

Medicine and culture : proceedings of a historical symposium organized jointly by the Wellcome Institute of the History of Medicine, London, and the Wenner-Gren Foundation for Anthropological Research, New York / edited by F.N.L. Poynter.

Contributors

Poynter, F. N. L. 1908-
Wellcome Institute of the History of Medicine.
Wenner-Gren Foundation for Anthropological Research.

Publication/Creation

London : Wellcome Institute of the History of Medicine, 1969.

Persistent URL

<https://wellcomecollection.org/works/sv8y9nz4>

License and attribution

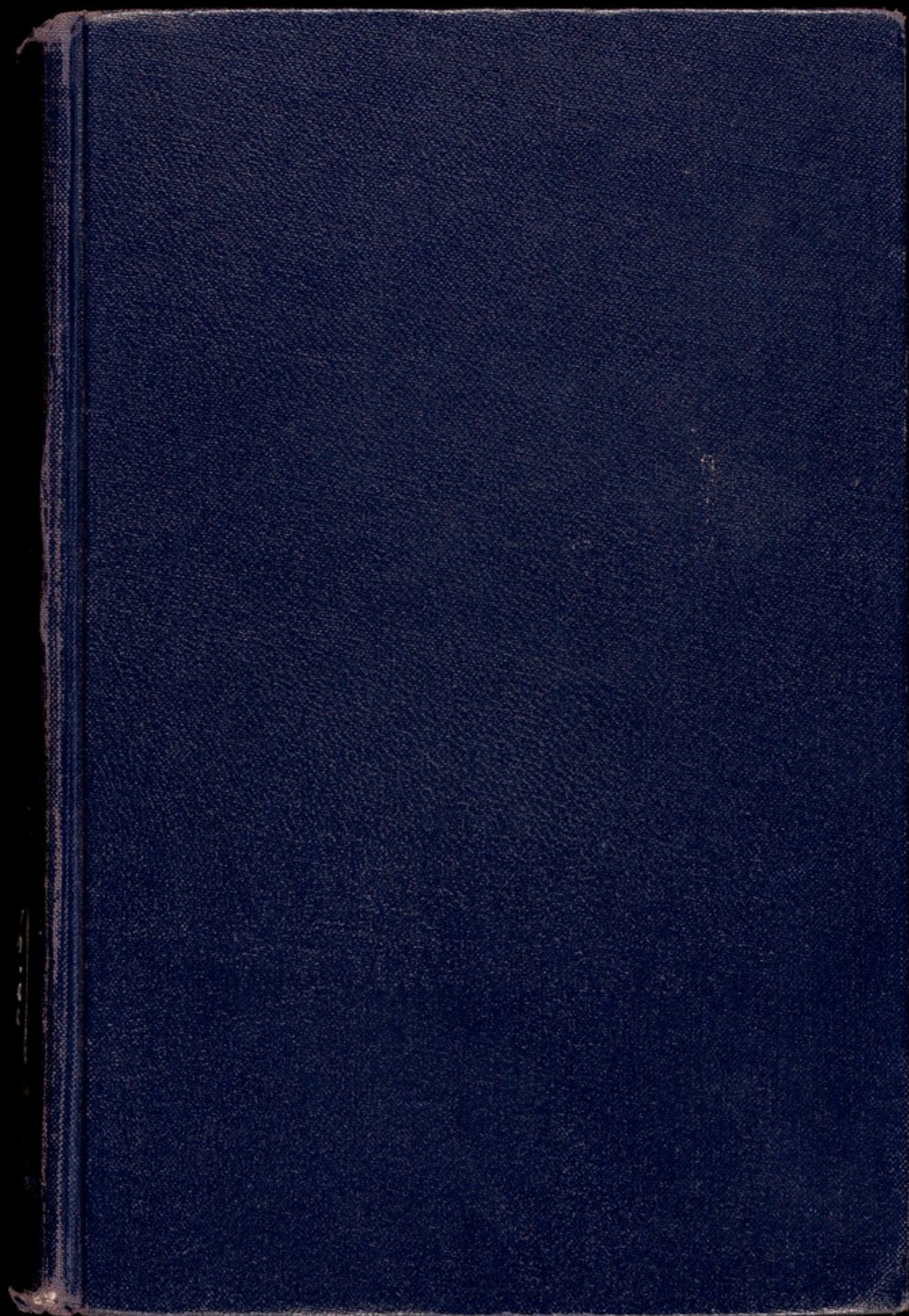
You have permission to make copies of this work under a Creative Commons, Attribution, Non-commercial license.

Non-commercial use includes private study, academic research, teaching, and other activities that are not primarily intended for, or directed towards, commercial advantage or private monetary compensation. See the Legal Code for further information.

Image source should be attributed as specified in the full catalogue record. If no source is given the image should be attributed to Wellcome Collection.



Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
<https://wellcomecollection.org>



BA. U



22101309874

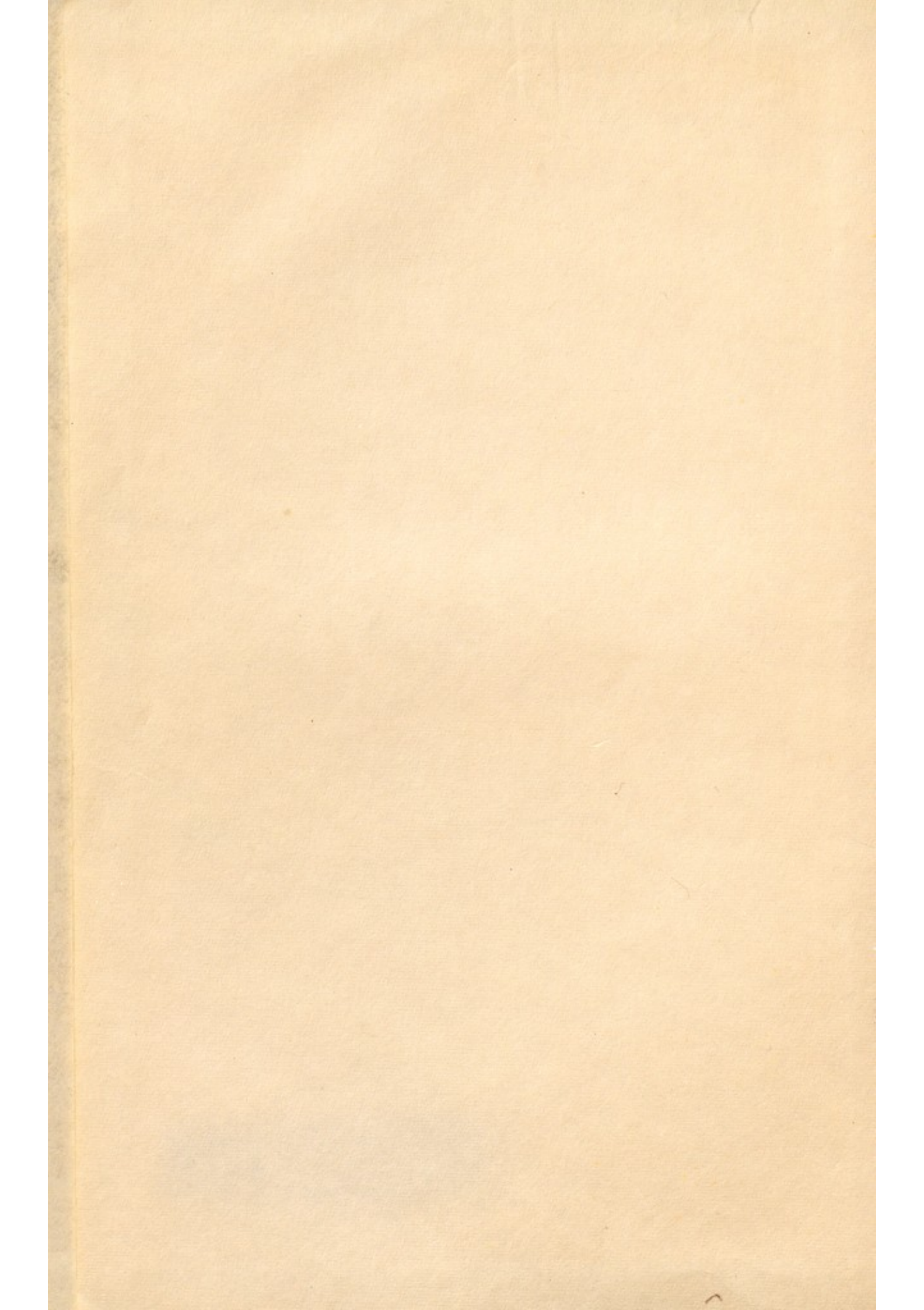
MEDICINE AND SURGERY

Published by the

Williams Institute of the University of California

General Editor: F. N. L. FORD, M.D., Ph.D., University of California

New Series, Volume 1



MEDICINE AND CULTURE

Publications of the
Wellcome Institute of The History of Medicine

General Editor: F. N. L. POYNTER, PH.D., D.LITT., HON.M.D. (KIEL)

New Series, Volume XV

MEDICINE AND CULTURE

Proceedings of a Historical Symposium organized jointly
by The Wellcome Institute of the History of Medicine, London,
and The Wenner-Gren Foundation for Anthropological Research,
New York

Edited by F. N. L. POYNTER

LONDON

Wellcome Institute of the History of Medicine

1969

17166

CULTURE

Copyright by The Wellcome Institute of the History
of Medicine

First published in 1969

BA. U



Printed in Great Britain by
FRANK COTTRELL LTD
CREWE HALL, CREWE

CONTENTS

1. Introduction – Notes for participants by F. N. L. Poynter (Director, Wellcome Institute) and Iago Galdston (Research-Associate, Wenner-Gren Foundation)....	1
2. Medicine's Contribution to Culture, by Sir Geoffrey Vickers	5
3. Medicine and Culture, by Iago Galdston.....	15
4. The Physician as Humanist in a Technological Society, by John W. Dodds.....	27
DISCUSSION.....	37
5. Medicine and Education, by Sir George Pickering.....	69
6. Medicine and Culture, by Douglas Hubble.....	79
7. Medicine and Culture, by Sir Aubrey Lewis.....	93
DISCUSSION.....	100
8. The culture of Medical Care and Consumer Behaviour by Richard M. Titmuss.....	129
9. English and American Medicine and Society, 1900–1914, by Jeanne Brand.....	137
DISCUSSION.....	154
10. The Role of Religion in Spanish American Medicine, by Francisco Guerra.....	179
11. Modern Medicine in a Traditional Indian Setting, A New Brew in an Old Vat, by N. H. Keswani.....	189
12. Traditional African Cultures and Western Medicine (A Critical Review), by T. Adeoye Lambo.....	201
13. Western Medicine and Afro-Asian Ethnic Medicine, by Pierre Huard	211

DISCUSSION.....	238
15. Chinese Medicine, by Joseph Needham and Lu Gwei-Djen	255
DISCUSSION.....	285
Concluding Remarks by the Chairman, Lord Cohen of Birkenhead	313
Index	315

In addition to those named above the following also
attended the meetings and took part in the discussions:

Professor Michael Polanyi (Oxford)
Dr. Alistair Crombie (Oxford)
Professor C. D. O'Malley (Los Angeles)
Dr. Ming Wong (Paris)
Dr. Hugh R. Leavell (New Delhi)
Professor T. McKeown (Birmingham)
Dr. M. D. Grmek (Paris)
Dr. K. D. Keele (London)
Dr. Ruth G. Hodgkinson (London)
Dr. Jean Théodoridès (Paris)
Dr. John Bowers (New York)

INTRODUCTION

THE symposium on Medicine and Culture which produced the papers and discussions contained in this volume was held in the Wellcome Institute on 27, 28 and 29 September, 1966. The papers were all circulated in advance and were not read at the meetings, but each author was invited to introduce the discussion on his own contribution by a brief summary, together with further comments expanding or amending his own conclusions in the light of the other papers received after his own was written. The subsequent discussions were lively and prolonged and were all recorded on tape. The transcribing and editing of these tapes has been a long and difficult task for several reasons. The meeting had to be held in a 'temporary' conference room while extensive alterations were being made to the interior of the Institute building. It was not sound-proof and the sensitive microphones have frequently picked up sounds of drills and hammers as well as, when a window was opened on a warm afternoon, traffic noises which included the bells of the fire-engines leaving their neighbouring station. Moreover, as the discussions warmed up, members were so anxious to make their points that they forgot the Chairman's injunction to give their names before speaking, so making it extremely difficult to attribute remarks to the right speaker. However, after two or three transcripts have been made, and with the aid of several who were present throughout the meeting, it has been possible to produce a comparatively complete and accurate record of the discussions which will not, I hope, be taken amiss by those who joined in them. These difficulties, together with the fact that some members came from distant countries where they could not be easily or frequently consulted, have delayed the publication of the full proceedings, although the original papers have been in print for over a year.

As my own preliminary 'Note to Participants' is specifically referred to in the discussions I have decided to include it here. Dr. Iago Galdston, of the Wenner-Gren Foundation, subsequently circulated his own Note to cover points that he wished to hear discussed, and this too is appended. The paper by Sir Geoffrey Vickers was given as an address after the Symposium Dinner held in Brown's Hotel on the evening of the second day of the meeting and was not therefore the subject of discussion.

Those who have experience of organizing such meetings as this will know that there is a definite limit to the influence which the organizers may exert upon speakers. As Dr. McKeown points out in the discussions, only two or three of the five themes outlined in their 'brief' were in fact presented and discussed by members, but

despite that it is hoped that this volume will be accepted as a contribution to a most important subject and stimulate others, either individually or collectively, to take up the topics discussed here and to explore others which have been touched on only briefly, or, maybe, not even mentioned.

NOTE TO PARTICIPANTS I

As one of the joint organizers and the editor of the published Proceedings, contributors to the symposium may like to have my views on the general approach to the meeting, and the possible trends of discussion. It is my belief that unless history contributes to our understanding of the present situation and a clearer view of the problems inherent in it, then it is a mere antiquarian study, or even – as some would have it ‘a tale told by an idiot, signifying nothing’. The present century has seen a fundamental revolution in the way in which men think of their own relation to their natural environment, to their own past, and to the legacy of the past which still forms the major part of their own – man-made – environment. Many of the most important problems which confront man today arise from the conflict between new ideas and traditional beliefs, whether these be religious, social, or economic. From the times of the Spartans and Athenians in ancient Greece and the Taoists in China to the affluent societies of some Western countries today, men have sought ways of achieving longevity without loss of physical or mental health. In many countries today a great proportion of the social wealth and effort is dedicated to achieving this for the greatest possible number. The implications of this effort, undertaken at a time of great social upheaval, are so far-reaching that, when worked out fully, they are likely to create as many new and challenging problems as they solve. The ‘population explosion’ is only one of the current world problems which has to a large extent been created by the advance of medical science.

At the heart of the discussions will therefore be the study of the role of Medicine in the rapidly changing society. In two great societies of Asia, for example, China and India, there are two ‘rival’ systems of Medicine, the one traditional and popular, the other modern and scientific. Should they be reconciled, and if so, how is it to be done? In the ‘stress’ societies of the West, health is regarded as one of the ‘four freedoms’, an inalienable right to be guaranteed either by private wealth or by governments. For many centuries, reinforced by religious teaching and beliefs, the Christian west accepted suffering as a necessary part of spiritual discipline; now it is universally rejected. The state organization of medical care represents this rejection in a formal structure. But in terms of cost-

accounted man-hours and gross national productivity it may merely be a minimal economic 'insurance' framed by an essentially industrial and commercial society. Just as religious changes may have been inextricably interwoven with the rise of a new mercantile and financial system, as well as with the 'scientific revolution' of the seventeenth century, so they must be traced in the social and industrial revolution which is taking place today. Family planning and the famine which prevails in some Asiatic and African countries are as much the concern of the Ecumenical Council as of the United Nations or the World Bank. The physical sciences have produced their explosions as well as their adventures into space; now it is the turn of the biological sciences to produce effects which are equally daunting – or challenging – to mankind. The individual member of any society is not usually conscious of the larger implications of the changes which he encounters in his immediate environment and the healthy individual successfully adjusts to these changes. But many do not, and mental illness is one of the great medical problems of our time. Has scientific rationalism removed the support of traditional customs and beliefs before anything was prepared to take their place? What has happened to other societies which encouraged hedonism for the semi-literate masses and scepticism for all?

Finally, what is the role of the medical profession in the changing society? Its part in the transformation taking place in the newly developed societies of Asia and Africa is and has been a crucial one, for it is and has often been both the leader and the instrument of change. Since we need doctors for a specific social role we must first make clear what that role is to be and then train would-be doctors for that part. Are the same kind of doctors needed in Nigeria as in Washington? Should all be submitted to the same type of conventional training? Is 'the West' really helping the developing countries by using thousands of their brightest young men and women as a support for its own health services? Or would it be more genuinely altruistic to establish more hospitals and medical schools in their own countries where they would be close to their own cultural roots?

And Medicine itself – is it an Art or a Science? Or both? Or is it in the course of becoming a special technology?

F. N. L. Poynter.

NOTE TO PARTICIPANTS II

The theme of the conference, Medicine and Culture, may be pursued along several lines. As a basic issue, it may be asked whether medicine as a scientific discipline and as the practice of a profession is directed and shaped by certain innate forces, or is it rather influenced and moulded by the cultural forces dominant during the given historic periods that may be under review.

The more common view of medicine today is of 'an autonomous, emergent and evolving science'. The history of the growth of medicine is represented as an accretive process in which fact is added to fact, knowledge is summated in mounting totals, and truth becomes ever more refined. This pursuit of the theme, Medicine and Culture, may be labelled the epistemological treatment.

The theme may be elaborated on an essentially historical basis. In history different schools of medicine are titled Egyptian, Greek, Roman, Medieval, Romantic, etc. Such designations refer not only to country and nation, but, on close analysis, are found to mirror the cultural 'qualities' of the named periods.

There is still another way of treating Medicine and Culture, less on a geographic and national basis and more in terms of the pervasive cultural determinate called technology. Together with the development of technology, changing political and social philosophies can be seen to influence medicine. It is of interest, for example, to note that the term social medicine was first formulated at the time of the French Revolution.

A significant and more immediate issue of Medicine and Culture is witnessed in the confrontation of Western medicine with the indigenous systems of medicine in the 'developing' countries, such as India, China, Africa, etc. The issues here are numerous. Can Western medicine co-exist with the indigenous systems and, if so, what may be the logic of the divisions of terrains, of relevance and effectiveness? Can these confrontations motivate a re-examination of the fundamental assumptions in Western medicine on such basic items as the meaning of health, of disease, the objectives of medical treatment, of the relation between medicine and ecology?

An important but possibly too esoteric aspect of the theme Medicine and Culture bears on the roles of ethos and aesthetics in medicine.

Iago Galdston.

MEDICINE'S CONTRIBUTION TO CULTURE

by Sir Geoffrey Vickers

I NEVER read three words more provocative than the title of this meeting. It sets as many hares running as a shot on the downs in March. I cannot even count them all, let alone chase them all. And the ones I choose to follow may be different from those which first attract you.

For my impression is that most of you are mainly concerned to ask what is the impact on medicine of the lay cultures within which it grows? How far does the lay culture define the professional culture, even affect its scientific ideas? These are fascinating, important questions, especially for doctors. But I am not a doctor and I naturally look first at the other side of the same coin and ask what medicine is contributing and might contribute to the lay cultures of the world and especially to the one that supports me.

These are questions no less valid and important. For a culture, as I believe, bears some imprint of the creative power of men; and, among these, professional men should be specially influential, for the very reason that they share a professional culture not wholly bounded by their lay culture and thus have an autonomous standing for criticism. A multiplicity of overlapping cultures is, I think, a necessary condition for the dialogue by which cultures grow; and the professional cultures are or should be one of its major guarantees. Western medicine is the aspect of western culture which is most readily acceptable to the rest of the world. We need to think not only what it can learn in its meeting with them but also what wider cultural changes it will bring. It is reasonable to ask first what is the cultural contribution which it makes in its homeland; but these may be very different from those which it will make elsewhere.

There is no doubt that, whatever else it may be, medicine in Britain today is a technology for keeping us alive and viable in the kind of world we have made. Many doctors and most laymen believe that it has at least two other roles. One is to be a profession responsible for managing, in partnership with laymen, the human estate of sickness and mortality. This is a role far wider than therapy. It includes on the one hand the management of all those biological crises of life which are not pathological and, on the other, the management of illness, including all those pathologies which

medicine cannot cure. The other is to be the source of an ongoing humanist criticism of the kind of world we are making, and of ongoing insights into the kind of world we should be making, in all those aspects to which a doctor's knowledge or a doctor's experience is relevant. This also is a field wider than sickness and health. It includes, amongst many others, such controversial themes as euthanasia, abortion and criminal responsibility.

I believe that the influence of medicine both on its home culture and on other cultures depends on its sustaining both these roles. And yet I see great difficulties in its playing more than a decreasing part in either. This is familiar to you all as a problem for the profession of medicine in western cultures today. I am asking you to consider it also as a problem for the lay culture in which it grows and for others also. For, if these medical roles are impoverished, the lay culture will be impoverished also; and not it alone but also the cultures to which our medicine is taken, whether by us or by their nationals who have trained here.

It would take too long to explore all the channels through which the lay culture is affected by medicine – by medicine as a body of knowledge, as a complex of institutions, as a technology, as an art and as a profession. I will focus on one which seems to me central. This is the dialogue which goes on continually between doctors, as practitioners and as citizens, and their fellow men. In dialogue I include all those impacts which they make in living with their fellows, by what they do and say and are. And the main cultural result which I should expect to flow from this would be to maintain and extend among their fellow men that view of men which distinguishes the medical profession, whatever that view may be.

Since it is even easier to talk nonsense about another profession than about one's own, I usually ask myself, before I say anything about medicine, whether it would make any sense if I said it about the law. The parallel here seems useful. Non-lawyers know well enough that they are both supported and constrained by a complex web of legal rights and duties; just as non-doctors know that they are empowered and limited by a complex web of biological relations. But they are usually not conscious of either of these sustaining and limiting systems and, as Professor Polanyi has explained to us,¹ they could not function if they were.

Lawyers, on the other hand, are trained to think of their fellow men primarily as subjects of rights and duties; and though they seldom forget for long that this is not the only way or, usually, the most apt way to view a fellow human, it remains *their* way. It may

1. Polanyi, M., *Personal Knowledge*, London, Routledge & Kegan Paul, 1958.

breed in them a *déformation professionnelle* but it makes a useful contribution to society, because it keeps alive a view which might otherwise be hidden by other views, equally partial and often more dangerous; for example, views of human relations based not on the rights and duties of the parties but on the degrees of power they command or the kinds of passion they inspire. It also ensures that there will be interested and informed participants in the endless dialogue by which these rights and duties are constantly redefined.

This view of fellow man which distinguishes the lawyer is not something which schools of law choose to teach. It is a viewpoint which the study and practice of the law cannot help teaching, though it can be enlarged and offset to some extent by other training and experience designed to supplement it. Much the same is true, I believe, of medicine. The study and practice of medicine, as of law, must necessarily focus the doctor's attention on aspects of his fellow men which they ought not to focus on, yet which they should not be allowed to forget or ignore. And medical education, like legal education, must do what it can to save its devotees from the worst results of their devotion.

But the view inherent in medicine is inescapably complex. The doctor is concerned with disordered biological organisms. He is also concerned with sentient individual humans dealing with their own and each other's disorders. He is also concerned with the threats and the supports offered to his patients by their surroundings, not least by each other. He is thus concerned with at least three levels of organisation, each with its own sciences, its own literature and its own mystique. He has too much on his plate. Worse than that, he has too much on each of the three plates. And of all human resources, attention is the least divisible. He tends to focus on one; and the one he can least afford to neglect today is the first.

Three major factors seem to me to have put medicine into its present dilemma. I will call them, the emergence of the man-made environment; the emergence of technological man; and the passing of the Cartesian world. I will try to say something about all three; though this puts me in far worse case than the doctor with his three overlaid plates. They are significant for us; and they may have different meanings in cultures where the first two changes may come far more quickly than they have with us and where the Cartesian phase of our culture may never occur.

Dr. Galdston has described how the Greek concept of health gave way under the impact of the 'crowd diseases'. For 2000 years, throughout the cultures where this concept ruled, medicine taught that health was the natural result of living according to the laws of nature, that nature of which man was a part but not a manipulator.

The belief did not rule unchallenged in the lay culture but its mere existence questioned the coexisting beliefs both in Providence and in witchcraft as factors in the causation and cure of disease.

The vision faded as the human environment became increasingly man-made though not man-designed; and thus ever more manipulable but ever more alien. This process has accelerated to a dizzy speed.

For example, the therapeutic success of medicine in the last hundred years has bred in the lay mind the idea that pain, sickness, debility, even death below the age of 75 or so are not part of the human condition but reproaches to the technicians whose job it is to fix these things. This is an odd and novel feature of our lay culture, even more important to the extent that it is true than to the extent that it is false. For in so far as it is true, it requires us to accept the fact that many who fall sick and die do so because of the way their societies apportion their resources, in other words, by human choice. This has always been true but hitherto it has been less true and better hidden. What once looked like acts of God now look like choices, perhaps defaults, of men; and our lay culture will put up with much less from men than from God.

It is, I suppose, no longer a paradox, at least in such a company as this, to observe that our success in manipulating our environment has made it increasingly a function of ourselves and has thus greatly increased our difficulty in adapting to it. For it has frustrated much of our innate adaptability, which was developed in relation to a surround which was *not* controllable; posed choices like the one just mentioned, which we are quite unprepared to make; and left us psychologically unsupported by any assurance of the given. Our resultant distress is the natural result of having become the only spoiled child in evolution's nursery. This is not the fault of medicine alone; all the other technologies must share the blame. But because health and still more life are not goods which are conveniently distributed either by a market process or by our present political process, their distribution raises more sharply than the distribution of other 'goods' the need to define permissible – and obligatory – frontiers of action and inaction and the priorities involved. This in turn makes even more important the dialogue by which such frontiers and priorities are defined.

As Dr. Galdston has pointed out, the emergence of the man-made environment destroyed an ancient and comprehensive concept of health. Doctors are often criticised by laymen and sometimes even by themselves for having failed to replace this by anything better than the absence of pathology. In two fields this seems to me untrue, and beyond these it is, I think, no more than we should expect.

Medicine's specific response to the man-made environment was

the concept of public health. Medicine supplied the first criteria by which to shape it, if shaped it must be. The task of shaping it grows far faster than our powers, and now far exceeds the field of public health which is itself a multi-professional field. But the lay culture owes to medicine its first awareness of the need to control the environment it was making, to create an artificial habitat with which, conceivably, men again might live in harmony and peace. And it derives from medicine criteria for the design of its home which are more ambitious in their aim than the control of pathology and more reliable in their working than most of the other criteria which compete for recognition in the field of physico-social planning.

Another field in which medicine has retained and indeed erected a positive standard of health is in the field of child care. Here the doctor is concerned with a biological but not a pathological process; he has other indices beside disease to signal departure from the normal; and his contact is with parents as well as with children, in a partnership directed to the management not of disease but of growing life. As a result, in our contemporary culture, though not, I think, in other or earlier ones, the voice of the medical culture dominates the traditional wisdom of the lay culture in the guidance it offers on the earliest years of child development. This new impact of medicine on the lay culture is perhaps capable of making a greater difference to health, physical and mental, than any of its other impacts.

There remains a large field in which, for doctors, health does indeed mean no more than the absence of pathology, even perhaps the absence only of those pathologies which the lay culture defines as disabling or as deserving of attention. My impression is that this has been so in all cultures everywhere. The care and training of the body has held a high place in many lay cultures. Its discipline and management have held a high place in nearly every religious culture either as a channel of intuition which could be developed or as a disturbance of intuition, which could be stilled. Yet none of these cultures, so far as I know, has ever called on its doctors for help in these fields – except, perhaps, for the special treatment accorded in our day to Olympic athletes and spacemen.

I find this neither blameworthy nor surprising. Since the diagnosis of illness is so difficult and so important a part of the clinical function, doctors in training spend most of their time looking at sick bodies in beds. Even so, their later diagnoses are not always right; so let us not urge them to spend less time on it. But equally, let us not expect them to be pioneers of health and beauty. If our culture valued psycho-biological excellence sufficiently to evoke a profession devoted to its study and development, that profession would

undoubtedly have a major influence in return on the lay culture; but it would not be trained in hospitals, and it would be neither medicine nor a substitute for medicine.

Let me come now to the impact of technology.

The growth of medical technology threatens the cultural contribution of medicine not only by claiming an ever larger slice of medical training time. The technologist is a new cultural type, portentous product of our lay culture, focus both of its admiration and of its dread. Medicine is not the only profession which is threatened by assimilation to the role of the technologist and thus to a role which is expected to solve problems, not to pose them.

Medicine, however, is more than usually vulnerable. For you will have noticed that my expectations of doctors are largely based on their influence as communicators with their fellows. But doctors do not usually see themselves as communicators. Indeed, they are the only professionals I can think of who often vastly benefit their fellows without either talking to them or listening to them. Medicine began its meteoric rise when it ceased to rely on what the patient said and attended instead to observable happenings at much lower levels of the biological hierarchy. Since then it has followed the biological trail into the expanding universe of the infinitely small, with most fruitful results. It has developed a highly respected and irreplaceable role in the human-biological maintenance industry.

And this role it is pressed to develop by one powerful element in our schizophrenic lay culture. We expect our doctors to be ever more skilful maintenance men in the biological garages where we are serviced, tested, repaired after our crashes, maintained in obsolescence, even rebuilt with each other's organs or man-made substitutes. Doctors respond with inventions which impress a technologically minded lay culture, win larger appropriations of funds, attract higher concentrations of brains and produce even more improbable inventions, thus completing the self-exciting spiral which typifies one relation between the professional and the lay culture.

But our culture also fears technology and all the problems of size and depersonalization which technology involves. It is dismayed that in our hospitals, though the technological resources for processing cases grow constantly in refinement and cost per bed, the human resources for caring for sick persons as steadily decline. It is the more dismayed because it knows well that their decline would be even more striking if it were not masked by the massive technological aid which the over-developed countries win from the under-developed ones by attracting their potential doctors and nurses and keeping them after training in numbers so much larger

than the more publicized trickle which flows the other way. In consequence the lay culture is deeply concerned to humanize its mass organisation and for this to preserve and extend the function of personal counselling.

This should support the doctor in his other nontechnological roles. But other influences are eroding the doctor's status as a counsellor. Emergent professions based on the psycho-social sciences, often without benefit of any human biology, are taking over or creating counselling functions at many levels. They provide the human contact between individuals in need and the massive departments of the service state, not least the health service. Politicians and administrators turn to them for guidance in shaping the exploding urban environment and in identifying its threats to health. They have already taken over some of medicine's former responsibilities in the field of public health, notably in the field of child care. Their influence on the lay culture is great and growing.

This emergence of psycho-social professions and disciplines seriously poses the question whether medicine will choose or will be driven to confine itself more closely to its biological expertise, rather than to extend its already crowded curriculum. It is hard even to focus the question without taking rough bearings of our position in what I believe to be already a post-Cartesian world.

Human communication, understanding, counsel and support are arts and skills which all human beings practice and experience, whatever their formal training and occupation; and we are unlikely ever to resign them wholly to professional specialists, as we resign the arts and skills of astronomy or biochemistry or electrical engineering. Least of all is this to be expected of doctors who, in their traditional role of manager of 'the estate of sickness and mortality', have for many centuries, in western cultures, shared with the priest the professional status of mediator of support to persons. Nor could anything be further from the desires of their patients.

Moreover, in so far as science and professional training can now add something – as indeed they can – to the empirical psycho-social knowledge which doctors accumulate and use in practice, doctors need this no less than other professions. Their expanding knowledge forces them to take more account of psycho-social factors, both in the aetiology and in the treatment of illness, in general medicine, in the expanding domain of psychiatry and not least in public health, where the social aspects of the man-made environment grow ever less separable from the physical ones.

Another factor compounds the reluctance to set bounds to what once seemed the natural domain of medicine. This is the feeling, still powerful though no longer confident, that human biology

ought to grow to comprehend *all* the problems of what La Mettrie two centuries ago called 'l'homme machine'. Priest and doctor might argue whether the world was monistic or dualistic but neither was prepared to accord autonomy to other domains beyond the authority of either of them.

Yet this is what is happening. The greatest contemporary impact of science on the secular culture comes neither from medicine nor from the psycho-social sciences but from communication engineers. It consists in the conceptual separation of information from energy as a mediator of change.

If my computer misbehaves, should I call in the electronic engineers who made and maintain it or the systems analysts and programme writers who prepared it for its job? Perhaps I must call in both; for neither can do the work of the other. The programmers cannot replace a faulty element nor can the engineers rewrite an ambiguous bit of programme. Maybe I must choose between a less ambitious programme and a better computer. Maybe I need both. The hard-headed characters who deal with such problems have no difficulty in distinguishing between the computer and its programme as disparate realities. The 'ghost in the machine' presents no problem to them. They may not have solved the mind-body problem but they exemplify one way of living with it. For its counterpart in their field seems to evoke no inter-professional boundary disputes, no mutual assertions of irrelevance and no attempts to resolve one half the problem into the other. They have surely thrown some light on the relation between human and biological studies and thus narrowed the gulf between the arts and the sciences, that gulf in which, I hope, medicine, like most other professions will still be content to dwell.

For we have to accept that the human condition, even that part of it which I have called the estate of sickness and mortality, is not to be comprehended within any one profession or any one group of sciences. That is why even the departmental services we have are increasingly multi-professional and multi-disciplinary. No one, whatever his training, can expect to hobnob on equal terms with organisations at all levels from enzymes to conurbanisations. It is inconvenient that humans should mediate their relations with each other by means so different from the communication system by which the body mediates its internal relations. It is inconvenient that transfers and transformations of energy should play so small a part in the causation of human affairs, compared with transfers and transformations of information within communicating networks. It is inconvenient that the members of these networks should programme and re-programme themselves and each other so readily, so comprehensively and so variously. Inconvenient, I mean, for

the organisation of scientific disciplines and self-contained professions; especially inconvenient for medicine, concentrating as it does on that interface between the biological and the psycho-social, where doctor and layman inescapably live together. But such, as I see it, is the human condition. This view is itself an artifact of the lay culture in an already post-Cartesian world – perhaps its most important cultural artifact – and to this view medicine, like other sciences, has its own contribution to make, important and irreplaceable, even though not so central as Descartes foretold.

Foreseeing the growth of technology, Descartes expected its most valuable fruit not in what he called 'an infinity of contrivances' but in better health, which he conceived in most ambitious terms. For he looked to medicine to make us not only cleverer but wiser – 'plus sages', as well as 'plus habiles'.

He has not, I think, been proved right – yet. But I have no doubt at all that medicine has still to contribute to the lay culture many important and topical grains of wisdom. As for making us more clever – that, I'm afraid, will look after itself.

In this country the relation of medicine to other professions and to the lay culture seems to be changing. But our attention in this conference is turned towards a wider field. Even the peoples who share the Judaeo-Christian and the Graeco-Roman traditions are a minority of the human race. Their influence on the majority of their fellow men today is due largely to their mastery of technologies which are desired because they can alleviate the material hardness of the human lot. One of these is the technology of therapy. Those who come to study here from that other and larger half of the world come, usually, not to learn our wisdom but to absorb our knowledge and to master our techniques. Yet even these techniques are conditioned by our culture and our way of life. How far can strangers absorb the one without the other? What will they make of the one without the other?

The young men and women from cultures alien to ours who come here to study medicine will take with them, when they return – if they do return – knowledge of the technologies they have learned; the sciences on which these are based; the institutions in which these were practised; the spirit in which they were used and received; and the commitment of those who practised them. Each of these will have a different meaning in the culture to which they are brought back. Some, perhaps, will have no meaning at all.

Consider, for example, the stress which I have placed on dialogue as a means by which doctors contribute to the lay culture. Many of the cultures to which medical technology will be taken back from here do not conceive of dialogue as a means of changing

cultural norms, and neither possess nor are ready to accept as desirable the idea of a multi-cultural society. It will be taken back to many cultures which do not conceive of state-run institutions as ministers to personal need but which on the other hand have preserved the sense of family and community responsibility to a degree which most of us have never experienced or thought possible. It will be taken back to cultures never touched before by that mechanistic view of causation which has prevailed in our culture for three centuries; a view which is now changing as we remake our conception of the machine but which still saturates both our professional and our lay cultures today.

There is, I think, only one statement of general validity which we can make about these infinitely varied impacts. It is this. Medicine in our culture today is, I think, the strongest remaining foothold of a human and humanist view of man – not perhaps a very strong one but the best we have. It is a view uncontaminated by interest in men as consumers; for doctors are the only suppliers of services in our community who have nothing to gain from a further increase in demand and nothing to fear from an abatement of demand. Neither they nor the laity any longer expect them to work themselves out of their job. It is a view focused on the individual, yet not on the individual in isolation, for sickness is a condition of dependence. Medicine can hardly fail to express whatever may be our culture's view of service by men to men.

It is thus critically important especially at this juncture of our history. For the political problem of our day is to keep man the doer in the service of man the done-by without frustrating either party in the process. The relation of our medicine to our society exemplifies this problem in its simplest form and its unhappy state today reflects the extent to which that problem is unsolved. For, if we cannot do this even in the field of medicine, we shall certainly not succeed in any other field. This is not, perhaps, the moment we should have chosen to be on show to other cultures of mankind; but we do not choose such moments. For good or ill, we are on show now. What alien eyes see here may be different from what we see. Whatever it is, it will, I think, contribute far more to their lay cultures, whether by way of example or of warning, than all the medical technology we can teach them.

MEDICINE AND CULTURE

by Iago Galdston

TO THE best of my knowledge, admittedly neither global nor encyclopaedic, no historian of medicine has ever composed a history of medicine in which cultural factors are presented as major determinants in the history of medicine. Sigerist, had he lived long enough and continued to write, would perhaps have authored such a work. In his later years he had become astutely aware by how much political, economic, and technological conditions influence the directions of development in medicine. He wrote on contemporary medicine in America, in Russia, in India, and noted that they differed in numerous respects. Some of his ventures into medical economics and medical sociology were overenthusiastic and naive. To his credit, he recalled he was not unwilling to modify his judgements and opinions as he gained in experience, and that, of course, deepened his interest. I am persuaded that he would have been very much stirred and enthused with the theme of our conference were he among us now.

It is worth recalling that the socio-economic excursions into medical history which Sigerist ventured were not looked on with much favour by the academic medical historians in America. Few dared to criticize him openly. But *sotto voce*, they grumbled such wise saws as 'Shoemaker stick to your last'. On the other hand, and this is an item worth noting, a number of the young amateurs in medical history with strong leftist leanings adopted Sigerist as their protagonist and presented him as the apostle of what in the United States is called Socialized Medicine – meaning governmental takeover and administration of medical services. Sigerist was not a medical politician. He was a humanist and a humanitarian. He could not but be concerned with economic and social conditions as they related to the history of medicine and to contemporary society. So much then on the late Henry Sigerist and the theme of our conference.

In developing our thoughts on medicine and culture we must be careful to distinguish between 'the medicine of different cultures' and the relationship between culture and medicine. Every 'standard' history of medicine begins with some chapters on 'primitive medicine'. 'Mesopotamian medicine', 'Egyptian medicine', the

medicine of the Hebrews, the Greeks, the Romans, *et al.* These chapters give, to the extent they do, the history of distinctive peoples possessed (or so it is assumed) of distinctive cultures and of medical ideas and practices differing from those of other peoples. Such chapters are not devoted to an exposition of how the cultural realities and characteristics of the given peoples shaped its characteristic medicine and, as is to be assumed, was conversely influenced. Such chapters are merely descriptive and not infrequently are judgmental in an open or covert manner. 'The doctors of the period believed in spells, talismans, astrology; they were ignorant, superstitious, and most probably frauds', and so forth.

This is perhaps overdrawn as a generalization, but it is sufficiently representative of the predominant persuasion to call for no radical conditioning. I recall few instances in which medical historians have attempted to expound the dynamic interrelations of a given culture with its unique medical theories and practices. Why the overspecialization in Egyptian medicine? Why the four humours of Greek medicine? Why the rejection of Galenic medicine so late? Why the *contagium vivum* – so late in history? Why the modern concept of specificity? Are these questions, these problems, comprehensible and possibly resolvable in the light of their cultural matrixes?

Medical historians, the rare exceptions granted, have not occupied themselves with these and such questions. In fact, any question beginning with or containing the word 'why' is anathema to the academic historian of medicine. The terrain of their interest is bordered by what, when, where and how. The question why generally throws them into a resentful dither, and their stock reaction is to respond, in a testy tone, 'the question is unscientific'.

