PAPERS AND ORIGINALS

Medicine and Society—Past, Present, and Future*

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When a nation that is undergoing recurrent financial crises provides £22 million for a new teaching hospital and medical school, and £5 to 6 million per annum recurrent, and when it asks a Cabinet Minister to come and inaugurate the new medical school, it is obvious that contemporary society considers medicine to be of some value. You may ask why a new medical school instead of expanding the old ones? There are three reasons. Firstly, a medical school has an optimum and a maximum size if quality is to be preserved. Secondly, a medical school confers a great advantage on the society in which it is located. It attracts the best senior staff and therefore provides the best service; it attracts the best junior staff because of the opportunities that they have for continuing education; and it provides a ferment that leavens the medical lump in the locality. The third reason is the possibility of doing something new. Medical schools are a little like human beings. They grow old, are pleased with themselves, and become set in their ways. They find it difficult to change. In fact there is a built-in response to oppose change. Hence life and death. As the Principal of the University of London used to remark when some of their committees had been unusually obstructive: "While there's death there's hope." A new medical school is like a young person. It can bring a new attitude to medical education, to the practice of medicine, to the relations with the community, and to the organization of medicine. This then is a first birthday party and we meet together to wish this new and vigorous child a long life and a most distinguished one.

Rewards to Doctors

Because of the clear significance of this event today, I chose for the subject of my address "Medicine and Society—Past,

Present, and Future." Our theme may be looked at in terms of the social contract of John Locke and Jean Jacques Rousseau. Society provides doctors with a living and the tools needed to do their job. Doctors ensure that society is healthy by preventing and curing disease.

One side of the social contract—namely, the rewards given to doctors for doing their job—has recently been the subject of great controversy. I will not add to it here except to say two things. Firstly, that the less the rewards of medicine in comparison with other professions of equal interest and prestige, then the less the competition for entry and the lower the standard of performance. Secondly, when the employing authority—namely, Her Majesty's Government—deals with a sensitive profession like medicine, there is a right way and a wrong way of proceeding. I think at this point, Mr. Secretary of State, I had better stop. You all know what I mean.

As one who travels widely, I can add that British trained doctors are held in great esteem and are widely sought. Many quite rich countries are short of doctors. If conditions here are not made sufficiently attractive, our doctors will have no difficulty in placing themselves abroad, and they will. So if Her Majesty's Government is interested in providing the best possible health service they will have to take heed of this. Alexander Fleming House can be filled to overflowing with the most highly trained secretaries and administrators and accountants and planners in the world, but if there are not enough good doctors, then it will be just one gigantic waste of men and money. And what I have said about doctors applies equally to dentists, nurses, and technicians.

I shall leave that side of the social contract there, and devote the rest of my address to the other side—namely, to the question of what medicine has done, can do, and should do for society.

Learned Professions

In the ancient world medicine was clearly held in some respect, as witness the great Temple of Aesculapius near Mycaenae, though I would imagine that a visit to the Temple of Aesculapius was about as rewarding as consulting the Oracle at Delphi, or visiting the Temple of Diana at Ephesus. The rewards came from belief rather than wisdom.

The Church, Law, and Medicine are the three ancient

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learned professions that constituted the superior faculties in the mediaeval university, which were reached through the trivium and quadrivium of the inferior Faculty of Arts. Divinity, Law, and Medicine were the graduate schools of the mediaeval university. Alas, the concept of the graduate school has disappeared from the modern university in this country. Education has not coped with the increase of knowledge by lengthening the course for some but by narrowing it for all, with the consequence that our universities have ceased to turn out educated men and women. The fact that they have turned out large numbers of men and women who are entirely ignorant of science is one of the main reasons why Britain is in its present financial plight and why the late Prime Minister was never able to realize what he called his "white hot technological revolution." The crime of early specialization at school, I regret to say, still goes on despite the efforts of your late vice-chancellor and other educationalists with real vision and real common sense.

