say that McKeown himself appreciates the real contribution of clinical work, but some of his followers have not followed him in this appreciation.

As I have hinted earlier, the third medico-social belief on which I would like to express reservations is in the over-riding efficacy of the randomised controlled trial (RCT). The spirited advocacy of Cochrane (1972) has made it part of the conventional wisdom that any new treatment or investigative procedure should be legitimated by an RCT before it is brought into general use. Again, I acknowledge the considerable element of truth in this; and I certainly regard the technique of the RCT, pioneered by Bradford Hill and Richard Doll, as one of the greatest post-war contributions of British medicine. There are, however, some theoretical and practical difficulties in insisting that every new thing should be tested in this particular way.

At one extreme, it would surely be admitted that certain innovations, such as treatment with insulin and prophylaxis with $Rh_0(D)$ immunoglobulin, are so clear-cut in their effects as scarcely to need the benediction of an RCT. At the other extreme, where a large number of factors are known to influence outcome, the design of a trial to take all of them into account may create a matrix of insufferable complexity. A specific example of this difficulty is given by Fielding *et al.* (1978) in relation to colorectal cancer. When variables related to the patient, and those related to the surgeon are summated, the number of 'postoperative patient types' becomes 8,192. Trials that fail to take account of all factors are, however, liable to provide conflicting results. If any consider that in raising this point I am making difficulties, let them consider the story of trials of anticoagulants in the treatment and prophylaxis of coronary thrombosis. Of course, between these two extremes, there lie many situations in which controlled trials have proved their value to the hilt. But can they be made universal, as is sometimes advocated? Here we come up against practical difficulties.

The first of these stems from the speed of innovation, and from the natural anxiety of patients and doctors to reap possible benefits. If doctors deploy enthusiastic advocacy, and patients organise pressure-groups, wise counsels of delay for proper validation may be brushed aside. A possible example of this is cervical screening, now probably too firmly entrenched ever to be evaluated. Even when agreement is reached on the need for a controlled trial, the mounting of it requires considerable organisation, particularly if a multi-centre trial is required. When the trial is under way, a good deal of patience is required; where the difference between alternatives is small, and the clinical situation complex, a trial may take years to complete; for example, the MRC multi-centre trial of steroids in the nephrotic syndrome took eight years. Over such a time-scale, knowledge of the disease may change, and the emergence of alternative treatments may make the trial nugatory.

In spite of these reservations, I would agree that if a controlled trial is practicable and can produce a result, it is a most valuable contribution to progress; but it seems to me unrealistic to suggest that nothing should be done without a controlled trial and that any issue can be settled for all time, even by an RCT.

I would emphasise that the criticisms I have made of a few current medico-social concepts are relative, and not absolute. I appreciate the substantial elements of truth they contain, but I also see a danger that if they, in turn, are regarded as absolutes, they may be perverted to reinforce the arguments of those who evince a total mistrust of doctors, a frame of mind that is even more injurious to patients than a blind acceptance that doctors are always right—a belief that has never been held by the majority of doctors. As to the effect on doctors themselves, an element of self-confidence is an essential component of good medical practice, and attempts to lower it, however well-meaning, may not be in the public interest.

Conclusion

Having now looked at some of the achievements of modern medicine, and at some of the criticisms to which it has been subjected, are we any nearer to a resolution of the paradox I stated at the outset? It is scarcely for me to take on my shoulders the burden that has been placed on the Royal Commission. Nevertheless, I am not inhibited from expressing a view on the way ahead.

I have, I hope, made clear my belief in scientifically-based medicine, now and in the future. I would like to add to that my whole-hearted support of the National Health Service. Whatever may be the solution of our current difficulties, it cannot lie in an abandonment of the principles underlying a service that is supported by all political parties, and by the great majority of doctors, nurses, and other health service workers. The experience of the sixties showed that the service was capable of stimulating high morale in those who operated it, and of delivering benefits to the great mass of people, but I agree with Sir Francis Avery Jones (1978) that we have somehow lost momentum. Some of the causes are obvious. Inflation has not only brought restrictions on spending in the public sector, but has raised formidable problems of wages and differentials throughout the country, of which the health service has had its full share. It has also been subjected, under one administration, to a management structure that is full of feed-back loops and empty of decisions; and under another administration, to the doctrinaire phasing out of private practice, which was as marginal in the health sector as public schools are in the educational. There have been disgraceful episodes of so-called industrial action, with no category of workers wholly exempt.

Even to regain the ground that we seem to have lost since the sixties will be a long haul, but it must be undertaken. In the area of morale, I believe it is up to our profession to give a lead by example even more than by precept, in condemning actions that harm patients; strangely unpopular though it may be to say so, we are privileged to be members of a great and honourable profession, and we must accept the responsibilities that go with that position. But even if we succeed in restoring high morale it will wither away in frustration unless the ability to take decisions at an appropriate level is recreated. The present structure allows decisions to be shelved, and creates confusion between those matters that are best decided locally and those that need to be decided centrally, since they are likely to be general in their effects. The general principle should surely be that whatever can be decided locally should be so decided, since the time taken to reach a decision is a function of the number of the decision-nodes that have to be surmounted. There is room for improvement in communications, remembering always that the most essential ingredient in proper communication is goodwill, to which technical devices are strictly ancillary.

No doubt times are bad; history suggests that perhaps they always were bad, for the great majority of people. The future of the health service depends on our recovering cheerfulness and dedication; the future of our own profession depends on a shared idealism, as William Stokes maintained over a century ago (O'Brien, 1978).

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