Perhaps it is asking a bit too much of the academic medical historians to think 'in the configurations of cultural anthropology'. I recall the many times my very good and dear friend, Paul Fejos, levelled the identical charge against some of our anthropologist friends. 'They *work*', he would say, 'in cultural anthropology, but they do not *think* as cultural anthropologists'. They, too, would shy away from the question 'why'. But the cultural anthropologists were or are shy for good reasons – such as do not in any way apply to the medical historians. They burnt their fingers, or was it another part of their anatomy, by being leger with the problems of 'why' – and coming forth with facile answers. The academic medical historians, the exceptions allowed, have come forth with no answers. They haven't even asked the questions.

As observed before, perhaps it is asking a bit too much of the academic medical historians to think in the configurations of cultural anthropology. As was repeatedly underscored in the articles

contained in the recent history issue of the *London Times Literary Supplement* – historians by and large are not much or well informed in cultural anthropology. They are not trained to think anthropologically.

Why then single out the academic medical historian? For positive as well as negative reasons; not only because of what they fail to teach. It is also and even more so because of what they do teach.

At this point, and in order to facilitate the development of my exposition, I will formulate my argument not in relation to the academic medical historians – highlighting their failures and shortcomings – but rather in relation to the medical historiography of the last 150 years. After all, my feud with the academic medical historians is private in character and limited to the American cohorts. I trust none will misunderstand this.

Now as to recent historiography – in its more sophisticated pattern it ‘commences with paleopathology’. To effectively portray ‘the progress of medicine’ it is indeed necessary first to emphasize the antiquity of disease; then, by contrast, one can portray the recency of the effective treatment, control, and eradication of disease.

As far as it goes, this pattern of recitation provides both a valid and impressive portrayal of ‘the progress of medicine’.

Paleopathology shows by the remains of ancient man that disorders known to us in historic time down to the present also afflicted prehistoric man. It shows that the modes of the body’s reactions to pathogenic agents have not changed during known time. The mummified remains of the Egyptian tuberculous ‘hunchback’ pictured in numerous works touching on the antiquity of disease differ in no respect in the pathological changes exhibited from those found in the hunchbacks we encountered when tuberculosis was still rife in our country. The paleopathological changes that show up in the skeletal system, and those found in soft tissues which have survived total disintegration because of skilful embalming, unique conditions of weather, submersion in sterile bogs, etc., give strong support to the contention that ‘disease is a constant phenomenon, historically unchanged and unchanging, in respect to its causations, pathologies, and symptomatology’.

As much may also be said of the living pathogens. Allowing for the changes undergone during their initial evolution, they appear to have remained unchanged during known time. The tubercle bacilli of antiquity are assumed to have been identical with their present day descendants, and so, too, of the other bio-pathogens.

The argument for the antiquity of disease finds further support in the pharmacodynamic effects of some of the specific remedies employed in ancient times, these being as certain and true today

as they were known to be during time past.

On the basis of the foregoing, it is posited that disease, like physics and chemistry, is independent of time and place, and in a measure, so too, are the effective therapeutic agents. Syphilis, cancer, tuberculosis are the same, be the two as far apart as the ends of the world. Penicillin is as effective, granting known limitations, in the United States as in India. Physiological and endocrine disorders have a common, universal, unvarying aetiological basis.

The instances and examples can be increased extensively. They all tend to support the contention that while medicine is not as exact a science as is chemistry, or physics, it is *au fond* an exact science, becoming increasingly more so as more and more of its besetting uncertainties are cleared up. In fact, this is really the very core of medical history: the story of the emergence and evolution of medicine from ignorance, superstition and empiricism up to its present state, that of a scientific discipline.

It is this persuasion that inspires the facile phrase, so reminiscent of the *memento mori* of time past, 'Psychiatry is now where medicine was two hundred years ago'.

The progress of medicine during the past two hundred years, to take an arbitrary period, has undoubtedly been great. During this period medicine has gained enormously in precise knowledge. In many respects both informationally and technically medicine has become more exact.

But all of that doesn't make of medicine an exact science. At most, medicine is a discipline which in its comprehensions and practices makes use of precise knowledge and exact mensurations.

Indeed, on close and critical examination, the arguments and deductions based on the alleged antiquity and constancy of disease, its aetiology, pathology, and symptomatology, are found to be of doubtful validity and, where valid, of limited significance. The carious bone of the prehistoric tuberculosis victim demonstrates only, if it demonstrates that much, that the tubercle bacillus lodged in human bone affects with some constancy the noted gross interactions with the host tissue. The carious bone tells us nothing about how its owner once experienced his disease, how he felt about it, what he attributed it to, how he bore up under it, what his medicine man, shaman, or healer thought about it, how he accounted for its origin, what was the nature and theoretical framework of his practice, what his philosophical orientation. It doesn't tell us what other persons thought of the man's disease and how they related to him because of it. In other words, it tells us very little about the disease and nothing at all about *the man who suffered the disease* nor anything else that concerns the man and the world he lived in.

This brings us to face with a crucial question: What is medicine? Is it a science whose subject matter is '*disease, its cause, cure and prevention*'? Or, is it a discipline concerned with man (ill and well) whose living experience invariably and inevitably includes pain, disease and death?

The straddle answer, 'It is part of each, or both', an answer offered by those who will not face the question, is meaningless and evasive. Of course, as a discipline concerned with man and his life's experience, medicine by definition must also be concerned with disease, its cause, cure, and prevention. But medicine as a science whose subject matter is disease, its cause, cure, and prevention, need not be, and in recent historical experience has become less and less concerned and involved with *the man who is diseased*. How otherwise could clinicians talk in earnest about the computer's proximate takeover of medical practice?

To us, interested as we are in the interrelations of medicine and culture, the question 'What is medicine?' must be of prime importance. For if the answer be that it is 'a science', not a *scientia*, but a science of the same order as are those labelled *exact sciences*, then we cannot but conclude that its interrelations with culture must be minimal. If on the other hand the answer is that medicine is a humanistic discipline, concerned with man and his life experiences, a discipline that utilizes the exact sciences but is itself other than, and I would add more than, an exact science, then it follows that medicine must be of the very 'web and woof' of culture.

It is here that medical history, read without the modern day prejudice of progressivism, can help us to understand better the question, What is medicine? For during the longer span of medical history medicine was deemed a *scientia*, an organized body of knowledge, but not a science, not even a pure *techne* in the Greek sense. Hippocrates referred to medicine as *the Art*. Medicine acquired the pretence of an exact science during the nineteenth century when the exact sciences, notably physics and chemistry, developed in substance and stature. Medicine made its formal declaration of suffrage among the exact sciences in the pronouncement of Du Bois Reymond to the effect that the biological sciences need not and will not acknowledge the operations of any other forces but those of chemistry and physics. Michael Polanyi, in his article, 'Scientific Outlook: its Sickness and Cure' (*Science*, 15 March, 1957, 125, pp. 480-484), an article highly relevant to the thesis here developed, reminds us that as recently as 1948 K. S. Lashley reconfirmed Du Bois Reymond's declaration. Addressing the members participating in a symposium of unrivalled distinction (Polanyi) on the subject of 'Cerebral Mechanisms in Behaviour', Lashley declared, 'Our common

meeting ground is the faith to which we all subscribe, I believe, that the phenomena of behaviour and of mind are ultimately describable in the concepts of the physical and mathematical sciences'. Polanyi adds, 'It is in fact taken almost universally for granted among neurologists, who regard its acceptance as inherent in their claim to be scientists. Yet I', Polanyi affirms, 'do not think anybody can hold this belief'.

I have said that Polanyi's article titled 'Scientific Outlook: its Sickness and Cure' is pertinent to the thesis I here advance. It contains one (among many) penetrating observation which I want to borrow. It relates to 'detached analysis'. Polanyi had in mind *moral detachment* – but his observations thereon apply as well to other forms of detachment; the detachment of the disease from the man who suffers it, for example. 'There are', wrote Polanyi, 'a great number of things our knowledge of which dissolves if we look at them in a thoroughly detached manner'. (op. cit. p. 418). Medicine as a science detaches the disease from the man who suffers it and in consequence, to use Polanyi's phrase, our knowledge of both dissolves.

As was noted before, during the greater time portion of historic medicine, medicine did not practice 'detached analysis'. Not only was *not* the disease abstracted from the patient, the patient himself was *not* abstracted from the world he lived in nor from nature itself. 'I treat him – nature cures him', was the protestation of the Greek physician. This dependence of man on nature was perceived and acknowledged down the ages and is encountered in a somewhat modified version in Paré's words, 'I bandage him – God heals him'.

In Greek medicine, and Greek medicine in effect prevailed in Europe for close to two thousand years, man was deemed not merely dependent upon nature; he was regarded an inseparable part of manifest nature, the micro in the macrocosm. This be it noted was not only nor merely a philosophical affirmation; it was in effect the essence of classical Greek culture, permeating medical thought and practice. In this culture, the concept of *physis*, of nature, was central and dominant and in medicine it afforded the physician a rationale for health and sickness, and a rationale, too, for his therapeutic efforts. Health was the resultant of living in accordance with nature's requisites; disease the result of the failure to do so. The good physician was one schooled and skilled in diagnosing what was the trouble and whence it came, and in helping nature by means of the prescribed regimen to re-establish the patient's health.

It is not, of course, my intention to indulge in a lengthy exposition on the philosophy of Greek medicine. I merely want to highlight by how much Greek medicine, and that as noted above meant

2000 years of medicine in Europe, was conditioned by Greek culture. Incidentally, it is interesting to note how much the Salernitan Regimen (1100 A.D.) is Hippocratic in substance and spirit.

Greek culture was conditioned by its economy which was predominantly agrarian. It is understandable then why the concept of nature, of physics, was pre-eminent in its cultural orientation. It can be said that Hippocrates wrote medicine like an intelligent, observant and experienced farmer. For who better than the farmer can appreciate the function for good or bad of airs, waters, and places. There is in effect much of Hesiod that can be found in the Hippocratic books. And I am persuaded that in the Hippocratic theory of the four qualities, hot, cold, moist and dry, one can recognize an astute generalization derived from long agrarian experience, applied in particular to man, even as it perceptibly applied to the rest of the living plant and animal world. It is the right balance of the qualities of hot, cold, moist and dry, good soil being given, that favours a bountiful crop. And a bountiful crop favours the well-being of the animal world, man included. Hippocrates was much concerned with food. The book *peri trophez* exhibits this emphatically. Hippocrates in effect, as did Hesiod before him, traces the origins of medicine to the observations made by men of what that was edible was good for man and what was deleterious.

Though I do not believe it is anywhere precisely expressed in so many words, in Greek medicine illness carried with it a connotation of sin. This connotation differed radically from the Christian view that illness was God's punishment of the sinner for his moral transgressions. In fact, Hippocrates maintained in the Sacred Disease that a god might purify, but would not defile the human body with sickness.

Yet in the concept of physics, there is implicated a reciprocal, almost contractual relation between man and nature. It were as if nature warned, 'Follow my ways and you will be well; violate them and you will be ill'. Yet nature was not punitive, for it 'willed' to do what it could for the man who was sick, if he would but lend himself, the physician guiding and helping, to her healing efforts. Hence the sick man was a man who had sinned against nature, and sickness carried with it a moral issue. I underscore this because the element of the moral has no place at all in modern day medicine. There is no sin, moral injustice, or social wrong that is not in the ultimate explicable and frequently explained in terms of disease. The physician who is not judgemental is praised and prized.

In the Greek classical writings madness in large measure was ascribed to the volitional acts of the afflicted. The gods, demons, Erinyes may have entered into the play of destiny, but always it

was some individual brash or evil act that sealed the doom.

The Greek physician shied away from undertaking to treat the untreatable. This has been judged by some as a base, craven avoidance of the physician's duty. The Greek physician, it has been said, wanted all successes and no failures. I suspect that such judgements are incorrect. Half of the number of patients reported on in Hippocrates' Epidemics (14 cases) died. The author not only 'took his chances' but did not hesitate to report on the results.

Greek culture and hence Greek medicine was, so to say, tough-minded and realistic. Where nature would not, or could not, how should the physician prevail? Also the Greeks had an attitude toward death quite different from our own. Plato speaks contemptuously of the man who though worn out by age or illness still would cling to life. Socrates, condemned to death, would not accept the advice of his friends to escape from prison and thus prolong his days among the living. It was, so he thought and so he acted, more fitting to accept Athens' judgement and to die.

I have indulged in this somewhat lengthy commentary on Greek medicine to show how much Greek medicine was influenced by Greek culture, a culture predominantly agrarian. I intend in what follows to sketch a schema accounting for the decline of Greek medicine because of radical cultural changes. In my recitation I intend to jump from the time of Hippocrates to the sixteenth century. The intervening period could also serve my purpose, for it embraced a series of cultural changes associated with the emergent dominance of Rome, the advent of Christianity, the Islamic conquests, etc. Each of these cultural changes was in effect reflected in the medicine of the given period. However, basically Hippocratic medicine survived throughout the full stretch of time. This I would conjecture was possible because the cultural changes experienced, though significant, were not truly radical.¹

Until the sixteenth century the varying cultural orientations remained agricultural. The sixteenth century, however, witnessed the advent of the modern age with its commerce, mechanized industry, and analytical science, with its enormous increase in population and city dwelling. To this I would add, but not elaborate on it, the Reformation, with the emergence of what has been termed the Protestant Ethic.

What brought on the cultural revolution of the sixteenth century

1. GILSON, ETIENNE: 'In its broadest sense what we call Western culture is essentially the culture of Greece, inherited from the Greeks by the Romans, transfused by the Fathers of the Church with the religious teachings of Christianity, and progressively enlarged by countless numbers of artists, writers, scientists and philosophers . . . up to the first third of the 19th century.'

is a question outside the embrace of our review. It has been competently treated by Ortega y Gasset in his book *Man and Crisis*. What is relevant to our immediate concern is this: the cultural and technological revolution that began in the sixteenth century brought with it a new order of morbidity, appropriately named by Major Greenwood, The Crowd Diseases. Hippocratic medicine had little or no experience with this order of morbidity. It did not provide insight into or guidance for the treatment and control of those epidemic and endemic diseases that 'arose' from the conditions of life, created by the new commercial and industrial civilization with its new ethos and new cultural characteristics.

Medicine was no longer able, nor was it called on, to mediate between errant man and benevolent, beneficent nature. Physical nature itself had been assaulted, rough handled, dislodged from its appointed ways. At no time before in man's long history had man experienced so radical and so grievous a change in his many factored ecology – physical, functional, mental and moral! – and all in so short a time. Medicine was now called on to deal *not* with the man who transgressed nature's ways, but rather with the noxious, morbidifacient conditions and agents, products of the new ways of life, which beset and assaulted man everywhere and at all times.

In the sixteenth century the denigration of Hippocratic medicine was signalled in the public burning of the books of Galen and Avicenna. It really matters little if the action ascribed to Paracelsus is fact or fancy. Hippocratic medicine had before this fallen into disrepute and disuse. New schools arose, sporting odd names, such as iatro-chemists and iatro-physicists. Common to these new schools of medical thought were the concepts of specific causative agents, including the contagium vivum, and specific curative agents. These concepts are still dominant in present day medicine. They are the basic concepts of the Aetiologic School, whose credo was clearly stated by Von Behring.

Neither the epochal work of J. E. Hopkins nor that of Freud has, to speak in the vernacular, made a dent in the persuasions or thinking patterns of the Specifist Aetiologic School. We still think in terms of specific causes and of specific cures and, what is more, we earnestly believe we have attained them.

But whether we have or not, this much appears certain; the cultural changes concomitant with the development of modern science and of modern economic and technological existence have had a profound influence on medicine. They have altered our ideas on the aetiology of disease, on the role of the physician, and on the place of death in human existence. I will not dilate on the latter, except to say it appears now that, no matter what, you are not allowed to die without

the permission of your doctor.

But now I must bring my discourse to an end. I have cited medical history to support the thesis that medicine is *not* an exact science, is not universally valid, nor is it independent of time, place and occasion. I have cited medical history to demonstrate that medicine is a discipline which, though utilizing the exact sciences in serving man in his living experience, is subject to operative cultural forces and is shaped and directed by them.

Assuming that I have well supported the thesis advanced, it may yet be properly asked – What of it? What is its import? What are its practical implications? The answers to these questions are several, and belong to different levels of deliberation. Thus, it *does* make a difference whether the history of medicine is formulated and presented as that of a science initially gross and corrupt – and consistently refined and made more exact in the passing of time by the labours of genius – or whether the history of medicine is treated in terms of its cultural concomitants.

Numerous individuals and institutions, for example, politicians, government agencies, labour unions, welfare organizations, *et al.*, are affected by prevailing versions of medical history, without even being aware that they are so influenced, and without having any substantive acquaintance with medical history. They absorb the prevailing doctrinal generalizations such, for example, as the following – Diseases can be, have been, and will be *conquered*. Research, little understood, but generally pictured in terms of complex laboratory operations, is the 'royal road to the conquest of disease'. Research is costly; hence the more money available, the more research, the more and the sooner disease will be conquered.

Health depends on medical care. Medical care is rendered by the physician; hence the more medical care there is available, the better the health of the recipient, and so on, and so forth.

Such generalizations are not totally erroneous – only *ultimately* so. What is correct in them overlays and obscures what is grievously wrong, and a partial truth is frequently worse than a total error.

I have pointed out, as others have done before me, that the advent of the modern socioeconomic-technological culture brought with it a new order of morbidities – the crowd diseases. They overshadowed but did not eliminate the older ones, those with which the Hippocratic physician was best acquainted. Nature did not abrogate its sovereignty. It was only that the crowd diseases pre-empted priority. The underlying dyscrasia was overlaid by the specific mortal morbidity. Tuberculosis, to cite one example, was too flagrant a disorder, and the physician of the time too deluded, to allow the comprehension that the tuberculosis sufferer was initially sick and

secondarily tuberculous. Sydenham understood something of this, and much later Osler, who spoke of the soil and the seed. But both were exceptional. Pettenkofer, too, grasped this – with tragic consequences, and Virchow. Yet none prevailed and the specifist theories gained ascendancy.

I do not know that within the reality of the historic conditions it could have been otherwise. But what *is* clear is that the crowd diseases, at least in the Western world, have now been brought under control; not *entirely* as is too often claimed, by specific means, i.e. vaccines, sera, antibodies, etc., but under control, for certain. Now emerge once again the disorders of 'faulty existence', the disorders that 'do not kill' but make living 'a trial', the functional, chronic, degenerative disorders. And the new challenge is, how are these to be dealt with?

The trend appears to be along specifist lines. For the specific disorder diagnosed, a *specific* remedy, preferably pharmacological in nature, prescribed! The theoretic and practice modalities historically developed and applied in the control of the crowd diseases are now being extended and applied to the treatment of the predominantly functional disorders. A medical orientation developed in one cultural setting is uncritically being projected upon the medical problems of a radically different setting. I submit, were we to appreciate the interdependence of culture and medicine, did we see the history of medicine in these relationships, we would be spared the incongruities we witness, experience and suffer today.

One final observation, this one touching on a matter as weighty as any dealt with thus far: What is to be the effect of the extension of Western medical theory and practice to the so-called underdeveloped countries? These countries have each their own historical indigenous medical systems. Are these to be discredited and discarded? Is Western medicine to be vaunted as science, and the indigenous systems branded as archaic, superstitious, ignorant? Must these countries, these peoples, inevitably repeat our blunders?

I will not pursue this subject further, for we have with us a number of scholars more competent and informed on the realities of this problem than I am, and I look to them to treat the issues fully.

My own hope is that in this all too long presentation I have effectively demonstrated the validity of the thesis of our conference. The rest I am willing to accept as debatable.

THE PHYSICIAN AS HUMANIST IN A TECHNOLOGICAL SOCIETY

by John W. Dodds

[I present this paper (indeed I attend this conference!) with some trepidation, as a non-scientific innocent released in a den of polite, but sophisticated specialists. It may be well, however, for a conference to have at its table someone to ask the naive questions, even if he can't pretend to answer them himself.]

I

I TAKE IT that this conference will assume it as axiomatic that the basic patterns and values of a culture determine, to some extent at least, the whole conception of disease and what to do about it; that although it is true that people take health as an unconditional good-in-itself, they want to be brought to a state of health by certain means which the overall culture determines. I shall be thinking of this primarily in terms of our western technological society, aware that there is a reciprocal relation between technology and medicine. On the one hand science makes available the drugs and therapies which eliminate epidemics and allay human suffering beyond the most hopeful dreams of a century ago – even half a generation ago! On the other hand the same science and the industrialization to which it has led have created new horrors and new diseases also undreamt of by an earlier society.

Slum conditions and their insanitation, a whole range of industrial diseases, pollution of rivers, smog, the toxic poisons of automotive exhausts, the chemical additives to food,¹ the multiple hazards of the new insecticides, the stresses and strains of modern life with their psychic and physical traumas: all these are the result of the Industrial Revolution impinging on what we like to call our civilization. The healthy man of today must be in such delicate balance that it is a wonder he can ever stay well. One has a sneaking sympathy with

1. Nutrition, perhaps because it is a matter of 'public' health, seems to receive little attention from the average doctor. The other day I bought a package of Jello pudding ('Whip 'n Chill') which under American law carried a statement of its ingredients. Some of them were: hydrogenated vegetable oils, sodium caseinate, Propylene Glycol Monostearate, hydroxylated Lecithin, sodium carboxymethyl-cellulose, BHA (added as a preservative), and salt. It tastes pretty good. Our Pure Food and Drug Law assures me that these formidable components are all harmless. I wonder; does anyone really *know*?

the man in the *New Yorker* cartoon standing in front of a vending machine labelled 'Miltown, Phenobarbitol, Doriden, Benzedrine', whose sign says: 'Get through the day. Five cents.'

In the midst of all this is the doctor, a creature of his society, yet expected to lead that society creatively and to protect it against its own excesses and stupidities. Here are the kinds of questions I should like to broach in this paper (for which I have no easy answers): What are the goals which modern medicine should pursue? What current social mores limit the effectiveness of the doctor, and what are the ethical problems involved here (and I don't mean only those delineated by the Hippocratic oath)? How should social resistance to medical change be assessed – as well as the doctor's own resistance to change? If the practice of medicine is dependent on its cultural context for its acceptance and effectiveness, should not medicine become sophisticated about the culture on which it depends? How much should the doctor be aware of the relation of his practice to religion, philosophy, and education, as well as to social and economic conditions? How important is the manner in which society evaluates the sick man's condition, and how important the way in which the sick man himself evaluates it? What is the cultural tradition of the meaning of suffering?

These questions are not amenable to quick scientific answer; they are loaded, of course, with value implications. And since values are at the heart of the humanistic approach, you can see in advance that I am establishing the doctor as humanist! At least to the extent that he must be involved in, though not solely responsible for, the answers.

II

Since there is an aura of anthropology in the background of this conference, it might be well even for a non-anthropologist to inquire what light that discipline can throw on the vexed problem of medicine and culture in western society. Not, I am afraid, as much as we could hope for. Where cultural anthropology has concerned itself with medicine it has been chiefly in the context of primitive or non-western societies. Anthropology has a downhill pull on preliterate societies, indeed an almost exclusive absorption with them. It is true that much that has helped our understanding of man as a human being has come from the study of primitive man. Moreover, modern medicine has been in debt to primitive cultures, as everyone knows, for the use of such important drugs as the cinchona of the Peruvian Indians and the curare of the Amazon. Primitive peoples, from the Papuans to the Africans to the Indians of the United States, have always used steam and vapour baths for

rheumatic pains. Massage was a standard therapy in Melanesia, intended to drive the malicious spirits from the body – with results the same as in modern physiotherapy.

Even today the physician in London or San Francisco might profit by an awareness of the reasons for the not infrequent success of primitive medicine. The study of magic in such medicine points up some curious analogies. I mean the recognition that magic and medicine are sometimes interrelated, that a kind of magic called science or psychology is an operative fact in western medicine – as every doctor knows each time he prescribes a placebo. The Latinized prescription is itself a kind of spell, a necromantic wafer to be taken to the pharmacy and filled behind the scenes by the pharmacist (not infrequently from a bottle containing a standard proprietary remedy). Medicine involves human relations, and I suspect that even some Harley Street patients look upon their doctors almost as quasi-magicians or shamans, moving in mysterious ways to accomplish the miracle of recovery. If cures are not possible, there is likely to be a residual belief, conscious or unconscious, on the part of the patient, that the doctor has failed him. The fact that superstition can be the handmaid of scientific therapy is shown by the way in which Dr. Lambo (if he is correctly reported in *Harper's* magazine, December, 1965) 'uses the ancient arts of witchcraft to help the mentally disabled'.

Moreover, medicine can learn from anthropology what is perhaps the most important postulate of all: that there is a direct relation between health and illness and the total cultural milieu. Henry Sigerist's thesis in the second volume of his unfinished *History of Medicine* is no news to any cultural anthropologist: that the practices of physicians and the attitudes of patients in any given country at any given time – from Greek to Hindu to twentieth-century American or British – are governed by the religious beliefs and social structures of the community.

But having said this, let me express my real concern that cultural anthropology has for the most part failed to come to grips with our own complex modern Western civilization. I'm thinking at the moment of the needs of that general practitioner in Chewton Mendip or Omaha, Nebraska, who has had to get through the pores, as it were, the dimension of medicine as it faces the patient's own attitude toward health and disease. He needs too to know how that attitude is conditioned by the stresses of our time, and indeed by the total configuration of our civilization. Medicine needs the sciences which deal with human relations.

One wonders why the anthropologists have been reluctant to embark on the study of the intricate cultural data of our society.

Some of them have said that anthropology simply doesn't have the tools, that the methods adequate for study of small preliterate societies are not suitable for the study of modern complex societies encompassing millions of people. But even theoretical anthropology could help here. An abstract theory of values in society can quickly lend itself to and even shape the direction of empirical studies – if its practitioners have the courage to make the leap. I come to the reluctant conclusion, however, that cultural anthropology has little to say to society today except what may be inferred from its focus on primitive cultures – too often, 'kinship' studies. In terms of social usefulness anthropology, which claims to be the 'science of man', needs to lay its finger on its own pulse and study the cultural syndrome of its own discipline.

III

Let me return, however, to the role of the physician in modern society – the physician who keeps coming to my mind as a harried G.P. (though I know that is a disappearing 'specialization') – sitting in his office with long waiting lines in the outer room, prescribing for ills and pains real and imaginary, bombarded with dozens of prospectuses and free samples of miracle drugs by all the pharmaceutical houses, wishing he could get time to read the latest medical journals, bewildered enough by the instant demands of his practice to resent anyone like myself who asks in Olympian tones that he consider more seriously his relation to civilization.

Through the ages this man has had to battle his evolving culture. He has met religious hostilities, professional hostilities from other branches of science, lay hostilities rooted in ignorance. In Babylonian and Judaic cultures he had to deal with the patient who believed that his suffering was a result of sin, his own or his father's. (Indeed today there is in many places a kind of residual feeling that God sends illnesses to discipline or correct his faithful ones.) For centuries he grappled with a religiously-based opposition to human dissection. (In the U.S.A. no dissection of the human body was made until 1751.) Later came the widespread resistance to vaccination for smallpox. Even now he confronts a wide variety of reactions to illness on the part of his patients – the product of deep personality differences.² Frequently he has to lead the patient to health as it were in spite of himself.

But because the doctor is himself a fallible human being he has sometimes been the worst enemy of medical progress. He is a scientist, but not in any pure sense of the word; and like even 'pure' scientists he has disagreed with his colleagues in the interpretation of identical evidence.

One example of this. In 1849 England was suffering a devastating scourge of Asiatic cholera. The only remedies then available to the medical profession ranged from the use of calomel and tartar emetic to packing the patient in a wet sheet and feeding him three small cups of olive oil. The best authorities favoured the 'zymotic' theory of the disease: that cholera arose from the swamps and was carried by the atmosphere impregnated with 'pestilential miasmata'. It would of course be unreasonable to blame the medical profession here; the germ theory of disease was well around the corner.³ It had to await Pasteur discovery 15 years later. Nevertheless one might have expected the profession to pay some attention to the abysmal condition of London sanitation. It did not seem concerned that all the London sewers – 60 of them – emptied into the Thames, whence six of the nine water companies drew their supplies of water for the metropolis. Two-thirds of the companies had no system of filtration. Even the *Spectator* wrote: 'We are paying the Companies collectively £340,000 per annum for . . . a more or less concentrated solution of native guano'. It took a public health officer who was a layman, Edwin Chadwick, to lead the campaign to reduce the filth and stench and infection of metropolitan areas.

It is doubtless encouraging that in the face of the public's desperate yearning for cures the profession has remained conservative. Yet history has shown that caution can be excessive. Physicians are subject to professional jealousy and can have a settled aversion to change. One remembers the resistance among

2. WHITING, JOHN W. M., and CHILD, IRVIN L., discuss this in *Child Training and Personality: a Cross-Cultural Study*, Yale University Press, 1953. 'The presence, and the wide diffusion, of scientific knowledge about the causes and cures of illness undoubtedly restricts the range of variation in response to illness which might otherwise be found in our society as a result of personality differences between one person and another. Yet the diffusion of scientific knowledge about illness does not altogether exclude the possible operation of personality variables in influencing reactions to illness. *The same scientific knowledge can have a different emotional meaning for different persons . . .* A clear awareness [of individual differences in reactions to illness] could be useful to physicians dealing with their patients' emotional reactions to illness, attempts at self-medication, and attitudes toward treatment prescribed or recommended by physicians.' (Pp. 321, 323)

3. There was one interesting phenomenon here. Momentary publicity was given to an announcement in the *Medical Gazette* that 'Mr. Brittan, lecturer on anatomy at the Bristol Medical School, in a series of investigations . . . has observed the constant recurrence [under the microscope] of certain peculiar bodies hitherto undescribed, as "characteristic constituents of cholera evacuations". Also "the discovery of similar bodies in the atmosphere of districts infested with cholera".' Micropathologists seemed to consider the discovery of these 'fungoid cellules' important, but the 'Cholera Committee' appointed by the Royal College of Physicians effectively squelched Mr. Brittan and his 'erroneous theory' of the disease.

scientists to Harvey's theory of the circulation of the blood. Pasteur's theory that 'microbes must have parents' influenced Lister to develop his techniques of antiseptics; but Lister was violently opposed in his day, even by Simpson, the famous English surgeon who had introduced chloroform as an anesthetic. In 1877 the *Lancet* described Lister's theory as a 'glorification of an idea which is neither original nor universally accepted'. In turn, as late as 1892 those who advocated Lister's methods opposed the newer and more efficient methods of asepsis. So runs the melancholy story of scientists reluctant to relinquish theories in the face of new facts.

If individual medical men have sometimes been slow to revise their theories of health and disease, institutionalized medicine has shown a consistent tendency to swim upstream against the culture the physical wellbeing of which is its declared interest. Despite the great accomplishments of organized medicine, it is still true that in protecting the interests of their fraternities medical associations (at least in the U.S.A.) have had a consistent head-in-the-sand attitude toward the social implications of their profession. It has been said by René Dubos that 'it is not the function of medicine to become identified with political action were it only for the reason that medical training does not necessarily impart to physicians the wisdom and skill to deal with socio-political problems'.⁴ Against this philosophy the American Medical Association has thrown its steady and massive political weight. Mr. Dubos goes on to say, however, that 'physicians, unfortunately, cannot ignore the economic connotations of health and disease . . . A special report to the President . . . revealed that in 1952 a million American families had spent fifty per cent of their total familial income on medical care; and eight million were in debt on that account'. Yet presumably inoculated by fear of 'socialized' medicine, the A.M.A. for years fought a violent battle against even *private* group health insurance. Government medical insurance for people over 65 ('Medicare') was only recently approved over the bloody body of the A.M.A.

It would seem reasonable to this observer that the medical profession should be sensitive to the implications of the theme of this conference: medicine, so properly honoured for its services to society, should itself be aware of its close symbiotic relationship to that society.

I mentioned earlier the aura of respect and admiration which surrounds the modern doctor. He is a prestigious, even a charismatic figure. It is a matter of some interest and puzzlement, therefore,

4. DUBOS, RENÉ J.: *Mirage of Health*, Harper and Bros., 1959, p. 180.

to observe a collateral deep-rooted mistrust of doctors which has been endemic in our culture, with a resulting flight to 'folk' medicine, self-diagnosis, and self-treatment. Some of this might be attributed to the high cost of medical care, but I suspect it goes deeper than that. Quacks have always flourished in any society, and people have always been open to the seductiveness of the widely advertised 'secret ingredient' in the 'patent' medicine. It was true, certainly, in the Victorian England I was describing. The sales of nostrums were astronomical. *Hannay's Royal Almanack* for 1846 listed 783 different patent medicines sold in Oxford Street, London. The leading brands were Parr's Life Pills, Holloway's Pills and Ointments, Cockle's Antibilious Pills, and Locock's Pulmonic Wafers – the latter a compound of morphia and ipecacuanha. Collis Brown's Chlorodyne was a mixture of Indian hemp, chloroform, and morphia. Barry's Revalenta Arabica, good for everything from asthma to vertigo, consisted solely of lentils ground to a fine powder. Dr. Kitchener's Peristaltic Persuaders were rhubarb and oil of caraway. It is all better regulated⁵ today, of course, but there is still a sinewy desire on the part of many people for the proprietary cure-all. 'Electro-galvanic machines' have had a long history. And the continuing power of folk-medicine was shown not long ago in the United States when hordes of supposedly-educated Americans were persuaded that full health could be achieved by swilling vast quantities of a concoction of honey and vinegar – 'honegar'. Here is a problem for anyone interested in 'medicine and culture'. Are we afflicted by a cultural lag, an innate stupidity, a suspicion of the official medical shaman – or something else? What are the social bases of such irrelevancies?

IV

Medicine used to be known as the 'healing art', and before it disappears forever into the category of 'medical science', I should like to say something of the need, in contemporary culture, for the physician as artist and thus, though he may resist the idea, for his identification as humanist. Like the humanist, the doctor should and must deal with the *whole man*. As I once said in another context, a good diagnostician is certainly an artist. What any artist does is to select, from the broad stream of human experience, what seem

5. Speaking of 'regulation' in another sense: there has always been a kind of stubborn popular belief that if you cure constipation you cure all. Nor has this always been a lay belief. In 1850, the standard remedies used for the year in St. Bartholomew's Hospital (for an average list of 500 patients) were: 1,352 gallons of 'black draught' (salts and senna); 2,000 pounds of castor oil; 12 tons of linseed meal; 2,700 pounds of salts; 1,000 pounds of senna.

to him its significant aspects or moments, to recombine them and to fuse them, in the crucible of his imagination, into a new synthesis which represents his vision of reality. What does a doctor do but this – analyzing symptoms, weighing appearances, combining them and fitting them into a pattern; and arriving, usually logically, but sometimes with a burst of near-intuition, at an understanding of the typical or atypical, and thus forming his diagnosis? Here is an act of creative imagination of the highest order.

If I am right in all this, it is clear that the good doctor deals with human personalities as well as with cases, that he is as much aware of the subjective factors in illness as of the clinical ones. This is an implied warning against so-called push-button medicine, impersonal medicine. The *warmth* of the doctor's presence can do as much as his pills to assist the processes of recovery.

Robert Burton saw this long ago when he wrote in his *Anatomy of Melancholy* that it is by virtue of the healing power of confidence that 'an empirick oftentimes, and a silly chirurgeon, doth more strange cures than a rational physician . . . because the patient puts his confidence in him, which Avicenna prefers before art, precepts, and all remedies whatever . . . He doth the best cures, according to Hippocrates, in whom most trust'.⁶

To bring it down to 1966, *Time* magazine (13 May, 1966) said in a more-than-customarily-thoughtful essay:

The fact is that the doctor's role has radically changed. In a famous painting by Sir Luke Fildes – which still hangs in many a doctor's office – a rumpled and exhausted physician keeps home watch over a comatose child while her worried parents hover anxiously in the background. The doctor has obviously been up all night, brooding, worrying, waiting – probably in part because he did not know what else to do. In today's medicine, both the scene and the sentiment are badly out of date. The child would be in an oxygen tent in a hospital, festooned with tubes, watched over by bustling nurses or electronic monitors, banished from her parents (visiting hours 9–11 a.m.) and lucky to get a brief visit from the doctor once or twice a day. Instead of Old Doc's bedside manner, the modern physician depends on a panoply of new skills, drugs and facilities that save many a patient his predecessor would have lost. The father image has been supplanted by the skilled technician whose head is far more important than his heart. Trouble is, the patient misses the heart . . . As Montefiore's Dr. Cherkasky says: 'The patient still needs the nurturing qualities that help fight disease – compassion, understanding and support.' In a word, the U.S. medical profession is trying hard to get back to a principle as old as Hippocrates; it is rediscovering that there is still healing power in the laying on of hands. In an area where the stakes are life and death, but where the modern doctor knows that nothing is finally certain, he can still only say to his patient: 'Trust me.' Today's patient, who is sophisticated enough to realize his doctor's limitations, is willing to extend that trust – but in return he wants some understanding and sympathy, the vital ingredients that nowadays are too often missing.

6. Quoted by Dubos, *op. cit.*, p. 120.

Beyond this, the doctor who focuses upon the patient as human being rather than as object must also give an increased attention to the problems of health as well as disease. I am aware that health is the more complicated matter, consisting as it does of a relative adaptation to many different influences from the physical, biological, socio-cultural, and psychological environments. Nevertheless I wish more doctors could find time to pay more attention to keeping their patients well. Health means, I take it, the sense of well-being that comes with the optimum use of human powers – physical, psychological, spiritual. Here is the consideration of medicine in terms of life, what Dr. Iago Galdston has called 'eubiotic' medicine, 'dedicated to help the individual achieve the best that he is capable of in his experience of living'. Here lies a great challenge for medicine, at just the pressure point where it is most sensitively related to the culture of which it is an inseparable part.

And finally, if the doctor in twentieth-century culture is scientist-humanist, should he not bring his immense prestige to bear upon some of the ethical problems which relate medicine to society? What are the medical-social dimensions of geriatrics – is it just enough to keep people from dying? Should medicine come to any conclusions about the delicate problem of euthanasia? Is it not possible that a doctor should be privileged to abbreviate a patient's final agony – or at the very least to withhold from him the therapies which prolong his final tortured end? Should not medicine help society break through the medieval laws which now penalize therapeutic abortion?⁷ It may be said that medicine can advance no faster than its culture allows it to. But does it not have a responsibility, within its knowledgeable limits, to lead that culture rather than merely follow it? It is not enough, I think, to say that these are just matters of 'public health'. When I walk into my doctor's office the human allergy is *my* allergy, the human neurosis *my* neurosis.

Thus the doctor as humanist. Values of one kind or another are the tissue of the humanist's report on life. Values in their very nature deal with irrational data – emotions, sentiments, intuitions, aesthetic feelings. A poem, under this aspect, is simply a bundle of irrational data! And medicine must take account of these same

7. Forty-two states in the U.S.A. forbid therapeutic abortion unless the pregnancy is a direct threat to the mother's survival. Pregnancies resulting from rape or incest must, under these laws, be brought to term. As I write this (19 May, 1966) the California Board of Medical Examiners has asked the State Attorney General's Office to file charges against twenty-one San Francisco doctors believed to have performed therapeutic abortions for women who had contracted German measles during pregnancy. Medical journals have estimated that the chances range from twenty to fifty per cent in such cases that the baby will be born deformed. (Since that date, the California State Legislature has passed a more liberal law concerning therapeutic abortion.)

data, however refractory they may seem to the scientific spirit. The humanist, who more frequently has to face up to the mysteries of life than to its scientific compartmentalizations, would like to feel that he and medicine can join in common cause.

DISCUSSION

THE Chairman, Lord Cohen of Birkenhead, opened the meeting by welcoming members and outlining the procedure to be followed. All members would have read the papers which had been circulated. He hoped that the discussion would be as informative and as provocative as possible (and when he said provocative he did not mean abusive); that it would add to our knowledge, clarify issues which had already been raised and perhaps fill certain gaps in the texts. There would also be an opportunity for stressing the areas of ignorance and the areas of knowledge.

The first two speakers were then invited to comment on their papers, which would be discussed together.

* * * * *

GALDSTON: My paper was not distributed far enough in advance to enable you to read and react to it. Both you and I, therefore, are at a bit of a disadvantage on that score.

My paper deals essentially with medical historiography. In it I advance a number of propositions, elaborate and defend them. The initial contention is that medical history as it is currently written and taught is in general ways corrupt and corrupting. This indictment applies to most of the texts published during the last century. My paper, therefore, is intended to serve as a thematic analysis of medical historiography. Thematic in these relations refers to the fundamental presuppositions, notions, biases, terms, methodological judgements, and decisions which enter into and condition thinking about historical medical experiences.