To return. Of these three ancient learned professions, I would guess that Medicine contributed least to society. Medicine was not in a position to cure or prevent disease. Unlike the Church and Law, it did not produce great statesmen or, with very few exceptions, people who contributed materially to the general intellectual life of society. I suspect that the central cause was that the Church and the Law were dealing with matters that were within their comprehension, Medicine was not. Although the nature of the Trinity is not a project that even a Newton was able to solve in the 30 years or so that he devoted to it, yet the theologians produced some of the ablest mediaeval minds, administrators, and statesmen. The Catholic Church had received from Imperial Rome an exceptionally well designed administrative system and trained extremely competent men of affairs. So it is not surprising that bishops became the agents of kings, that they amassed great wealth, and were the chief founders of Oxford colleges. The Law too was dealing with matters well within its competence. Medicine alone was not, and unfortunately it was not in a position to admit its own ignorance. Just as Voltaire said of God, "Si Dieu n'existait pas, il faudrait l'inventer," so medicine, being ignorant of the causes of disease, had to invent them.

It is a rather sobering thought to remember that only a little over a century ago medicine was doing little for society. It is true that epidemiology had been born, the lesson of the Broad Street pump had not been lost, and that though the cholera bacillus was not understood, nor the typhoid bacillus, nor the plague bacillus, it was known that diseases were transmitted by contaminated water supplies or by rats. So Miss Nightingale, when she went to the Crimea, was able to transform the health of the troops by attention to elementary cleanliness and sanitation. Forty years ago, when I was a young graduate, the only drugs which I knew to be of value were the anaesthetics, the barbiturates, the salicylates, morphine, the diuretics, and digitalis. Apart from kindness, sleep, good food, and nursing, one was able to do almost nothing for the infectious diseases, the blood diseases, hypertension, coronary thrombosis, the stroke, and cancer.

Learning and Pedantry

If the direct service that medicine was tendering to society was not of any great value, yet it contained two seeds, one of which has yet to flower, the other has flowered exceedingly.

Universities and other places of learning are prone to a disease—pedantry. The chief cause of pedantry is insulation of mind. The interest narrows, the curiosity vanishes, and the mental processes become endlessly repetitive. Because universities tend to worship at the improbable shrine of useless knowledge, they like to cut themselves off from the world at large and retire into an artificial world of their own creation.

Intellectual revolutionaries like Galileo and Darwin are naturally unacceptable. The ancient learned professions, especially Medicine and the Law, have been two of the channels through which contact with society as a whole has been preserved. That there is a need for this continuance has been shown by the recent student troubles.

But perhaps medicine's chief value to society has been the part it played in the development of science and the creation of the scientific method. The exploration of the world around us was part of the Greek tradition that the Latins did not develop. With the new learning was a rebirth of interest and adventure, the Renaissance. With this came the development of what is now called natural science and the scientific method. The disciplines in the mediaeval university which impinged on this were those of natural philosophy, astronomy, and geometry in the inferior Faculty of Arts and the superior Faculty of Medicine. Copernicus and Galileo, founders of astronomy, had both studied medicine. In the University of Oxford, the Chairs of Zoology, Botany, Chemistry, and Physics all arose from developments in the Faculty of Medicine. As Lewis pointed out in his Harveian Oration, William Harvey's discovery of the circulation was perhaps not as great an achievement as his perfection of the method of observation, experiment, and measurement, which were the three components of the scientific method. This method is probably the most powerful tool of the intellect that has ever been invented. The contribution made to it by men who had been trained in medicine, like James Black, the pioneer of latent heat, is something of which I think our profession can be justly proud. As the present President of the Royal Society, Lord Blackett, with others, showed during the war, this method can be applied to the problems that occur in everyday affairs. This is operational research.

Scientific Method

Many years ago Karl Pearson said in his book, *The Grammar of Science*, "The true aim of the teacher should be to impart an appreciation of method rather than a knowledge of facts." I hope, gentlemen, you never become corrupted into using the term "methodology" for method. Your training in method determines your approach to a problem, what questions you ask, how you collect data to try to answer them, how you interpret those data, and how you decide whether new data can be got that will help to give a more informative or exact answer. The scientific method does just that, using observation, experiment, and measurement to collect data. To acquire and understand this method should be a major aim of every scientific course in every university. Alas, it is not, or the lecturers fail miserably. I hope this is one of the ways in which this new medical school will improve on its older sisters.

The scientific method has been the agent through which we have learned to understand and control the natural world about us. The increase in knowledge has been an exponential curve and seems to be so continuing. The power for good and for evil placed in man's hands by the scientific method is immense. It is not surprising that the thoughtful are terrified and that the timid urge that this progress of discovery should cease. But while I am terrified, I cannot envisage any practical method of arresting scientific advance. As Adam and Eve discovered after eating the fruit of the tree of knowledge, a retreat to ignorance is just not possible. Man must find some other way.

This immense increase in natural knowledge has embraced man and his diseases. Since the search for immortality is a consuming passion of the race, the search for knowledge concerning human disease has been prosecuted intensely, and this knowledge has brought power to prevent and cure.

Accomplishments

In contrast to past behaviour, medicine's contribution to man's welfare and happiness in the last few decades has been incomparably greater than that of any other discipline. The terrors of childbirth and of surgery have vanished. The infectious diseases, the blood diseases, and hypertension, which used to invalid and kill many when I was a boy, are now almost under control. I have little doubt that in your lifetime, cancer, heart disease, and stroke, which were left as the chief avenging angels in President Johnson's government, will be controllable too. When that happens two problems which are already evident will become really urgent. The first is familiar: the world is becoming overpopulated; when you can't find a place to live or food to eat your behaviour alters; crime and war are probable results. The only civilized method of combating this is birth control. If births are to be limited, would it not be sensible to breed only from the best and thus to improve the human race, as cattle, sheep, and other domesticated animals have been improved? Plato thought so, and Francis Galton felt so strongly about it that he started his Eugenics Society to promote it, and a series of monographs entitled *Studies in National Deterioration* to underline its urgency.

The second great issue is the increasing proportion of old people in the world. The success of transplant surgery raises the spectre of near immortality, with the world being overcrowded with old men and women stuffed with other people's viscera but with their own senile brains. As I am myself 66, I can say without being accused of self-interest that I do not think this would make for a lively or intellectually healthy society. I reject euthanasia—killing people is not what doctors should, or could, do. I would prefer that old people who are unable to look after themselves should not be given antibiotics. Nature should be allowed to take its course, and bronchopneumonia, which Osler called the old man's friend, should be allowed to make its gift unhindered by false charity. It is time that death should be recognized as worthy of being celebrated as is birth. I hope that if any people assemble after I die they will be given champagne.

My task in outlining the social problems now confronting medicine has been greatly eased by the agile pen and penetrating wit of the Vice-Chancellor of the University of Newcastle upon Tyne. I fully accept his analysis, which appeared in *Science Journal* last year. I shall select three problems for further attention—namely, the philosophy and organization of a health service, mental illness of individuals, and mental illness of populations. The first is of great domestic interest. The second and third are global.

Health Service

The function of a health service can be stated simply. It is to provide those who need it with the best possible advice and care. And since men learn by trial and error, it should constantly try to improve, so that tomorrow's sick may be cared for better than today's. That, of course, is the primary purpose of an institution like this new medical school, where clinical practice and research and teaching are all inextricably linked to each other.

MORALE

The most important element in the quality of service provided for the sick is the knowledge, skill, and morale of those who actually care for the sick—doctors, dentists, nurses, and technicians. This should be obvious, but it is apparently not. Nineteen seventy was almost a year notable for the initiation of the destruction of the National Health Service, not through malice but through unwisdom, through the way in

which the doctors' pay dispute was handled, and through the Green Paper, which I hope will now be no more than an interesting relic.

The importance of morale became indelibly engraved on my mind in the autumn of 1940. I was on the Traumatic Shock Committee of the Medical Research Council and had asked to be informed by a neighbouring hospital, at which I did not work, if they received air-raid casualties. One Sunday morning a German aeroplane machine-gunned a crowd that had just emerged from church. When I went that afternoon to that hospital, the surgeon on duty was trying to cope with nearly 50 badly injured people, including a young girl with several bullet holes in her belly, of which she later died. Other doctors were not called; they were all part of a whole-time service and it was their day off. I contrast that with St. Mary's, where the surgeons were all to be called and all to come in through the raids during the many nights that London was bombed. The fact that the first was staffed on a whole-time basis and the second by Harley Street consultants was totally irrelevant; what was relevant was the contrast in morale and the consequent contrast in the quality of service rendered to the sick. Whatever you do, Mr. Secretary of State, I do implore you to take this into account.

There are movements in medicine to bring the attitude of doctors and nurses into line with Trades Union practice. If an eight-hour day and pay are the dominant motives, rather than service to the sick and reasonable remuneration, then I think your health service will be ruined. St. Paul's words were never more to be heeded: "And now abideth faith, hope, and charity, these three; but the greatest of these is charity" (I Corinthians XIII, 13). Alas charity has become a dirty word.