Thematic analysis is a term employed by the sociologists. In their use of the phrase they mean that order of analysis which tends to reveal what the individual in person is attempting to state. My use of the phrase thematic analysis differs in essential respects from the sense in which it is used by the sociologists. It comes closer to the way in which it is utilized by Gerald Holton in his essay, *Presupposition in the Construction of Theories*. This essay is part of the excellent book entitled *Science as a Cultural Source* (Johns Hopkins Press, 1964). The reading of this work would have served well as a prelude to participation in this conference. Holton calls attention to the uncritical, and frequently unconscious, presuppositions and assumptions that enter into the pursuit of science and into the exposition of the history of science. These, like impurities, 'corrupt the latter'. Their influence is deep and far-reaching.

In proffering my thematic analysis of present-day historiography, my intention is to bring to light certain of its cryptic presuppositions

and assumptions, thus enabling us to judge them aright. One of the basic assumptions which deeply influences medical historiography and was rarely challenged is this, and here I quote from my paper: 'that while medicine is not as exact a science as is chemistry or physics, it is *au fond* an exact science, becoming increasingly more so as more and more of its besetting uncertainties are cleared up'.

Quoting further from my paper: 'This is really the very core of medical history, as currently expounded. It is the story of the emergence and evolution of medicine from ignorance, superstition, and empiricism, up to its present state, that of a scientific discipline'.

Out of this assumption flow certain derivative judgements such as, until medicine became scientific it was *non*-scientific. Non-scientific medicine is of no value to scientific medicine. The future of medicine should and must follow the lines and patterns of scientific medicine. All current and future problems in health and disease are to be solved – and in faith will be solved – by and in the utilization of the scientific methodologies which have brought medicine to its present-day pre-eminence.

You have, I know, come upon these very judgements in some of the papers which form the texts of our conference. Now, I submit that the assumptions underlying these derivative judgements, namely that medicine is and is increasingly becoming an exact science, is fallacious, unhistorical, and fraught with dire consequences.

I submit, and here I again quote from my paper: 'that medicine is a humanistic discipline, concerned with man and his life experiences, *a discipline that utilizes the exact sciences, but is itself other than and more than, an exact science*'.

The difference between the prevailing assumption that medicine is an exact science and the version of its humanistic nature and function, which I submit is, to my mind, large and radical. It cannot be bridged or reconciled by the formula 'medicine is a little bit of both'. For it follows that if medicine is a science in the same order as those others termed exact sciences, then its inter-relations with culture must be minimal. On the other hand, if medicine is, as I see it to be, a humanistic discipline, concerned with man and his life experiences, a discipline that utilizes the exact sciences, but is itself other than, indeed more than, an exact science, then it follows that medicine is of the very web and woof of culture.

In my paper I illustrated and supported my contention by contrasting the conceptual formulations and practices of Greek medicine with those of the medicine emergent in the sixteenth century, relating the differences to the culture changes effected in the development of modern commerce, industry and urban living.

On this score I want to make clear what I fear was not made clear

in my paper, namely, that I do not credit technology with the sovereign power to change and direct culture. That is a Marxist assumption. It precludes the possibility of culture influencing technology. I suspect the influences are reciprocal, but this is far too complex a subject to deal with here.

Reverting then from this aside back to my paper, I there underscore the urgent need to appreciate the issues we have brought forth for they bear immediately on two confronting matters: one, the decline in the Western world of the Crowd Disease and, in consequence, the re-emergent predominance of the functional, chronic, and degenerative disorders. In a different category, we confront the problem, indeed the challenge, of achieving a congruence between Western medicine and the indigenous medicine of the so-called underdeveloped countries.

I must end with an apologia for the tangent of my approach to the theme of Medicine and Culture – that of contemporary medical historiography. Dr. Poynter ribbed me a bit about this when he first read my paper. He thought it a bit contentious, at least in the expression of my feelings about the academic medical historians. Of course, my reference was confined to some of the American 'academics'. O'Malley is not among them! In truth, however, I am contentious, and my contentions are the reasons for and the substance of my paper. Medical history, how it is understood, how it is written, how it is taught, is of large cultural import. It deeply and radically influences the patterns of our thinking in all matters that bear on the processes of living – physical and psychological, personal and communal. If medical historiography is defective and corrupt, the consequences are of like quality.

I feel strongly that medical history needs to be rewritten. It should be written as it never has been before, in terms of its broad cultural context. I confess to you the hope that the transactions of this conference will prove a stimulus, will serve as a catalyst, if you please, for such reinterpretation and such rewriting of medical history.

CHAIRMAN: Thank you Dr. Galdston. Now will Professor Dodds comment on his paper?

DODDS: I am very much an outsider in this conference. I am a learner, and I hope to learn a great deal. What I gave in my paper was a sort of horseback view of culture and medicine. I may know something about culture, but I do not know very much about medicine except as a patient, though that viewpoint may have its own importance.

If I might make one or two corrections concerning my paper: my dear friend Dr. Galdston told me that my strictures on the lack

of concern among the English medical profession concerning the problems of sanitation during the cholera visitation of 1849 were unfair to British Medicine and I should like to admit that I think I *was* unfair. I certainly should have mentioned such prominent medical men as Dr. Southwood Smith and Dr. John Simon, who were greatly concerned, of course, although they, like the others, did not know what to *do* about the cholera. It was the lack of knowledge of what they were grappling with that was the operative factor.

Dr. Galdston also tried to get me to soften down somewhat my strictures of the American Medical Association, which I refused to do, and I had to let my original text stand. I do not know of any organisation in the world which I respect in so many of its aspects and of which, in others, I have such a low opinion. The organisational stupidity of individually responsible and intelligent physicians tends always to astonish me.

What I was trying to do in this very modest paper was simply to ask some questions which I think deserve some attention. I was interested in the role of the physician, not historically, but in our modern contemporary technological society. I was very much concerned about the very difficult problems which medicine has to face in such a society, the dangers of the physician becoming a technocrat rather than the humanist which I believe he *must* be. This has a very important dimension concerning medical education, too. The questions that I raise I am sure are not new to you or the medical profession. Whatever problems the doctor has, they always possess a human dimension, and therefore medicine, so properly honoured for its service to society, should be aware of its close historic relationship to that society. There is one thing that has always interested me and for which you may have the answer, and that is the mistrust of the doctor which seems always to be endemic in any society.

They are considered by a good many people, of course, to be miracle men. In the U.S. all an actor once had to do in a television commercial was to put on a white coat and say 'all the doctors agree' that this drug is the best in order to be accepted by the populace as authoritative. Now we do not let him wear a white coat any more. But although some people believe in miracle men, a great many people, of course, look upon doctors as people to avoid at all costs and one wonders what the social bases for such irrelevances as this are. They have always existed I think. Why?

The gist of my paper, then, is that in the sense that the doctor has to deal with values, with people (however refractory people may be to a scientific spirit) he is a humanist and as such must face up

to the mysteries of life as well as its scientific departmentalisation.

CHAIRMAN: Thank you very much Professor Dodds. Now both of these contributions are open to discussion and we trust that as we have ample time they will be as fully dissected as they deserve.

BOWERS: I suppose that the role of the physician as a miracle man is quite modern, and I suggest that it began about 1921 with the discovery of insulin. This was the first instance where a doctor could do something specific with a drug to control a disease, and his image as a miracle man has steadily ascended since that period. I wonder if the other physicians will agree with that?

POYNTER: I would certainly agree with that. I also think it is dated in the early 1920s by that very popular novel, *Martin Arrowsmith* by Sinclair Lewis, from which a film was made. It was noticeable that the man in the white coat thereafter was a glamorised figure. Remember *Martin Arrowsmith's* plot was based on a great deal of information that Paul de Kruif supplied, some of it authentic, from the Rockefeller Institute. It does present a glamorised picture of medical research which from that date on became an object of admiration and veneration to society in general.

GUERRA: I think that Dr. Galdston has underestimated the influence which Sigerist's work has had on medical historians, especially with respect to environment and cultural factors. It seems to me that it has had a great effect also on the development of several new national movements of medical history, particularly in the socialist countries. Without sharing the materialistic views of the Cuban historians, for example, I might remind Dr. Galdston of the work recently published there by Dr. Sanchez, which places due emphasis on the influence of economics as well as other environmental and cultural factors.

On the other hand the type of medical history which he favours is more and more to be found in the everyday work of the general practitioner. To my surprise I discovered that nearly 6 per cent of all the current papers at the Fourth World Congress of Psychiatry held recently in Madrid were studies of cultural problems carried out by psychiatrists working with general practitioners and demonstrating the influence of these cultural factors on the mental health of their patients. Dr. Keele has also been calling for a sense of relevance in the work of medical historians and this is another point which Dr. Galdston has raised. I believe that this practical relevance of medical history to the work of the general practitioner and to the education of the medical student is something which should be encouraged and expanded.

Turning now to some of the points raised by Professor Dodds, I believe that he should look at the writings of one of Dr. Galdston's

favourite philosophers, Ortega y Gasset, when he attacked the short-sighted views of physicians, and particularly of the associations like the American Medical Association, with regard to social problems. That was noticed about thirty or forty years ago. In this connection, it is worth observing the situation in Latin America, where the role of the physician in society is one of great importance. A great number of parliamentary representatives are physicians and even many of the governmental posts are held by practising physicians, and I wonder if this is really beneficial to those countries, or to others in Asia or Africa where the same situation is found, but where, unfortunately, progress is held up by wars and revolutions. HODGKINSON: Lord Cohen, I think we are faced with a dilemma, because we are trying, I suppose, to define the task of the medical historians of the future, and also the position of the physicians in the future. We all want a doctor to be a humanist, interested not only in sickness services but also in the complete man, his overall picture, his life in society, and his social interests.

But the doctor nowadays has no time for this. During his training, the crowded curriculum gives him little time to interest himself in social life or in the humanities. Then again, specialisation makes it impossible for him to be interested in all branches of medicine. Society demands of the doctor that he should now get the whole history of the family, that he should fill in the social background in order to make his work more efficient. But as diagnosis, therapy and illness itself become more and more elaborate, he has no time to go into cases nor even enter into the normal social life of the community as he used to do. I think you will find very few doctors interesting themselves in social affairs, unless it comes really close to their own professional interests. Then again there is the patient who wants the doctor to be interested in *him*, who wants the doctor to be his Father Confessor. The good doctor, who is much in demand, hasn't time to do this.

GALDSTON: May I comment on that? I think this is a very important issue and it is one that is going to come up again and again. I think that the threatening spectre of the lack of time should somehow be dissipated. To make the physician operate in the context of the humanist does not mean that he must become a specialist in the humanities. Similarly, the suggestion that there should be introduced into the curriculum, in part, humanistic studies, is what I would call a plaster therapy. I think implied in the criticism is this, that the ethics, the concepts, the orientation of culture or if you want to call it so, the humanities, should permeate all the teaching of medicine so as to affect the student.

It is not necessary that a professor of anatomy should give an

oration on the cultural history of dissection when he teaches anatomy, as some of the fine teachers have done. It should be infiltrated with the significance which transcends the pure science which the man must study in order to pass his examination; and also give an idea why it is that at certain cultural epochs one anatomized and at the other epochs one didn't, and possibly relate to the fact that if you are going to be resurrected it is awfully difficult to imagine dismembered agents being resurrected and glued together. I do not really think it is a question of *time* but a question of the spirit, the application and the understanding.

LEAVELL: I think we should be quite clear that we are not talking about just *one* kind of medicine – and Professor Dodds brought this up – there is administrative medicine and other kinds. It is 30 years since I sat at the feet of Dr. Galdston, but that was in a public health context and I think we need to recognize that probably the public health man is more prepared to accept the influence of environment and culture than is the other group. Also I remember, going back 20 years since I have been teaching public health students, that there is a tremendous demand from the students: Please give us more of the social sciences. We got people to come and talk with them and they were tremendously interested. Some time later, about 1953, fifty Americans were sent to S.E. Asia – doctors, nurses, engineers and so on – and they asked, 'Please give us some discussion, *not* on how you use D.D.T. and insulin and so on, but how we can be accepted and understand the problems of the people there'. So I think we need to be sure that we recognise the different kinds of doctors: the type that Walter McDermott calls the managerial physician, for example, is more likely, I think, to be prepared to see the relevance of this.

And when we look at the question of time on the curriculum, isn't there a question of how relevant it is? If our subject is important, as we in this group are certainly going to conclude, then time *must* be found. Anatomy has been whittled down from a thousand hours to two or three hours in many curricula and this is because many other things have been crowded in, and if there is a feeling that culture needs to be dealt with then it will come in.

Professor Dodds was bemoaning the fact that anthropologists have not interested themselves in the modern scene, I would wonder about that, whether anthropologists looking for primitive situations have not found them in the hospitals – and I speak of the modern hospitals, so-called – so that they do not now have to pay their fare to the South Sea Islands; they may find these things going on right under their noses, and I think some of them have done that.

Just one other point. We have been talking about science and what it is, and probably many of you are familiar with Warren Weaver. I was tremendously impressed with one of his valedictory comments as he was leaving after being head of the Natural Science Department of the Rockefeller Foundation for a number of years. He pointed out that there are three major approaches to science: First, where you have a couple of variables like the pressure and volume of a gas that can be nicely controlled. This makes for a clean-cut kind of experiment. A second that he called unorganised complexity. For example, molecules of a gas in a closed chamber going round in different directions; you cannot predict an individual molecule's behaviour, but statistically you can predict that probably it will behave in such and such a way, and you can do very satisfactory studies of a scientific nature on that. The third that he spoke of were systems of organised complexity, the kind of systems that I suppose are involved when one decides to freeze prices and wages, or to set the price of wheat, and so many different things come in. I think he said that in such situations – and these we are dealing with here – it is very unfortunate to look first with the microscope instead of looking first with the macroscope to see where everything comes into place.

KESWANI: I am not inclined to agree with Iago (Galdston) on this point of teaching humanities, for example, to medical students. From personal experience, as Dr. John Bowers knows very well since he was intimately associated with us, at least before the Institute* came into existence, we started a course of humanities to be given along with the course of anatomy, physiology and biochemistry. Crowded as we always are in the curriculum anywhere, whether it is in India, the United Kingdom, or the United States, we had to find time after the regular hours, that is to say 5 o'clock in the evening. We invited the most eminent people available in India in every subject, such as literature, art, archaeology, sociology, and economics, and we were so disappointed after a few months' experience that the Director issued a directive that the *faculty* must attend these lectures, otherwise the lecturer always felt an embarrassment since there were no students attending the talks. Today we have made attendance compulsory for these 'poor students', as we call them.

But still, being responsible in a way for organising these talks I was very disappointed. Probably the students today, the Indian student, is as good or as bad as any other medical student, but one fact stands out, that the outlook of a medical student when he joins a medical college in India is not as broadly developed as that of

* The All-India Institute of Medical Sciences, where Dr. Keswani is Professor of Anatomy and Professor of the History of Medicine.

students of say, the United Kingdom or the U.S.A., or on the Continent. And if students who really do not have very much background in the humanities as compared with students in the West, if they are so apathetic and uninterested, or even inimical to this programme being organised after their regular curricular hours, what can you do? In this curriculum which is overcrowded, ultimately the axe always comes on my subject, anatomy. I really want an answer. We have been organising these lectures for ten years but it is the faculty that attends rather than the students.

HODGKINSON: Is that the time factor again or is it really lack of interest? Is your experience more like that of teachers in England, for example, because that answers my point.

KESWANI: I think, sir, and my feeling is, not that I am trying to blow trumpets for my generation, but when we were students, there were talks of the same nature in our medical schools, never compulsory, and I think we used to crowd more into those talks than into lectures of anatomy. It is probably an attitude that is developed in you at the school level. I would like to say, not even High School level but even at what is at home called the primary level. It needs more interest, I have always argued, but unfortunately the younger generation does not count for much, at least in my country, when it comes to expressing an opinion about things. Whenever I have a chance to strike the point home with people who seem to come for premedical education, that the bed of the medical student has to be prepared before he comes to a medical college and this is where we lack; and the medical man is hardly concerned with premedical education, at least in my country.

HUBBLE: Lord Cohen, Sir George (Pickering) and I are going to talk a certain amount about medical education this afternoon and I don't think really we want to discuss it too deeply this morning, but there has been one point made that I should like to take up, and that is why the young are not interested in medical history. I believe it is due to the fact that the young are not interested in history as young people, although the individual young may be; but I think that interest in history is an ageing phenomenon and this one has to recognise. If we look into our own lives, most of us will see that this is true. We are interested in works of imagination when we are young, we take to factual history as we get older. I believe this is why Professor Keswani has found it so difficult to introduce medical history to his undergraduates.

KESWANI: Sir, I have been misunderstood. Again and again they attend, very much and very well. As a matter of fact, only post-graduates are supposed to attend my talks on the history of medicine and you find the hall always crowded with undergraduates. It is not

the history of medicine that they are not interested in, but it is the general humanities. The history of medicine they come to attend all right.

PICKERING: In my experience the young men and women who are interested in affairs of the mind, cultural subjects, art, literature and music, have been interested in them before they came to a medical school, and if they aren't they never will be. I know of very few exceptions to this in my experience as a teacher.

I think that Dr. Hodgkinson is right that *time* is a very real limiting factor in the lives of many students and many medical practitioners in developing that interest, if it has ever been alive.

KEELE: I would like to make the point that seems to be arising out of this, that the regular practice of medicine that we are going to talk about is not just a technology. The medical position is one of outlook. This, in my view, is as fundamental as the outlook of the so-called arts and sciences. Medicine is different from both in nature and not, as Dr. Galdston has said and Professor Dodds endorsed, just a mixture of the two. It is the *medical outlook* that I personally feel is the whole nub of our problem. It is *not* a question, as Professor Keswani says, of inflicting the arts and other things on young men who have for some reason decided to take up medicine and thus indicated their outlook in life. If the arts and the sciences are going to come to them they must come *through* medicine which is a fundamental outlook upon humanity. It is a humanistic outlook. Professor Dodds, I am afraid, to my mind, looks upon the doctor as much too narrow an individual. He sees him as a humanist would and as his patient would. This is not enough. Our doctors are epidemiologists, they are social people, they are economists, and they bring the medical point of view to each subject as well as that of the treatment of the patient. It is this that I am advocating, a much wider definition of what medicine *is*. We shall never get preventive medicine, social medicine, until we abandon the idea that a doctor is continually sitting at the patient's side looking at his pulse watch. He is a much bigger, broader individual, and I am advocating and will advocate this later on in more detail. I think Pickering will agree that the medical outlook is as fundamental as any other and it has not received recognition because whilst a man is healthy he does not think about it. It is only when he is sick. All our cultures have been developed by people in health and they have forgotten their good health. A questionnaire was given to children leaving school to discover what their sense of values was and what they wanted most. None of these children mentioned health, because they assumed it. This is perfectly natural. As healthy individuals we *assume* our health and give no attention to it or its manifestations, and of course its

manifestations are in the flowers of art and culture, as is medicine itself. I want to advocate therefore this wider concept of what medicine means to us all.

MCKEOWN: I am not quite clear what this medical outlook *is*.

CHAIRMAN: I gather Dr. Keele is going to expand on this later.

KEELE: I should be glad to do so.

MCKEOWN: I am not going to try to answer that one sir; but I wanted, if I may, to make a few comments on the subject matter of the Symposium as a whole. I think this might be excusable before we go too far into details. I was encouraged to do this by reading the introductory paper that Dr. Poynter distributed as well as hearing Dr. Galdston at the outset this morning. It seems to me that we are not looking at a substantial part – I think the larger part – of the whole of the subject matter. We have not got before us papers which deal with these matters and it is possibly the case that we cannot hope to cover them in discussion. Nevertheless it seems to me desirable at the outset to recognise the limitations of what we are trying to do. I think it is clear from the papers that we are looking at culture, both with a large 'C' and a small 'c'. Prof. Hubble's terminology and I imagine that one does not need to excuse that. But having read these papers, and having looked at what Dr. Poynter wrote at the outset, I felt that there were at least five major subdivisions of this theme. I am quite prepared to cede that there are others and I am quite prepared to hear them put differently, but I feel it might be useful if, in the briefest way, I indicated what they are and say whether or not our papers are commenting on them.

Now Dr. Poynter made at the very beginning of this paper the very interesting – to me – and pertinent comment that unless history contributes to our own understanding of the present situation, and a clear view of the problems inherent in it, then it is merely an antiquarian study. This seems to be specially pertinent to the question of medical history. I want first of all just to mention those five themes, and suggest that the first three really bear on that point.

The first is the interpretation of the changes in health and the part medicine and other influences have played on it. It seems to me this is an inevitable starting point for an enquiry of this kind and has not, on the whole, been a theme of medical history. In so far as it has been touched on, it has been by economic historians, by demographers, and to some extent by statisticians in general for purposes other than those which a medical public would want.

Secondly, there is the question of the changes that have resulted from the improvements in health. These are very wide ranging. They are partly social, they are psychological, they are economic, and of

course they are medical. To mention the few very obvious ones, the consequences to society that a mother now knows that it is unlikely that one of her children will die before maturity, a profound change in human life over a relatively short period of time: the effect above all on population *size* of the improvement in health; the effect in medicine itself of the changes in health. These and many other things have followed this.

Thirdly, there is the effect, the bearing of these changes on the task of medicine itself, that is to say the main role of medicine in society, what medicine should do in the context of its resources and in its capacities. This is the large question, of course, of medical services or the application of medical knowledge. There are a number of different ways in which one can put it.

It seems to me that none of the papers deal really at all with any one of those three themes. They are largely focused on the fourth theme to which I want to refer now, and that is the way in which various cultural influences in society determine the character of medicine, determine both the nature of medicine as a science, or the nature of medicine as an art, and also, of course, as what Dr. Walter McDermott calls delivery systems as well. Now I believe that about six or seven of the papers distributed to us are focused primarily on this question of the way in which the nature of culture in society has determined the character of medicine.

The last theme is the one with which, as I see it, Professor Pickering and Professor Hubble, and to some extent Professor Dodds are dealing and that is this culture with a small 'c': the doctor as a humanist, the doctor as a scientist, the doctor as a cultured individual, medicine's contribution to culture in this more special sense. I hope I am not misinterpreting that when I say that we could regard the discussion of medical education and some of the things that have been touched on this morning as some part of this.

As I said, I am not suggesting that these are the *only* themes or necessarily even the most important, although they seem so to me, but I did think our papers are focused on two of them only, and not on the other three. There is perhaps little we can do about that now, but I thought it would be useful at the outset to see if we are agreed at all about what the field is that we are attempting to cover.

GRMEK: It is part of Dr. Galdston's thesis that a pathologist should consider the historical changes of diseases. At first sight, palaeopathology seems to confirm the current opinion about the 'antiquity and constancy of diseases'. Here we have a typical 'circulus vitiosus', because the identity of palaeopathological findings and modern description of pathological processes is not the result of actual research but his preliminary supposition, i.e. initial working hypo-

thesis. It is quite possible that a new interpretation could change our views of the history of disease and the circumstances in which it appears.

A few days ago I had the chance to see a really enormous collection of palaeopathological material which Professor Rokhlin has brought together in Leningrad. He has published a book about this collection (1965) which contains a lot of new facts but interpreted in a classical way. We have, for example, traces of syphilis in medieval times (Vikings of Ladoga, Scythians, Slaves of Sarkel, etc.); but was it really syphilis? Perhaps something very similar, a kind of treponematosi, but who can really tell whether it was what we *now* know as syphilis?

The problem of the history of diseases is a very important one. In my opinion we have no good book on the subject, because they are all written about the *intellectual conquest* of single diseases. Of course, from existing books we learn at the same time very much about the progress of therapeutics and hygiene, i.e. what we can call the *real conquest* of diseases. But we have not a 'natural history of diseases'. As yet, all studies on this subject are one-sided and analytical. For example, these historians have a separate chapter on tuberculosis, on leprosy, and so on; but this kind of analysis of morbidity is quite unreal and unhistorical. I believe that the historians have something important to contribute in considering the very complicated interplay and biological evolution of diseases. Take, for example, the problem of leprosy and tuberculosis. Why did leprosy die out in Europe after the Middle Ages? In the last few years we have perhaps glimpsed a new answer, that is, that tuberculosis gave a cross immunity to leprosy. As tuberculosis spread, leprosy declined. The role of urbanization or of any other social factor cannot be rightly appreciated if we consider only the isolated story of each single disease.

The concept of disease and of its incidence in a community is the result of two very different factors: first, the real morbidity in the population, and second, the intellectual elaboration of observational data. The confusion between clinical symptoms and artificial nosological units, the collusion between single diseases, the interplay between the seed and the soil, the individual and the community, disease and social conditions, must all be taken into account in making an appropriate study.

Recently I had to read a book (published in 1965 by R. and E. Blum) which analysed the sanitary situation in three Greek villages, the situation as it is today. From that study I arrived at a new understanding of some Hippocratic descriptions and rules, for the village ways had scarcely changed in 2500 years (they changed

indeed only in the last 50 years).

Many medical historians are interested in studying the cultural and social background of medicine. Certainly it is worthwhile. But it is very difficult too. As yet, the 'cultural' approach to the history of medicine offers more questions than answers. In this matter, there are real difficulties in teaching undergraduates who have neither the time nor the necessary background to understand the essential nuances of various answers. We are all exposed to dangerous oversimplifications. I guess that even some of Sigerist's explanations are not fully acceptable at the moment. His synthesis was premature.

LEWIS: I would be grateful if Professor Dodds would expand what he said about the shortcomings of anthropology. It is often said that anthropologists are too much concerned with the problems of kinship and that they are not adequately equipped for the study of our own complex society and have concentrated on more primitive societies. I would have thought that this is less the case now than formerly. There have been quite a number of activities following proposals for the study of sections of our own society. It will be valuable to apply to them the concepts and methods derived from anthropological studies of developing societies. I should have thought that the behavioural sciences generally are having a considerable impact on medicine, especially epidemiological medicine, and it is increasing in proportion to the strength of these sciences.

DODDS: I think that what you say is increasingly true in the States and I can only speak from my experience there, which may be quite different; I don't know. I know that some medical schools understand the value of having anthropologists there. I am happy to say this is doing the anthropologists as much good as it is doing the medical schools.

There has existed for a number of year in the States an outfit called the Society for Practical Anthropology or Applied Anthropology but they have always in the establishment – and I am talking now of the anthropological establishment – contributed second-class citizens, who are, as far as industry is concerned, what you might call 'adverse conditioned'.

When I ask anthropologists why they don't use the tools which they apply to primitive culture in our own complex civilisations, they say the tools wouldn't all work. What they have learned about New Guinea doesn't help them in New York City. I think this is *their* limitation, not the limitation of the subject itself. I am glad that they are doing that in Britain and I think that progressively it will be done more in the rest of the world.

LEWIS: Do you distinguish particularly between social anthropology and social psychology, or do you include them in the general class-

behavioural sciences?

DODDS: I should include them.

BOWERS: I would like to return to Dr. Hodgkinson's question about whether or not the lack of student interest in the social sciences, humanities, *people* as it were, relates to the lack of time in the curriculum or the attitude of the faculty. I spent two years on a study for the Rockefeller Foundation of medical education in different countries and I found, of course, that I learned most by talking to students rather than to the members of the faculties. I would point out that most of the teaching of these aspects is done in the departments of *traumatic* and social medicine. In every country that I studied the students always said that the course they were least interested in and the most poorly taught was traumatic and social medicine.

LEAVELL: Just one comment, Mr. Chairman, in relation to the discussion about the Establishment in anthropology. I wonder if Professor Dodds would liken this to the American Medical Association's activities.

DODDS: It hasn't done so much damage.

GUERRA: I have noticed that Professor Hubble – together with Dr. Bowers and Dr. Hodgkinson – refers to medical history as only part of the humanistic or cultural background which is to be given to future medical practitioners. I disagree entirely with Professor Hubble. I do not believe that an interest in history only comes with age. I believe that the young can be sincerely interested in history when they are given an opportunity of learning something about it. I speak here from experience as a teacher of medical history, and I have always found that an interest in it was a sign of maturity in youth. I gave a course at Yale University with Professor Fulton and to my surprise I found that the boys with the highest grades – in Medicine – the best students in the medical school, were the 27 who attended my course in medical history. I do believe that medical history is the best tool for integrating cultural and humanistic factors in the training and the practice of the physician, especially in this age of rapidly growing technology. But I also believe most sincerely that it is also the key to the improvement of training in the medical sciences themselves.

HODGKINSON: Dr. Guerra, you are speaking only about medical history now, and we were dealing with the humanities generally. The doctor may study the classics or humanities as a cultural factor; but he should also be encouraged to study contemporary society and take a part in social affairs. This is what I would recommend; broadly the whole training of the man, and not just his academic side.

GALDSTON: May I have a chance to make a comment here for two

moments? Something has happened that I would rather delete. Perhaps you will find in my paper (which has not been read) that culture has many links with the humanities, and there seems to be confusion as a result of your idea that a man is cultured who is cultivated, and that all this is germane to what we are talking about, which it is not at all. In the orientation which we have espoused, culture includes the *totality* of the human's environment in a given historic period. His political, his physical, his aesthetic and his moral environment, and my argument was that unless medicine is understood and taught in the context of these appreciations then medicine is corrupted.

Today medicine is dominated by the notion of specificity, to which I ascribe the cause of the dominance of the so-called 'crowd diseases' as against what was dominant previously, which – it has now emerged – were diseases that derive from a mal-orientation, health being a matter of orientation within the world in which a man lives. Fundamentally, this is the question. No teaching of Greek, or medical history, or literature, or sociology is going to meet the requirements of reorientating medicine to culture, and that is what we have to do. I don't think that adding any courses whatsoever, whether it is your lectures, Dr. Keswani, which I have attended and which I recognize were very interesting and well received, or sociology *qua* sociology, is going to fill this gap. I think the crucial thing is the orientation and understanding of the *teachers*. So nobody is idiotic enough to say that the cause of tuberculosis is the tubercle bacillus. It is so wrong, and Pettenkofer showed a long time ago that it takes more than a specific agent to produce the disease. And as Professor Grmek pointed out, the conception of a man who suffers from a disorder should be the conception of the sick man whose sickness now becomes manifest in this particular coincidental feature. Certainly Hippocrates knew that, and certainly Sydenham knew that when he spoke about an 'epidemic constitution'. And certainly the point which Grmek made about tuberculosis and leprosy, the specific agents of which are approximate, belongs to the same order of importance. And look how much crowding can account for that. Tuberculosis is a highly infectious disease, and where you have this crowding of people together, certainly tuberculosis will dominate against leprosy, which is very difficult to contract.

Well, it is that sort of thing and not Greek and Latin or poetry and so on that we intend by culture, and if we go off at that tangent in arranging teaching courses even if it be in medical history, I think we are wide of the mark, at least from my point of view.

GRMEK: I have been teaching medical history at the University of Zagreb for eight years and in two very different courses, partly

together with Professor Glesinger. The first was given to students in the first semester, at the beginning, and the second at the very end of the medical training. The first was intended as a synopsis or general introduction to medicine. It was medical history, but medical history entirely from the cultural and philosophical point of view, not technical history. On the other hand, the second course, given in the last year of curriculum, was really the history of the great doctors and of the specialities, a technical history of medicine, such as you find in all the textbooks.

Well, in the first year the number of students was about 400, of whom more than a half were without doubt very interested. This is an unexpectedly large number. The last course did not attract so many, perhaps 100, of whom only twenty or thirty were very interested. Some years later, I spoke with colleagues who had once been my students, and they all told me that the first course was really interesting and they preferred it, I think, because it was general orientation, something they feel useful, whereas the second course only appealed to those interested in the specialities. I suggest that, if in a medical school only one course of the history of medicine can be given, it should have a general, sociological and philosophical orientation, naturally not based on a particular philosophical doctrine but tracing the evolution of biological and medical concepts, of medical care and its social aspects, of the history of diseases and the changes of the physician's status.

One external factor should not be neglected: the time schedule. Generally, the students of the first year have more free time to think, to orientate themselves. At the very end of the curriculum, all the students are overloaded with purely scientific matters and highly interested in the technical aspects of medical practice. In my experience the history of medicine is more helpful when offered as a general introduction to the study of medicine.

DODDS: Lord Cohen, I wonder if I may ask a very naive question of the medical historians present?

CHAIRMAN: Certainly.

DODDS: Never having had a course in medical history I wouldn't know. When you teach medical history does the component of religion enter strongly into this? I don't mean merely such things as opposition to dissection. I want to know if the religious context has any influence on medicine in society. I get the impression today that any young doctor going out on probation to his first terminal patient doesn't know quite what to say to the patient. This may not be a part of medical training proper but isn't it important? Does this enter into the components of medicine?

KESWANI: I think that when you teach the evolution of medical

thought naturally you have to come to religion, which is involved in almost everything, especially in the earlier centuries, if not in the modern period.

DODDS: In the modern period you need to know something about it.

KESWANI: Unfortunately, in our country – and I am sure it is happening in every country – there is less and less of religious teaching, at least in the schools.

DODDS: If you have the philosophy that God is dead, why should you be surprised at being dead also?

KEELE: Mr. Chairman, hasn't Professor Grmek just outlined that what is interesting to students is the medical point of view, the medical outlook towards life in general. This is what appeals to them. What does *not* appeal to them is the concentration on the different branches of technology, and this is at the root of what I am trying to put forward, and that is that there is a special point of view and that this interests people other than those in medicine.

TITMUSS: Lord Cohen, may I make a comment on the dilemmas of time? This seems to have been a recurring theme in many contributions. I think there are three points which arise here. The first is one mentioned earlier on, which is: When did the doctor, the physician become, *via* the image of the scientist, increasingly referred to as glamorous? Another point was that the doctor today hasn't *time* to be a social doctor in his relations with his patients, a point made by Dr. Hodgkinson. The other issue where time comes in, as I think it must, is in the problem of education. There isn't time to be a humanist, with a small 'h' and for seeing man, health and disease in a necessary social context. Here again, I think we are forced to consider our medicine in its social context and the rejection by medical students of a concept of knowledge which seems to be irrelevant to their practice with patients.

I wonder if we could link these three forces centring on the problem of the distribution of time, taking also the point that Dr. Galdston made very wisely in his paper in his criticisms of academic medical historians in the U.S.A., that they did not ask the question 'Why?' about the systems of medicine and the practice of medicine. Why are we obsessed with time? With other systems of medicine in the past, was there a consciousness of time in the doctor-patient relationship? When did this enter the practice of medicine? Anthropologists, I think, as well as psychologists have begun to make a contribution to our understanding of the concept of time in different cultures and differences in the concept of time, both backward-looking and forward-looking time. Just to be controversial for one moment on the theme of the medical students: I have always believed that one of the functions of the university,

of education, is to impart the sense of ignorance or *not knowing* when the student has finished his course at the university, so that the student is aware of all that he does *not* know. Now if his course of education consists more and more of facts rather than theories and concepts, then the student is going to leave as a doctor with an unbalanced sense of ignorance of fact, and I think this can create a barrier between the doctor and the patient. The patient comes between him (and I am talking about the general practitioner), and the acquisition of more factual knowledge which is *not* derived from the study or observation of the patient.

If I might stop at that, I think the problems of technology, science, and so on can be focused on this problem of the dilemmas of time.

GALDSTON: This is very interesting. If we look back a little way we find that in Europe a man could study Medicine and take twelve years. He would travel around from one university to another and all he did was to carry a little book for somebody to inscribe a signed statement that the student had been there for a certain time. In the United States, if you did not finish a certain task in four years you were out. Now some of the universities are being clever enough to allow the medical student to take a year off if he wants to study something else. I think your point is very well made, and it is this urgency, this piling up of facts which must be acquired in a certain limited time – and woe betide you if you don't conform – that creates the tension. You will find it in other disciplines too, not only in Medicine.

POYNTER: Sure this problem of time is little more than a hundred years old? In the medical course it has developed with the tremendous advances in the sciences, and particularly in the sciences useful to Medicine. In this country – and it is only of the United Kingdom that I am speaking at the moment – it began with the compulsory courses of training, education and examination after the Medical Act of 1858. We know quite a bit about the curricula in the medical schools fifty years before that and students' diaries give us an insight into the ways they spent their time. It is true that they often had to attend lectures at 7 or 8 in the morning, or again in the evening, but that was merely to suit the convenience of teachers who wanted to reserve the normal daylight hours for their private practice. Thomas Young's diary made at Göttingen shows us that he spent two or three hours in the middle of every day on such subjects as general history, philosophy and the classics, sandwiched between anatomy, pathology and therapeutics. For the first decade or so after the 1858 Act, the curricula here were still very simple, but if you look at those for the end of the century, 1894, 1902 and

so on, you find them much longer. Thereafter the pace increased. Teachers who were themselves trained in the new specialties wished to teach them and insisted on the students learning them and being examined in them. The result was that by 1921 you had a very large number of specialties, a knowledge of which was thought essential for every doctor, so that time had to be given to them in the curriculum. This process eventually defeats its own ends, for we possibly get to the point where, to acquire a satisfactory and intelligent understanding of all he is taught, the undergraduate needs not five or five and a half years, but ten or fifteen. Instead, he was given six weeks for this subject and three weeks for that, which could result only in the most superficial acquaintance with the subject, retaining just enough of the facts for the short time required to pass the examination. Surely this resulted too in the student not being 'aware of his own areas of ignorance', as Professor Titmuss put it, as well as the feeling that there was no time to take an interest in anything that was not essential for the examinations. That experience must have had an effect on the present generation of teachers who went through that mill earlier in the century.

O'MALLEY: We can take this back a great deal earlier, to about the 15th century, as a matter of fact. The normal term for a Bachelor of Medicine was four years at just about every Continental medical school. It means you would take what we call the undergraduate years and receive the master's degree, and then you went to medical school and it was a four-year course.

BOWERS: Compulsory?

O'MALLEY: As far as I know, every medical student finished in four years. One exception was Oxford and Cambridge, with a longer course. But it was already a four-year course at that time, and they had it all worked out as to what you took in the first year, what you took in the second year, the third year and the fourth year. This was true of Paris, it was true of Padua, it was true at Bologna. As far as I know this was true in almost every Western Continental medical school. And that was by the 15th century.

MCKEOWN: I would like to comment on three points that have been made so far. First, Dr. Galdston's central point I am entirely in sympathy with, but I think it is perhaps worth trying to steer away from a certain amount of supposed antitheses between this idea and that of the doctor who is generally an educated or cultured person. It seems to me that one can think of medical education more clearly by recognising first that it is a *higher* education and therefore ought to have the general features of all higher education. Secondly it is a scientific education and ought to have the good features of a scientific education, and thirdly it is a science with unique social responsibilities

which puts it in an entirely separate category and I think if I understand him Dr. Galdston spoke very largely on the significance of this third factor and I entirely agree with much that he is saying. But I don't think there is any antithesis between this and the recognition of the first responsibility. We have tried, or are trying, in Birmingham, for example, to allow students to use their elective time in other Faculties of the University and not only in science, but also in subjects like music, literature, and so forth and I very much sympathise with Sir George's view that these abilities and tastes are there when they arrive and are not discovered by us anew. If people have got to the age of 18 and haven't by then heard enough music to know that they like music, we are not likely to discover it for them at that stage. But we do think it is appropriate to use the resources of the University to exploit what interest is there, and medicine with its great variety of interests and responsibilities needs a proportion of people who have strongly developed interests of this kind, in addition to their medical basis.

The second thing that I would like to comment on is this fascinating problem to which Dr. John Bowers refers, this paradox that a subject such as social and preventive medicine, which many thoughtful people think to be very important, is in general very badly taught and very unpopular. This I entirely accept, but it seems to me that people ought to probe a little behind this paradox and ask themselves *why* this is so, and I suspect there are broadly two answers. One is within medicine, an answer which is true of science generally, and that is that if you look at the scientific landscape as a whole you get the impression that through some error in celestial casting, all the ablest people have got on to all the easiest subjects. It seems to me that there is unquestionably a kind of selection. In general, preventive and social medicine is a very difficult subject and has in fact not had its fair quota of able people. I think it ought to occur to people too, a second point, that it has always been an extraordinary difficult subject. I am quite sure the problems confronting the teacher have been far more formidable in the last 25 years than they have been in almost any other part of medicine.

This brings me to the third point I wanted to comment on, namely, and it goes back to Dr. Galdston's first point, and that is that this is a much larger problem than merely getting insight into some single aspect of teaching. It really turns on a whole outlook and the interpretation of medical history and so forth with which we are partly concerned today.

I want finally to make the rather heretical point that I think that in this context Sigerist is a bit disappointing. One might have expected great things from Sigerist with his immense erudition on

the one side and his Marxism on the other, but in actual fact, with few exceptions, his social medicine is really the sociology of the time allied to rather conventional medical history. This is not my own view of what is required. I think something more in the direction of what I understood Dr. Poynter to be suggesting – Re-interpretation, or a *first* interpretation of improvements to health with reference to medicine's part in it and so on, which is completely lacking in all the conventional medical histories, even Sigerist's.

HODGKINSON: When I first read Professor Dodds's paper I was going to argue a little about the statement that he makes: that in the face of public concern the profession has remained conservative. I was going to say that this is not so in many fields, particularly not in the public health field; but following the discussion we have heard so far, I think he may be right, taking it out of its context, that in the face of public concern the profession is not only conservative but partly ignorant, having not followed the development of psychiatry properly. This is going to be increasingly so if it rejects the broader aims that we have been discussing this morning.

KESWANI: Sir, if I may ask Dr. John Bowers, was it your impression about these newly developing countries that preventive and social medicine is being taught in a way that you think was not attractive to the students, or were you referring to the West?

BOWERS: Both.

KESWANI: But as far as there is this concern about what you popularly call underdeveloped or developing countries, the subject which is called today preventive and social medicine – Dr. Hugh Leavell will agree with me – is absolutely new *as a subject*. What we were taught as students was called *hygiene*. Unfortunately all the teachers of preventive and social medicine today in most of our countries have been trained almost out of context with the life to which they are coming back. They are all trained either in the United Kingdom or the United States. We have had an American visiting professor with us, followed by an Indian, and again by an army-retired Indian and you could see the approach of the students. In the first instance, with all the apologies to the States, they thought it amusing to go to preventive and social medicine. In the next stage, again American-trained Indian. When he came into the picture they thought it was a boring subject. And now when the army man has come, they think it is a military subject. So I don't wonder actually that most of the students say, Sir, we go for a picnic.

GALDSTON: Is preventive medicine considered as a separate subject?

KESWANI: Yes it is. Not only a separate subject, it is one of the most important subjects which runs from the first year down to the last stages of internship in our country.

GALDSTON: Unfortunately, preventive medicine has a muddled history. It began largely as sanitation and control of epidemic disease. It has become more and more extended into a kind of gross sociological concept of how we think of health. The trouble is perhaps that it has not yet been really defined. All too often a course in preventive medicine starts as garbage disposal, water supply, sewage works, and so on and never really gets to the point, although sometimes there is some brief discussion of mental hygiene or adequate maternity services. So here you have an amorphous situation really. You ought to comment on that. You have your own experience, naturally.

LEAVELL: I should like to make a few comments. First, about preventive medicine, I would agree completely with Professor McKeown about the difficulty of teaching this subject. I think one of the possible assets has not been nearly enough exploited, namely the social sciences, which ought to be taught by this department. By and large they have not been, and this has perhaps been one of the reasons for its failure.

Another reason is the difficulty of the subject and the fact that people really need to know a great deal to teach social medicine very well. Even then it will only apply to a certain part of the students. We can't regard the student body as a homogeneous body except perhaps in age. Some of them are going to be much more interested than others and some of them won't be interested at all, and there is no changing this. Some of them are wanting to be surgeons and they are going to be surgeons no matter what and that's that. There have been some very useful studies going on in India in seven of the medical colleges there which relate not only to trying to get people to work in rural areas but also to think in more social terms, and the final report on this will be coming out soon. It has some good food for thought.

One other point: we use this term 'Western medicine'. Is this synonymous with modern medicine? If so, does it have such a geographical connotation that we can deliberately speak of it as *Western* medicine. Are there not many contributions from North, South and East as well as from West? Wouldn't it be better perhaps, if we used the term modern medicine or scientific medicine, not recognising the problems that arise if we use 'scientific'?

Finally, I get the impression from the discussion that we are considering medical history and culture as more or less synonymous, and I take it this is not really what we intend? I just want to have this clear in our minds. Perhaps the best way to teach culture, or one of the good ways, is to do it on a historical basis, but I take it, and I think Dr. Hodgkinson suggested this, that they don't *have* to

go together. Culture is something that is just as modern as we are, and you don't *have* to teach it on a historical basis. I just wanted to be sure that I was not drawing a wrong conclusion from this, hesitating even to mention it in this environment of medical history.

DODDS: You say preventive medicine is in context immediately it is freed from the limitations of sanitation and public health and that sort of thing. Now what I am interested in is preventive medicine for *me*. I want my doctor to be interested in *me*.

LEAVELL: Well I think there is a clinical preventive medicine that is concerned with the individual. It is practised very well by the paediatricians and to some degree by the obstetricians much more than by the other groups.

HUBBLE: Sir – and this comes back really to time and Titmuss – I thought this was really a very original and interesting contribution to our debate. The definition of a good personal physician – and perhaps the best and only definition – is one that *takes time*. You may remember, Lord Cohen, that about twenty years ago I guess, you wrote an article on the art of diagnosis and you said that the physician who is in a hurry has mistaken his purpose. Was it twenty years ago?

CHAIRMAN: It was twenty-four years ago and it was a Skinner lecture entitled *The Nature Methods and Purpose of Diagnosis*.

HUBBLE: And I would say, looking at the modern scene, that the great thing about the psychiatrist is this, the great contribution that he can make is that he can teach the medical student to take a history; he is the only man on the medical scene who always insists on taking time to take a history. This, I think, is the *only* contribution of psychiatry to modern medicine.

CHAIRMAN: This is certainly *not* so, and I don't think it is true that the psychiatrist is the only person. There are still some physicians who spend a lot of time, not in teaching students to take histories, but in demonstrating how histories might be taken and what should be relevant, and what is evident in each case. I think so much of this does demand personal endeavour. One of the things I would like to say now, because I am not going to intervene in the general discussion at the moment, is that I am disturbed by this sense of compartmentalism in medicine, that social and preventive medicine is a different discipline from medical history, and that medical history is a different discipline from clinical medicine, and so forth. We must bring holism into our concept of medicine, which would include necessarily some historical references, and preventive and social medicine as well. If you see a patient, and after all we are concerned as doctors with patients, whether they are individuals or members of a community, we have to be concerned with the whole

man and the whole man includes his social environment, it includes his education, it includes his inheritance, it includes his disease, which, without him, doesn't even exist.

I am a little surprised also that Dr. Iago Galdston still thinks that there are some doctors who are prepared to say that the tubercle bacillus is the *cause* of tuberculosis. I doubt if any student is taught that in this country. He is taught that the tubercle bacillus is a necessary and specific component of the concept of tuberculosis, but there are many other factors which contribute to it. Nobody has mentioned Chadwick: In 1842, when Sir Edwin Chadwick wrote his survey of morbidity of the labouring classes in this country, he showed long before the modern theories the influence of environment, of undernutrition, of overcrowding, of dirt and squalor and the like. I believe that today when a physician sees a patient he *should* discuss the patient's environment with the student. One of the troubles in this country, and I believe it is true in America from what I have seen, is that many of those who are responsible as Heads of Department for teaching medicine, have never seen a patient in that patient's own environment at home. This is dangerous. This is why it is not a bad thing for professors of medicine to have done some private practice or some form of practice before they undertake the Headship of the Department. Again, a teacher who is a good teacher of medicine doesn't forget the history of the subject he is teaching, because this illumines his own outlook. When I, for example, was taking a student in the ward who was feeling a pulse, I asked him what he was feeling and he said, 'The radial artery'. I asked him, 'Why is it called an artery?' Out of that emerged a total discussion of the humoral theory of disease from Plato onwards, and this excited his interest. He realised that there are words that are *significant* with every historical significance. So all that I want to say is, don't let us compartmentalise, don't let us denigrate the past. McKeown is quite wrong to say that medical historians have *not* been concerned with the social history of the time. There are many medical historians who have recognised that the medicine of any period reflects the philosophy, and I am using philosophy in its widest sense, of that particular period. We in this country have been taught history very badly in our schools. We are taught of wars and kings and dynasties. We are rarely taught the social significance of history. It was Green, J. R. Green, who first produced a history of the English *people* and I believe that in Shryock's history of medicine there is a tremendous amount of work which reflects the social purpose of the period and its effect on history. As I say, I don't want to intervene in a discussion of this type except to press the point that compartmentalism of medical studies is not a practical way to look

upon those things.

With regard to *time* I would say just this. The length of a medical curriculum has hitherto been determined, as I think Dr. Poynter has said, by the fact that anyone who is registered to practise medicine in this country is assumed to be competent in *all* fields and therefore there have been included in the curriculum every new subject in medicine which comes out. In the 1947 recommendations of the General Medical Council there were 73 subjects or sub-headings of subjects which were said to be suitable for the medical curriculum. In the 1957 recommendations that has all been changed. They realised that the purpose in the medical profession is not to instruct, to feed the student with a number of facts the vast majority of which would no longer be valid after five or ten years, but the purpose of medical education was to *educate* and *not* to instruct, to produce someone who knew something of the cultural purpose of medicine, and its social purpose, and who was able to assess what had been achieved in medicine and also able to continue this purpose. And I think a great deal too much has been said about lack of time. We *have* time. Have we been putting our time to its best purpose? Have we been filling our time with many jobs that have no significance in the fulfilment of the role of the doctor? Well now this is all a part of your discussion, at least I think so.

PICKERING: Could I raise a point that hasn't been raised that came up in Professor Dodds's face, figuratively speaking? He mentioned that it seemed to him that physicians were disgusted by society and I wondered if this was a little risky because, historically, physicians often made their patients do rather unpleasant things. I also wondered if this had arisen because of the ancient idea that disease was the result of sin, and therefore to get rid of disease it had to be expected. There was an excellent example of this in France about 150 years ago. Broussais said *Nature n'a aucun pouvoir de guerir sans moyens naturels*, I think, and he proceeded to put that into practice by bleeding and purging his patients with dreadful rigor. As Wilfred Trotter said, this all seems gruesome balderdash to us now, but it had a certain plausibility to his contemporary world. Even the great Baron Dupuytren was accustomed to add to his own rare surgical powers by introducing his patients to the sterner measures of his colleagues. It is very interesting; you see, medicine is like religion – it can't tolerate ignorance. This is one of the awful hazards that the medical student has to go through. I remember when I first became a professor I was told by my students that they found that I was really a very difficult teacher to understand because I said so quickly that I didn't know the answer. Anyhow, this tendency of medicine to *invent* an explanation if it doesn't know one,

I think, has been a very real difficulty in the past. I doubt if it is quite so real today. I wondered if this concern with *sin* was partly the reason.

DODDS: The interesting thing is that you have it both ways there because if you sinned you were punished, and if you belonged to the elect you were chastened. Either way it was evil.

CROMBIE: This was a Hebrew idea rather than a Greek idea wasn't it? Wasn't it Galen's idea that sin was sickness rather than sickness being sin?

HUBBLE: Having abused this conference this morning I would like to make a point here with regard to sin and expiation. It is quite important, I think, for a doctor to understand his own temperament and have a little insight into the way he may be persuading the patient. I think there are doctors who, by their own temperaments, have an excessive wish to please; and I think there are doctors, who, by their own temperaments, have an excessive wish to punish, and insist on their customers taking the hard way. I am sure, Sir, you have watched this in your practice. I certainly watch it in mine.

POLANYI: Some of my curiosity has not yet been satisfied. Perhaps I had better mention one or two subjects which I have noted.

One of the worries of an outsider is: What happens in the development of co-operative specialization, of institutions that combine the services of different specialities which seem to change the character of medicine somewhat?

But a more challenging question which fascinated my mind was touched on in one or two of the papers. Unfortunately, I could not see all of them, for I only arrived this morning. It was the effect of medicine, and of the hopes created by medicine on the concept of life and death. Dr. Poynter said that this is an age fundamentally hedonistic, but it is curious that it is also the age in which malaise with science, with life in general, has become a widely apparent cultural phenomenon. You find this more pronounced in the literature of the United States than in European literature. It certainly seems to be axiomatic there that life is altogether unsatisfactory. Another point worth considering is the relationship of man to death, and the idea that death is considered to be just an accidental failure of medical services.

Another thing that Dr. Poynter said was that this is an age of scepticism, and again there is a paradox in that: just as this age of hedonism in which everyone wants to enjoy themselves has its peculiar widespread malaise, so this age of scepticism has a widespread fanaticism which was not known in previous centuries. Now if medicine, along with other pursuits of science, does encourage what I would call a reductionist conception of reality which is, of

course, included in the scepticism which was mentioned by Dr. Poynter, then it also perhaps has something to say about this paradox. I think it could have a lot to say about it, actually.

If I may go on, more or less at random, just looking at the notes here, we have talked about the university and, of course, that is something which I suppose I have some experience of, because I think I have lived longer in the universities than anyone else here. I have often made an attempt to address university audiences, mainly with the hope that somebody would come to my lectures, and that was in effect, an attempt to say something that might interest a number of people of different cultural interests. So I have speculated about what exactly has happened to our universities. Why do they seem to be falling apart? Perhaps it is necessary and inevitable, in order to maintain our present range of achievement, for the interest to be supplied to the student. Nevertheless, it has occurred to me that if everyone who believed in God practised his faith, then theology, obviously, would be something that would interest everybody; and I think the defenders of God do not hope for that. It is not the case.

But the other subject which might make such a general difference is philosophy, because it is supposed to be a study of nature, the origins and nature of things in general. And, as is well known, philosophy to a very large extent, does not want to do anything of the kind. And that applies just as much to the positivist as to analytical scientific philosophy, but, I should say, not to the same extent to existentialism. Then that is not a very popular philosophy. In any case I don't want to advocate that this should be the predominant philosophy. What I want to say is that if we had a philosophy, then the university would not fall apart to the same extent. Actually, writing down these titles, theology, philosophy, science, naturally one is reminded of the Comtean stages. We just marched along these stages in that sequence and that is why the university has fallen apart. And I am afraid I found it best, if I may say so, for an audience to see my face, by the penetration with which I heard them discussing questions of which I knew little but in which I was very much interested. But it is beyond their competence to think of doing something about this major problem of our culture as manifest in our universities, if it is true that it is suffering from what I have hinted at.

Now, is there anything else here? Yes, I think that it assists some of the arguments that we have put forward if I just call to the attention of this meeting a little more emphatically that culture is *not* taught mainly in universities or in schools, but it is taught by the things we buy in the streets – newspapers, or buy in the book-

shops, or watch in the theatres, and also by politics. In other words, I should say that we must really, I think, in this connection, always look upon the universities as subsidiary to the kind of education which is originating outside the university. In fact, may I just add this one word quickly? Curiously enough it has never been recognized and I think that it is true, that science today is the only pursuit in a university which generates its own initiative, which sets its own problems, pursues them, and gets credit for the success when a solution results. That is *not* the case for the arts. The difference between writing the works of Shakespeare and writing *about* the works of Shakespeare is fundamental, and it is always alike with the pursuit of art. It is useful to emphasize once more that what is, after all, the most important in culture is *creation* – the production of new ideas in the various forms of art, and really we can't complain that we haven't been supplied in that respect in the last fifty years or so, but that has not happened in the universities. Their function, as I understand it – is to *write* history, not to *make* history, to write criticisms of various forms of art, not to initiate them. But I was very much impressed in America by the continuous progress which is being made in bringing into the universities these great outside influences, particularly, I should say, the stage, which I think is by and large the most powerful influence at this moment, and for the last decade, in our culture.

GRMEK: The question was asked, 'How old is the consciousness of the time factor in learning and in the practice of medicine? Let us remember in this connection the famous Hippocratic aphorism: 'Ars longa, vita brevis'.

It is widely accepted, and I think erroneously, that the progress of science necessarily enlarges the body of knowledge which we need to teach. Historically, we find that the growth of the medical curriculum is not an indispensable process. There are some 'plethoric' periods. In medieval times the curriculum was more heavily loaded than towards the end of the sixteenth century; in the French faculties before the Revolution it was longer than after the Revolution; the 'first Viennese school' offered its students more 'facts' than the so-called 'second Viennese school'! For the present, the history of penicillin and other antibiotics shows how a discovery can lead us to discard a large amount of previously 'useful' and now 'obsolete' facts, how it can spare our time in teaching as well as in medical practice.

In regard to the teaching of the history of medicine, it is important that the historical development should not be made more complicated or more detailed than it need be on the level of students' interests. LEAVELL: Mr. Chairman, I had the feeling that we perhaps were

missing one or two of the points Professor Titmuss spoke of in relation to time. He asked the question 'Why are we so obsessed with time? And is this true in other systems of medicine?' Perhaps, if I am correct, he will develop this a little, because it seems to me this is one aspect of his comments that we have not discussed very much.

TITMUSS: Now or later? I think it will be relevant to what we are to hear this afternoon on medical education.

I think there was one point that I did not make, which seems to be the allocation and distribution of time and the way in which this distribution of time by the doctor affects the practice of medicine and the relationship of the patient to the doctor. I wonder if it is possible to draw the line now? What has in the past just happened now has to be deliberately conceptualized and organized in the time factor. Now, I rather like Sir George's advice to his students, I am sure they are very fortunate students, but it must be a great comfort to students to hear their professor say 'I do not know'. This has to be a deliberate, articulated decision by the professor to say 'I do not know'. This does not happen to many students.

CHAIRMAN: There is a great difference in saying 'I do not know', and '*It is not known*', because there are many things that professors do not know, but this is *their* ignorance. The knowledge is there. I think one ought to differentiate between the individual's ignorance and mankind's lack of knowledge.

But we are going to discuss education further this afternoon and so let us leave it at that for now. Before we close this session we ought to give an opportunity both to Dr. Galdston and to Professor Dodds, if they would like a few minutes, to summarize the discussion in relation to their own contributions. Would you like to do that?

GALDSTON: Not to summarize, but only to say one or two things. A couple of points which you raised, Professor Polanyi. For example, our attitude towards death. You know the Greek physicians are criticized for the fact that they never took on hopeless cases, but the people who make this charge don't know what they are talking about. Take Hippocrates' *Epidemics*, for example, where he reports on 14 cases and no fewer than 7 (50 per cent) died. Apparently these were desperate cases, and Hippocrates did not hesitate to say that he was not very hopeful. You will recall also the attitude of Socrates towards the continuation of his own life. Greek medicine was tough like this, and Greek medicine had the feeling that where Nature did not prevail it was senseless for the doctor to try.

In contrast to that, as I wrote in my paper today, it is literally impossible to die except with the consent of your physician. I have seen recently one ultimate, scaring instance of what modern medicine

really *does* in a report – and I wonder how many of you have seen it – a report of the operation called ‘hemitorso’. This is an operation performed on certain patients in one of our great cancer hospitals where the whole pelvic system is removed so that the body is, as it were, enucleated and the patient is left with a partial trunk. I don’t know, you see, whether that makes any sense or not.

I think another comment I want to answer is a very interesting one. I think that it was you, Lord Cohen, who referred to Shryock’s book. I might add, incidentally, that in my manuscript I was not quite as emphatic as I was in my address; I always add a little codicil to soften things down. But that was not done for political purposes; I presented the case as I was aware of it. Now the interesting thing is that Shryock was not a *medical* historian – and I know this because I had a great deal to do with Professor Shryock in the old days when he was one of my associates in the study of medicine and modern society. He was a historian; he studied medicine, and as an historian he brought qualifications and competences to medical history which the medical historians I know – and I limit myself to the United States – do *not* possess.

Apart from these few casual remarks I must say that I am delighted with the observations, both critical and otherwise, that have been made on my paper.

DODDS: I too shall not attempt to summarize, but I should like to make one comment about the discussion on scepticism. The curious anomaly here, I think, is that when intellectuals get together in a small room, you will often find the people who write for each other in some little magazine agreeing that religion is on the way out. It is then assumed that this is actually happening all over the world and that their prognosis is therefore justified. I suspect that sometimes a young doctor is somewhat shocked to discover when he attends the bedside of some old patient that there is still a lot of truth going around that there is still a deeply rooted religious instinct. I think there is some danger in generalizing about the world as a whole in terms of intellectuals who agree among themselves on scepticism but don’t really know what goes on outside.

END OF FIRST SESSION

MEDICINE AND EDUCATION

by Sir George Pickering

MAN'S SUPREMACY may be attributed to a combination of characters of which the chief are binocular vision, opposable fingers and thumbs, and a large brain. With binocular vision he can locate and follow objects in three-dimensional space. His opposable thumbs enable him to make tools and to use them. His large brain is associated with a great capacity to modify his behaviour by experience, and thus to learn.

These fortunate characters are vastly amplified by man's being a social animal and by his having developed a unique form of communication, speech, and its written equivalent. Speech and writing are capable of such versatility and precision that information, and the abstractions of that information called ideas, can be transmitted from one individual to many others, from one generation to the next, and even, through writing, to generations as yet unborn.

So it happens that there are two forms of inheritance in man. The genetic inheritance is through the genes in the ordinary way. The other inheritance, of acquired or learned behaviour, is quite different and is superimposed upon genetic inheritance. It is thus cumulative inheritance of acquired knowledge, ideas and beliefs which creates those highly sophisticated, highly differentiated and, for their time, successful social organisations which we call cultures or civilizations. Some have dominated the world in their time – Ancient Egypt, Greece, Rome, China and the present Western civilizations. What has distinguished these outstanding cultures has been their creativity. Each of them has dominated its world, by creating new technological devices, new techniques of warfare, and all have made new contributions to ideas, to art, to philosophy or to law. When they have ceased to be creative they have decayed and died.

The process by which behaviour is modified as a result of experience is called learning. Education is the name given to procedures which are designed to accelerate and direct learning. Hence we see that education is the method designed to ensure that knowledge, ideas, attitudes of mind, and methods of procedure are transmitted from one generation to succeeding ones. It lies at the very core of society. It is perhaps the most important problem in the world today, for if we use it rightly and with a clear appreciation of the instrument

and the purpose for which it is being used, we may enable succeeding generations to create a better world; if we do not, future inhabitants of the earth may destroy each other.

Another aspect of education is of supreme importance to this country at this time. As physicians we are all familiar with the ideas of the struggle for existence and the survival of the fittest, which ensure that only species who are adapted to the environments in which they live survive this competition. The same principle may be applied to human societies, which still compete with one another. Indeed the rise of nationalism, and the huge crop of new nations, emphasises that despite efforts, such as the League of Nations and the United Nations Organisation, to bring about international discussion, co-operation, law and peace, the competitive spirit is still extremely active, as indeed is shown by the frequency of wars, civil wars and riots since UNO began. Adaptation to environment, in social terms, means in the second half of the twentieth century scientific, technological and managerial competence. These bring wealth and the most powerful and destructive engines of war, as well as high standards of living and increasing opportunity for leisure. Long term competence depends on the morale of a society, which is directly concerned with its attitude of mind to its component parts, and thus with the law and its enforcement, its religious beliefs, its health services and its recreations. To ensure that the next generation is equipped to handle such problems, society has one instrument, and one only – its educational system.

This function or purpose of education is oddly enough not recognised in Britain. Our overseas visitors will be nearly as familiar as we are with our recurring financial crises, the inexorable decline in our commerce and industry, our waning influence in the Commonwealth and the world, the growing obsolescence of our roads, hospitals and public services, the failure which we share with others in dealing with the slums. Our leaders recognise these problems – indeed they cannot fail to – but the three political parties have this singular and, to the British nation, disastrous feature in common, that they have failed to diagnose and treat the national disease. It might be suspected from what has already been said that the seat of the disease, and therefore its cure, might lie in the educational system. In a book which I have just written, and which is to be published by the New Thinkers Library as *The Challenge to Education*, I have examined this idea at length. It has substance.

Alone amongst advanced nations of the western world, we demand that our clever children choose between the arts and the sciences at about the age of puberty. Those who choose the arts, and they include many of our cleverest boys and girls, leave the universities

knowing little of mathematics and nothing of science. Many of them become our national leaders in Parliament and in the higher civil service. What a bizarre preparation for leadership in this age of science and technology! Those who choose science tend to be relatively ignorant of the arts; far too many of them have not been taught that language is an instrument of precision in conveying information and ideas from one mind to another and between different compartments of the same mind. Our universities have not recognised the new professions which have created, and are being created by, the managerial and technological revolution. We have not had, until the last two years, schools of business administration within the universities. Technology is still an undergraduate subject and is neglected and despised by the university establishment, an attitude of mind which is mirrored by the children seeking university entrance from the schools. In fact, if the pattern of our educational system had been designed at all a dispassionate observer could only conclude that its purpose had been to ensure that the next generation is not equipped to deal with the problems of today and tomorrow; if it had a purpose, that could only be to eliminate Britain as a world power. But of course it has not been designed. It has happened. And it has happened in this way because this has suited the convenience of teachers interested in their own restricted subject, and because of the tradition of our ancient universities that their function is to educate gentlemen, for whom science is not a suitable education. As for commerce and industry, these are quite unsuitable occupations for gentlemen and therefore of no concern to universities. You may think that I am overstating the case. But let me remind you that I am a graduate of Cambridge and a professor in Oxford, and that I served for ten years on the University Grants Committee. Moreover, the view of Oxford and Cambridge was eloquently expressed by Newman in his *Idea of a University*¹:

'It is common to speak of a liberal education as the especial characteristic of a university and a gentleman'. Liberal 'in its grammatical sense is opposed to servile'. 'Manly games, or games of skill, or military prowess, though bodily, are it seems accounted liberal; on the other hand, what is merely professional, though highly intellectual, nay though liberal in comparison of trade and manual labour, is not simply called liberal, and mercantile occupations are not liberal at all . . . ' . . . that alone is liberal knowledge which stands on its own pretensions, which is independent of sequel, expects no complement, refuses to be *informed* (as it is called) by any end, or absorbed in any art in order duly to present itself to our contemplation.'

Given the pattern of education in Britain today, it is not surprising that she is out of date. It is inevitable. Nor will she cease to be so until the pattern of education is altered because public opinion, in and out of parliament, recognises the elementary facts, that education is an instrument of precision; that it is the one and only instrument

to ensure adaptation to environment; and that for this purpose it has to be as carefully planned, structured and carried out as has a modern surgical operation. What is surprising is the failure to recognise these elementary principles in the country which begat Malthus, Darwin, Wallace and Huxley.

As societies became more differentiated, more sophisticated and thus more civilized, three learned professions arose – the priests, the lawyers and the physicians. Each of these specialized occupations recognised specialized knowledge as a background to proficiency. It is probable therefore that there has been some form of medical education since civilizations began. After the collapse of the Roman Empire in the sixth century, the learned professions preserved the few cultural links with the past. When the modern universities were begun in their medieval form in the eleventh and twelfth centuries, the learned professions had a central position. The pattern of education in the medieval universities such as Oxford and Cambridge was based on four faculties, an inferior one of Arts, and three superior ones of Medicine, Law and Divinity. The student arrived at 14 or 15, already conversant with Latin and Greek. He then studied the trivium – grammar, logic and rhetoric – for three years, after which he became a Bachelor of Arts; then came the quadrivium – geometry, arithmetic, astronomy and music – for four years, after which he became a Master of Arts. He could then teach or he could enter one of the superior faculties, becoming in turn a Bachelor and a Doctor of Medicine, Law or Divinity. Medicine had one advantage over the other faculties; it was concerned with the human body as well as the human mind. Thus, when that reawakening of the human spirit called the Renaissance came along, it was medicine that provided the base from which was launched the search for knowledge and understanding of natural phenomena. Copernicus and Galileo studied medicine respectively at Padua and Pisa. The study of chemistry, physics, botany and zoology began largely because of their relevance to medicine. In the University of Oxford, the Dr. Lee's Chairs of Experimental Philosophy (Physics), of Chemistry and of Anatomy developed out of Dr. Lee's benefaction in the eighteenth century to improve the teaching of Medicine. The Sherardian Professorship of Botany was founded within the faculty of Medicine, and the Botanic Garden began as a Physick Garden. The Linacre Chair of Zoology was the outcome of the endowment of a lecture on medicine by Thomas Linacre, founder in 1518 of the College of Physicians of London. Medicine was not the only foothold of science in the medieval university. Geometry, arithmetic and astronomy were all important in their ways, but their interests were much less catholic than those of Medicine.

In Britain, the outstanding development in modern medical education was the establishment of the General Medical Council in 1858 to protect the public from ignorant and incompetent practitioners. In order to become a registered medical practitioner, the student has to pass certain examinations in subjects laid down by the General Medical Council and to study in institutions which it recognises. The Council inspects periodically the examinations of the licensing bodies to ensure that they are up to the requisite standard. In this way medical education is regulated by an autonomous national body which is quite independent of the Ministries of Health and Education, and thus of the bureaucracy of the modern state.

The establishment of the General Medical Council was due to one of my predecessors in the Regius Chair at Oxford, Sir Henry Acland, amongst others. Writing in 1848,² he advocated: 'the establishment of complete practical teaching in every department of Natural Science, first for the general education of all classes, and then for medical students working for every grade of the profession, is the most thorough preparation for the study of practical medicine in the best hospitals and under the ablest teachers in the country'. He had no doubt about the role of general science, contending that 'whether it be or be not our duty to provide against our graduates leaving the University in utter ignorance of the first principles of those great laws which are imposed on the material world, it is a duty to make some reasonable use, in respect of education, of the foundations we have accepted and now possess for the furtherance of knowledge in Anatomy, Botany, Chemistry, Natural Philosophy, Geology, etc.', and going on to say: 'The real value of the foundations of which I speak arises wholly from the service they perform for general liberal education and not for detailed professional instruction'.

The General Medical Council has continued to express the opinion of the leaders of the profession in condemning early specialization at school. In the modern world the physician must understand chemistry, physics, biology and mathematics as well as all the more professional subjects. But his patients have minds and perhaps souls as well as bodies, and nowadays minds and souls are at least as vulnerable as bodies. A good physician has to be an educated man; he must be acquainted with the arts as well as the sciences.

The medieval university set out to give a good general education in what was then knowledge, followed by graduate schools for the professions. Medicine alone of the old learned professions clings to this general principle. The most recent report on medical education in Britain, that of a committee set up by the University of Notting-

ham, advocated a good general education in the arts and sciences followed by a five or six year course in the university, of which one year should be devoted to studying to honours standard a single subject, to be selected by the student. The purpose of the honours year is to train the mind to be an instrument of precision. This objective of education, a facet of the pursuit of excellence, is the great contribution of Oxford and Cambridge.

The outstanding difficulty faced by medicine has been the growth of knowledge. For a time, the General Medical Council adhered to the old idea that on qualification a man was licensed to practice medicine, surgery and midwifery independently. Theoretically, he should have been able to diagnose and treat every rare disease, perform the most difficult surgical operation and deliver the child with the most complicated presentation as soon as he had passed his final examination. Medical education became a nightmare to teachers who conscientiously had to stuff their students overfull, and to students who had to learn to regurgitate the right material at the right time and in the right way. That is now ended, thanks to the National Health Service Act of 1948. Since that time the final licensing examination only qualifies the doctor to practice in hospital under supervision. Not until he has satisfactorily completed two resident posts, one in medicine, one in surgery, is he put on the Medical Register. Surgery, specialized medicine, gynaecology and difficult obstetrics are carried out in NHS hospitals by staff who are elected by competition and only if they are of proved competence. Thanks in large part to the Royal Colleges, more recently to the Nuffield Provincial Hospitals Trust, and subsequently to the Ministry of Health, postgraduate education for future specialists has been organised on a regional basis. It is generally recognised that a specialist in medicine, surgery or obstetrics and gynaecology needs at least five years training after qualification before he is ready to practice his specialty without some sort of supervision. Finally, it is now recognised and being put into practice that facilities must be provided and used to enable every doctor, be he specialist or general practitioner, to keep abreast of new knowledge, new ideas and new techniques. In medicine education must continue till the grave or retirement.

This brief summary suggests that in Britain medical education has changed with the growth of knowledge. It has met to a great extent the challenge of producing educated citizens who yet have superb expertise in a limited field. It is not surprising that medicine continues to recruit some of our ablest young, and that it provides a service to the community which, in my opinion, is not bettered anywhere in the world.

Medicine is at once a science, a technology and a profession. It is a science because it uses the scientific method to acquire exact knowledge and provisionally to interpret it by a refutable hypothesis. It is a technology because it devises and uses devices and techniques of ever increasing complexity and precision for practical purposes of a recurring nature. It is a profession because it uses this knowledge and these techniques in the service of society. In these three features medicine resembles the new professions of the engineer and the business manager, creating and created by the scientific, technological and managerial revolution. On these new professions Britain now depends utterly. Without them she can never hope to have highly competitive industry and commerce. Without them she is doomed to be ineffective and inefficient. Without them she will remain out of date. Without them financial crises will recur with increasing tempo. Without them the splendid concept of the welfare state will founder on insolvency. For, as Mr. Wilson has said, the world does not owe Britain a living.

Two centuries ago education for medicine was largely by apprenticeship. Today it is entirely within the hands of the universities who receive considerable sums from Treasury sources. Training for management is still almost entirely by apprenticeship. Despite the fact that the universities receive most of their funds from government sources, they have made virtually no attempt to provide educational courses which would give the background of exact knowledge needed for the modern conduct of business and industry. Nor have they ever been asked by the Government of this country to do so. And so recruits to management enter often knowing nothing of science and little of mathematics, and without the grounding in social science, industrial history and legislation, economics, and the scope and usefulness of modern machines on which the efficient practice of their new profession depends; nor is organised provision made for acquiring this knowledge later. I have very little doubt that if doctors were trained as business managers still are in this country, British medicine would be as bad, or worse, than any in the world.

In 1867, at the time of the Paris Exhibition, Dr. Lyon Playfair wrote this in a letter to Lord Taunton.³

I am sorry to say that, with very few exceptions, a singular accordance of opinion prevailed that our country had shown little inventiveness and made little progress in the peaceful arts of industry since 1862. Deficient representation in some of the industries might have accounted for this judgement against us, but when we find that out of 90 classes there are scarcely a dozen in which pre-eminence is unhesitatingly awarded to us, this plea must be abandoned. My own opinion is worthy only of the confidence which might be supposed to attach to my knowledge of the chymical arts; but when I found

some of our chief mechanical and civil engineers lamenting the want of progress in their industries, and pointing to the wonderful advances which other nations are making; when I found our chemical and even textile manufacturers uttering similar complaints, I naturally devoted attention to elicit their views as to the causes. So far as I could gather them by conversation, the one cause upon which there was most unanimity of conviction is that France, Prussia, Austria, Belgium and Switzerland possess good systems of industrial education for the masters and managers of factories and workshops, and that England possesses none. A second cause was also generally, though not so universally, admitted, that we had suffered from the want of cordiality between the employers of labour and workmen, engendered by the numerous strikes, and more particularly by that rule of many Trades' Unions, that men shall work upon average ability, without giving free scope to the skill and ability which they may individually possess.

In 1947 I wrote a memorandum to the University Grants Committee, of which I was a member, on the national importance of proper provision within the universities of up to date facilities for training engineers in all their specialties, and for business management.

Britain's present need has thus been obvious for a century. Is it not extraordinary that nothing has been done, and that nothing is being done? It is all the more extraordinary when we have the example of an old profession and an old technology, Medicine, for which intelligent provision is made with correspondingly happy results. It is all the more extraordinary because the British people have been noted in the past for their common sense. Is it possible that it results from the enforced schizophrenia which we inflict on our clever boys and girls by denying them access to the arts or the sciences after puberty?

While early specialization and neglect of the new professions are the most monstrous of the crimes which the present generation in Britain is committing against the next, there are other important issues in education, to which medicine has made, or is making, a contribution. Thus, the conflict between the arts and the sciences, between the old and the new, between Snow's two cultures, is bridged by medicine – though with increasing difficulty because medicine seems to stand almost alone in deploring it. As mentioned previously, the sick have minds as well as bodies, and the mind is still, at least in part, approached through some of its greatest creations, art, music and literature. Wilfred Trotter, Sergeant-Surgeon to King George V, and author of the concept of the herd-instinct, once told me that the year in his life during which he 'laid a firm foundation of the English novel' had been invaluable to him in his later profession. Medicine also has something to contribute to those other dilemmas of modern education, 'means versus ends' and 'individual versus society'. Medicine is fortunate in having an end – the physical and mental health of mankind, indi-

vidually and collectively – and in using every device of science and technology to that end. Moreover, in general, the more distinguished a career a doctor has, the greater his material reward; the more recognition he receives from society, and the greater is his service to society.

One contribution which medicine has not made to society is in politics, but fortunately that lies totally outside of my remit.

References

1. NEWMAN, J. H., *The Scope and Nature of University Education*, Published as a paperback by E. P. Dulton & Co., New York, 1958.
2. ACLAND, H., (1848), Quoted in *A History of the Teaching of Anatomy in Oxford* by H. M. Sinclair and A. H. T. Robb-Smith, Oxford University Press, 1950.
3. PLAYFAIR, L., (1867), Quoted by Sir Eric Ashby in *Technology and the Academics*, London Macmillan, 1958.

MEDICINE AND CULTURE

by Douglas Hubble

THE WORD 'culture' has several major definitions and many interpretations. It has a long history.

We need to travel backwards, however, no more than a hundred years – to the discussions over the Reform Bill of 1867 – to discover that 'Culture' was already a battle cry tossed in splendid Victorian controversy by antagonists who held their convictions more deeply than do their anaemic descendants today.

Culture was then proclaimed to be the curtain which divided classes, religions, political parties, and university faculties. It is not surprising that a quality which was held, on the one hand, to contain so much of virtue and, on the other, a value dangerously inflated, should have become identified with many different meanings.

For Richard Bright, culture was a 'smattering of the two dead languages of Greek and Latin'. Thomas Henry Huxley spoke eloquently and reiteratively for science on the same assumption. 'The man of culture in politics', said Frederic Harrison, 'is one of the poorest mortals alive'.

Matthew Arnold, the great protagonist for culture, escaped his adversaries by enlarging his claims to include a moral value. Culture was the 'study of perfection' which was moved 'by the social passion for doing good'. And again, the great aim of culture was 'the aim of setting ourselves to ascertain what perfection is and to make it prevail'. And again, in well remembered phrase, the 'characters of perfection' were 'sweetness and light'.

Matthew Arnold must be blamed for much of the confusion which has surrounded the meaning of the word 'culture' for, splendid as his writing is, his definition of the abstractions he so frequently employed was far from rigorous. We can appreciate Huxley's irritation with Arnold; he was himself a master of exact statement.

This set of Victorian meanings of the word 'culture' has persisted to our day. It comprises the practice and knowledge of the arts and its attitudes are those of the 'intellectual' or 'highbrow'.

But to these definitions of culture our generation has added an anthropological dimension. Culture, in its widest sense, now stands for a people's traditions, manners, customs, religious beliefs, values, and organisation. This meaning is neither individual nor

static, it is communal and evolutionary.

As Lionel Trilling wrote 'everyone is conscious of at least two meanings of the word' – and the two meanings, 'so different in their scope, permit us to say – it is a dubious privilege – that a certain Culture sets a higher store by culture than does some other Culture'.

In discussing *Culture and Medical Education* and *Medical Practice* I shall allow myself a similar 'dubious privilege'.

In regard to *Medical Education*, I shall be mainly, but not entirely, concerned with the earlier definition – the need for the doctor to be a man of culture, and himself the product of a liberal education.

In regard to *Medical Practice*, I shall discuss the impact of our changing Culture on some aspects of medical practice.

It may be convenient, and I have made this change in the quotation above from Trilling, to use a capital 'C' for the second meaning of Culture, and a small 'c' for the first definition. Although the memorandum which was circulated to us for our guidance indicated clearly that the Symposium would be chiefly concerned with Culture, yet the last sentence with its questions 'And Medicine itself – is it an Art or a Science? Or is it in the course of becoming a mere technology?' permits a discussion of the doctor's need for a liberal education in the face of advancing technology (the earlier definition of culture).