Morale depends on the quality of men and women recruited to the profession and that, of course, on the attractiveness of their future career. At the present time the quality of applicants for medicine is high. I can understand, Mr. Secretary, that you are justifiably worried about numbers of doctors, and I hope medical schools will respond to that need. I used to be one of the most outspoken critics of our medical education. I am no longer. It has improved enormously in the last quarter of a century. This has happened because the idea that education is finished at the end of a university course has been seen as the nonsense that it is and always has been. A university degree is only the end of the beginning and does no more than fit a man to learn his job through further experience and education. Thanks largely to the enterprise of the Nuffield Provincial Hospitals Trust, the wisdom of one of your predecessors, Mr. Secretary of State, advised by two great civil servants, one of whom still advises you, and to the encouragement of the General Medical Council, postgraduate medical education has begun and, thanks to local enthusiasm, is growing fast. No single event has had a greater impact on professional knowledge, skill, and morale. And it has enabled educational, rather than professional, ends to be served by the undergraduate course. There are disturbing signs that enthusiasm is beginning to wane and that the central co-ordinating committee has lost its way. It would be tragic if this most promising venture, with its enormous rewards to patient care, should perish in its promising youth.

NURSING

I feel not nearly so happy about nursing. What made British nurses the envy of the world was the ward sister and her senior staff. Intelligent, dedicated, kindly women worked long hours and saw to the physical and mental comfort of the patients entrusted to them, co-operating with doctors in their treatment. When I was at St. Mary's two ward sisters were, in my opinion, much better diagnosticians than any of my

colleagues. I profitted many times by their advice. This has changed and is changing for the worse. Two of the most splendid nurses I have known—one American, one British—are deeply disillusioned. The real reason is quite simple, nurses *qua* nurses are not valued as they should be. They are, and always have been, badly paid, and they have not always been treated with the great respect that is their due.

Attempts to improve their status have taken two wrong directions. One, in which the United States has led, has been to take them in training from the wards into the lecture theatres and even chemistry laboratories, to stuff their minds with what that great educator and philosopher, Arthur Whitehead, called the tyranny of inert ideas. A remark of Whitehead's is apt. "Uneducated clever women, who have seen much of the world, are in middle life so much the most cultured part of the community. They have been saved from this horrible burden of inert ideas." The second, which is exemplified by the Salmon report in this country is to provide a career structure by increasing the number of nursing administrative posts. Those splendid ward sisters, who used to give unrivalled service to the sick, now walk round the corridors carrying sheafs of papers while their over-worked colleagues in their understaffed wards struggle with the sick. How fortunate we doctors are that prestige and its material rewards are still to be got by actual care of the sick. I am quite sure that the morale of nursing will not be restored until excellence as a ward sister carries corresponding prestige and salary as does the excellence of a physician or surgeon.

SOCIAL WORKERS

A service in which the rot began earlier and has proceeded further is that of the social worker. When, at the onset of the war, I took over a large service, I learned the value of the lady almoners, as they were then called. We worked closely, and one used to do a ward round with me once a week. She knew all my patients, their home conditions, problems of family and work, and the social services which might help them after we had done our best in hospital. Alas, all that has changed. They have become consultants, have to be called in specially for "case work." They present sheafs of paper long after, in a busy hospital, we have had to take all the important decisions. Worst of all they fancy themselves as psychiatrists, in which their performance is, to put it mildly, indifferent. The blame for the transmutation of a most valuable service to an almost useless one is at least partly ours, the medical profession's. Most of us did not realize how lucky we were to have such a valuable addition to the team and therefore did not use their services fully.

A service that has grown mightily and well is that of the technicians, radiographers, and those who do most of the spade-work in the diagnostic and research laboratories. Again this is a service in which we in this country can take great pride.

ADMINISTRATION

As a scientist cum clinician I have watched the National Health Service grow out of the Emergency Medical Service. With the changeover in 1948 the outstanding phenomenon was the extraordinary proliferation of non-producers. The Middlesex County Council ran its hospital service most economically and efficiently, with great attention to the conditions of work and morale of doctors and nurses, and with a tiny administrative and supporting staff. The institution of the National Health Service doubled or trebled the administrative and supporting staff. With the growth of the National Health Service conditions of work of doctors and dentists

have improved enormously. Badly staffed hospitals have been properly staffed by doctors of high quality. Old buildings were supplemented and improved. There is still a great deal to be done, as a visit to the Radcliffe Infirmary, Oxford, would show. The Health Service is still short of money. But what worries me more is the operation of Parkinson's Law. In every contemporary state there is a great tendency for administration to grow at the expense of those who do the actual job. I would like to suggest that every proposed change in the organization of the National Health Service be tested by the question: Will this reform increase the proportion of the money voted by Parliament that goes to the actual care of the sick? I am sure that the amalgamation of teaching hospital and regional boards could do this. I suspect that had the Green Paper passed into law it would have done the exact opposite.

I have served in the hospital part of the National Health Service, and its predecessor, the Emergency Medical Service, since their beginnings. The policy of regionalization was, I think, a sensible one. I am quite sure that the service can be improved, particularly by encouraging health centres as the instruments of family doctoring, by forging links between them and neighbouring hospitals, and by bringing teaching hospitals into closer relationships with regional boards. But when an organization has accumulated experience and has generated confidence, I think it would be a mistake to scrap it for a new and untried scheme, as your predecessor, Mr. Secretary, had in mind. Perhaps this new teaching hospital, with its special relationship to the regional board and its department of community health, will set a new pattern in teamwork which will be so successful that it will be copied elsewhere.

Mental Illness of Individuals

I turn now to the second outstanding problem, disorders of the mind in individual subjects. It is common knowledge that these constitute the biggest single cause of disability, and the biggest consumer of medical and nursing manpower. New drugs have enabled great progress to be made. And a great deal has been done, particularly in Nottingham, with social psychology. Nevertheless, we are still depressingly ignorant of what is going wrong in the patients and why. As has been the case so often in the past, the service rendered by medicine to the community is not limited by ill-will, laziness, or incompetence, but by universal lack of knowledge. You will say: If the answer lies in more and better research, why does not the Medical Research Council provide it? Is this not a classical example of the need for mission oriented research? I served on the Medical Research Council for a term and was subsequently chairman of its Committee on Clinical Psychiatry. We all recognized the need and we did our best. The actual situation illustrates what a nonsensical term mission oriented research is. Some of you may be aware that to be with it in certain circles, it is fashionable to divide research into mission oriented and curiosity oriented. The term mission oriented has been coined and is at present being peddled by those who never did research, or if they did have forgotten how. All scientific research is in fact disciplined curiosity. And the knowledge to be gained is the more to be sought the more it can be used.

NEW APPROACHES

New knowledge comes only from a new approach. And a new approach is the result of curiosity and chance, as three new approaches to the study of the mind and its disorders illustrate. In 1882 Joseph Breuer, of Vienna, had a most intelligent

patient with hysterical paralysis. Breuer spent an enormous amount of time on her and noticed that if she could talk about the occasion when her illness began and re-enact the emotional crisis that caused it, the paralysis was cured. Incidentally she fell in love with Breuer and he was so frightened by it that he ran away from Vienna for a time. Breuer's findings on this patient were the origin of psychoanalysis by free association, the creation of Sigmund Freud. I have the greatest admiration for Freud as a man and a mind. But he was not a scientist; he was a religious zealot. And perhaps his methods have been successful only to the extent that the earlier invention of the Catholic Church, the confessional, has been.

The second great advance occurred in the early years of this century. The great Russian physiologist, Pavlov, was studying the secretion of the digestive juices. It was known that dogs secrete saliva when they see food. This secretion was called psychic, by which name its mechanism was safely concealed and might have been concealed for ever if Pavlov had not had a robust curiosity and a robust cynicism. Pavlov showed that if a bell was rung when the dog was fed, then after several exhibitions the bell alone would elicit salivation. Thus was born the concept of the unconditioned stimulus, food, and the conditioned stimulus, the bell. This mechanism, the conditioned reflex, is one of the chief by which new behaviour or training is acquired, in man as well as in the dog.

The third new approach was made by Fölling, who in 1934 was testing with ferric chloride the urine of a mental defective and noticed it turned green. He was curious and energetic enough to follow this up and so discovered phenylketonuria. This is a classical hereditary disease, characterized by deficiency of a single enzyme concerned in the metabolism of a single amino-acid, phenylalanine. Thus was demonstrated that severe organic disease of the brain may have a biochemical basis. Many, and I have been one of them, suspect that the worst forms of mental illness, manic depressive psychosis and schizophrenia, have a biochemical lesion. I had hoped to be the midwife to this new child, but alas it was not to be so.