CULTURE AND MEDICAL EDUCATION

Medicine in the latter half of the nineteenth century is unlikely to have felt itself directly involved in the conflict between arts and science. As we have seen, it was basically a controversy as to which type of education gave the best preparation for life and which was more likely to produce the cultivated man described by John Henry Newman (1859): 'The practical end of a University course is that of training good members of society. Its art is the art of social life and its end is fitness for the world . . . Nor is it content on the other hand with forming the critic or the experimentalist, the economist or the engineer, though such too it includes within its scope. But a University training is the great ordinary means to a great but ordinary end'. Although medical education has today certain problems not unrelated to this century-old controversy, a hundred years ago medicine provided an almost wholly vocational training. Its basic sciences were botany, zoology and chemistry, and after a long and thorough training in anatomy, the student proceeded to learn the craft of medicine, surgery and midwifery, and this with the single aim in view of treating disease in man and of presiding over the act of childbirth. With the rise of such great British physiologists as Sharpey, Burdon Sanderson and Michael Foster, physiology

occupied an increasing part in the education of the medical student but it was a subject despised by most clinicians because it added little to the understanding of disease processes and nothing to the physician's art. When Sir Henry Dale came to St. Bartholomew's Hospital at the turn of the century to 'walk the wards', his chief, Samuel Jones Gee, physician to the Prince of Wales, asked him what he had been doing at Cambridge. 'I've been studying physiology', replied Dale. 'You can forget all that now', rejoined Gee. In this sense then there was hostility to the introduction of science into medicine, since it might result in some subtraction from the art of medicine and in some dilution of medical humanism. Once again it is necessary to attempt some definition of these terms. The art of medicine, a phrase so commonly used, has been confused with the 'arts', a term which should surely be reserved for the study and practice of man's creative activities – music, painting, literature, drama, architecture and so on – with which medicine has nothing in common. The medical art is the practice of a special group of techniques – history taking, physical examination and observation, the use of drugs, manipulations and other treatments – unrelated to the arts and but little to science. Evangelical theologians have been known to refer to theology as the queen of the sciences – an error of the same order of magnitude. To avoid confusion of this sort the medical art is better described as a craft.

Nor is medicine to be regarded, in the university sense, as one of the humanities, and therefore it is not, in the ancient traditional use of the word, 'humanistic'. In its wider and more modern meaning of 'any system of thought or action concerned with human interest', medicine has the right to call itself 'humanistic'. The introduction of science into medicine was irrationally and unconsciously opposed because it seemed to the older clinician to introduce another dimension between his patient and himself. Medicine was regarded as a special human relationship to be practised at the bedside and in the consulting room. The intrusion of science into medicine could be ignored when it did no more, as in the early days of physiology, than provide theoretical explanations for the symptoms of disease but when, for example, bacteriology was able to display living organisms as the causes of typhoid fever and syphilis, the most obscurantist physician could resist no longer. His prestige in danger, he was left only with his built-in defence mechanisms and for many years he treated his laboratory colleagues as beings inferior to himself.

The growth of medical science has transformed medical education and practice. Medicine has been gradually and irresistibly infiltrated by science and the subsequent controversies engendered have been

superficial rather than fundamental. Any conflict that occurred was due to the pace of scientific advance in the nineteenth and twentieth centuries, and not to any irreconcilable division between medicine and science. William Harvey in the early seventeenth century may be regarded as the first true scientist in medicine to use both experiment and observation in his researches into the circulation of the blood. But his scientific activities had little influence on the practice of medicine for two hundred years. The doctor as scientist and the doctor as physician were entirely unrelated characters. It was not until science began to permeate the practice of medicine in the latter part of the nineteenth century that any conflict occurred.

There was even then no true antithesis between medicine and science as there was thought to be in the nineteenth century between the humanities and science. Nor indeed would medicine have felt its status to be threatened, as the humanities both in the university and in the schools knew themselves to be endangered, by the advance of the physical sciences. The Faculties of Medicine in the University were as old as, and in some Universities older than, those of Theology and Law. Its position was unquestioned and the Medical Faculty was universally acknowledged as a place of learning. Its practice was more often called into question in the larger world by the satirists and wits, such as Montaigne and Molière, than was its reputation for scholarship in the universities. Although this reputation for scholarship and humane learning was justified in the case of some physicians of the seventeenth and eighteenth centuries, it was not, even in those days, shared by the apothecaries. Surgeons too, such as the great John Hunter (1728–93) were engrossed in their researches into comparative anatomy and physiology and the study of the classical authors did not concern them. Although eighteenth century physicians such as Richard Mead (1673–1754) deserved their reputation as scholars, their learning was by no means limited to the humanities; they were at least as interested in the study of the natural sciences as in that of the classics. More of them were like the famous John Radcliffe (1650–1729), who despite his great benefactions to Oxford institutions, had no pretensions to scholarship. When Radcliffe was asked where his library was he pointed to a corner of the room where lay a few bottles of drugs, a skeleton and a herbal. William Heberden (1710–1801) was a scholar who wrote his medical treatises in Latin because of the ‘profane images which they might excite’. Samuel Johnson, although he found it necessary to correct his physician’s Latin, described him as ‘ultimus Romanorum’, implying that Heberden was the last of the learned physicians. Although many nineteenth century physicians were good scholars, the great majority of them had no deep knowledge of

the classics, and as for the medical practitioners – the Bob Sawyers of medicine – they retained only enough Latin to write their prescriptions. By the turn of the century, medical scholars such as Allbutt and Osler were rare enough. They were bibliophiles for whom the history of medicine was an absorbing hobby. They were genuinely excited by the story of modern medicine over 2500 years and they proclaimed to their students the importance of these ancient traditions for the physicians of their day. 'Through long ages', wrote Osler in a typical passage, 'which were slowly learning what we are trying to forget, amid all the changes and chances of twenty-five centuries, the profession has never lacked men who have lived up to the Greek ideals. They were those of Galen and Aretaeus, of men of the Alexandrian and Byzantine schools; of the best of the Arabians, of the men of the Renaissance, and they are ours today'.

Medicine travelled in three hundred years from a practice based on the teaching of Galen to the study of the humanities as a necessary discipline for all physicians, and from there to the neglect of such studies as the call of the craft and the study of the physical and biological sciences ancillary to medicine became more insistent. For most practising doctors in the twentieth century the splendid trumpet tones of Osler seemed like the 'horns of elfland faintly blowing'.

Medicine in the nineteenth century had stood aside from the arts versus science controversy, complacent in its tradition of learning and scholarship, proudly regarding itself already as a nice admixture of art and science but recking little of the scientific explosion which was to come in the twentieth century. The swift advance of applied science which has already transformed industrial and military operations, transport and communications, is only now beginning to revolutionise medicine. The issues that this revolution are raising in medical training and practice are not those of the humanities versus science, a stale and outdated controversy, and not altogether those of specialisation versus a liberal education, but the much more profound problem of man and technology which is the modern version of the arts versus science conflict. The problems are perhaps seen at their most acute in medicine which is now becoming a scientific technology applicable to man himself, to his family, to his employment, to his social environment. They affect medical education and medical practice, the organisation of medical services, and they will provide particularly difficult governmental choices for the politicians and administrators in the next generation.

Science has infiltrated diagnostic and therapeutic medicine in the last forty years to an extent that has alarmed the traditionalists. The advances of medical sciences such as bacteriology and virology,

immunology and biochemistry, molecular biology and pharmacology have not only given medicine a scientific structure but they have transformed its practice. They have been accompanied by advances in technology, such as radiology, and the use of electronic devices and of radioisotopes which have added new dimensions to our diagnostic powers. The use of computers and of automation techniques is just beginning to drive medicine forward along unexplored and unimagined technological paths. What effect these new methods will have on diagnosis, on treatment and on the organisation of medical services is now being discovered. The pace of the advance is swift and if society ever decided to put as much money into medical research as it has done into space research there can be little doubt that in a generation or two we should be able to prevent most of the congenital abnormalities, to manipulate man's genetic endowment, to influence sex determination and to provide an appropriate environment for the development of desired intellectual and emotional qualities. We have the research workers available and the tools could be in their hands. Such prospects arouse alarm in most of us since we doubt whether man's psychological, sociological and moral progress will be sufficient to cope with these revolutionary biological advances if they come on us quickly. It is perhaps fortunate that the money going into biological research will not match the world's fortunes pouring into nuclear physics. It would be more reassuring if we could see that mankind was grappling with the population explosion as energetically as he embraces the scientific explosion.

How shall medicine which of all the technologies has a unique interest in the individual, retain its humanistic traditions while absorbing an ever increasing load of technological advances?

Sir Eric Ashby in his admirable study *Technology and the Academics* (Macmillan, 1958) has provided some guide lines for university educationalists, having regard to the invasion of the universities by departments of technology. He discusses the split personality in British universities. 'Round every Senate table', he writes, 'sit men for whom the word university stands for something unique and precious in European society; a leisurely and urbane attitude to scholarship, exemption from the obligation to use knowledge for practical ends, a sense of perspective which accompanies the broad horizon and the distant view, and opportunities to give undivided loyalty to the kingdom of the mind. At the same Senate table sit men for whom the university is an institution with urgent and essential obligations to modern society; a place to which society entrusts its most intelligent young people and from which it expects to receive its most highly trained citizens; a place which society

regards as the pace-maker for scientific research and technological progress'.

Ashby sees technology as the 'cement between science and humanism' in the universities and he defines technological humanism, taking his definition from Whitehead, as the habit of 'apprehending a technology in its completeness'. In illustration of this definition he gives, among other examples, this one from medicine. 'Chemotherapy and preventive medicine and contraceptives between them have enormously altered the pattern of family life. The next generation will inherit from us a surplus of elderly people. The situation sets problems which have given rise already to a new subject called gerontology. Now the problems of gerontology are not merely scientific; they involve some of the perennial issues of humanity – family affection, group loyalty and social justice. The practitioner in social medicine is a technologist: he cannot repudiate these involvements'. Ashby raises an important and difficult problem when he considers how these humanistic values can be introduced into higher technological education. He believes that this should not be attempted by giving the technologist a 'smattering of art and architecture' for this would simply perpetuate the specious antithesis between specialisation and a liberal education. 'The path to culture should be through a man's specialism, not by-passing it'. He would provide for the technologist studies which would give him an understanding of contemporary society. He states four criteria for such courses in modern humanities for technologists, of which the fourth criterion will raise the loudest hurrah: 'Humanities at this level should be instruments to enhance the individuality of students, to resist that levelling of differences in taste and personality, that tendency to increase social entropy, which is a melancholy consequence of the modern techniques of mass communication'.

Ashby has the temerity to give seven examples of courses in the modern humanities which would be appropriate for technologists. In considering his proposals some practical conclusions can be made. Technological training is primarily vocational and therefore even the less able students bring to their chosen subjects a higher degree of application and enthusiasm than can be expected from them in what will appear to them to be no more than paravocational education. The enthusiasm of students for such courses can only be elicited by teaching of unusual quality.

Teachers engaged in such courses are drawn away from their customary educational exercises and they will require an unusual understanding of the needs and objectives of the technological students. Moreover, there will be many practical difficulties in

planning such courses. Teachers of the right quality have to be found and teaching time has to be made available. Such interdepartmental courses add greatly to the teaching load in universities. These considerations do not mean that Ashby's recommendations are impracticable but they will require, not only a refashioning of curricula, but also a change of intellectual habits among university teachers. Such changes as he recommends are already beginning to be made.

Of the seven courses listed by him five would be appropriate for medical students – ethics, psychology, sociology and social anthropology, the history of the technology (medicine), and linguistics and communication. The difficulties of providing this humanistic education are well recognised in Faculties of Medicine but it is recognised, too, that the present time when the medical curriculum is being replanned in many schools is for medical education a moment of opportunity. The chief difficulty arises from the fact that medicine, like other technologies, has overcrowded its curriculum. With each advance in medical science new departments have been created and each has made additional demands on the students' time. The only way to cut back this exuberant growth is to ensure that, at each stage of the medical course, adequate elective time is provided for the student. The demands of the specialists are already so great that it is a fortunate medical school which can plan for its students that one third of their time should be given to electives.

Medicine has a special problem of its own, in that after the period of technological training and continuous with it, comes the period of training in the medical craft. It is now generally recognised that the old objective of producing a doctor who at qualification is a knowledgeable physician, a competent surgeon, a safe obstetrician, must be discarded, and that a shortened period of craft training must now be followed by a longer period of vocational training. What medicine regards as a problem would be regarded by all other university technologies as a magnificent opportunity. Nothing would do more to abate the present difficulties between industry and university technology if industry and the university had vocational training in their conjoint control, as the Health Service and the University do in the teaching hospitals.

The medical technologist has an advantage over other technologists in that, if he practises clinical medicine, he cannot isolate himself from the needs of the individual and to that extent his work must be informed by a humanistic outlook. This necessity has tended to encourage complacency in clinicians who have been insufficiently aware both of the needs of the individual patient as a member of a group (in the family, in his occupation and in his recreation) and of

their own responsibility to society.

The concept which has emerged from the old and unprofitable controversy between the arts and science in higher education is towards a planned training in humanistic technology. The need for this humanistic outlook in medical technology is illustrated by a consideration of the doctor as a personal physician, the doctor as investigator, the doctor as administrator and the doctor as an agent of society.

CULTURE AND MEDICAL PRACTICE

The Doctor as Personal Physician

The golden rules of conduct for the medical profession were stated in the Hippocratic Oath nearly 2500 years ago:

I will use treatment to help the sick according to my ability and judgment, but never with a view to injury and wrongdoing. Neither will I administer a poison to anybody when asked to do so, nor will I suggest such a course. Similarly I will not give to a woman a pessary to cause abortion. But I will keep pure and holy both my life and my art . . . Into whatsoever houses I enter, I will enter to help the sick, and I will abstain from all intentional wrongdoing and harm, especially from abusing the bodies of man or woman, bond or free. And whatsoever I shall see or hear in the course of my profession, as well as outside my profession in my intercourse with men, if it be what should not be published abroad, I will never divulge, holding such things to be holy secrets.

This oath enjoined on the physician secrecy, the avoidance of injury and bodily abuse, the withholding of poisons, the refusal to procure abortion and, in general, a high standard of personal and professional behaviour. This statement of professional ideals has set a standard of conduct which persists to this day. It has, however, been subject to considerable pressures which have been created by our social organisation and by the advance of medical science.

Poisons are administered daily by doctors although with good intent, yet through ignorance, inadvertence and negligence they may damage the patient so that a group of diseases have been created which are described as 'iatrogenic' – that is, caused by the physician. Abortions are commonly procured and although these are done to safeguard the mother's health and to prevent the birth of a child subject to intolerable physical and environmental disadvantages, as we think, we have travelled far from the Hippocratic injunction. Such operations exercise greatly the consciences of those who are called upon to perform them.

The injunction to professional secrecy is often broken and the avoidance of personal injury and assault is often denied in circumstances which appear justifiable to the physician. In fact, the doctor-patient relationship is threatened today in much more subtle ways than those that could formerly be met by giving a plain answer to

the simple question 'What is my duty to my patient?'

The standards enjoined by medical humanism are still the physician's guide in relation to his patient but he faces questions of professional conduct which are increasingly difficult for him.

The Doctor as Investigator

Medical research can no longer limit itself to animal experiment. Animal experiments will always be necessary but these are often today no more than the prelude to investigations in man. There is a considerable species difference in physiological and pathological reaction between man and animals, and these differences may be quite unexpected and surprising. Sometimes the least of man's animal kindred behave in a fashion strikingly similar to his own, and those who are nearest to him in development may react in remarkably different ways from himself. The fact that a given substance is harmless to animals is no guarantee that man will be similarly free of toxic reaction when it is administered to him. Experiments therefore have to be conducted directly on man. These experiments may be made, and frequently are, on the investigators themselves or on their colleagues in the laboratory or the hospital ward. Sometimes it is essential to conduct these experiments on patients who have committed themselves to the doctor's care for quite other reasons. The researches planned may extend our knowledge of human disease and its treatment and they may bring benefit to mankind, but they may bring no help to the particular individual on whom they are being conducted. The doctor's dilemma is apparent. His duty, on the one hand, is to his patient and, on the other, to the service of society by the advancement of medical science. The doctor has a professional and human duty to ensure that nothing he plans to do will inflict harm on his patient - 'never with a view to injury and wrongdoing'.

The ethical issues involved are seen at the simplest and most explicit in the clinical trials of new drugs. These drugs are being rapidly produced by the pharmaceutical industry and as many as fifty or sixty a year may come up for clinical trial. They have all been subject to close scrutiny by the Government *Committee on Safety of Drugs* and they have all been tested by animal experiment. The new drug may offer no more than marginal advantages over the drug it is seeking to displace in the treatment of disease. These marginal advantages can only be assessed by conducting what are known as 'double blind trials' in which neither the doctor who is caring for the patient nor the patient himself knows which of two treatments he is being given. This is necessary so that there can be no bias exercised by the doctor in the selection of patients and no

bias exercised either by doctor or patient in the interpretation of the results of the treatment. Even though the patient has been informed of the fact that he is entering a trial of this kind there is obviously some abrogation of the traditional doctor-patient relationship. The doctor's duty to his patient is safe-guarded by the permission to withdraw his patient from the trial if he sees any reason to do so.

By such trials as these the benefit, or the lack of advantage, of any new drug may be demonstrated. Short term toxic effects may be observed. Such toxic effects may be thought to be justifiable, having regard to the seriousness of the disease which is being treated. Long term toxic effects may be observed at some time after the drug has been withheld. These trials and these precautions are necessary because they replace the haphazard administration to our patients of these powerful agents. The thalidomide disaster has reinforced the arguments for these trials and has convinced mankind of their necessity. Sir Derrick Dunlop, who is Chairman of the Committee on Safety of Drugs has written 'I believe that a code of ethics and humanity has through the ages been built into the medical profession and that clinical trials in this country have been conducted with a very high degree of prudence and caution . . . The ultimate judge of what is justifiable is not a rigid code of ethics but the conscience of the doctor which should be a tender one'.

The experiments conducted by doctors and patients are not always of this nature. The essential requirements of any experiments are that they should not cause harm and suffering to the patient and that his permission for their conduct must be given.

If medicine ceased to be a humanistic technology and if doctors, in any aspects of patient care ever allowed their first consideration for man to be overthrown by the claims of medical science a dangerous situation would have developed. The terms of the Hippocratic oath are outmoded but not the humanism that inspired it.

The Doctor as Administrator

The doctor as administrator is involved in many acute human problems. In emerging countries a paradoxical situation has developed. Teaching hospitals of the American and European type have been founded and these are expensive both of money and of medical personnel. Hospitals save relatively few lives and many of these lives are in the older age groups. Hygienic and preventive measures applied to the population save more lives and ensure a healthier citizenship. Such diseases as gastroenteritis in infancy, kwashiorkor, measles and malaria – and these are all great killers

in tropical and sub-tropical countries – could be prevented by the application of money and of men and women to these vast problems of public health. The staffs of the teaching hospitals ask for financial support which will give them an attractive prestige in the medical schools of other countries. Yet the administrators have to make the hard decision that the many must be saved at the expense of the few.

These same problems in the priority of medical care lie with us at home though they are seldom stated and we tend to resolve them by the refusal of public discussion. The necessary lesson which all administrators must learn is that there is only a limited amount of money available and if more is spent for one purpose there is less for another. In affluent countries all the latest techniques for the prolongation of life will be procurable by the rich but in countries less affluent and whose medical care is provided by the State the decisions as to priority of medical care tend to go by default. The Boards of Governors of Teaching Hospitals and the Regional Hospital Boards have an annual allotted budget and if they decide that some expensive diagnosis or treatment must be provided for their patients this has to be found within their annual allocation. More money for one purpose means less for another. 'Choose' as T. S. Eliot said, 'is the rule of life'. These decisions are harsh because what are essentially economic questions have to be answered in terms of human values.

Yet the deeper issues cannot be decided on economic grounds alone. Our civilization is committed, as is the medical profession, to the care of the mentally subnormal, the physically unfit and the aged. Most of us are happier to be living in a country which has decided to spend some of its income on these responsibilities even though this does not allow a surplus to be used for space research.

Medicine has the duty, as a humanistic technology, of insisting on the care of those unfortunates who have no or little value, in economic terms, for the community.

The Doctor as an Agent of Society

The first breach made by society in the doctor-patient relationship was caused by the judiciary which insisted that the doctor witness could be compelled to reveal in a court of law some fact which might be disadvantageous to his patient. The injunction laid on physicians by the Hippocratic oath had to be put aside and what should have been kept secret stood revealed. The claims of Society were thus seen to be more important than professional attitudes. Any doctor who has engaged in clinical practice over many years will recall occasions when his social conscience has triumphed over his professional conscience. Though the doctor's duty to his patient has still to be his first consideration, the doctor as a citizen has

responsibilities which transcend this relationship. A rapidly changing environment both for doctors and patients will produce many situations in the future which will call in question these traditional attitudes.

The doctors who in the prison camps of Hitler's Germany allowed themselves to forget their duty to man in their timid submission to the demands of the State are agreed to have acted reprehensibly. Their moral and professional codes were inadequate to resist the social pressures to which they were exposed. These were extreme examples but it would be naive of the medical profession to imagine that never again would the State make intolerable demands on doctors and that never again would our weaker brethren give way to them. At the Commonwealth and Empire Law Conference in Sydney the Chief Justice of the Supreme Court of Pakistan suggested on 27 August, 1965, that criminals should be punished by surgical disablement of a whole limb. 'Medical science', he said 'having advanced so greatly, it should be possible to deprive a criminal of the use of a hand or whole limb by a small piece of surgery'. Indeed it could be argued that this surgical crippling of the criminal is but a short step from the castration, or the treatment by female hormones, of the male sexual offender. Such crude assaults on the individual may be easy to recognize and resist but future social pressures will provide more subtle tests for professional consciences. I think that the opposition of some gynaecologists to the liberalization of the abortion law, which they might agree was desirable on other grounds, lies in their recognition of the professional difficulties which may be created for them. An operation which has been justified by law and is demanded by the patient as of right will be difficult to refuse on personal grounds.

The subject of euthanasia, which has temporarily ceased to be a subject of debate on account of the legal difficulties connected with it, will one day present another problem for the medical profession. Meanwhile the doctor's daily dilemma remains of whether to prolong life or to mitigate suffering, 'when', as Sir Geoffrey Vickers has written, 'these last two goals intolerably conflict, as they so often do'. This clinical problem, common in the degenerative years, presents itself in a particularly painful form in the healthy child who having entered an episodic illness emerges from it with life preserved but with a brain irretrievably damaged.

Sir Theodore Fox in the Harveian Oration for 1965 in the Royal College of Physicians of London said, 'To doctors, we are told the preservation of life must always come first . . . The rule is a general one made by society; but the practising doctor primarily serves the individual. And to follow society's rule blindly is sometimes to

betray the individual . . . And, clearly, this is a good rule; for countless patients and their relatives have been heartened by believing that, whatever the odds, their doctor will go on striving to help them. But unhappily there are also patients and relatives whom this rule condemns to needless suffering . . . I cannot think myself that human societies should compel a dying citizen to suffer for the sake of others; or if they do so compel, the medical profession should not abet them'.

The increasing opportunities for therapeutic intervention which the advances of psychiatry have provided for psychiatrists seem likely to offer them many ethical problems. The manipulation of man's personality and behaviour by psychiatric means is rapidly advancing. The great range of pharmaceutical agents now available and the conditioning and deconditioning experiments increasingly practised have notably enhanced the preventive and therapeutic powers of psychiatrists. We have travelled a long way from the days when the operation of leucotomy was regarded by some sensitive psychiatrists as an intolerable assault on human personality. There will be no moral dilemma when the psychiatrist can convince himself that these procedures are in the interest of his patient, and none when the interests of the group (the family) or of society are coincidental. The problem will be less easy for him to resolve when these interventions are demanded by the group or society, as they increasingly will be, and he may not see them in the best interests of his patient. The doctors in an increasingly complex society will be given the task of conditioning citizens to a regulated and conforming neutrality. Sir Geoffrey Vickers has discussed the training and function of a new race of psycho-social doctors, half psychiatrist and half general practitioner. These psycho-social doctors seem to be cast for a major role as we move into the world of 1984. I fortify myself with the notion that no doctors are better fitted to handle this complex situation than are psychiatrists and none is more likely to be the guardian of the human spirit and the apostle of humanism.

MEDICINE AND CULTURE

by Sir Aubrey Lewis

THE INTERPLAY between medicine and culture is close and mutual – nowhere more so than in the psychiatric branch of medicine. Psychoanalysis illustrates this in the twentieth century, as psychic epidemics and witchhunts did in the Middle Ages. In current psychopathology the effort to distinguish between pathogenic influences which determine disease and pathoplastic influences which shape it and give it content bears witness to the causative role assigned to culture as it impinges on the individual. The difficulty of distinguishing between the biological and the cultural determinants in a given case is reflected in the alternative forms of treatment and prevention that may be deployed.

Culture influences, if it does not wholly determine, what will be regarded as illness. The concepts of health and illness are ill-defined, in whatever society they are inspected, but pain and disability are commonly recognised as indicators of a threatening change. Some mental disorders come readily into this category because their symptoms mimic physical disease: hysteria is the outstanding example. But those forms of mental disorder which are recognised through abnormal behaviour alone are in varying degrees repudiated as indicators of disease, or admitted with reservations. In our own culture this is crudely obvious in the case of psychopaths who infringe the social code: and less crudely in the divided opinions about eccentric deviants, mystics, and 'maladjusted' adolescents. Some would classify such people as ill because their functions are impaired, in ways that are or can be the outcome of physical changes in the body, while others would classify them as socially deviant but healthy by strictly medical criteria (which they equate with the criteria of physical disease). Religious and moral trends in the subculture affect this standpoint: thus the views of Heinroth in the Saxony of 1817 were widely supported, those of Szasz in the United States of 1960 are not: Heinroth's views, though violently contested, had cultural roots, Szasz's seem an individual vagary.

The expectations which a society has of the scope of medicine and its powers in dealing with psychiatric problems, are correspondingly diverse. Is the doctor the right person to deal with the behaviour of sexual perverts, or with drug addiction, or indeed

with any disorder of conduct in adults, adolescents, and children? Changes in the attitudes adopted by various sections of society towards such questions are now rapid: and these attitudes determine whether people with difficulties of conduct will go to the doctor, or be referred to him by a court, or will expect a particular kind of treatment (as by drugs, or by surgical intervention, or psychoanalysis).

In other cultures, mental disorders of an obvious kind, such as gross psychoses, are still dealt with by minatory and punitive methods, as they once were in our society, or by rituals manifestly expressive of the way of life and persisting ideas and value-systems of the society in question. These may, as was the case in temple incubation and the Asclepian cult, reflect a highly organised and integral part of the culture, or may be an empirically regulated suggestive procedure, carried out by a professional group, now often called 'native healers', who stand midway between the sorcerer and the psychotherapist.

Conversely the expectations current in a particular culture may generate and shape pathological phenomena, like those of 'grande hystérie' which made Charcot's clinics at the Salpêtrière famous, or on another level like those of the great religious revivals (Kentucky 1800; Jansenist convulsionnaires; Flagellants). It has lately been suggested that duly viewed in their cultural setting, these phenomena, however bizarre and like those of familiar mental disorders, are not necessarily pathological, since they conform to modes of conduct accepted by a minority, at any rate, as appropriate in the circumstances, and can be regarded as social devices for generating the great effort needed to effect changes. The argument is not convincing, but it is plain that highly abnormal behaviour, like that of the Salem community in 1690, can be favoured and evoked by a given culture; the closer it conforms to the expected pattern, the more rapidly and widely will it spread among previously and subsequently normal people.

The culture will greatly influence prevailing notions about the causes of mental illness. In many societies, if not most, animistic ideas on this score have been the rule. Possession by spirits of one sort or another has been the simple or complex etiology which has justified a remarkable variety of treatments and cruelties. In advanced subcultures the current medical and scientific views on causation are generally held, though the large areas of ignorance and doubt in these leave room for much divergence of opinion in even the most sophisticated. But there are many gradations between such sophisticates and simple people who look to a supernatural cause.

Regrettably, the sophisticated views about etiology seem more often associated with unwarranted assumptions about the medical

role than with due appraisal of medical limits: 'one of the most curious results of the twentieth century growth of the social and psychological sciences has been the tendency to reduce all the traditional defects in the texture of human life to the status of diseases treatable by physicians. Just about all the seven deadly sins can now be explained on the basis of physiological or psychological disturbances of genetic or environmental origin . . . [The doctor] should know the limits of his competence; he is not all things to all men; he is not some sort of God on whom all burdens can be laid.' Robert Morison's plain words were addressed to an American audience but they apply elsewhere too, in cultures that scarcely regard the doctor as 'some sort of God' but put upon him many of the responsibilities once thrown on the priest and expect from him some of the miracles worked by the saints. He is credited with having unravelled much of the mystery of the causes of behaviour. Hence their trust in his therapeutic powers.

The introduction of preventive and therapeutic measures to control infection may depend for its success on alteration of the prevailing notions of causation in the given culture. New Guinea provides a clear example. Great changes have been effected in their way of life and beliefs, they have given up their warlike expeditions, ceased to strangle widows, and generally effected a drastic readjustment. But they oppose or disregard the regulations designed to prevent the spread of infectious diseases because they remain convinced that sickness is the consequence of supernatural forces deployed by sorcerers or spirits, and requiring to be combated by ritual procedures rather than by care in disposal of corpses and the use of latrines. Similarly pathological examination of specimens of faeces and other bodily excreta or fluids may be greatly hampered because of fears concerning harmful magic that might be practised through them.

Since mental disorder may be the outcome of infection, psychiatric services are hampered by these cultural effects. The psychiatrist's therapeutic activities may, however, fit readily into the belief-system of an otherwise medically awkward society: thus electrical convulsive therapy may be construed as a piece of ritual counter-magic.

Ayurvedic medicine is close to some systems of psychopathology and psychotherapy current in Western Europe, and presents similar obstacles to any attempt to evaluate or refute it. It is likely to survive longer because it springs from an ancient and established culture, and is buttressed by national pride and policy. Similar considerations possibly apply to acupuncture.

It is an open question how far the psychopathological system put forward by Freud derives from the study of culturally determined

behaviour which he mistakenly took to be the expression of unalterable biological trends. Freud assumed that the people he observed were typical specimens of universal human nature, and therefore the attitudes of Victorian (Viennese) Society were believed to characterize human nature in general. The neo-Freudian acceptance of this view has not been accompanied with a corresponding systematic dissection of the culturally determined from the universal psychological attributes, though isolated tenets like the Oedipus complex are shifted from the latter to the former, in the light of anthropological findings.

It has been urged that culture and personality are essentially two aspects of a single phenomenon, and 'basic personality types' have been postulated for different cultures. The faulty assumptions in this have been pointed out by Leighton and others. Prominent among them is the dogma that the cultural influences under which a child is brought up during his earliest years are the chief determinants of his personality and of any pathological traits and symptoms he may develop. It is, however, evident that at all stages of life the pressures of the culture can mould the manifestations of mental illness, e.g. the effects upon mental health of moral opprobrium and the sanctions it entails.

The attitudes to such conditions as venereal disease or leprosy hover between the medical and the moral. The same is true of some neurotic illness and psychopathic personality. It is emblematic that for a century 'moral insanity' was a legitimate diagnostic term, consonant with the culture of Victorian England though, as Maudsley put it, 'this is a form of mental alienation which has so much the look of vice or crime that many persons regard it as an unfounded medical invention'.

In past centuries in Western countries, and still in many Asiatic and African countries, the mentally ill are quartered in the same places of detention as criminals. Foucault has analysed the cultural attitudes which in France determined this association from the days when leprosaria were turned over to the housing of society's outcasts, until the ideas of the Enlightenment and the Revolution led to the emancipation of slaves, the more humane treatment of prisoners, and the classification of the mentally sick with the physically sick, as objects of compassion and medical effort. Pinel in France, Chiarugi in Italy, Tuke and later Gardiner Hill in England were the voices and agents of a changing cultural approach.

The rapidity of change in culture where sexual taboos are concerned has not been demonstrated as yet to have an effect for good or ill upon the frequency, types, or course of mental disorder, though pronouncements are often made about it. The legal and

administrative measures taken in different countries, however, clearly attest the changing attitude towards restriction, and social betterment. In Great Britain the permissive Mental Health Act of 1959 followed the report of the Royal Commission of 1957 which declared that 'in our view, as in the view of almost all our witnesses, individual people who need care because of mental disorder should be able to receive it as far as possible with no more restriction of liberty or legal formality than is applied to people who need care because of other types of illness, disability, or social and economic difficulty' and 'the recommendations of our witnesses were generally in favour of a shift of emphasis from hospital care to community care . . . we believe that the increasing public sympathy towards mentally disordered patients will result in a higher degree of tolerance'. Subsequent experience has confirmed this, in essentials, and similar developments are occurring in U.S.A. and other countries.

The assimilation of mental health services into the National Health Service in Great Britain has partly sprung from, and partly intensified, the cultural attitudes just referred to. It has had an effect upon the quality and number of those doctors who embrace psychiatry as their specialty, and has particularly averted the division of the psychiatrists into those who are chiefly occupied with psychotherapy carried out in private practice, and those who staff the public hospitals and extramural services for the psychiatrically ill.

That section of the mental health services which is devoted to the disabilities of the elderly has likewise been given much more attention, now that the changing age structure of the population and socio-medical concern with chronic disorders has led to a different attitude on the part of those who carry out public policy. The number of those who engage in para-medical work – sometimes called 'the helping professions' – has rapidly increased, in keeping with the change in cultural attitudes; nevertheless they are fewer than the demand for them.

There is a shortage of doctors in the developing countries of Africa and Asia, which can be partly remedied by recruiting suitable men and women and sending them overseas for training until the country is able itself to afford the required academic and clinical facilities. In present circumstances, it is not uncommon for these postgraduate students to be given precisely the same training as the doctors of the host country receive. No adjustment in the educational curriculum is made to prepare them for the conditions peculiar to their own country which they will encounter on their return home. So far as this rests on an educational programme wide and deep enough to equip them for a variety of national and cultural settings,

it is hardly to be decried. But in some instances it cannot be regarded as an ideal preparation for coping with the psychiatric needs of a population very different from that in which they are being trained. Their knowledge of its culture may be firsthand, but instruction in matters of health education, epidemiological inquiry, and adjustment to cultural change is requisite but difficult to provide, and seldom provided.

It is generally conceded that rapid cultural change, collision between cultures, racial discrimination, membership of a minority group, impersonal alienation, loneliness and other features of modern societies can act as stresses. There are grounds for concluding that the total amount of illness attributable to such stresses has not changed in the last century and a half (in spite of many impressions to the contrary); there are also grounds for speculating whether some forms of mental disorder that have changed in their incidence and phenomena, have done so because of fluctuation in the social stresses at work in a given community. Hysteria and general paralysis (neurosyphilis) are examples. It is impossible to relate the incidence of these, any more than, say, of coronary disease, to the stresses which each culture imposes over a period of time. Suicide offers a more cogent example of the variations in incidence in diverse cultures, and under varying stresses in the same culture.

Besides the effects of culture on disease discussed so far, there are the effects of disease upon culture. The composition, size and health of a population – especially its mental health – will affect its collective way of life. The eradication of diseases such as malaria, tuberculosis, smallpox, or malnutrition, can have a profound influence on the culture, with rapid urbanisation, industrial development and perhaps competitive affluence coming in the wake of the medical reforms. No similar triumphs or toxic side-effects can be demonstrated in the case of mental disease, except where it is symptomatic of a treatable or preventable physical condition like trypanosomiasis.

Medical opinion on psychiatric matters can, however, modify the general attitude towards such problems as contraception, the termination of pregnancy for psychiatric reasons, and the effectiveness of various sorts of psychological treatment. There is some evidence that psychoanalysis has had a broad cultural effect; the public attitude to homosexuality may be an example.

The most conspicuous instance of the impact of psychiatric opinion upon a cultural issue is afforded by criminal responsibility. The judges gave their view in the McNaghten rulings, and the general public had no quarrel with them. As time has gone on the lawyers have given some ground but always under strong medical

pressure; and the force of public opinion which led to acceptance of the plea of 'limited responsibility' in England would seem to have been mobilized by the strength of psychiatric conviction on the matter.

Some ill-effects upon the culture can be laid at the door of psychopharmacologists (among whom psychiatrists may be numbered). The introduction of drugs with temporary but dramatic action on perception and identity, such as lysergic acid diethylamide, mescaline, psilocybin and amphetamine, was the work of pharmacologists and chemists, but their utilisation in treatment by psychiatrists familiarized their vogue, which in small sections of society has been apparently harmful. It is significant that mescaline and lysergic acid were used as cult drugs in Mexico by the indigenous population. The potential effect of drugs that powerfully affect behaviour is an alarming subject for speculation.

More conjectural is the effect of medical propaganda against obesity. There is evidence that anorexia nervosa (persistent disinclination to eat) is on the increase: many of the young women who suffer from it started 'slimming', allegedly in response to this propaganda, and then found they could not keep their abstinence within bounds or conquer the aversion for food that they had developed. It may be, however, that other than medical influences were at work in the widespread warnings against overweight.

If, as seems not improbable, we shall presently have drugs which greatly lessen the continuance and severity of schizophrenia and other mental disorders, or if biochemical advances were to enable us to scotch such disorders at their birth, the effect upon society might be considerable, since the inroads these illnesses now make upon our productive capacity, our skilled professions, and our collective happiness are monstrous. Scientific advances often follow on technological advances, and in turn make further technological advances possible; and so on in an unpredictable sequence. The process need not stop there. Psychiatric advances can follow on advances in other scientific fields; and it is not fanciful to picture cultural changes – for the better – following on psychiatric progress, as it would on other medical discoveries.

DISCUSSION

CHAIRMAN: Sir George Pickering is called upon.

PICKERING: I am concerned with education as an instrument – in fact the sale of instruments by which a society can ensure that it is adapted to its environment. There are two forms of inheritance: One is genetic, and you inherit a pattern of chromosomes which determines what colour your eyes are and other characteristics. There is another sort of inheritance which is quite different. It is the inheritance of acquired behaviour, and it is this acquired behaviour that has knowledge, ideas, and beliefs which have created these highly sophisticated, highly differentiated, and – in their time – successful social organizations that we call civilizations. This acquisition of behaviour as a result of experience we call learning, and it is the function of education to accelerate and direct learning. Now, the idea of the survival of the fittest and adaptation to environment came of course from the work of Malthus, and it was reading Malthus that inspired Darwin and Wallace to their great new concept about Evolution by natural selection. This concept of the struggle for existence, the survival of the fittest and adaptation to environment has been immensely profitable when applied to individual animals but it can also be applied to societies and human institutions, and there what appears to be the important thing is not the genetic inheritance but the inheritance of culture, the inheritance of acquired behaviour. So we come to what I think is a central idea, that it is one of the functions of an educational system to ensure that the young of the next generation are equipped with the learning which they are going to need for the problems that can be foreseen. And in our present age the two great problems are what one might call short-term competence and long-term competence. Short-term competence depends on scientific, technological, and managerial competence, which brings wealth, the most powerful and destructive engines of war, as well as higher standards of living, increasing opportunities for leisure, etc. Long-term competence depends on something else – it depends particularly on the morale of a Society and its cohesion and whether it solves the dilemma of 'Ends versus Means'. I would say that this is the great reason for the humanities in Education, that the great thinkers of the past have been concerned in what we are trying to accomplish and they have much to teach us. I think that no society which is interested in its long-term survival can afford to neglect this. The most extraordinary thing is that this approach never seems to have been made to our educational system in Britain, and as I have said before, if it has been designed at all, the dispassionate observer can only conclude that its purpose has

been to ensure that the next generation is *not* equipped to deal with the problems of today or tomorrow. If I may just mention two of the most extraordinary features of our educational system, the first is that alone, as far as I know, amongst the nations of this part of the world we practically insist that our intelligent boys and girls should choose between the arts and sciences at about the age of fourteen, and that at about the age of fifteen or sixteen they abandon one or the other for life. As Eric Ashby put it, the person who has taken Greats at Oxford, and this, as you know, is the great idol of the Civil Service, the members of Parliament and the Cabinet Ministers, has received one of the most specialized kinds of education in the world and he knows nothing about matters to which Newton and Rutherford and Einstein devoted their lives. The second thing is that, as you know, we have suffered a series of financial crises since the last war, and the reason for this is that our business and industry does not make enough money; it is as simple as that. What are we doing to recruit and educate and train really able people to these professions? The answer is, nothing. One hundred and fifty years ago most physicians were trained by apprenticeship; now it is left entirely in the hands of the universities. The people who go into business have to be educated by apprenticeship, because the universities have made no provision for them at all. Not only that, they think they shouldn't, and the reason for this is the concept of a liberal education which is a transmogrification of Plato and Aristotle. It is the concept of the liberal education that is the special characteristic of a university and a gentleman. Making things and selling things, as those who read Miss Austen's novels will know, to engage in trade, means that you are a member of the lower classes. Well, the fact that technical know-how is in such low regard by the university establishment and there is no university education in business means, of course, that these professions attract our least able boys. I want to contrast this with Medicine, because I think that Medicine is the only education in this country which is really designed for its purpose, and this is partly because Medicine was very fortunate in being one of the ancient learned professions and being a constituent part of the medieval university. The three learned professions were Church, Law and Medicine, and Medicine happened to be the spearhead from which practically the whole of Science developed. I think I reminded you in my paper that Copernicus and Galileo both started in Medicine. So therefore Medicine has this great advantage of being one of the ancient learned professions, particularly one which helped to develop our Science. The reason, I think, why Medical Education has been so good, is because it has had a Body outside the University and outside the Ministry, called the General Medical Council, of which

Lord Cohen is the President, and this Body has been concerned with the education of physicians. It has always opposed early specialization. It has changed its regulations as the situation changed, so that it was instrumental in abandoning the idea that a man was fitted to practise medicine, surgery and midwifery the moment he passed his final examination, and so was started the business of graduate and postgraduate education. It is generally accepted in this country that a man needs a specialized training even though he plans to go into general practice, and this is going to take a number of years after he is qualified, and he must have facilities for remaining up-to-date throughout his professional life. So in the old profession of Medicine, it seems to me the general idea, and I think the standard, of our Education is right. But in contrast to this, for the new professions, we have done nothing, and that is why as a nation we are in this state of economic bankruptcy. Therefore I think Medicine has been rather important.