Mental Illness of Populations

The study of populations is much more difficult than the study of individuals because a new factor of large dimensions, biological variability, plays a part. The new science, however, has made an auspicious start, thanks to the study of chemical manures by R. A. Fisher, and human therapy by Bradford Hill, Doll, and A. L. Cochrane, among others. Nevertheless, just as psychology in the individual is the most difficult study of its kind, so the study of mass behaviour has not even scratched the surface of the problems. And those problems are perhaps the most menacing.

I was 14 when the first war ended. It was, as the politicians told us, the war to end wars, the war to make the world safe for democracy. Fifty years later these words have an increasingly hollow ring. Everywhere we look the world is in turmoil, class against class, tribe against tribe, creed against creed. The naïve idea that racial discrimination is simply a matter of skin colour becomes farcical when one visits the Middle East, Africa, Guyana, Fiji, Mauritius, and India. As I write this, the hatred between Arabs and Jews is a powder keg that may explode at any moment.

The explosion of the first atomic bomb in Hiroshima in 1945 had, or should have had, two profound effects on society. It destroyed once and for all the optimistic faith of the scientist, that all his discoveries must benefit mankind, an event that found its most tragic expression in Dr. Oppenheimer. It should have shown mankind that war is too dangerous a game even for politicians, much less for generals. The sickness of society is manifested by the wars in Indo-China and in the Middle East and the late war in Nigeria; it

is manifested by the tragic decline in morale, in the increasing hatred between black and white and the left and the right in the United States; it is manifested by the industrial chaos that threatens the economic life of this country, and which seems to be entirely unnoticed by the Trades Union Congress; it is manifested by the waves of student unrest which have closed some universities and threatens the scholarship of all. Only in the dictatorships of the Communist block are these manifestations of social disease apparently absent, presumably because they are in prison. I have great distrust of the permanence, let alone the justice, of such a solution.

It may be objected that to regard these phenomena as manifestations of diseases of society is to stretch the concept so far as to render it meaningless. But I for one find it useful. To me these diseases of communities are much more menacing to what medicine has always tried to do and still tries to do than the ancient killers like typhus, malaria, and plague, and even more than the modern killers like heart disease, cancer, and stroke; these could indeed be regarded as biology's answer to medicine, to protect the young from the old. The most frightening of all these social diseases is war. As I have prepared this address and as I delivered the early part I have been conscious of a feeling of dreadful unreality. Are we really not getting overanxious about trivialities, while the disaster which threatens us could destroy all the work we have tried to do and hope to do, if it does not indeed end the human race?

If you grant that diseases of populations rather than of individuals are the greatest menace to the future well-being of the human race, how can they be prevented or cured, and is such the task of medicine? The answer to the first is by understanding their nature and how they come about. I suppose that most people would say that to do this is the job of historians, social scientists, political scientists, and psychologists. So far they have not been conspicuously successful, any more than such people were in understanding and preventing behavioural disease in single people. Physicians have a weapon, the scientific method, which our educational system has denied these others, and the centre of their interest is man. So perhaps medicine may make one further contribution, perhaps its greatest, to the welfare of mankind.

Qualities to Develop

Such is my highly personal, but therefore my own sincere view of the nature of some of the issues facing medicine in its relationship to society. Those of you who are beginning your careers in this exciting new school may help to solve them.

It is now 42 years since I qualified as a doctor and it may not be out of place if I try to indicate what qualities you should seek to develop if you are to enjoy your own lives as doctors.

Firstly, cultivate the idea and spirit of adventure; if you do it may mean the difference between an exciting and a dull life. Secondly, learn to appreciate scientific method. It is the most powerful intellectual tool devised by the human mind and it can be used for any problem, including those of disease and those of society. Thirdly, learn to appreciate and develop in yourself a sense of style, which Whitehead termed the ultimate morality of mind.* Fourthly, remember that medicine is a vocation, not a trade. Unless you enter it with the idea that you are going to serve humanity and not simply provide a comfortable living for yourself and your family, you will derive little satisfaction and, rightly, you will not, or should not, earn your own self-respect. Fifthly, learn how to enjoy working hard. Medicine makes never-ending calls. My old chief, Sir Thomas Lewis, said to me: "George, all you get in life that is worth while, you get by the sweat of your brow." This, in an age when the *Daily Worker* has for very

shame transmogrified itself into the *Morning Star*, is an unpopular view. But it accords with my own experience. Prize three other virtues—honesty, kindness, and courage. The sick need all three. And perhaps the rarest of these is courage.