HUBBLE: I am very glad to provide an epilogue to Pickering, but my mind is much too full of everything he has said to think of what I have written. There is only one thing that Sir George has said with which in fact I do agree – and that is that English Education took bad ways when it allowed children to separate between the Arts and the Sciences. I am sure that most of you who have thought about this are agreed that this was a major error which has affected English higher education to what is a calamitous degree. I am afraid that this dichotomy has affected medical students and technological students just as much as it has those who have taken Greats at Oxford – those that George Pickering was talking about. To my mind the lack of culture (with a small 'c'), the lack of knowledge, the lack of humanities, the lack of development of a humanistic outlook greatly depends in medical students and in the technologists on the fact that they have separated into one of these two grades in the middle of their school career. I believe very enthusiastically with George Pickering's point about this. But I don't agree with him when he said that he regards Medicine as a model for the other technologies. I don't, and I don't believe really that he does himself. I think when you study the plan which George Pickering has made for the new medical school at Nottingham University, you will agree that this is *not* the plan of a man who thinks that the education of doctors in this country is satisfactory. The second thing I would like to say is: If you remember George Pickering's paper, he defended himself against what he obviously thought would be a criticism, by the fact that he had great experience, he had been a graduate of Cambridge, and he is a professor at Oxford, and he was a member of the University Grants Committee, etc. But I think that is exactly

the trouble: he knows absolutely nothing about a 'red brick university'. He does not understand that there are professors of Engineering and have been for many generations. What Sir George Pickering has been saying to you this afternoon has been said much better by Matthew Arnold and Thomas Henry Huxley. Am I being abusive? But I differ very strongly from him, because I think he is not saying what I would wish our American colleagues, for example, to believe. It is nonsense to say that gentlemen do not occupy themselves with Trade in this country. In a few days' time we are going to celebrate the bicentenary of the Lunar Society in Birmingham, and the Lunar Society had amongst its prominent members not only doctors like William Withering and Erasmus Darwin but also great industrial technologists like Matthew Boulton and Josiah Wedgwood, who lived in great style, like gentlemen, and trade and industry have been accepted as occupations for gentlemen in this country for two hundred years or more. If the University of Oxford still does not regard industry and management as a suitable subject for a university interest, then so much the worse for the University of Oxford. But this is not true of the University of Birmingham, nor the University of Liverpool, and it is not true of England. I do not believe that George Pickering is right when he says that our troubles today stem from the failure of our technologists in industry to understand culture. I have talked a lot to engineers about this sort of thing, and I find them just as keen on developing a humanistic approach in their profession as the doctors are in theirs. In fact, I don't see this as different from the medical problem. Perhaps it *is* different, but only in degree. The man who builds the bridge needs to know about the people for whom he is building the bridge (those who will be walking over it) just as much as the doctor needs to know about the ways of life of his patients. I see this as a humanistic problem in all technologies, including medicine. Dr. Galdston this morning recommended one book, and I would recommend just one book, too, as compulsive, and I would wish compulsory reading for this gathering, and that book is Eric Ashby's 'Technology and the Academics'. Most of you have read it, I am sure, but I hadn't read it myself until a year or two ago, and the impression of this book still remains with me. Now, it seems to me that it doesn't quite say what Professor Polanyi was saying this morning. Eric Ashby was assuming, I think, that you could develop a humanistic outlook in the engineer, the brewer and the doctor, by building in special courses for him and persuading him to attend them. From what I think Professor Polanyi was saying this morning, he believes that this really is done by walking about the streets, by looking at book-shops and going to theatres and galleries, and it is very difficult to do this in a university

course. During lunch, Lord Cohen was saying to Michael Polanyi that he hoped that in the afternoon Professor Polanyi would tell us where the universities are breaking apart, where they are falling down. This was one of the most striking things which was said this morning and it seemed to me that it got universal acceptance, and yet it was a new idea to me. I didn't see any sign of protest, and I would just like to know (if we have time) what was the reason for this.

CHAIRMAN: Thank you Professor Hubble. Now, Sir Aubrey Lewis.

LEWIS: J. C. Prichard in 1935 described a condition which he called Moral Insanity. This was a departure from the categories and terms then used and was sharply questioned. Intended to cover morbid perversions of the emotions and eccentric or violent behaviour, it came to be just a medical name for anti-social behaviour. It was later known as 'moral defect' and then changed to 'psychopathic personality'. Prichard's concept raised the general issue: could moral obliquities, not accompanied by the customary symptoms of mental disorder such as delusions and hallucinations, be properly regarded as subjects of medical concern? He maintained that they could. This came shortly after the mental hospital and prison reforms, the emancipation of slaves, and other humanitarian movements of the late eighteenth century, with their strong religious overtones.

About the same time, Heinroth, the most eminent psychiatrist of his day in Germany, was insisting that mental disorder was a form of sin and should be dealt with as such. The nearest parallel in somatic medicine is venereal disease. As Foucault has pointed out, leprosy once occupied this position, hovering between depravity, social menace, and personal misfortune.

Social and cultural influences have been potent in determining changes in the shape rather than in the incidence of mental illness. They are closely related to attitudes towards mental abnormality and consequent measures of segregation, alienation, or treatment. Thus, children who are naughty, or adolescents who take drugs are in one country dealt with on moral and punitive lines, whereas in another they are referred to a psychiatrist for treatment.

There is one specialised aspect I should like to refer to – the training of graduate doctors who will practise in emergent countries. At present they are often sent abroad to study, and they come to countries like the United States, England, Germany, and Russia. There they are fitted into existing courses and programmes. In this country, for example, they are trained just as Englishmen are, and after they have passed the required examinations they return to social conditions significantly different from those we have in Britain. They are not well fitted to cope with the setting in which their professional work will have to be done (though of course there

are some brilliant exceptions). Radical adjustment of the curriculum is called for, with emphasis on cultural factors, and this would apply with equal force when they receive their postgraduate training in their own country.

CHAIRMAN: Thank you, Sir Aubrey.

THEODORIDES: I don't completely agree with Sir George's statement that when a civilization has ceased to be creative it decays and dies. It seems to me that many other factors such as the economic situation or ethnic pressures seem to play a very important role in this decay. Let us take, for example, the Byzantine civilization which, even after its annihilation by the Turks, was maintained in the Greek religious and artistic tradition and was continued in Italy by Byzantine humanists who went there as refugees, carrying the torch of Hellenism. I think we could reverse the affirmation and say that when a civilization decays it seems to become less creative. What do you think?

POLANYI: I just want to return to what was said about universities – that they would do much better, from the point of view of the community, if they had schools of business administration and more effective teaching of technology. I think that the teaching of engineering was very badly organized thirty years ago. But I would like to say that there are limits to the possibility which you can pursue in a university in this respect, because in universities you cannot really teach people to make money. You can teach them some general principles of administration, but certainly not how to make money. Things are rather similar in the teaching of technology. In the teaching of technology you can sometimes use systematic branches like aerodynamics or the like, which are a theoretical pursuit; and you can give information, undoubtedly valuable information, about some aspects of industry. But on the whole what people know about these things in a university is not very much, or else it is out-of-date. It is very much the same situation you would have if you were trying to teach Medicine without having a Clinic. You can't have a business in the university. I think that on the whole you must limit yourself to the general introduction to these subjects and leave the precise development of the student to the faculty life. I think one can also see this disparity between the university and the back-room experience. No inventions are made in universities. This is not because there is no chance of making an invention, but because they don't know what it is to invent. Invention is the response to very complex situations, to available resources and the possibilities which can ensue from this situation. I don't think one can do this in the university. So I think that one can easily overestimate what universities can do in raising the material standard of the country.

May I just say, this is a small matter, but I am sure that the national crisis is not due to business not making enough money. There are many poor countries which have no financial crisis and make very little money. This really depends on other things.

PICKERING: May I agree and disagree with Professor Polanyi? To take the last point first. This depends not only on your income but your expenditure. This would be a complicated business, but at any rate we have large so-called defence commitments overseas, which are a matter of national policy. But surely, isn't it true that as, for example, contrasted with the United States, the building of up-to-date roads, the provision of new hospitals and schools and so on, and the supply of money for universities is at least related to the very advanced and efficient technology and business in the United States. As regards teaching business, I absolutely agree with nearly everything you said, but I would interpret it differently; you see, obviously you can't teach medicine without a patient, and a patient means a hospital and for a long time hospitals were quite separate from the universities, and I think business must always remain separate from the universities. But I would have thought that the parallel would be that if you are going to practise business you need certain bodies of knowledge to enable you to practise intelligently and make the greatest use of this knowledge. You would have to know engineering, and physics or mathematics would be an advantage. I think one ought to know a good deal about commercial law; I would have thought one ought to know quite a lot about the histories of the guilds and trade unions, and commercial relations. I would have thought one ought to know something of the social sciences, and I would want to know, if I were going into business, something about economics, and finance, and I would also like to know something about the history of banking. That to my mind would be exactly the same as what is laid down for the practice of medicine. There you have to know some general science first; then you have to receive theoretical and practical instruction in anatomy, physiology, pharmacology, pathology, and microbiology, before you start working with patients. It seems to me the analogy is very close, and I don't see how universities can say justifiably to the people of this country: 'This is none of our business and we will pass it by'. They don't in the United States, do they?

CHAIRMAN: It is true, isn't it, that in the provincial universities they had engineering faculties almost since their birth, and this is a period of between 60 and 70 years ago; and the University of Cambridge had a very distinguished school of Mechanical Sciences. Even in Oxford, I saw a huge building being erected which is to be devoted to engineering. It is true to say, though, that some of the

ancient universities, not only here, but elsewhere, have regarded these subjects as not too gentlemanly; but they will eventually realize that their present stability depends upon the funds they receive. They have, and they will, learn just as other universities have. Many universities in this country, certainly Liverpool, and two others I know are developing institutes of business management; Manchester University has a Department of Drama and so has Bristol. I think these things are developing and I believe the universities are widening in this respect. Once they thought they should do nothing which required the use of hands; they now realize that the use of hands and the use of brains may go together.

GALDSTON: I would like to shift the centre of the discussion a little. I would like to discuss the central problem in Medical Education today. There are some embarrassing questions which have troubled me a great deal, namely, Who really does the teaching? Not an easy question for a Professor of Medicine to answer, but Who is it? What qualifies him to become a teacher? How *does* he become a teacher? After that, I am very much interested in knowing, Who governs the content of the curriculum? I will approach this from the viewpoint of a so-called medical historian. We have been discussing universities, and we all agree that in the universities Medical Education has a very moot role. The common impression is that Medicine does not thrive in the universities. If you read the history of the universities, you will find that their medical faculties are grossly inferior. My university – The University of Indiana – had to abandon its Medical School for some time. We credit our great medical men as coming from great 'Medical universities' – especially Padua and Leyden. But they weren't great *Medical* universities. One was famous for anatomy, and the other for surgery, but when it comes to Medicine, there *is* no great university. In fact, I would submit, with the advent of universities, and the take-over of the organization of the universities by the Pope and by the great kings, the rights one had, such as the right to teach where you wanted and *how* were seriously abridged and thereby crippled. Mention was made of apprenticeship; I think that as long as one studied under the apprenticeship system there was an open field of competition; some of the teachers were among the most distinguished men in medicine, John Hunter, for example. The number of subjects in the curriculum is what bothers me; and the reason for it is, in the United States and especially in New York, too many of the professors of medicine do not *practise* medicine, do not *know* medicine, are research individuals who are interested in some speciality or another, mostly esoteric and rare. It is these professors who have a tendency to load the curriculum and to insist upon emphasis. This is something

I deplore in Medical Education today, and I would like to hear our distinguished contributors respond to these questions.

TITMUSS: May I make a point? The modern university has been defined by somebody as an institution of organized ants. Others in the United States have, with reference to the University of California, described them as institutions where students are pestiferous. I was intrigued by Sir George's enigmatic statements about the medical schools. He seemed to be saying that British Medicine was as good as it was *because* it was kept out of the baleful influence of the university. Some of my very good colleagues here this afternoon may be a little puzzled by this over-preoccupation with the university, as the *only* institution for higher education, or post-school education. It is, I think, a remarkable fact that we now have in this country two systems of higher education and enormous developments have taken place in technological fields outside the university. I think it is not only technology, for there are more students taking degrees in the Social Sciences *outside* the university than inside.

Q. Do you mean in Technical Colleges?

A. I do mean in Technical Colleges.

Q. Isn't that part of the University System?

PICKERING: In fact the universities we have been talking about began as technical colleges.

CHAIRMAN: They began as medical schools. The University of Liverpool, for example, began as a medical school. This is true of many of our provincial universities, the University of Nottingham started as a small college of Engineering – a Workmen's Institute it was called. They all developed in this way. After all, our schools of technology – and some of them have been very considerable schools such as the Manchester College of Technology – all these colleges are becoming Colleges of Advanced Technology, with their own degrees and so forth. This leads us to the question – What do you mean by a University?

PICKERING: I think it fair to say that the best students try to get into universities, and on the whole those who go to technical colleges are those who can't get into universities. This is true in my experience, and I thought this was a generally recognized fact. When I think about what my friend Douglas (Hubble) has said about learning – this may be true today, and I don't say that I am not out-of-date. In 1950 I went around the three technological institutions in America, and then came back to this country and joined the University Grants Committee. I went to a 'red-brick' university and was absolutely appalled. It was a one-horse show and it was quite clear that the university hierarchy despised it. This may have all changed.

DODDS: You were comparing it to Cal. Tech?

Discussion

PICKERING: I am talking of the University of Minnesota. Is that at all representative?

DODDS: We have had a large number of so-called technical colleges, which are usually called Agricultural or Mechanical Colleges, which were established in many States under Federal support. There were Land Grant Colleges in each State; sometimes these were originally part of the university, as they were in Minnesota, Illinois, and Wisconsin; but in many States they were established as separate colleges, not universities, and usually called Mechanical or Agricultural Colleges and they would represent a rather medium grade, or low grade, technical education. Since World War II, the great urge has been toward converting all these, usually before they really deserve it, into universities. The technical colleges, as separate educational institutions no longer really exist in the United States. The reason I have asked the question is that I have read some of your comments about this and they have usually alluded to the California Institute of Technology and the Massachusetts Institute of Technology. Certainly they are outstanding institutions, but I don't think they represent the start of the so-called Technological College.

PICKERING: I never assumed they did, but we don't have anything like the Cal. Tech. or M.I.T. Yet.

CHAIRMAN: I think maybe Imperial College. It is not M.I.T., but it is a very reliable institution.

POLANYI: May I say that I completely agree about the shortcomings as they have existed in these two decades; and after trying to do something about it with no success whatever, I share your experiences. There was only one professor of engineering at the University of Manchester, so I suppose you could say it was a One Horse Show.

CHAIRMAN: The interesting thing is that the person who insisted that Engineering was a proper study for the University of Manchester was Samuel Alexander, a very distinguished philosopher. But I wonder if someone would deal with the two questions which were asked by Dr. Galdston – Who teaches, and Who governs the content of the curriculum? Because it seems to me that these are of great importance. The answer to the first is that in this country you can become a teacher by default – you don't have special training as a teacher, some teachers are born, others are happily or unhappily made, and others ought never to have become teachers, even though they are on the teaching staff. This is inevitable. They are good research people, but our method of appointment to university staff means that we often appoint research workers who have no capacity for teaching.

MCKEOWN: Sir, may I say one or two things about the second part of this subject? The first seems somehow to evade the question.

That is to say, in some ways it is less important than people suppose it to be. I for my own part believe that the general remarks that Professor Polanyi made about the way in which people get educated applies particularly to the medical profession. People don't acquire a taste for the theatre primarily by having lectures on the Elizabethan drama; they get it by going to the theatre, or they come to appreciate music by hearing music incidentally and realize that they care for it. But I think people greatly exaggerate what a teacher of any kind can do, especially what a teacher of social medicine can do. I know that in under-developed countries they look to teaching for great things. I think that what is at stake is primarily the fact that students acquire their habits of thought and all else not from what their teachers *say*, but from what they *do*. It seems to me that it is above all the image that the teaching centre and the teaching hospitals project which determines really the outlook of the next generation of doctors. I recall very vividly when I was a student at Guy's being taken to a psychiatric hospital for ten visits which I think had no purpose except to make most of us resolve, if we could possibly avoid it, never to set foot in a psychiatric hospital again. And it seems to me that if the teaching hospital is largely divorced from huge areas of medical practice, then it is quite inevitable that the outlook of students will reflect that, and nothing that teachers say will make any difference. I think that this is particularly conspicuous in the developing countries. I have talked to Deans in India about the basic problem how to attract people to the rural areas where they have to serve more than 80% of the population, and they say that they realize that there are difficulties and they accept that our conventional western type hospital is not an answer, but they are appointing a young professor of social medicine who has had two years at Harvard School of Public Health who will shortly put all this right. Well of course he comes from the United States with the best ideas of what might be done *there*. I don't think they are very appropriate even in the United States and I am sure they are hopelessly inappropriate in these distant places. They ask for a great deal of time for teaching, which they cannot use effectively at all. It seems to me, therefore, that this is a general reflection of the fact that people expect from curricular changes what can only come from a larger change in the whole character and responsibilities of the teaching centre. I won't pursue the question of what these should be, I know that some of you may be discussing that later.

The second point – and I am not evading the question, but nevertheless the curriculum *does* matter, and the question of how it is composed. I think there is still in the Medical Faculty some reflection of the view which is much more firmly entrenched in the

rest of the university, namely that the professor has the right to decide about his own teaching. Our university in fact, and perhaps it is true of others, actually write this into the terms of appointment of professors in faculties other than medicine. The Faculty of Medicine happily is an exception so far as the letter of the law is concerned, but in its practice it still largely reflects this viewpoint. In Latin-America recently I have seen this reduced to absurdity where the amount of teaching subjects like Maths and Genetics and so forth was determined by non-biologists, non-medical people, who really have no concept of what should be done and simply are in a position to do what they like in the time allocated to them. Now, while we don't go quite so far, and I think Professor Hubble would agree, there is still a considerable battle in any existing school to make substantial changes and you run up against a deeply rooted feeling in the mind of the professor that he really ought to be able to decide for himself whether, for example, the whole of the body should be dissected, and things of this kind. Now Sir George and his colleagues at Nottingham were in an exceptionally favourable position in being able to devise a curriculum for a school for which no staff had yet been appointed, and that is the happiest possible position. I think that there can be no answer to this except to get a small nucleus of civilized people in the medical school, who will start thinking in larger terms about medicine, its responsibilities, its teaching, and so forth. Again, Professor Hubble would probably agree that this is very difficult to do without part-time Deanships; we just haven't got the mechanism or the time at present. I think therefore that we need, much more perhaps for British medical schools than for American schools, the creation of some mechanism which allows enough time to be given to this by the minority, and it could only be a minority of people who thought about these things. I think it is quite essential to bring about these changes in the curriculum.

The last point to which I would like to refer, and which I think is very important, has not been much discussed, and is I think at the heart of a lot of misunderstanding as to what should be taught, and that is – I believe it is possible to make a much clearer distinction between knowledge, according to whether it should be taught on the short-term or the long-term. It seems to me that if there is a case for teaching students to do a test of significance, or to learn to examine the blood sugar or something of that kind, there is no value in requiring them to carry this information with them two years later to reproduce it in an examination, because if they are not using it from day to day they will forget it at any time. Many people are not then able to see what advantage there is in learning to do a test of

significance, or to do a blood sugar, if you don't intend to reproduce it until two years later. The answer is that there is a very large advantage, and that it becomes part of the background of your knowledge and you can come to it again and get it up if you have to. It seems to me that this kind of knowledge can be sharply distinguished from another kind of knowledge which really should be part of the permanent luggage of the mind for medical people. With this idea in view, some of us recently went through examination papers of a number of departments, and it is very easy to make distinctions between questions according to whether they fall into one or the other of these two classes. For example, in anatomy, in the same paper a question was asked about the detailed anatomy of the knee joint, and the next question was about the blood supply to the heart. If there is a case for learning the first at all it seems to be a question of short-term learning, while no one can go through the medical curriculum with profit, I believe, without a reasonable picture of the blood supply to the heart. I have taken this one example to illustrate what I think is part of a very large problem, and which I think should be much better sorted out. There would, I think, be suitable room for the errors made in judgement, provided they were only errors of the short-term; whether you dissect the small muscles of the hand and know them for a fortnight it doesn't really become such a serious issue; you are not asked to pervert your mind by keeping this in view for the next couple of years. So these are my three points: 1. That the actual curriculum is less important than the character of the teaching centre; 2. That if we are to get the curriculum, particularly in British medical schools, into some sort of shape we must have control by a small group of people; 3. We should begin to make a clearer distinction between the kind of things which are consistent with the general policy of an educated man as opposed to the short-term knowledge which is quickly lost.

BOWERS: I don't think that the full-time Deanship in the United States which is true in the majority of schools really implies that a great deal of power over the curriculum is involved. The establishment of the curriculum is by history, by the amount of money the department receives, and by faculty committees. I would just like to comment that one of the very serious problems in the States today regarding Deanship is that most of our professors are more loyal to the National Institutes of Health in Bethesda than they are to the university, and this is a very serious problem, because the professors receive very practical help from Bethesda . . . (Laughter).

TITMUSS: Could I put two questions to Sir George Pickering?

1. What is proper for an undergraduate education, and what is

proper for what we call a postgraduate education?

2. By what criteria do you judge a good teacher?

PICKERING: I would have thought that to some extent this was included in Tom McKeown's three kinds of knowledge. I would have thought that the function of an undergraduate education is two things. First to make the subject aware of the existence of a corpus of knowledge, and secondly, to begin training his mind as an instrument of precision so that it can know how to proceed to assemble the relevant data, to arrange them and produce a provisional hypothesis or explanation, and test that hypothesis, which as far as I know is the basis of the scientific method.

POLANYI: I certainly don't agree with your description of scientific method. There *is* a scientific method which we try to teach and exemplify, and it is one of our major concerns, and I think that is what you are really putting to us.

PICKERING: I was putting this as a sort of basic method. I know he doesn't do it all like that, but it is how it seems to work out in human techniques. You arrange your facts, you try to explain them, and then you test the hypothesis. Anyhow I would have thought that this was more or less our understanding on the scale of undergraduate education. Postgraduate education is where you get your rather specialized knowledge. If you are going to be a scientist working in a laboratory you work with somebody who is very good, and you learn how to do it; if you are going to be a general practitioner, you learn about the things that are common in general practice; you learn something about business methods, and how you should use your time. If you are going to be a surgeon you have certain specialized jobs. I think that would be how I would answer it.

LEAVELL: Maybe you learn the things in postgraduate education that you ought to forget in undergraduate education – the 'short-term' knowledge.

KESWANI: I don't know that the definitions Sir George gives for undergraduate education would necessarily apply to every country, at the present moment at least. After discussion for years and years, at least since 1947, medical educationists, possibly under the influence of politicians, have repeatedly emphasized the fact that our purpose in training a medical man is to create a better doctor, which does not fulfil the qualifications as you see them. For example, Harvard's aim in training a medical doctor is to create a scientist, and in India – at least as far as the educationists go – the definition of a better doctor is a doctor competent to handle the situation as it comes in general practice. It is only on the postgraduate level that we would like to shift the emphasis, depending upon whether you want to create a pre-clinical scientist, a para-clinical laboratory man,

or a clinical specialist. Then of course, as it is at the All-India Institute of Medical Sciences, even from clinical down to the pre-clinical level we like to make him a scientist *first*, and *then* a specialist. I don't think that would apply in every country necessarily.

LEAVELL: In training the people for general practice, how many general practitioners are there on the Faculty? Not only in Indian medical colleges, but in other medical colleges? In other words, if we say we are trying to train people for general practice, isn't the best way to do this, to let them see what general practice is?

HUBBLE: With regard to George Pickering. I agree with his first two points. A third point was made, and that is that the student should be trained where he can get further information if he requires it, like the use of the library and so forth. I think this is important, too. In answer to Professor Titmuss's question, we have this posed to us very strongly now; it is a crucial matter, I think. It is easy enough sitting round this table talking about teaching a man principles – and then teaching him the *illustration* of the principles. For example, Professor McKeown, blood sugar and so forth might be important in the long-term as an illustration of physiological principles. I face this myself, where I have to decide *now* – you see, we have given up the idea that we are going to train people vocationally – that is to say to be a doctor. Yes, but we are not going to train them to be a special sort of doctor, we are giving them a basic medical education. So I have to decide in my subject, which is paediatrics, what is essential to the making of a basically educated doctor? If I can be quite honest I haven't faced this properly, and I have not met any doctor, any specialist, any educational specialist, who has faced it. What is essential in my subject to the making of a basically educated doctor? I can talk about paediatrics, you know; the importance here is obviously growth and development, and deviations from it. But when it comes down to the fact, What shall I teach him? Whether I should teach him this and that? It is easy enough in the clinical period, where you *must* teach a man to take a history; you *must* teach him to examine a patient, and this is probably the major thing you do. You must teach him pictures and patterns of disease, this is obviously essential, but beyond this, I think there is not such a lot to do in this clinical period. Therefore I feel quite happy to reduce this clinical period to two years, and to lengthen the period of medical sciences. Three years in medical sciences, and two years in the clinical period. I don't think it will be the considered opinion of the Royal Commission on Medical Education.

BOWERS: I think that as far as postgraduate training is concerned, especially in the United States, and I am sure in Europe, the key word is increased *responsibility* for the diagnosis and treatment of

patients; and an ideal postgraduate medical education has this as the core throughout. So that beginning with the period of, say, the internship, our aim is to give the young doctor increasing responsibility for the patients.

CHAIRMAN: I think one ought to say that in different countries there is a different factor which determines competency. Take our own country. Anyone can practise medicine; anyone can call themselves anything except a registered Medical Practitioner. But the point about the content of the curriculum in this country as it is under the General Medical Council, is determined at present by the statute, and the purpose of the statute is not to protect the doctor; it is to protect the patient, so that any person may know who is qualified to practise medicine. This is the cultural reaction, as it were, between the patient and the doctor, and the patient knows that a doctor who is registered has at a particular time satisfied examiners that he has an adequate knowledge of medicine, surgery and midwifery to enable him to practise medicine. On the question of what is basic knowledge I think that one ought to go even further and say – Why is anatomy taught in the medical curriculum? Why is physiology taught in the medical curriculum? Why is biochemistry taught in the medical curriculum? And you may then find that there are certain methods and certain portions of knowledge which are necessary for most doctors, but which also enable one to interpret the phenomena of disease which one is going to meet. That is why I think history-taking and the eliciting of physical signs, and the determination of results of laboratory investigations and so forth is enough. I think you have to have students infer from the observations which have been made what is the probable diagnosis? And if not even the probable diagnosis, what is the right course of action? And this is the most difficult thing to teach, because what you are trying to teach them in medicine so often is to come to a *decision for action* on inadequate data; and we don't realize that the practising doctor is very often in the situation of the politician; he has to come to decisions on inadequate data. This is where the methodology of medicine differs from the methodology of science. I think it was Shelley who said 'Science can nobly await an answer; but common-sense acting on occasion must accept and act'. This is where the difference is, and this is a difficult thing to teach, but it is fundamental and it is basic to all forms of medical practice. I don't think you will ever get agreement on what is *basic* knowledge for every medical practitioner, in other words what should be the content of the curriculum. Look at it a little differently. Is there a content of basic chemistry which every chemist should know? Is there a basic content of physics which anyone who is dealing with physics needs? Is there some

basic content? I think we should probably agree, if not in every detail at least in general, as to what that basic content should be. And I think that this is the basic content of the undergraduate curriculum. But it is not only the content in terms of knowledge, but the content in terms of method and the *use* of method; and this is the important aspect of the time factor, because it does require time to become skilful in these various methods which are required if one wants to practise medicine.

GALDSTON: May I take up a point that was made by Sir George Pickering, and perhaps encourage him to expand his observations. I gather from your comment, Sir George, that you feel that what is actually in the curriculum is not all that important because students pick up so much important knowledge outside the formal teaching. I think I would have to agree with that, but I was impressed with the fact that some things are *not* in the curriculum that ought to be. Let me cite three subjects which it occurs to me are not adequately represented in American universities, nor, I think, in the British universities. One is nutrition. Another is psychological medicine, and I mean psychological medicine and not psychology. The third would be physical medicine. To carry this just a little further, and I thought you were propounding this, I know you were propounding in terms of hospitals, so I am really talking to you. There is the demographic Public Health Authority which has the competence to observe the scene collectively, not just for mortality but for morbidity, too, and whose counsels should, I imagine, reasonably be included in any consideration of the training of the physician. There are certain diseases which are preponderant and which should be included in a basic education. Before we structured our universities and medical schools it was a common experience of the very observant physician to write a book on scurvy, or hysteria, or so forth, they responded to the local pressures that were on them at the time, and I suspect that some of this local demand might well be harnessed again.

PICKERING: I wonder if I could ask Dr. Galdston a question? He did imply in his remarks that he thought that confining all the education for medicine to universities was possibly a bad thing; at least so I gathered from his remarks about the apprenticeship system.

GALDSTON: No, Sir George; that is not really what I said, or intended to say. What I wanted to say was that it is a historic fact that when medical education came under the universities it was *not* immediately advanced, but was retarded. The classical example is Salerno. Naples became a manipulated instrument in the hands of the Kings of Sicily; and eventually when you pursue the history of medicine as it

was cultivated within the universities, it shows radical decline. I think there is a great responsibility for the university to share in the charges of the medical school and to make contributions through its varied and respected departments, whether it be economics, sociology or history or anything else. In the United States as a matter of fact, until relatively recent times, the medical school was a poor relative of a rich family. All you need to do is to look at the school of medicine at Yale at the beginning of this century, or to read what happened in Harvard. If I may ask, Lord Cohen, would you encourage McKeown to pick up where I left off, on the curriculum issue and the question of responsibility?

BOWERS: I would just like to point out one thing, and that is that American medical education was very poor until about 1910, and that what has strengthened it was the universities' admission system.

CHAIRMAN: I would also like to mention that in this city of London, although there is a nominal association between medical schools and the University of London, there is no functional association whatsoever. The medical schools in the University of London are not university medical schools in the same sense as those in the Universities of Oxford, Manchester, or Liverpool. There are, I think, 14 such schools in the University of London, each without any direct functional university association, although they are nominally schools of the university. Now, Professor McKeown, would you like to take up Dr. Galdston's point?

MCKEOWN: First I would like to correct the misapprehension for which I am responsible, in stressing the fact that there is great importance in the responsibilities of the teaching centre. It is just a general reflection of the fact that you can learn more from a man by observing what he is doing than in listening to an account of his intentions. It seems to me that in the clinical centre, the shape and responsibility of the hospital have an enormous bearing on what students themselves learn. In saying that, I may seem to have overstated, and given the impression that I thought the curriculum and formal teaching were of no importance. I certainly didn't mean to suggest that, as I think they are quite important indeed, but I think rather less important than people think. The issue seems to be a little like the question whether there should or should not be lectures. It seems to me a very simple question to answer – there should be good lectures, there should be no bad ones. The same I think applies to formal teaching. I also of course agree with Dr. Galdston that the content of teaching is very important and it would be quite easy to list a number of themes which are greatly neglected in medical education. One of them is the question of medical achievement, which I keep coming back to. To me it is quite incredible that

medical people should complete their education without any clearer picture of what has happened in the past and how it happened. To me that is the biggest single general gap in the background of their education. There is an even more obvious possibility in a more conventional sense, and that is this. We have this idea of physics, chemistry and biology as though these were inevitable disciplines which are proprietary to the whole of medicine. In an article written about a year ago MacFarlane Burnett made the remarkable suggestion that in future the significance of the numerical handling of data would be far greater to medicine than the microbiology which was dominant in his own education. I don't think there can be the slightest doubt that the fact that medicine deals with the necessary complex data, but was hitherto without adequate means of handling this data is of profound significance. There is no point in arguing whether machines are going to replace doctors at any level, but however you look at it, the idea that the introduction of numerical methods of all kinds into medicine is a matter of profound importance. It seems to me in keeping with Dr. Galdston's point that medicine should be on the look-out for the point at which new things of this kind – and sociology is a much discussed one – may be introduced; there obviously must be constant changes in the content of the curriculum as things of this kind are added to our knowledge. I think, too, that it is a great disadvantage that people aspire to uniformity in medical education; uniformity in different countries, or even at different times. It seems to me plainly the case that medical services at the present time *must* be quite different in different circumstances. For example, whether there should or should not be hospital delivery in obstetrics. In developing countries, it is neither possible nor necessary to have domiciliary delivery, because the problem is primarily to protect well children. On the other hand, in developed countries where infant mortality is down to 20,000 or less, the first problem is not to protect well children but to recognize and deal adequately with the occasional emergency. The case for hospital delivery is entirely different in those circumstances. That kind of difference – a large difference in medical practice – *should* be reflected very largely in medical education. Therefore I am suggesting that the concept of uniformity in content is completely inconsistent with the needs of very different environments.

CHAIRMAN: Well Dr. Crombie – you wish to speak.

CROMBIE: I really wanted to deflect the discussion slightly towards Sir Aubrey Lewis's paper. We have had an extremely interesting discussion on education, and this is related to it, but I think one should draw attention to the really interesting research programme

which he has outlined about the history of disease and the manifestations of disease and their relation to culture. He referred to Prichard and his term 'Moral Insanity', and mental disorder, and this reminds me of the book by Professor Lain Entralgo called *Mind and Body*. He discusses these two traditional attitudes to disease mentioned this morning, whether sickness is sin (the Hebrew-Christian tradition), or sin is sickness, which is the Greek and scientific tradition. What Sir Aubrey has done, it seems to me, is to suggest a line of research of medicine in history related to the history of medicine. Historians used to be noted only for the study of political history, but now even in Oxford they study other forms of history, using numerical data for the study of demography, and so on. Sir Aubrey has suggested a number of fascinating lines of research, not only in western societies, but also in other societies, such as anthropologists study. Can any one provoke him to say some more about that?

LEWIS: The chief point I wanted to make was that medicine – and especially psychological medicine – cannot be well taught and practised without much more informed emphasis upon the influence and potentialities of the cultural environment, for good or ill.

GRMEK: The influence of the environment is very important. In western medical practice, for instance, we are mainly using an expeditive somatic therapy because we have to spare the words, i.e. the physicians' time. Eastern physicians sometimes use many words and complicated rituals in order to spare the costly drugs.

We all agree about the effects of culture on morbidity and vice-versa, but it is very difficult to study this interconnection by statistical methods. This problem of the relation between cultural patterns and disease has been studied only in an analytical way, i.e. considering the role of single factors and single diseases. But I think that the cultural, social, and economic factors *as a whole* are related to the diseases *as a whole*. There is a possibility of a new approach. If all diseases appearing in a spatio-temporal connection are considered as a whole (and I propose to call this *pathocoenosis*) then there must be some mathematical laws in the actual distribution and incidence of the diseases in a society. Mathematically, the problem is the same as the problem of the distribution of the zoological species in function of the number of living specimens of each species. As you certainly know, it was stated that the distribution of species is represented by a log normal curve. I have studied some morbidity statistics using this method, and I find that there are log normal distributions, or log series, or combinations of these two. The existence of a mathematically defined distribution of diseases confirms our opinion that we should study the history of diseases and their relationship with

cultural factors synthetically and not merely analytically.

GUERRA: The discussion earlier this afternoon by Professor Keswani, as well as the remarks of Dr. Crombie, underline the fact that Sir George Pickering and Professor Hubble have led the discussion away from the main stream and into the area of local medical education in Britain. Keswani brought it home to me that it is not just a problem of the curriculum but of the way in which people in Delhi or people at Yale project medical education into the environment. The problems of India have a certain character and the needs of that people in that culture with regard to medical education are also of a specific character, and have to take account of the culture in which the medical schools have developed. We were taken further by Sir Aubrey Lewis when he put forward the idea that culture influences or determines what we regard as illness and, as he pointed out, cultural collisions can act as a stress in producing disease. Is it not time to leave our discussion of the curriculum and British medical education and consider the ways in which the cultural factors of the environment and the cultural components in medical education may be brought together.

BRAND: I found Sir Aubrey's paper very interesting regarding the problem of the expectations which different societies or cultures have of the physician, and, as Dr. Guerra mentioned, in his definition of what constitutes illness in a society. Sir Aubrey seemed to me to question whether the physician is actually the right person to deal with conduct disorder in adults, adolescents, and children and raised the problem: What is the role of the social doctor? In the United States the National Institute of Mental Health is being increasingly required to develop a national programme directed by psychiatrists for what we term the social problem areas, and these include drug addiction, mental retardation, ageing, alcoholism, suicide, and juvenile delinquency. I wonder if in the United Kingdom you are facing the same kind of social pressures to plan programmes of this nature on a national basis, to train people in medical schools for research and to transmit this information into these special areas. You of course have a far greater national responsibility already under way for community medicine than we have; we have just entered this field; but I wonder if you are also being asked to add this dimension to medicine, to expand the definition of what constitutes illness in a society.

LEWIS: I don't think we are being asked. We are asking ourselves, aren't we?

BRAND: Congress is asking *us*. We really have no medical histories of these social deviances as we call them. There is very little done in the history of alcoholism, or the history of drug addiction;

these are really wide open for research.

CROMBIE: There really is no systematic study of this, is there?

BRAND: No there really isn't.

GALDSTON: Well I think, for example, there are some data describing different people's attitude towards use of drugs, or towards polygamy or perversion, and so forth. I think what might be worked out, very interestingly, and some historian ought to take up this, is what has happened, for example in Britain recently, to the attitude towards drug addiction, homosexuality and other such socially variant behaviour patterns as against, let us say, the Catholic attitude, particularly in the United States. I think these would be very definite cultural studies with some emphasis on the problem of sin, which I think we should take up again, because I do consider it to be an important issue which we tend to shirk, because we are afraid of it.

HODGKINSON: We are omitting Russia in this problem of psychological medicine.

LEWIS: Perhaps I should mention it because it is a good example of a society where culture affects its medical practice. Take leucotomy, for example. Who is to say whether leucotomy is good or bad? It is forbidden in the U.S.S.R.

HODGKINSON: Such a ban fits in with the general approach. Everything is environmental.

GALDSTON: I think they have a very strong sense of sin; that is understandable. I think there are explanations for these things. They try to externalize a problem but once it has been confronted, they deal with it as sin. Perhaps, let us say, when a prostitute was discovered, she was given a redeemable treatment, and when she was not redeemed she was then punished. The same thing holds with the alcoholic; the alcoholic is given the chance to sober up; if he doesn't sober up, he is then put down as an anti-social character and has none of the privileges of the non-alcoholic. There is apparently a very strong determination there that it lies within the power of the individual to gain heaven and if he doesn't then he is a sinful character.

HODGKINSON: There is not the same emphasis on the individual sin as we understand it; it is not the same kind of sin.

GALDSTON: I think, to paraphrase, the emotional quality is used in an entirely different aspect, but essentially it applies to individual responsibility.

LEAVELL: You are not going to deprive us of the possibilities of sin are you?

GALDSTON: No, I am all in favour of it! Whichever way you look at it, at the end it amounts to the fact that the person is condemned, and the condemnation carries with it certainly the implication that

if he or she elected otherwise, they wouldn't be condemned. After all, this is the quintessence of sin – nominally you have free will, nominally you have the power to do what you ought to do, and if you don't do what you ought to do, then you are sinful, and you are damned, punished, or otherwise.

CHAIRMAN: Are you equating sin with crime?

GALDSTON: I define sin in the terms of the Russian outlook, I am not telling you what *I* think of sin. The Russians define sin in terms of a social or anti-social behaviour.

CHAIRMAN: Is this any different from our western behaviour?

GALDSTON: No – that is what I am trying to say.

CHAIRMAN: I would have thought that this *was* a little different because those of you who have read Sir John Wolfenden's book know that he made a very great point of the distinction between sin and crime. Whereas homosexuality might be a sin, it should not be regarded as a crime. Homosexuality between two consenting males in this country was a crime, and it ought not to be a crime, but Sir John Wolfenden still regarded it as a sin, and so did the Archbishop of Canterbury. I think that a lot depends on your definition of sin. The act itself is a crime – something against the law of the country. I can understand that something which is anti-social may be condemned. The Russians may say prostitution is anti-social; it disturbs Marx's view on economy, and a prostitute should be using her time more profitably and in the interests of the State. That is something I can understand in the sense you describe, that if you can't conform you must be punished, very different from this country's original concept regarding prostitution – stating that it was a sin and that sin *must* deserve punishment; but in fact prostitution was not punished in this country. What was punished in this country was if a prostitute obstructed the pavement, or accosted individuals. She was not brought before the courts for being a prostitute.

GALDSTON: Without getting lost in the semantics of crime and sin, may I suggest that there is an assumption, if not of volition at least of competence to choose between one pattern of behaviour and another, and in many instances we have to take this for granted or be completely impotent as far as the patient is concerned. Dodds was smoking cigarettes and Sir George Pickering pointed at him, saying 'Why do you handle these coffin nails?' I suppose Pickering thought that Dodds had the power to choose between smoking and non-smoking. And if, contrary to his advice, he persists in smoking there is something that designates his behaviour as sin.

For the moment, I do not think the question can be evaded in medicine, and least of all in psychiatry. I remember I had a very beautiful blonde little patient who used to tackle me whenever I got

into a corner and say in her charming way, 'Well, Doctor, life's like that and I'm like life'. What can you do with a patient like that, except to say 'Life isn't like that and you don't have to do that'?

TITMUSS: Are you suggesting, Dr. Galdston, that the new or enlarged role of the physician, the cultural role of the physician in society is to redefine the boundaries of sin?

GALDSTON: Not at all, you credit me with far too much. All I am saying is that historically the physician operated on the assumption (I am speaking of Greek medicine, and I think we have had to do it too) that man was a part of *physis* entire and had a relationship to Nature and presumptively, barring accidents, if he related himself to Nature effectively he would have health. If he didn't he would have disease; and that there was a realm of choice which, if he violated, he was sick and that represented an order of sin. That, especially among the Greeks, was emphasised in non-physical behaviour, that is moral and social behaviour. Now today we have a tendency, again because of the infectious diseases, where man becomes sick, really not because of sin, we exempt everybody from the idea of any responsibility for the condition in which he finds himself, and you don't find the medical student exhorted to exercise any persuasion or exhortation to make the person aware of the fact that this, in fact, is his condition.

TITMUSS: Is this so? I would not have thought so. Don't we emphasise today, or rather doesn't modern research emphasise the new role of the physician in culturally determining the way of life of the patient? You shouldn't smoke. You should take exercise. You shouldn't eat that! These are important issues which perhaps we should leave for tomorrow.

CHAIRMAN: This really is the true field of health education. The physician has not really been orientated for a role in health education. Nor indeed has our Ministry of Health. Our National Health Service is not really a National Health Service. It is a National Disease Service. It is concerned essentially with and differs very little from the preventive side, but what it has done is to provide Service, hospitals, consultants, general practitioners and so forth to deal with disease. Three years ago the Committee reported at the request of the then Council for Health Education and the Ministry of Health have done absolutely nothing about this, except that they have now announced that they have accepted its major recommendations. If you speak of health education, you then come up against the other difficulty of deciding, What is health, not simply in terms of the individual, but in terms of the society in which he lives? I think this has a tremendous cultural importance, because it is the culture of a nation, whether a nation such as ours or a less developed one, that

decides what health education methods are both possible and desirable. For example, the simple exhortation that you shouldn't bathe in certain waters might well diminish the incidence of bilharzia very considerably, and the simple order that you should wear boots of a certain length might diminish hookworm. These are very simple implications, and I think it is important in relation to culture and the whole problem of health education, how man should keep well, not just how he should be cured of the disease from which he is already suffering. I don't mean prevention merely in the mass sense of the community provision of water supplies, vaccination, immunization and so forth, but in the ordinary business of life, how to achieve the highest potential for each individual – and it's not the same for each individual.

LEWIS: May I return for a moment to the concept of sin? All the indications are that as a society advances it becomes a more tolerant, a more understanding, a more compassionate society. Certain actions and attitudes may be frowned upon by society, as in the examples we had from the U.S.S.R., but we have to distinguish between anti-social behaviour (which may be crime) and the individual's sense of sin.

KESWANI: I have a very pertinent example to give. You have all heard of the practice of *suttee* in India in the old days. The lady at least did not regard it as a sin, but the government made it a crime.

GALDSTON: We have to select a view of sin, a historic precedent which, by the way, I think operates today, and which has to be utilised in health education, namely *shame*.

LEWIS: There is a lot to be said about shame and guilt in this context. Among anthropologists we divide societies into 'shame' societies and 'guilt' societies. If you look at education today a lot of the practices are based on shame principles rather than on the sin principle. Shame is just the opposite. He is ashamed because he is disapproved of.

HODGKINSON: You said, I think, that eventually a doctor is going to be a law-giver. If we look at the social sciences and the notion of what one should do and what somebody else should not do, in order that certain consequences should follow, as in the 19th century public health field, we find that the doctor has had to interest himself more and more in the law and therefore in politics. Does he, in fact, have to become a politician himself in order to see that his policies are implemented?

CHAIRMAN: I think he has to *persuade* the politician that certain things are worth while. It's not his job to *do* it. I think it is important that we bear this in mind. After all, what we do is seek health. If we are true to our calling it is our duty to tell people how health

Discussion

can be achieved, and not simply to tell them how disease can be cured. Fluoridation may be made a community matter. In this country no Ministry of Health would make fluoridation compulsory because he believes it might lose him the next election. These are the factors which have to be borne in mind. You see, we don't operate as doctors in a vacuum. We operate within a given culture. The culture is such that it can inhibit large designs.

HODGKINSON: In backward countries we *have* imposed certain positive health measures. In this country progress is slow. We are not going to impose positive health measures.

CHAIRMAN: We have already imposed a number of positive health measures.

HODGKINSON: Not enough.

CHAIRMAN: But you see, these are all questions of degree. We have stopped smoking, we have stopped spitting, and indeed when I was a young man it was common to see the pavements covered with sputum. Now there is legislation which prevents this. But you cannot have legislation in any country which is not acceptable to the people. You must ultimately show that it is reasonable. We haven't done this yet. You have to isolate people with infectious diseases. This is the law. You have to *notify* the infectious diseases. People are prepared to accept this. There are certain measures, which are just as good, which people are not prepared to accept.

DODDS: May I ask a question about therapeutic abortion in Britain?

CHAIRMAN: It is under discussion, which may lead to change, at the moment. There is before both Houses of Parliament a Bill dealing with abortion, and there is a great liberation of outlook. In fact, one Bill passed the House of Lords but has not yet been to the Commons, but it will certainly be rejected in its present form, again because of the pressure of certain interests.

DODDS: But your abortion laws, I think, are more liberal than those in the United States.

CHAIRMAN: The point is that you can evade the law more easily in this country.

LEWIS: Wouldn't it be right to say that at present if the doctor is considering the health of the mother, there is no great difficulty in the way of terminating pregnancy? But if the health of the child is in question then there are difficulties under the law.

CHAIRMAN: It is covered by the new draft bill. It is not that the law has been weak on this, but a legal dictum has been given which has virtually forced the issue.

BOWERS: Wouldn't you have a more liberal attitude on this in the United Kingdom because there are a far lower percentage of Roman Catholics in the population?

Discussion

CHAIRMAN: That is very difficult to say. I think it is true to say that in the House of Lords this Bill was passed by a much larger majority than anybody anticipated and of the few who voted against it a large number, certainly 90%, were Roman Catholics.

DODDS: My next question is, do doctors have any responsibility beyond the responsibility of citizens?

CHAIRMAN: The B.M.A. had a committee which approved the measures which were incorporated into Lord Silkin's Bill. The Royal College of Obstetricians and Gynaecologists also has a Committee which has reported on this, perhaps more restrictively than the B.M.A. The doctors have in very considerable measure influenced this issue.

MCKEOWN: May I add a word in support of these distinctions in environmental measures? Recognising that at some point they merge, it seems to me that there is still a very large difference between the kind of environmental features which were controlled during the past 100 years and the sort we are talking about now. They had in common these features of physical environment, the water and sewage and atmosphere control. First, that they could be controlled by relatively simple public action; and secondly, that the effectiveness of the control depended hardly at all upon the co-operation of the individual. This sharply distinguishes them surely from control of such personal habits as smoking, eating, drinking and so forth, and while one can see that there are certain intermediate positions. For example, fluoridation is intermediate between these two, because on the one hand it can be relatively simply done; on the other, it does in some way touch people's personal feelings about what they should have, in a way which the controversy over the water supply has hitherto not done, and I think that this is a most important distinction. Historically, the second type that we are talking about has only become significant because of very rapidly changing ways of life. Each one of them is a feature of our life which scarcely existed previously. People were not in a position to smoke, or overeat, take too much sugar, or to fail to take exercise and all of these are profound changes in the habits of life to which there has been no opportunity to adjust genetically in the time available. It is interesting to note that it is not that doctors hitherto refrained from giving advice on personal measures, but that they did not previously have any basis on which to give their advice. They have in fact given it. There are really only a few things that we know that we have a very sound basis for giving advice.

CHAIRMAN: Yes, of course, but we also have to remember that the lack of personal hygiene frustrates the aims of those who have cultivated good habits.

Discussion

MCKEOWN: Wouldn't we agree, Sir, too, that this makes it very much a medical concern about how to bring this about? For my own part, I don't believe that legislation could ever control a problem like smoking. I think I am right in saying no-one has lit a cigarette at the Standing Medical Advisory Committee for the last two-and-a-half years, since Sir Robert Platt said something to the effect that it was now prohibited except to lunatics. This was on an occasion when they were discussing the various measures the Ministry ought to take against smoking in hospitals, and someone made the point that sometimes the first contact with a psychiatric patient was made through a cigarette and I think that Sir Robert made it clear that he had no objection to the wording that said it was 'prohibited except to lunatics'. I think that it's in that kind of way, with certain groups of people finding it socially unacceptable, that the time will come when it will be generally regarded as unacceptable.

CHAIRMAN: We have reached a stage when I think we should adjourn. I suggest that we meet tomorrow morning at 10 to continue our discussion.

END OF SECOND SESSION

THE CULTURE OF MEDICAL CARE AND CONSUMER BEHAVIOUR

by Richard M. Titmuss

SYSTEMS OF medical care reflect the cultural characteristics of a society – past and present. Historical studies in such countries as the United States, England, Germany, France and other nation-states of Western Europe have illuminated the extent to which the different systems currently operating in these countries have been shaped by the dominant social and economic institutions and values in their respective pasts. Social anthropologists and sociologists, though working with fewer historical materials, have similarly examined and compared the characteristics of medical care systems in non-industrialised societies.

The rise of scientific, technologically equipped, medicine in a relatively short period of historical time has produced, on a world scale, great problems of stress and conflict in the action taken (or attempted) to apply scientific medicine on a mass basis, and to absorb new knowledge and techniques into different culturally determined systems of medical care. Illustrations of these problems can today be drawn from such diverse societies as Nigeria, Belgium, England, India, Tanzania and the U.S.A. Examples of conflict situations are also numerous and diverse; for instance, since 1960 doctors have been on strike on 15 occasions in seven European countries, all of them with extensive though culturally different private markets in medical care.

Such problems can be and to some extent have been studied from a variety of angles and through the methods and techniques of analysis developed by the medical and social sciences. The economist asks questions, for instance, about the impact of science on existing systems of medical care in terms of costs, benefits, price, resource allocation, market effects, and so on. The sociologist is interested in the effects of technical change on roles, functions, relationships, beliefs, professional structures and so forth. The medical scientist and epidemiologist, interested in the applied field, asks questions about utilization, benefits and quality of medical care under different systems in respect of different populations.

Central to many of these diverse approaches – and particularly to that of the theoretical economist – are the issues of choice and uncertainty in systems of medical care. Is medical care different

today from other goods and services in modern society? Is the consumer to be sovereign in exercising choice in the medical care field to an analogous extent as he is in the field of consumption goods and services?

These fundamental issues of free choice (which cannot, of course, be considered separately from the expectations and knowledge of consumers and their degrees of certainty or uncertainty as to the effects of choice) have been greatly accentuated by the impact of scientific medicine. Several related factors have contributed to this development in all Western systems of medical care, private, public and mixed.

First, specialization in roles and functions of doctors and medical care units accompanied by an increasing structural division in medical care labour has widened the area of choice for consumers. There is more to choose from; more options open; more preferences are expected to be expressed in consumer behaviour, and there are more alternative routes to diagnosis and treatment. Drugs are, of course, but one example. Scientific medicine has played a primary part in expanding these areas of choice in medical care.

Secondly, rising standards of living (and of mass literacy) in the Western world have for the first time in history made choice more possible for the majority of people, and have led to patterns of consumer behaviour in which individuals are expected to exercise choice, to express preferences, to be more articulate about 'rights', and more critical and discriminating in respect of standards, quality and sellers' behaviour. The private market, it is argued, will not function efficiently without discriminating publics. The 'delicate, continuous and pervasive' mechanism of the market, according to one British economist, not only makes more consumer choice possible but will provide better services for a more discriminating public.¹ Choice stimulates discrimination which, in turn, enlarges choice.

Thirdly, developments in scientific medicine since the 1940's have led to a great increase in the costs of medical care. In some countries, for instance, the U.S.A., costs in recent years have risen more steeply than the costs of all consumption goods and services. While this trend (in conjunction with rising incomes) has widened the area of choice in medical care for some Americans it has, in relative terms, narrowed it for others. On the other hand, it is argued that with rising standards of living and higher standards of health, medical care is less a 'threat to life necessity' and more an analogous service or commodity like housing, leisure activities, cosmetic services, and a wide range of consumer goods and services. Spend money on more holidays (to cite one example of the health education

alternative) and less on medical care. Consumers in Britain and other countries, it is said, should now be able to exercise these types of choices as well as choices within a given medical care system. The more costly medical care becomes in relative terms the more important it is for consumers to express preferences in the market which can offer them less costly alternatives.

These are three of the more important factors which have led economists to ask questions, in recent years, about systems of medical care, their organisation, structure and methods of finance. One school of economists in Britain and the U.S.A., after applying neo-classical economic theory to Western-type systems of medical care, have concluded that 'medical care would appear to have no characteristics which differentiate it sharply from other goods in the market'.² It should, therefore, be classified as a personal consumption good indistinguishable in principle from other goods. Consequently, in terms of political action, private markets in medical care should be substituted for public markets.

This thesis is usually presented as applying universally and in terms of the past as well as the present. It is presumed to apply to contemporary India and Tanzania as well as nineteenth-century Britain. It is, therefore, as a theoretical construct, 'culture free'. It is also value free. Medical care is a utility and all utilities are Good Things. But as we cannot measure the satisfactions of utilities – or compare individual satisfactions derived from different utilities – we should rely on 'revealed preferences'. Observable market behaviour will show what an individual chooses. Preference is what individuals prefer; no collective value judgment is consequently said to be involved.

I put the argument in a very simplified form. For more detailed and sophisticated discussions in relation to medical care a bibliography can be supplied of British and North American materials. I do not, therefore, propose in this paper to join in contemporary controversies about the present state of economic theory. But I do want to raise certain questions concerning its applicability to medical care. Broadly, they centre round (1) the problems of uncertainty and unpredictability in medical care (2) the difficulty, in theory as well as in practice, of treating medical care as an entity.

Let us consider first the problems of uncertainty confronting the consumer of medical care and contrast them with the problems of the consumer of cars (there is a risk to life in both cases if wrong choices are made). The more significant elements in medical care uncertainty would appear to be (though this is by no means an exhaustive catalogue):

1. Many consumers do not desire medical care.
2. Many consumers do not know they 'need' medical care.
3. Consumers who want medical care do not know in advance how much medical care they need or what it will cost.
4. Consumers do not know and can rarely estimate in advance what particular categories of medical care they are purchasing (e.g. diagnostic tests, surgical procedures, drugs and so on).
5. Consumers can seldom learn from experience of previous episodes of medical care consumption (not only do illnesses – or needs – vary greatly but utility variability in medical care is generally much greater than in other types of consumption goods).
6. Most consumers cannot assess the value of medical care (before or after consumption) as an independent variable; they cannot be sure, therefore, whether they have received 'good' or 'bad' medical care. Moreover, the time-scale needed for assessment may be the total life duration.
7. Most consumers of medical care enter the doctor-patient relationship on an unequal basis; they believe that the doctor or surgeon knows best. Moreover, unlike other market relationships, they know that this special inequality in knowledge and techniques cannot for all practical purposes be reversed.
8. Medical care can seldom be returned to the seller; exchanged for other products or services, or discarded. For many people the consequences of consuming medical care are irreversible.
9. Medical care knowledge is not a marketable advertised commodity unlike knowledge about many types of goods and services. Nor can consumers exchange comparable information about 'good' or 'bad' medical care.
10. Consumers of medical care experience greater difficulties in changing their minds in the course of receiving care than do consumers of goods and services.
11. Consumers of medical care may take part in or be the subject of research and controlled experiments which may affect the outcome.
12. The concept or model of 'normal' or 'average' economic behaviour of adult consumers cannot be applied to the mentally ill, the mentally retarded, the seriously disabled and other categories of consumer-patients.
13. Similarly, this concept or model cannot easily be applied to immigrant populations or peoples with non-Western cultures and different beliefs and value systems.

These thirteen points are indicative of the many subtle aspects of uncertainty and unpredictability which characterize modern medical care systems. 'I hold', wrote Professor K. J. Arrow, 'that virtually all the special features of this (medical care) industry, in fact, stem from the prevalence of uncertainty'.³ To illuminate further this general thesis, each of these thirteen points should be examined and contrasted from the angle of the consumer of cars (or other types of goods or services).

I now turn to my second set of questions. Many economists who attempt to apply theories or construct models in this particular area conduct their analysis on the assumption that 'medical care' is an entity. Historically, perhaps this was once so when it consisted almost wholly of the personal doctor-patient relationship. Medical cure, we would now say, was more a matter fifty years ago of spontaneous biological response or random chance.

Science, technology and economic growth have now, however, transformed medical care into a group process; a matter of organized application of an immense range of specialised skills, techniques, resources and systems. If, therefore, we now wish to examine medical care from an economic or sociological standpoint we need to break down this generalized concept into precise and distinctive components.

I will take one example to illustrate the point; probably one of the more critical components in curative medicine today, namely, the procurement, processing, matching, distribution, financing and transfusion of whole human blood. Is human blood a consumption good?

With the data now available relating to different blood procurement services in various countries, organized on private market principles and public market principles, it now becomes possible to test these economic theories relating to choice and revealed preferences for this particular component of medical care.

Consider, first, the thesis that the 'delicate mechanism' of the private market works better if left by government to get on with the job; that it is more efficient, provides higher quality services; generates more demand, and results in proportionately higher national expenditures on medical care. Economists in Britain, West Germany and other countries who advance this thesis support it by drawing on American macroeconomic experience and statistics.

It is appropriate, therefore, to examine the blood transfusion services in New York City⁴ and contrast them with the National Blood Transfusion Service in England and Wales. Over the last ten years the average annual increase in the amount of blood issued under this voluntary programme has been 5.8%.⁵ In New York,

over the 10 years ending 1965, the number of units of blood transfused rose by about 3% per year.⁶

Despite the fact that there are over 150 independent agencies handling blood in New York, many operating on a profit basis, there is an acute and chronic shortage of blood.⁷ Operations are postponed daily because of the shortage of blood. Professional donors from Skid Row denizens and others who live by selling their blood are bled more frequently than accepted international standards recommend, and probably three or more times a year more frequently than in England and Wales. Blood is hoarded and, in consequence, often wasted by hospitals and other agencies on a large scale. Because of the shortage, the poor quality of professional blood, and the high level of blood charges (by professional donors, commercial blood banks and many hospitals) blood is being imported on a rising scale from Latin America and other parts of the world. Commercial blood banks are attempting to import blood from Australia, England, and other countries.

The New York Academy of Medicine reported in 1956 that the city was relying on professional donors to the extent of about 42% for its blood supplies.⁸ In 1966 the estimated figure was 55%.⁹ The last national cost estimate of all blood banks (in 1956) came to a median cost of approximately £10 a unit of blood.¹⁰ Many patients are billed twice this amount and some patient blood bills I have examined run to £400 for a serious illness involving heavy transfusions. In 1952-3 total expenditure on the National Blood Transfusion Service for England and Wales worked out at just under 30/- per blood donation.¹¹ (More recent figures to be added).

On criteria of efficiency, cost per unit, and supply and demand factors there is no support here for the model of the private market.

Comparative data on quality and consumer risks are difficult to establish. However, a few scattered pieces of evidence are brought together here.

A study carried out in 1959 at the University of Chicago which selected transfused patients at random found that the incidence of serum hepatitis in recipients of blood from professional donors was 7 to 10 times that of recipients of blood from family donors.¹² An editorial in the *Journal of the American Medical Association* in 1964 concluded that in the U.S.A. there was among people over the age of 40 one death from hepatitis for every 150 transfusions.¹³ In 1965 it was reported that an estimated 3,000 deaths a year occurred in the U.S.A. as result of blood incompatibility.¹⁴

There is quite clearly a great deal more that could be said about the complex problems of quality, cross-matching, transfusion risks, and a whole series of technical issues in the fields of blood transfusion

and clinical haematology. On one factor relevant to the theme of this paper, however, the available evidence appears to be conclusive. The use of professional donors and other commercial practices does involve the consumer in serious hazards to health and life. No consumer can estimate, in advance, the nature of these particular hazards; few, in any event, will know that they are to be the recipient of someone else's blood. The characteristics of uncertainty and unpredictability are the dominating ones in this particular component of medical care. They are the product of scientific advances accentuated, as this case study of New York has shown, by the application of economic theories to the procurement and distribution of human blood.

References

1. LEES, D. S., *Freedom or Free-for-all?*, Hobart papers, Vol. 3., London, Institute of Economic Affairs, 1965, p. 64.
2. LEES, D. S., *op. cit.*, pp. 37-39 and 86-87.
3. ARROW, K. J., 'Uncertainty and the welfare economics of medical care', *American Economic Review*, December 1963, 53, No. 5.
4. National statistics for the U.S.A. are not available.
5. MAYCOCK, W. d'A., *The Practitioner*, 1965, 195, 147-151.
6. *The New York Blood Center Report*, 1966, p. 13.
7. In England and Wales, there is no shortage.
8. *Human Blood in New York City* (privately circulated), Committee on Public Health, 1956.
9. New York Blood Center, private communication from Dr. A. Kellner, June 1966.
10. PERLIS, L., 'Blood Banks or Blood Business', unpublished paper delivered at the 16th Annual Meeting, American Asscn. of Blood Banks, Detroit, November 1963. And see Joint Blood Council, *The Nation's Blood Transfusion Facilities and Services*, Washington, 1960.
11. MAYCOCK, W. d'A., *Vth International Congress of Blood Transfusion*, Paris, 1955, pp. 1014-23.
12. ALLEN J. GARROTT *et al*, *Ann. Surg.*, 150: 455-468, 1959.
13. *J. Amer. med. Ass.*, 1964.
14. *New York Blood Center Report*, 1966, p. 17.

ENGLISH AND AMERICAN MEDICINE AND SOCIETY 1900-1914

by Jeanne Brand

HENRY SIGERIST, in starting his exploration of American medicine by the early nineteen thirties, observed that medicine was but one aspect of the civilization of a country, and that it is always determined by the general cultural conditions and by an underlying national philosophy.¹ Certainly, the practice of medicine in any society necessarily reflects its values, technological development, political and economic policies. And while the art of healing advances through scientific contributions of exceptional men, the mass practice of medicine is profoundly influenced by society's expectations of the physician and of the communal structure.

Even a brief historical sketch of society and medicine at the start of the twentieth century in England and the United States – two great modern nations with overlapping, yet dissimilar, cultures – supports this premise. While the years 1900 to 1914 crowned a century of remarkable technological progress, they witnessed political and economic developments which substantially altered the social expectations of each nation, and brought new horizons to medical practice.

THE SETTING

History has long since discarded the Ascot stereotype of Edwardian England as a halcyon period of stability and prosperity, of traditional privilege and unquestioned authority – a golden age tragically swept away by the sudden maelstrom of World War I. Few contemporaries swallowed this post-war myth, political leaders least of all. England, a nation of more than 36,000,000 by 1911, churned with economic, social and political pressures, which were forcing the country toward wider state intervention and a collective redefinition of social policy. Everywhere, the government's role was undergoing political revision to meet the requirements of the larger twentieth-century society.

The immediate spur to social change in England was, of course, the trade union movement and rise to political power of the labouring classes. Behind the new articulateness of working-class leaders bulked the scientific social inquiries generated at the end of the nineteenth century: Charles Booth's detailed examination of the life and conditions of labour of Londoners, B. Seebohm Rowntree's

disturbing study of the abrasive poverty in York, and the tireless research of the Fabian reformers.²

By 1904 a Privy Council-sponsored Inter-departmental Committee on Physical Deterioration had urged national reforms in the health and living conditions of low-income workers. Both the number of persons on poor relief and the costs of social assistance rose steadily, until by 1909 one person in every forty received poor relief, at a total cost of £14,717,098.³ The Royal Commission on the Poor Laws and Relief of Distress, sitting from 1905 to 1909, called for a separation of medical relief from the harsh principles of deterrence, and anticipated a vast extension of public responsibility for the sick poor.

Widespread poverty and unemployment continued unrelieved by the Unemployed Workmen Act of 1905 or the Old Age Pensions Act of 1908, while multiple strikes and lockouts highlighted the economic unrest and the increasing influence of French syndicalism. Private philanthropy could alleviate only a fraction of the economic misery in the sprawling industrial cities,⁴ and Edwardian political leaders were forced to abandon the comfortable Victorian conviction that poverty resulted from a failure of individual character.

Across the Atlantic a younger and far larger nation wrestled with similar problems of industrialization, of the phenomenal growth of overcrowded cities, and a rising labour movement. A population estimated at 76,094,000 in 1900 mushroomed by 1914 to 99,118,000.⁵ But social reform in the United States followed a separate pattern, and the redefinition of the government's role which took place in American society in these years emerged from different sources.

Englishmen by 1900 had already accepted the necessity for central government intervention for the public welfare to a far greater degree than had the traditionally States-rights, and broadly anti-authoritarian, Americans. Over the years of its national development, America had added another dimension to its original English tradition of freedom, in a greater localism and a deeper antipathy towards government regulatory authority. 'Rugged individualism' had been acknowledged in private affairs and public policy as a natural law, and the nation's rapid expansion of its Western frontier, extraordinary industrial growth, and mounting national wealth appeared to validate the doctrine.⁶ The Populist movement of the 1890s and the reforming drive of Progressivism in the next decade made substantial dents in the fixed national opposition to central state intervention. But nation-wide action for curative medicine, such as the Lloyd George Insurance Act of 1911 represented, found very few American supporters.

The American Progressive movement of the same decade, which

culminated politically in Theodore Roosevelt's Progressive (Bull Moose) Party in the 1912 elections, derived from different sources and aims than the contemporary Liberal Party reforms in England. Practical humanitarians and idealists could be found in both parties. Americans also had had a long tradition of protest and moral crusade. The Liberal Party's social reforms, however, drew strength from severe economic deprivation and a fear of the further political rise of Labour. Like Bismarck's legislative reforms, the social improvement wrought by the Liberal Government from 1906 on served as a pacifier and sought to maintain the fundamental social structure, if not all its iniquities. Progressives in the United States did not act from a fear of Labour. Instead, the movement found support from both major American political parties, and had a broad popular base. Its middle class leaders were progressives in part from a status upheaval which, in bringing to power the new plutocracy of the great interlocking trusts and business corporations, many allied with unsavoury political henchmen, threatened the old middle class power in the community. To the end of controlling these new adversaries, the corruptly rich, Progressives were finally willing to espouse federal government intervention.⁷

Armed with the vivid exposés of the muckraking journalists, like Lincoln Steffens, Ray Stannard Baker, and Ida Tarbell, the Progressives set forth a range of social grievances, and called for limitations on the giant business monopolies, for slum control, city planning, maternal and child welfare programmes and pure food and drug legislation. In its 1912 platform, spurred by a small group of intellectuals from the American Association for Labour Legislation, the Progressive Party fleetingly endorsed compulsory national health insurance.

PUBLIC HEALTH AND THE SANITARY CAMPAIGN

New York City's Amsterdam Avenue at the turn of the century was 'filled with squatters' shacks made of hammered-out tin cans and waste lumber, inhabited by ne'er-do-wells and swarming with goats'.⁸ Thus Dr. Josephine Baker (1873-1945), appointed New York's first Chief of the Bureau of Child Hygiene in 1908, characterized the areas she visited. In Chicago Jane Addams (1860-1935), who had modelled Hull House in steaming Halstead Street after Toynbee Hall in the East End of London, rebelled at the huge wooden garbage boxes fastened to the street pavements, in which the filth of district fruit peddlers and stockyards accumulated, and around which the neighbourhood children climbed and seized decaying missiles for their street fights.⁹

The city districts described so vividly by these eminent women

reformers did not typify all sanitary conditions in American life by 1900. But every large urban centre could duplicate similar states in close-packed immigrant slum areas. At least in the poorer areas, there were public boxes by 1900 for the garbage, which in 1865 had accumulated two to three feet deep in the streets.¹⁰ The United States from 1900 to 1914 was to make considerable sanitary progress in its large cities, but very little in rural areas, towns, and small cities.

What C.-E. A. Winslow described as the 'great sanitary awakening' in the United States had started as a local movement in Massachusetts about 1850.¹¹ It was based upon the ground-rules of such pioneering English sanitarians as Edwin Chadwick (1800-1890) and John Simon (1816-1904). England, through the work of hundreds of local medical officers of health and under the leadership, first of the Medical Office of the Privy Council and subsequently of the Local Government Board, had been the first nation to accept central government enforcement for sanitary reform, disease control, birth and death registration, housing improvement, industrial hygiene and the adulteration of food and drugs.¹²

By 1900 a national policy for sanitary improvement and disease control had been thoroughly established in England and Wales through the outstanding medical leadership at the Local Government Board of Simon and his successors, Edward Seaton (1815-1880), George Buchanan (1831-1895), and Richard Thorne-Thorne (1841-1899). Important base-lines for England's national programme for disease control were the mortality and morbidity statistics assembled by the Registrar General of Births, Deaths and Marriages - an office which had no national counterpart in the United States.

During the years 1900-1914 the Medical Office of the Local Government Board, under Sir William Power (1842-1916) and Sir Arthur Newsholme (1857-1943), advanced preventive medicine and the personal health services, with the development of a national programme against maternal and infant mortality and pulmonary tuberculosis. From 1907 on, with the creation of a medical department within the Board of Education under Dr. (later Sir) George Newman (1870-1948), the centre of gravity moved (as Newman recognized) 'from the environment to the individual, and from problems of outward sanitation to problems of personal hygiene'.¹³

The British national health programmes were unquestionably facilitated by the existence of a homogeneous population, central government health authority, and the appointment of some exceptional medical men to the Local Government Board. In contrast, the United States governmental structure, with its Federal-State dichotomy, delayed the development of a national public health programme until it was clear that local and State governments

were unable to cope with the problems. No express powers for the public health were delegated to the federal government in America's Constitution, and such functions as were centrally exercised were based on authority to regulate commerce, to tax for promoting the general welfare and to make treaties and to supervise federal territories and reservations. Acts of Congress authorizing specific public health programmes, and appropriating funds for such responsibilities, were necessary to develop a national health programme.¹⁴

The Federal Government had established a Marine Hospital Service in 1798 to care for sick and disabled seamen. Renamed in 1902 the Public Health and Marine Hospital Service, this slightly expanded authority in 1912 became the United States Public Health Service. Nineteenth century American sanitary reforms, however, were initiated by State medical societies and by the American Public Health Association, founded in 1872. The severe yellow fever epidemics of 1878 inspired the creation of a short-lived National Board of Health with advisory and investigatory powers. Congress, hostile for many years towards federal administrative agencies, opposed any extension of the Board's powers, and in 1889 its limited functions were transferred to the Marine Hospital Service.¹⁵

Both England and the United States, of course, in the opening years of the twentieth century, reaped practical rewards from the great bacteriological discoveries of the last thirty years of the nineteenth century and the development of preventive medicine. Declining death rates in Western Europe and the United States marked the international character of this advance. In England the Local Government Board's auxiliary scientific investigations into infectious disease set a model for government-sponsored medical research. Within the Marine Hospital Service, Dr. Joseph J. Kinyoun (1860-1919), after a tour of European laboratories, established in 1887 one of the first bacteriological laboratories in the United States - the 'Hygienic Laboratory', precursor of the National Institutes of Health. Even by 1900, however, American medicine had not developed a strong tradition of government-supported scientific research, as then existed in France and Germany.¹⁶

A few local health departments, such as that which Dr. Hermann Biggs (1859-1923) headed in New York City, set up diagnostic laboratories in the nineties, and began to furnish free typhoid vaccine and later, diphtheria anti-toxin to city dwellers.¹⁷ The actual Director of New York's Bacteriological Laboratory was William Hallock Park (1863-1939), perhaps the greatest of the applied sanitary bacteriologists of the time. Park possessed an extraordinary ability for discerning the significant bacteriological findings of this

period and utilizing them in the city's public health programme, and his research laboratory on East Sixteenth Street attained world-wide recognition.¹⁸

Despite both limited authority and annual appropriations, the Public Health and Marine Hospital Service expanded its activities from 1900 to 1914 – in laboratory research, investigation of severe outbreaks of infectious disease, field study and the medical inspection of aliens. From 1902 on, the Service convened annual conferences of State and Territorial Health Officers, which helped to break down local resistance to federal action. Federal health officers took charge of plague control programmes in the 1900 and 1907 outbreaks of bubonic plague in San Francisco, and operated yellow fever hospitals in the 1898 and 1905 New Orleans outbreaks.

Under the direction of Dr. Milton J. Roseneau (1869–1946) the Hygienic Laboratory from 1899–1909 initiated research on malaria, poliomyelitis, cerebrospinal meningitis, hookworm, and Rocky Mountain spotted fever, and developed many improvements in vaccination techniques.¹⁹ In 1912 the Congress formally authorized (and, more importantly, appropriated funds to) the Public Health Service to conduct field investigations – enabling an extension of programmes already under way. Yet a U.S. typhoid death rate more than three times as high as that of England and many Western European countries during the early years of the twentieth century illustrates the fundamentally weak role of the Public Health Service, in comparison to the Medical Office of the Local Government Board.

Further, those federal activities which were exercised during this period related almost wholly to public health and preventive medicine, and not to the personal health services, which England was developing so rapidly during the same years. Although a federal Children's Bureau was established in 1912, its early activities were limited by a very small budget.

THE PRACTICE OF MEDICINE

While it is relatively simple to draw overt cultural contrasts between the practice of medicine in a developing country and in a contemporary industrialized nation, it is more difficult to examine, historically, broad cultural differences in the practice of medicine in two modern societies. We can look at the degree to which society makes legal provision for public medical care, and the extent to which it regulates the licensing of medical practitioners at various times in history. Some estimate of 'before' and 'after' practices in medicine can be drawn, based on the dates of major medical findings and contemporary accounts of practice published in national medical journals. Medical advances from 1880 on, however, travelled swiftly

from country to country with the rapid development of international communication. The comparative study of medical training from one country to another offers an additional rich historical source, as do contemporary textbooks of medicine.

Even the study of contemporary medical autobiographies, however, cannot wholly recreate the day-to-day atmosphere in which medicine in the past was practised, or reveal the contemporary doctor-patient relationship from one society to another. It is possible, for example, to hear British physicians today, who have practised both in England and the United States, generalize that American patients are far less willing than English patients to accept unquestioningly various treatments which may be prescribed. If such speculation has any validity today, was it true in 1900, before popular women's journals and the *Reader's Digest* familiarized the American patient with the latest antibiotic, almost before it appeared in the medical journals? (Oral history interviews with surviving contemporary physicians might enlighten this point). But then, if true, would such an attitude derive from 'traditional' American anti-authoritarianism – or from the educational level of the particular patient populations concerned – or, simply, from the high costs of U.S. medical care in comparison with the British national health system? It is with such built-in reservations to understanding that comparative history in medicine is approached.

Quantitative comparisons offer limited, and not wholly comparable, base-lines.²⁰ The estimated United States population in 1900 was 76,094,000 persons; the number of physicians practising in the United States in the same year was 132,000 – about one doctor to every 576 persons. By 1914 the U.S. population had jumped to 99,118,000 – aided by the heavy immigration of the period. U.S. physicians by 1914 numbered 142,332 – one to every 605 persons. Despite the rapid growth of American cities, more people still lived in rural than in urban areas in 1914, and the United States had great variations from state to state in physician-patient ratios.²¹

England and Wales with a population estimated at 32,261,013 in 1900, had a total of 23,023 registered medical practitioners, or roughly one for every 1,401 persons.²² In 1914, 25,843 physicians in England and Wales ministered to a population of 36,960,684 – one physician for about every 1,040 persons.

MEDICAL EDUCATION AND QUALIFICATION

By 1900 cultural influences still entered significantly into the training and qualification of English and American physicians, and the slurring references to 'M.D. (U.S.)' which appeared frequently in British medical journals at the turn of the century had a justifiable base.

With the passage of the Medical Act of 1858, and the establishment of the General Medical Council charged with the maintenance of the *Medical Register*, admitting the qualified and removing the unworthy, England had put hitherto diverse standards of medical licensing by the Colleges of Physicians and Surgeons, the universities, and the Societies of Apothecaries, on a more orderly basis. Higher qualifications, such as the Membership or Fellowship of the Royal College of Physicians and of the Scottish and Irish professional colleges, were obtained by examination or professional election.

At the time the Council was set up, central government regulation for control of the standards of medical practice was still unwelcome to the English public, and the Council's efforts to persuade medical licensing bodies to improve their standards and examinations were initially slow. Gradually, however, through visits and recommendations to the licensing bodies, the Council succeeded in improving the overall standards of medical qualification.²³ The Medical (Amendment) Act of 1886, in making registration dependent on a triple qualification (in medicine, surgery and midwifery), strengthened the system.

The U.S. Federal Government has never licensed physicians to practise. Most states by 1895 had set up licensing boards, but these varied widely in quality. Medical training in eighteenth-century America had been initially sound for the time, based upon a four-year apprenticeship, followed by didactic and clinical training at one of the few university-based, hospital-connected schools, such as Jefferson Medical College in Philadelphia. Most of the outstanding early American physicians had supplemented their U.S. training with a period at Edinburgh or a Continental university. By 1870–1904 almost half of the best known American medical practitioners had received some training in a German university.²⁵

The inter-relationships of medical practice with contemporary culture were clearly apparent with the opening of the Western frontier in the nineteenth century and the great migration and growth of an American population west of the Mississippi, which created a tremendous need for doctors. Profits mounted swiftly for those with any claim to medical skill in the boom years of the mining towns. In Montana, then a part of the Idaho Territory, where the currency of the country was gold dust, medical prices soared: \$10.00 for a prescription, between \$100 to \$500 for an obstetrical case, and from \$200–\$1,000 for an amputation. Fees in Chicago near this period averaged \$1.50 for an 'ordinary visit' and \$10–\$20 for obstetrical cases.²⁶

During the nineteenth century, America had attempted to meet (or to capitalize on) the needs of the West by a prolific establishment

of privately sponsored 'medical schools', which were teaching institutions in name only. By 1900 America reaped the results of what Abraham Flexner (1866-1959) rightly termed 'a century of reckless overproduction of cheap doctors'.²⁷ In his monumental 1910 report on *Medical Education in the United States and Canada*, which brought far-reaching reforms in American medical education, Flexner observed that America did, indeed, have medical practitioners not inferior to the best elsewhere, but 'that there is probably no other country in the world in which there is so great and so fatal a difference between the best, the average and the worst'.²⁸

On the East Coast, at the Johns Hopkins University Medical School in Baltimore, the remarkable Dr. William Welch (1850-1934) had already started a programme of clinical investigation and laboratory training for medical students, which was shortly to become a model for the country. The private endowment of Johns Hopkins in 1893 and the multi-million dollar gifts of J. P. Morgan and John D. Rockefeller to Harvard University Medical School in 1901 and 1902 demonstrated the reverse face of what the Progressives termed the new plutocracy. From the successful mammoth business ventures, profits flowed philanthropically to endow many educational institutions, including medical schools, in a new tradition characterized by Dr. Oliver Wendell Holmes as '*richesse oblige*'.