Let me end on a very personal note. I have thoroughly enjoyed my own life in medicine, and would not have done differently had I the opportunity to begin again. I hope and expect that the service rendered by medicine to society will be such that many will echo the last words of Socrates: "Crito, we owe a cock to Aesculapius; pay it therefore, and do not neglect it."

* "Finally, there should grow the most austere of all mental qualities; I mean the sense for style. It is an aesthetic sense, based on admiration for the direct attainment of a foreseen end, simply and without waste. Style in art, style in literature, style in science, style in logic, style in practical execution have fundamentally the same aesthetic qualities, namely attainment and restraint. The love of a subject in itself and for itself, where it is not the sleepy pleasure of pacing a mental quarter-deck, is the love of style as manifested in that study.

"Here we are brought back to the position from which we started, the utility of education. Style, in its finest sense, is the last acquirement of the educated mind; it is also the most useful. It pervades the whole being. The administrator with a sense for style hates waste; the engineer with a sense for style economizes his material; the artisan with a sense for style prefers good work. Style is the ultimate morality of mind." (Whitehead, A. N. (1962) *The Aims of Education*, Ernest Benn Ltd., London.)

Use of Gastric Function Tests by British Gastroenterologists

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Summary

A questionnaire was used to study the choice and use of gastric function tests by members of the British Society of Gastroenterology.

Pentagastrin has largely replaced older drugs as the stimulant of choice for evoking maximal acid secretion. Insulin tests are being used in situations where they are unlikely to provide useful clinical information. Fewer physicians than surgeons measure gastric secretion, and they use tests less often. The reluctance of physicians to test patients with uninvestigated dyspepsia or gastric ulcer seems justified, but in patients having dyspepsia with negative x-ray films, or after gastrectomy or vagotomy, the greater investigative keenness of surgeons seems commendable. Only half the surgeons ever try to assess the completeness of their vagotomies, and in only one-third of this half is it their usual practice. Criticism is made of the practice of routine measurement of acid in patients with duodenal ulcer, and of the use of acid measurements to decide whether a patient should have surgery or which type of operation should be performed.

Introduction

There is surprisingly little information available on the frequency and type of tests used by clinicians in the investigation of patients. We are particularly interested in gastric function tests, and one of us (Williams, 1969) carried out a pilot survey of their use by British and American surgeons, and Duthie (1969) investigated their use in university departments of surgery in Britain. The opportunity of a complete re-examination of the clinical value of gastric function tests (Baron, 1970) encouraged us to investigate formally their use by gastroenterologists in Britain.

Method

In February 1970 a questionnaire (see Appendix) was sent to 259 members and associates of the British Society of Gastroenterology who were thought by their qualifications to be in clinical practice as physicians or surgeons. A reminder letter was sent out in May 1970 and the 202 replies received by the end of June 1970 have been analysed. Deliberately, no space was provided for names, but many doctors did sign their forms. Replies have, however, been treated as anonymous and confidential and no individual views are quoted.

Replies were received from 75% of the 159 physicians and 82% of the 100 surgeons, an insignificant difference in response. Blank forms were returned by 19 doctors who stated they were no longer doing sufficient clinical practice to give reasoned replies. The results below are based, therefore, on the useful replies of 108 physicians and 75 surgeons with a specific interest in gastroenterology, who are collectively referred to as "gastroenterologists."

For simplicity of analysis the term "peak acid output" has been taken as synonymous with maximum acid output for acid response to augmented histamine tests, Histalog (ametazone), or pentagastrin. If a doctor used more than one stimulus for peak acid output only the more recent test has been used for analysis.

In each separate clinical situation the rationale for the use of gastric function tests has been analysed, and is followed by our comments on the collective practice of our colleagues. Detailed evidence for these opinions is provided elsewhere (Baron, 1970).

A. Dyspepsia not yet Investigated

Twenty-six of the 183 gastroenterologists performed acid tests on patients with dyspepsia who had not yet had x-ray examination or gastroscopy. Only one in 12 physicians, but one in four of the surgeons, used tests. Surgeons used tests significantly more often than physicians ($P=0.01$), and only one of the nine physicians who did such tests did them "usually" (see questionnaire Appendix), whereas eight of the 17 surgeons who did these tests performed them usually. Each of the 26 doctors measured peak acid output (21 used pentagastrin) and half measured basal acid output as well. Six doctors used insulin tests.

Comment.—Little is to be gained from measuring the acid secretion of patients with dyspepsia who have not had any

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