As the influence of Flexner's disturbing report spread, American physicians throughout the country took a hard look at local training institutions. State Boards began to raise their standards, and the fly-by-night medical schools gradually died out. The number of American medical schools decreased from 148 in 1910 to 107 in 1914, and to 98 in 1917. The formation in 1908 of the American Society for Clinical Investigations by a group of young Harvard physicians brought further improvements to medical education and practice.²⁹

QUACKERY

Poorly trained physicians, of course, were not the only hazard in the treatment of illness. Quacks flourished comfortably on both sides of the Atlantic in the period 1900-1914. It would be fascinating to speculate on the varying cultural susceptibilities to quackery. But when the *British Medical Journal* in May 1911 put out a special illustrated issue of 80 pages on quackery, at least one medical contributor noted that quackery was part and parcel of humanity, which could only be abolished by abolishing the human race.³⁰

The editors of the *British Medical Journal* pointed out that quackery was most present among the poor. Its occasional 'success' was attributed to the remarkable, self-repairing powers of the human

body. Women, Sir John Byers (Professor of Midwifery, Gynaecology and Diseases of Children in the Queen's University of Belfast) observed, were 'more confiding and less wary than most men', and therefore particularly susceptible to quacks.³¹ In any event, for special 'female complaints' Englishwomen had available a splendid contemporary array of Pink Pills, Welch's Female Pills, Raspail's Female Pills, Towle's Pennyroyal and Steel Pills.

That gullibility had no sex barriers was apparent earlier in the United States, when the *New York Herald*, immediately before Abraham Lincoln's inauguration, blazed a front-page advertisement in reiteration type, reading:

PRESIDENT LINCOLN

(Repeated Three Times)

DID YOU SEE HIM?

(Repeated Four Times)

DID YOU SEE HIS WHISKERS?

(Three Times)

RAISED IN SIX WEEKS BY THE USE OF
BELLINGHAM'S ONGUENT³²

(Six Times)

Advertising of quack remedies and patent nostrums developed rapidly after the Civil War in America. Many Americans first learned of germs from advertisements of a flock of 'germ-eradicating nostrums', like William Radam's, all-purpose, miraculous 'Microbe Killer' (99.381 per cent water), the profits of which carried Radam from a Texas seed store to a Fifth Avenue New York mansion.³³

Muckraking journalism in the Progressive period was responsible for the passage of America's Pure Food and Drug Act in 1906, which required that manufacturers must label their products truthfully. Prior to the passage of this significant federal legislation, Samuel Hopkins Adams, a free-lance journalist, published a dramatic series of articles in *Collier's*, *The National Weekly* of 1905, entitled 'The Great American Fraud', exposing the patent medicine industry – its huge profits and its blatantly false advertising.

NEW MEDICAL HORIZONS

Even in the heyday of quackery, the extraordinary progress in both preventive and curative medicine in the last quarter of the nineteenth century transformed both public and professional expectations of medicine. By 1900 the remarkable drop in mortality and morbidity from infectious disease, the progress in sanitary engineering and

immunization, the overall swing from descriptive to clinical medicine, advances in diagnosis and surgery, the start of hormone therapy and the development of X-rays and bronchoscopy, broadened the potentials of prevention and treatment to hitherto undreamed-of horizons.

In the first issue of the twentieth century, the *Lancet's* editors noted that it was now impossible 'when standing on the threshold of a New Year either to pass in review in exhaustive manner the events of the year gone by, or to forecast . . . the important developments of the year to come'.³⁴

Irrespective of the *Lancet's* possible nineteenth-century predictive powers, the worthy editors could not have envisaged some of the highlights to come even up to 1914: the isolation of adrenalin (1901), isolation of the sex chromosome (1902), scopolamine anesthesia in obstetrics (1902), the electrocardiograph (1903), discovery of novocain (1905), Wassermann's serum diagnosis of syphilis (1906), demonstration of tick transmission of Rocky Mountain fever (1907), the standardization of iodine treatment in goitre (1909-1913), the introduction of Salvarsan (1910), toxin-antitoxin immunization against diphtheria (1910) and the range of vitamin and deficiency diet research.³⁵

These and other medical advances had a swift international impact, increasing the expectations of the American, British, and Continental public alike. They both accompanied and hastened the development of specialism, and the rise in costs of medical care.

The years 1900 to 1914 also introduced Sigmund Freud's revolutionary psychodynamic concepts – the sexual component of neurosis, the role of the dynamic unconscious and transference in human relations, psychological stages in development, and mind-body inter-relationships, together with his new method of psychoanalytic treatment. Freud's views met with few advocates and much hostility in Vienna, and were largely ignored in England (except by Ernest Jones). But by 1909, when Freud was invited to lecture at Clark University in Worcester, Massachusetts, psychoanalysis already had a number of enthusiastic transatlantic supporters. Freud attributed the favourable American reception of psychoanalysis in part to the absence of any deep-rooted, scientific tradition and 'much less stringent rule of official authority'.³⁶

Whatever the cultural variants responsible, these early years laid the foundation for the development of dynamic psychiatry in the United States, in a degree not approximated in England today. (It may be hazarded that the majority of English psychiatrists, whose prevailing culture still links introspection with 'bad form', would find no fault with this condition.)

THE PERSONAL HEALTH SERVICES

Psychiatry apart, the advance of scientific medicine, as Sir George Newman observed, had 'outstripped that of public polity'.³⁷ In England the national government after 1900, through the development of personal health services, moved to broaden the base of recipients of the new medicine. It was now clear that sanitation was not the only path to community health. The development of medical services for special classes of the community unable to care for themselves – in programmes to control tuberculosis, to reduce maternal and infant mortality and to improve the health of the school child – marked a public acceptance of the value of communal health.

In England major national legislation implemented the community's new responsibilities – the Children Act of 1908, the Midwives Act of 1902, the Notification of Births Act (1907), and the far-reaching Education (Administrative Provisions) Act of 1907, which created a medical department within the Board of Education and set up a full-scale school medical inspection service.

Both in England and America, national action for the personal health services was preceded and advanced by local programmes. In the United States, health officials in forward-looking cities like New York, Boston and Chicago initiated health programmes which attracted world-wide interest. When Robert Koch (1843–1910) preceded his participation in the Sixth International Tuberculosis Congress in Washington (1908) with a visit to the New York City Department of Health, he was astonished to find that a doctor could leave a throat culture at a neighbourhood drugstore at 5.00 p.m. and receive a telephone report from the Department of Health by ten o'clock the next morning. And he remarked to Hermann Biggs, General Medical Officer of the Health Department, that while most of the bacteriological and serological discoveries had originated in Germany, 'For my part I must admit with shame that we in Germany are years and years behind you in their practical application'.³⁸ (One wonders if mid-twentieth century service in New York City is as rapid!)

Dr. Biggs followed his anti-tuberculosis campaign by comparable, practical programmes to control infant mortality and venereal disease. One of Biggs' best appointments to his dynamic young staff was Dr. Sara Josephine Baker, Chief of the City's new Bureau of Child Hygiene. The pragmatic Dr. Baker, faced with a large non-English-speaking adult immigrant population, reached the parents by organizing public school-based 'Little Mothers' Leagues', to teach sound methods of infant care to adolescent girls, whose free time was spent in caring for infant brothers and sisters. So successful

was Dr. Baker in developing an overall school health programme, that when Sir George Newman later visited New York, he tried to persuade her to return with him as health director for the whole London school system. Dr. Baker refused, observing sensibly that 'such jobs belonged to citizens or subjects of the countries concerned'.³⁹

Model programmes of health reform, such as New York City, developed before 1914, represented the best the New World worked out. Many cities and towns lagged far behind.

A particularly American facet of the development of personal health programmes was the formation of voluntary national, disease-specific health organizations to sponsor the new community health services. Such agencies were not, of course, unique to America. By 1904, when the National Association for the Study and Prevention of Tuberculosis (later the National Tuberculosis Association) was formed, England, France and Germany had already organized similar national tuberculosis groups. But for the most part up to 1900 medicine and health had been the obligation of the medical fraternity, and not the responsibility of the community at large.

The voluntary organization concept spread rapidly to other health fields in America, and the multiple voluntary health organization proved highly successful in mobilizing community support for health service programmes.⁴⁰ Among some of the earliest were the National Committee for Mental Hygiene (1909), the American Association for the Study and Prevention of Infant Mortality (1909), American Federation for Sex Hygiene (1910, subsequently reconstituted as the American Social Hygiene Association), and the American Society for the Control of Cancer (1913).

The same years in America saw the extension of the physician's responsibilities for curing the sick to the treatment of child behaviour problems and delinquency, and concern with emotional health of children. William Healy's founding in 1909 of the Chicago Juvenile Psychopathic Institute, to bring a range of services to the Chicago Juvenile Court, was a landmark in the development of child guidance work.⁴¹

In 1909, also, Theodore Roosevelt convened a national Conference on the Care of Dependent Children. Three years later Congress established the federal Children's Bureau with investigatory responsibilities into infant mortality, orphanages, juvenile courts, accidents and diseases of children, child employment, etc.⁴²

England's more rapid development of government-sponsored personal health services for special population groups⁴³ had multiple sources – a political structure facilitating central health action, a homogeneous and geographically accessible population,

the appointment of liberal, forward-looking medical men like Newsholme and Newman to key government posts in these years, a long tradition of poor law medical care, a group of articulate, middle class social investigators and reformers, and a wider public acceptance of health as a national resource. In 1909, five years after England's Inter-Departmental Committee on Physical Deterioration, Theodore Roosevelt appointed a National Conservation Committee, which considered a report on national vitality. The report, prepared by a 'Committee of One Hundred on National Health', urged broader federal functions for the public health. Its recommendations had no immediate results.

NATIONAL HEALTH INSURANCE

The sharp contrast between the two nations' cultural attitudes toward public responsibility for curative medicine is more apparent in the passage of Lloyd George's Insurance Act of 1911. This political coup of the Liberal Government, which brought within a compulsory insurance plan 15,000,000 wage-earners receiving less than £160 a year, passed Parliament with bipartisan support. Its only vigorous opponents were members of the British Medical Association, who had already accepted the need for some form of public medical service, but who rebelled initially at the terms of the Act.⁴⁴ By 1912 the programme was in operation with the co-operation of British physicians.

America briefly considered compulsory national health insurance as a plank in the third-party Progressive campaign of 1912. But Theodore Roosevelt and the Progressive Party were defeated with Woodrow Wilson's election to the presidency that year. Compulsory health insurance in 1912 had little or no support from organized labour, and neither the Democratic nor Republican party even considered the subject seriously for more than two decades. Not until 1965 did the federal government enact the first national compulsory health insurance legislation, and then, only for the aged.

As the *Journal of the American Medical Association* observed in 1912, the English legislation was the start of a new era for society and physicians – and 'probably the most revolutionary for medical practice of any measure introduced in an English speaking country'.⁴⁵

Certainly, national health insurance was far from unique to the English people in 1912. Six Western European nations had by then adopted a variety of compulsory social insurance measures for sickness, accident and old age, based on Bismarck's 1883 model. That America, even in a decade of the Progressive reform movement, could not mount serious backing for a similar scheme (and has not even done so today) is a reflection of a culture substantially different

from England's, in time-base as a national state, in governmental structure, in contemporary national values, in population distribution and homogeneity, in public expectations of the availability of medicine, in degree of social commitment and receptivity to social control, and in economic alternatives to central government programmes – in short, the overall national culture.

Modern society, world-wide, is characterized today by a developing conviction that good medical care should be accessible to all human beings. As medicine has increased its powers to cure, it has multiplied again and again the need for trained manpower and the costs of care, whether to the individual or the collective society. The dilemma this poses from one national society to another cannot be easily solved.

References

1. SIGERIST, HENRY E., *American Medicine*, New York, W. W. Norton, 1934, p. xiv.
2. See summary discussion on the socio-economic and political background to new patterns of English state medicine in BRAND, J. L., *Doctors and the State, The British Medical Profession and Government Action in Public Health, 1870-1912*, Baltimore, Maryland, Johns Hopkins Press, 1965, pp. 165-172.
3. *Annual Report, Local Government Board for 1909-1910*, pp. xi, xxxiv, and xxxviii.
4. See OWEN, DAVID, *English Philanthropy 1660-1960*, Cambridge, Massachusetts, Belknap Press, 1964, *passim*.
5. *Historical Statistics of the United States, Colonial Times to 1957*, Washington U.S. Government Printing Office, 1960, p. 7. Comparative English statistics taken from annual and decennial reports of the Registrar General are those for England and Wales.
6. BEARD, CHARLES, and BEARD, MARY, *The Beards' New Basic History of the United States*, brought up to the present by William Beard, Garden City, N.Y., Doubleday, 1960, p. 340.
7. For a penetrating discussion of the whole progressive movement in the United States see HOFSTADTER, RICHARD, *The Age of Reform, From Bryan to FDR*, New York, Alfred A. Knopf, 1955, *passim*.
8. BAKER, SARA JOSEPHINE, *Fighting for Life*, New York, Macmillan, 1939, p. 52.
9. ADDAMS, JANE, *Twenty Years at Hull House, with Autobiographical Notes*, New York, Macmillan, 1923, p. 281.
10. Address of Stephen Smith in the *New York Times*, 13 March, 1865, re-published in Smith's *The City That Was*, New York, F. Allaben, 1911, p. 65. Dr. Smith was the founder and first President of the American Public Health Association.

11. WINSLOW, CHARLES-EDWARD A., *Evolution and the Significance of the Modern Public Health Campaign*, New Haven, Yale University Press, 1923, p. 25.
12. See FRAZER, WILLIAM M., *A History of English Public Health, 1834-1939*, London, Bailliere, Tindall and Cox, 1950, *passim*; and BRAND, *op. cit.*, Chapters I-IX, together with the bibliography of primary sources on the English health movement.
13. *Annual Report, Chief Medical Officer of the Board of Education for 1909*, p. 186.
14. WILLIAMS, R. C., *The United States Public Health Service, 1798-1950*, Washington, D.C., Commissioned Officers Association of the U.S., 1951, pp. 156-159.
15. KRAMER, HOWARD D., 'Agitation for Public Health Reform in the 1870s - Part I', *J. Hist. Med.*, 1948, 3, 484; Part II, *ibid.*, 1949, 4, 75-88. WILLIAMS, *op. cit.*, p. 76; SMILLIE, WILSON G., *Public Health Its Promise for the Future; A chronicle of the development of public health in the U.S., 1607-1914*, New York, Macmillan, 1955, pp. 337-338.
16. BLAKE, JOHN B., 'Scientific institutions since the renaissance, their role in medical research,' *Proc. Amer. philos. Soc.*, 1957, 101, 51.
17. SHRYOCK, RICHARD H., *The Development of Modern Medicine, An Interpretation of the Social and Scientific Factors Involved*, New York, Alfred A. Knopf, 1947, p. 315.
18. OLIVER, WADE W., *The Man Who Lived for Tomorrow, A Biography of William Hallock Park, M.D.*, New York, E. P. Dutton, 1941, pp. 469-470. See also WINSLOW, CHARLES E. A., *The Life of Hermann M. Biggs, Physician and Statesman of the Public Health*, Philadelphia, Lea and Febiger, 1929, in reference to New York City's campaign against tuberculosis.
19. WILLIAMS, *op. cit.*, *passim*.
20. The population figures cited for England and Wales are estimated populations given in the annual and decennial reports of the Registrar General for England and Wales. Statistics for registered medical men in England and Wales are from the *Medical Directory* for 1900 and 1914 respectively. U.S. statistics are taken from *Historical Statistics of the United States*, *loc. cit.*, pp. 7, 14 and 34. The 1900 figure included osteopaths, chiropractors and healers (not elsewhere classified in the census). The 1914 figure includes physicians and osteopaths.
21. ABBOTT, SAMUEL W., *The Past and Present Condition of Public Hygiene and State Medicine in the United States*, Boston, Wright & Potter Printing Co., 1900, p. 80.
22. The over-all number of registered physicians cited in the *Medical Directory* for 1900 was 35,651, which included an additional 3,462 physicians in Scotland, 2,559 in Ireland, 3,875 resident abroad, 2,705 in the Naval, Military and Indian medical services, and 27 'Too Late' to be classified. By 1914 the *Medical Directory* listed an over-all total of 41,940 physicians.
23. See, for example, RIVINGTON, WALTER, *The Medical Profession of the United Kingdom*, London, 1888, p. 100.
24. See accounts of the training of such men as John Morgan (1735-1789), Benjamin Rush (1745-1818), Oliver Wendell Holmes (1809-1894), Silas Weir Mitchell (1829-1914). SIGERIST, *American Medicine*, Chapter 4 *passim*.
25. BONNER, THOMAS N., *American Doctors and German Universities*, Lincoln, University of Nebraska Press, c. 1963, pp. 23-29

26. COLE, CHARLES K., 'The Status of Medicine in Montana; Past, Present and Future', May 1894, as reprinted in PHILLIPS PAUL C. and CALLAWAY, LLEWELLYN L., *Medicine in the Making of Montana*, Montana, Montana State University, 1962, p. 463; BONNER, *Medicine in Chicago, 1850-1950*, Madison, Wis., The American History Research Center, 1957, p. 209.
27. FLEXNER, ABRAHAM, *Medical Education in the United States and Canada, A Report to the Carnegie Foundation for the Advancement of Teaching*, Boston, D. B. Updike, The Merrymount Press, 1910, p. 15.
28. *Ibid.*, p. 20.
29. CHURCHILL, EDWARD D., ed., *To Work in the Vinyards of Surgery, The Reminiscences of J. Collins Warren (1842-1927)*, Cambridge, Mass., Harvard Univ. Press, 1958, pp. 192, 256-257.
30. Dr. George Pernet in the *British Medical Journal*, 27 May, 1911, p. 1242.
31. *Ibid.*, p. 1241.
32. *New York Herald* as cited in YOUNG, J. HARVEY, *The Toadstool Millionaires*, Princeton, New Jersey, Princeton University Press, 1961, p. 93.
33. *Ibid.*, p. 144.
34. *Lancet*, 6 January 1900, p. 39.
35. Summary reviews of the advances of early twentieth-century medicine appear in SHRYOCK, *op. cit.*, Chapters XV and XVI; GARRISON, FIELDING H., *An Introduction to the History of Medicine*, 4th rev. ed., Philadelphia and London, W. B. Saunders Co., 1929, Chapters XIII and XIV; CASTIGLIONI, ARTURO, *A History of Medicine*, 2nd ed., translated and edited by E. B. Krumbhaar, New York, Alfred A. Knopf, 1958, Chapter XX.
36. FREUD, SIGMUND 'On the History of the Psychoanalytic Movement', (1914) in *Collected Papers*, New York, Basic Books, 1959, Vol. I, p. 316.
37. NEWMAN, SIR GEORGE, *The Building of a Nation's Health*, London, Macmillan, 1939, pp. 34-35.
38. WINSLOW, *The Life of Herman M. Biggs*, p. 217.
39. BAKER, *op. cit.*, pp. 173-174. INGEN, PHILIP VAN, 'The History of Child Welfare Work in the United States', in M. P. Ravenal, ed., *A Half Century of Public Health*, New York, American Public Health Association, 1921, pp. 305-306.
40. ROSEN, GEORGE, *A History of Public Health*, New York, M. D. Publications, 1958, pp. 382-393.
41. STEVENSON, GEORGE S. and SMITH, GEDDES, *Child Guidance Clinics: A Quarter Century of Development*, New York, Commonwealth Fund, 1934, *passim*.
42. ROSEN, GEORGE, 'Part I - Historical Background', in *Mental Health Teaching in Schools of Public Health*, A Report of Conference Sponsored by Association of Schools of Public Health, Arden House, New York, December 6-11, 1959, New York, Columbia University School of Public Health and Administrative Medicine, 1959, pp. 30-31.
43. See BRAND, *op. cit.*, Chapter IX, 'New Patterns of State Medicine'.
44. *Ibid.*, Chapter XI, pp. 209-231.
45. *Journal of the American Medical Association*, 23 November 1912, p. 1890.

DISCUSSION

CHAIRMAN: Would Professor Titmuss speak to us about his paper on the Culture of medicine and Consumer behaviour?

TITMUSS: I would first like to apologise for a rather brief and in parts cryptic paper. It is only a first draft of something I should like to speak on at greater length, but as it is a short paper, I assume that people haven't had great difficulty in reading it.

In the introductory note, which I found helpful, Dr. Poynter suggested that at the heart of our discussions would be the topic of the rôle of medicine in a changing society, whether in Britain or the United States or China or India or any other society. The discussions which we had yesterday, for me, turned largely on medicine as a topical force, medicine as a body of knowledge. We discussed some of the cultural problems of the doctor in society, and the problems of medical education itself. This morning I want to consider some of the cultural aspects of the organised structures or institutions through which medical care is delivered, and attempt to relate them to some of the problems of the rôle and expectations of patients. One aspect in which I am particularly interested was the starting point of this paper. My interest in this subject, as a layman and not as a doctor, is in what we call scientific medicine, the impact of technological change on the doctor-patient relationship, on the rôles and behaviour of doctors and patients, and the extent to which we can identify the changes in scientific medicine and technology as affecting the doctor-patient relationship, and the expectations on both sides of the dialogue and the areas of uncertainty.

As a proposition, I should think it is arguable that scientific medicine, or modern medicine, as a body of knowledge can be considered as 'culture-free'. Penicillin has the same properties in Britain as in Tanzania, or China or Peru. The distribution of blood groups varies, but knowledge tested and predicted in these fields is universal. That is no criticism. As a body of knowledge it is culture-free. But *systems* of medical care, institutions and structures through which the body of knowledge is interpreted and delivered to patients are culture-bound in the sense that, historically and comparatively, they reflect the values, the philosophies and the cultures of different societies. Generalising, I suggest that while modern medicine as a body of knowledge is culture-free and universal, the attempt to deliver this body of knowledge produces situations of conflict and stress. I am interested in the nature of this conflict and stress which in part arises from this kind of hypothesis. There have been attempts by various disciplines, including medicine, to study the stress and conflict thrown up in this situation – arising in large measure by the

impact of science and technology. The economist asks questions about the impact of science and technology on existing systems of medical care in terms of costs, benefits, prices, resource allocation, market effects and so on. The sociologist attempts to look at these problems of conflict in terms of the rôles, functions, relationships, beliefs, and special structures of society. The medical scientist, the epidemiologist interested in the applied field asks questions about utilisation, methods and quality of medical care under different systems expected in the population. It seems to me that this study is fraught with the problems of conflict and change, among them the issues of choice and uncertainty in the relationships between doctor and patient.

The economists applying the old tests of economic theory to systems of medical care in many countries have suggested that it does not differ in any distinctive way from other consumptions of goods and services. I think there are a number of reasons why economists and others are asking these questions about modern systems. In my paper I suggest three or four. In Western countries, as the result of the changing rôle of medicine, and the impact of technology and science, first of all the patient now has more trust than in situations in folk medicine or, if you like, pre-scientific medicine. Another factor which the economists argue, saying that medical care is no different in its main characteristics from other consumption goods and services, relates, of course, to a higher standard of living and a higher standard of literacy of the populations of Western countries. A third factor which the argument of the economist produces is that the rising cost of medical care, and in a number of countries the cost of medical care is rising faster, and in this situation the consumer or patient should now have the right to choose in spending money between medical care and other alternatives. It is argued by some of this school of economists that as in countries like Britain and the United States medical care as a good on the market is less a 'threat to life' necessity than it was in the 19th century, that its concern is now with states of health, that generally speaking, when people are more concerned with states of health than with situations which are a threat to life, then the choice should be offered of spending more money on education, holidays, better housing as alternatives to the purchase of medical care.

Now in this paper I attempt to criticise this proposition and I do so broadly upon two grounds: again I ask a question about uncertainty and unpredictability in relation to medical care and in contrast to other types of consumption goods and services in modern society. Secondly, by asking questions as to whether we really can in this context generalise and talk about medical care as an entity in

a plant. Now as to the first, the problems of uncertainty, the distinguished American economist, Professor Kenneth Arrow wrote an extremely erudite article in the *American Economic Review* a few years ago on the uncertainty of wealth and economics in medical care. Kenneth Arrow came to the conclusion that virtually all the special features of the medical care industry stem from the prevalence of an uncertainty in knowledge and in understanding the relationships of doctor and patient. By following Arrow I then list 13 features, by no means definitive, but some of the most significant factors in the delivery of medical care in modern society which I suggest do differentiate medical care from other categories of consumption goods and services in the society. I will not repeat them in detail now. I have set them out already. They seem to me to be more significant when it is attempted to analyse and compare the consumption of medical care in terms of the consumption of cars and of other goods and services. In short it is the result of the impact of technological and scientific change on systems of medical care that the consumer or patient cannot have it. In short, as a result of the changing rôle of medicine, there must be an unequal relationship between doctor and patient – and I use the term ‘doctor’ here to indicate the whole system of organized medical care. I don’t think that medical historians have analysed sufficiently and from a sociological point of view the types of folk medicine which prevailed over much of Europe until the end of the 19th century. It has always seemed to me that the distinguishing characteristic of folk medicine, even the folk medicine of 19th century Britain, is the sharing of knowledge, that families and individuals shared the knowledge of medicines and disease and patient behaviour.

Very briefly, then, after looking at the problems of uncertainty and unpredictability, I turn to the second criticism of this school of economists. I must say I find when many economists interest themselves in a field like medicine – and maybe it’s like physicians interesting themselves in economics – I find in it something extraordinarily naive. Medical care may once have been an entity in terms of doctor-patient relationship and consisted of a personal dialogue between them. I must confess I find it increasingly difficult to generalise about medical care as a single conceptual entity, and so I have to say in looking at the question, ‘Is medical care a consumption good?’ I don’t think that this can be answered in terms of an entity of a concept of medical care. I have to break it down into its various components. I will have to do so if I am to look at it either in historical terms or in comparative terms different from the conceptions of medical necessity. And so, as a case-study and an example I look back at blood transfusion as ‘a consumption good’.

Very briefly I introduced the facts about the situation in the United States (New York) and in Britain. A great deal can, of course, be said and I don't want to embark on it this morning, about attitudes, beliefs, values, embedded in the whole subject of blood – anthropologists and sociologists have written a great deal about it. Its possession or its loss, in many cultures and societies, has been associated with such characteristics and values as fertility, vigour, courage, dishonour, or shame. Such studies as have been made – and there are only a few – on motivation in blood donations in the States, one or two in Britain, one in Australia, one or two in other countries, suggest extraordinary differences in motives for giving blood, differences of age, sex, family size, income group, ethnic group, religion. Time is getting short and I suggest that in this case-study, by isolating this one critical element in medical care of blood transfusion services and by applying such criteria as economists use of efficiency, efficacy or quality, and by contrasting two different cultural systems of blood transfusion, those in the United States and in Britain, I come to the conclusion that on these economic elements – efficiency, safety, efficacy – that blood is *not* a consumption good in terms of the categories which economists use.

CHAIRMAN: Thank you very much, Professor Titmuss. Did you happen to get the figures in relation to serum hepatitis?

TITMUSS: The latest authoritative figures are embodied in the Medical Research Council Report. That was some years ago.

GALDSTON: We also have a comparative incidence of hepatitis generally in the United States.

TITMUSS: Only in terms of particular cities, such as Chicago, New York and other major urban areas; that is, specific studies of specific situations. There is no general incidence rate for the United States of America.

CHAIRMAN: Thank you very much, Professor Titmuss. Now Dr. Brand.

BRAND: We have all approached the subject of medicine and culture from the viewpoint of our professional interests. Inasmuch as I am a social historian, I have followed the same pattern. The paper I have written attempts to deal historically with the basic issue of the conference, that is, 'Is medicine influenced by the prevailing cultural conditions in relation to any one historical period?' To the social historian this seems so obvious a point, but doubtless there are people who would not see it; but apparently all the members of the Symposium accept the fact that medicine is influenced by the prevailing culture. I was very happy to hear Professor Titmuss make a very good point which has not been brought out before, namely that medicine as a body of knowledge, can be considered culture-

free; but the practice of medicine and the systems of medicine are not. This also emerges from my own paper, which is a historical examination of medical care in the United States and England during the period 1900-1914.

It is interesting to see the wealth of historical evidence which supports the thesis that both countries in this period were coping with the broad problems of adapting their societies to urbanisation and industrialisation. Both were experiencing political and social movements for reform. England, which in 1900 was a country with 36,000,000 people, had already accepted the need for central government intervention for the public health and public welfare to a far greater extent than had the United States. England by this time had a central legislative authority functioning in the Local Government Board, which had carried out a broad sanitary reform programme. The United States, by 1914 a country of over 99 million people, had no comparable central government health authority, and this fact was to have a very profound effect on the whole development of our public health, sanitation, and personal health services on a national level. Health is not a function of the federal government in the fact that it is not specified as one of the authorities the federal government exercises under the constitution. What has been developed are derivative authorities such as the power to legislate on interstate commerce, which is one of the basic roots of the whole public health programme in our country today. If we look at the sanitary situation in England and the United States we can see that the lack of central government health authority delayed the development of a nationwide sanitary programme. The medical officers of the Local Government Board, both as people and as physicians, were a remarkable group who developed the country's sanitary plans from 1872-1914, and carried sanitary improvement farther than in the United States. Their work, while in part springing from their own abilities, was assisted in England by the existence of a homogeneous population, and of a central health authority, and by the long tradition of Poor Law medical care centrally directed which the United States did not have.

There were some quite exceptional local health programmes which were started in this period in the United States and particularly in New York City, which in some ways were more advanced than the programme being developed at the same time in England; but this did not extend throughout the country, and for the most part, in the United States the responsibility for developing personal health services in curative medicine was not accepted by the American people as a government authority or as a government service. It was not considered to be part of the Government's programme. I have

looked at the practice of medicine at this time in the two countries, but it is difficult to draw conclusions, as what comes down through the records may not accurately describe what was indeed going on. It is a fact that at this time America had a higher ratio of physicians to population than did England. There is also a mass of evidence that the physicians who were practising were on the whole less well qualified than in England, and indeed the opening of the Western frontier and other cultural factors peculiar to our culture had a direct influence on turning out numbers of poorly qualified physicians. There was a great need for medical care in the new Western areas and not enough physicians in the East who were interested in emigrating, and consequently private medical schools were set up throughout the country for training physicians without adequate academic or practical experience. The situation began to change after the Flexner Report was issued in 1910 and many of these schools were closed.

In discussing new developments in medicine during the period I should like to point out that Freud's psycho-analysis was more favourably received in America than in England, and that today psycho-analytical concepts and methods are far more generally accepted in our country than in Britain. The gap between the two countries' view of medicine and public responsibility for medical care is particularly evident in the conditions for National Health Insurance. As you know, by 1912 England had set in motion a compulsory National Insurance scheme. No such parallel developed in the United States and it was not until 1965 that any National Health measures were passed – and then it was only for the aged members of our population. The fact that one country was so early set in this direction and that the United States was not, is due, I think, to the fact that in the United States there were greater alternatives of private care. There was a large degree of difference in the acceptance by the people of social control; the whole Federal State structure which leaves the residue of authority not specified in the Constitution to the individual states affected the development of the government programme. We had no strong public health service at this period. We had a scattered population where many lived in remote areas not usually reached by a national programme and, a very significant point, there was no support from organised labour for social insurance.

This is a historical examination, very briefly, of the development of medicine in two developed countries. I think the determining factors in relation to culture and environment in relation to the practice of medicine are even more sharply seen if we look at a developing or under-developed nation. I would like to illustrate this

with an example I saw in the kingdom of Libya in N. Africa just two weeks ago. I was visiting friends in the Embassy there, and asked them if they would arrange a visit to a mental hospital. They took me to the only State mental hospital in the kingdom. Libya is an Arab nation of one and a half million people. Next to Saudi Arabia, this is considered the most backward by specialists. The mental hospital I saw has 900 beds. There are no primitive hardships. Libya found oil in 1958 and consequently can afford to hire foreign physicians. The hospital was headed by a Greek doctor with three Spanish assistants and – these are all cultural factors which determine the way psychiatry is being practised in Libya – none of them could speak Arabic, and because they were unable to speak the language none of them was able to carry out any psychotherapy. There are no women physicians in Libya, and, as you know, women in Libya still wear the veil, so the physicians were unable to study emotions in the faces of the women patients and so could not give psychotherapy. I asked them whether they used any psycho-pharmacological agents, and when this was translated, they eventually said 'No', and as I didn't say anything the Greek doctor said, 'Well, we have no nurses who can read or write and who could carry out our orders'. The only treatment which they were using for all their patients, other than psychotics, was E.C.T., Electric Shock Treatment, which is only used in our country for the worst type of psychiatric conditions.

This may be a digression from my particular theme, but it is very much in my mind that it has a bearing on our whole discussion of medicine and culture. In looking at the whole thing historically, I wonder what could be brought out from a practical point of view, and I think in any country there is a need to have central government planning and among the leaders in medical education people who have some knowledge of the predominant cultural factors in the practice of medicine. This seems very obvious but some countries do not have such people. There is a need to recognise that Western medicine as we know it may not be the most appropriate kind of medical care for all countries and inasmuch as Western nations are training physicians from the developing countries, there may be opportunities to provide training which is more appropriate to the developing nations. This is a point which Sir Aubrey made yesterday, and I think it is a most important point. The only other resource is the World Health Organisation, which has only limited funds and does not have specific responsibilities in this area. I also think there is a need to draw up a medical research and training programme for sociologists, anthropologists, social psychiatrists, and expand the physicians' consciousness of culture as a native factor in

medicine.

CHAIRMAN: Thank you very much, Dr. Brand. Now, who will open the discussion on the two papers?

GALDSTON: I am sure that this discussion will be prickly, but I want this prickly character to be unadulterated by the more balanced views which I am sure the people around will present. Let me first of all get on the record that I have an unbounded admiration for Professor Titmuss. I have publicly acknowledged this in some of my writings and I acknowledge it here before I go on to other matters.

What Professor Titmuss has just done is to parody the arguments of the neo-classical economists who insist that medical care should be classed as a personal consumption good. This is something that has been argued by British economists too, and Professor Titmuss has condemned, by a variety of statistical data, this concept of medical care and particularly the private market, thereby urging, in contrast to the others, the superiority of the public market as against the private market. May I remind you that public markets and private markets have operations which are justifiable in different cultures according to different circumstances. If we want to urge that the public market is universally superior to the private market, this is an uncultured approach to consumer behaviour.

First of all, I think you are wrong, Professor Titmuss, when you state that since 1960 doctors have been on strike on 15 occasions in 7 European countries. I know those statistics and they relate not to private markets but to public or semi-public markets. While I think that in the opening statement of your paper you have really crystallised the consensus of opinion of those of us here who are really interested in the culture of systems of medical care as a reflection of the cultural characteristics of society, you supported this with exaggerated statements of fundamentally correct facts and with a hotch-potch of statistics which are really without reason. For example, you make the statement that the consumer of medical care views his choice of the prevailing forms of it with a great deal of uncertainty – and you have said this to a point which I think is grossly exaggerated, because I don't know of any approach which a layman makes to any professional body or technical body without confronting the same amount of uncertainty. I think, for example, if the consumer approaches a lawyer he also approaches him with uncertainty and for that matter the plumber, or when you purchase canned goods. As a matter of fact, I think you exaggerate the degree of uncertainty altogether, perhaps because of the fact that you have not practised medicine but have practised only the philosophy and economics and sociology of medicine. It's notorious that patients go around peddling their doctors. It's notorious that patients break off

in the middle of treatment and go to see somebody else, so that although the statements you make here are partially true, they are untrue in so far as they are exaggerated and perhaps you go too much on the experience of Britain, where there are great difficulties in the way of the patient changing his mind, and which simply do not reflect experiences in other countries. You make the statement that medical knowledge is not a marketable advertised commodity. I don't know anything now that is more advertised in the United States and I suspect in Britain too, than this so-called medical care commodity. Our complaint in the United States is that the patient learns quicker than the doctor does of the newest miracle drug and comes and demands it. Statements such as that 50 years ago medical care was more a matter of spontaneous biological response or random chance I would quarrel with very much. It was *not* spontaneous biological response or random chance. It was good treatment applied to people with verifiable results. Not as good as today perhaps, but then lots of things have changed.

What bothers me most is your choice of example. I do not think that the most critical component in curative medicine today is blood transfusion. I would challenge you that the American and probably the Briton faces his doctor an average of five times every year, which amounts to quite a number of consultations, and perhaps only once in a life time, if that often, he has a blood transfusion, so I don't know that that is so terribly critical. Then you make certain statements here statistically which bother me. For instance, you contrast the fact that in a given number of years, say 10 years, blood transfusion in Britain has increased by 5.8% and in the United States 3% in the same period. It is true we have statistics. It does not give us the ability to compare these increases. You may have been so badly behind with blood transfusions in Britain in that 10 years that that 5.8% is only an effort on your part to catch up. I don't know. Secondly, I don't know that there is any demonstration at all that that number of transfusions, 5.8% is any better or represents any better medical care than 3%. As a matter of fact, in the United States I know that we are now convinced that blood transfusions should be given with a great deal of caution and only in cases of absolute necessity, as even in perfect blood transfusions it is the introduction of a foreign element and has a certain amount of a surgical risk.

And when we go on further you have statements here which I would very seriously question as to their validity and when I go back to the United States I intend to check up on them. First of all, we speak about the Skid Row denizen selling his blood. Well, yes, a certain small percentage. I don't know how many of your volunteers

might belong to Skid Row. The statistics are not given here. It is not true that commercial organisations just bleed them white. There is absolute control over that. The number of times they may be bled, and the haemoglobin content and sugar content which is basic to their bleeding. I think you make no mention at all of a practice that is now widespread in the United States of so-called 'blood deposits'. Volunteers can go in and can deposit blood in the hospital on the chance that they may or may not need it. That is pretty widespread. I think that the statement about operations being postponed daily because of a shortage of blood cannot be supported by the evidence; and I can call your attention to many operations which cannot be performed here because you don't have beds; and only yesterday I heard on the radio that if you go on producing hospitals at the same rate that you are producing them now, it will take 100 years before you are getting somewhere – I'm citing that on the same plane that you cite these things. I notice that you give the New York Academy of Medicine Report of 1956. That is 10 years ago. I don't know what that means. When you compare the figures for hepatitis it doesn't make any sense. We had an epidemic in the state of New York of hepatitis due to eating oysters. Have you taken that into your calculations? I doubt if you have. In other words, what bothers me here is that there is an argument propounded for the public market as if the public market were a universal good as against the private market and I would argue that that is uncultural, as the Russian says – you know they always emphasise culture. You know there are different places, different organisations, different systems, and Dr. Brand has included an important point in her paper; and that is that the American ecology from the point of view of economics, personality, opportunity, success and so on is radically different from that in Britain and they ought to be studied separately without necessarily abusing these cover values with the argument that the only kind of system which is universally good is the type of government medical service that you have in Britain.

HODGKINSON: I don't think Dr. Galdston has been quite fair in his criticism of Professor Titmuss's argument. In any discussion of the influence of a culture on its system of medical care one must take account of the political as well as the economic climate. And since our judgement is also based on history we must take account of the political arguments for and against the introduction of any measures which change a system of medical care. We also have to take account of medical facts. The epidemics of cholera in the nineteenth century and the prevalence of typhoid made it easier, once they had been traced to their source and the causes identified, to impose from above the public health measures to prevent these outbreaks. It is

true, as *The Times* once said, that the country might prefer cholera to Chadwick, but that was only in jest. And just as cholera helped the 19th century public health reformers, so the wars of the 20th century have helped the establishment of a national health service. It was realised and demonstrated that a country cannot afford ill health among a substantial number of its young men, especially when they are needed for the armed forces. So these too had to be imposed from above, and it was a political decision. The arguments of the old style classical economists cannot apply now, for there is no choice. The British system of medical care is integrated into a total social welfare service, perhaps not so closely integrated as it might be or certainly will be. These changes will have to be imposed if the whole machine is not to break down. And as for the element of choice among consumers of medical care in the United States, do they really choose? Have they all the necessary knowledge and experience to choose; to make a good and informed choice? The further medicine advances, the more difficult it becomes.

CHAIRMAN: Anyone else concerned with this question of sugar followed by castor oil?

HUBBLE: I believe, Sir, that this debate on economics is completely irrelevant to medical care. The choice has to be made by someone. And increasingly perhaps it has to be made in England by certain people concerned with medical care. There are other examples, I think, less tendentious than the one Professor Titmuss chose, and these examples I think apply equally in the private market and in the public market. If we take, for example, the problem of renal dialysis, which is beginning to be a difficult question, both here and in the States, we have to choose which person has a life more valuable to the state. In this country – and eventually in the States – the same question will have to be posed, because there is a limited amount of money, there is a limited number of machines available, there is a limited number of staff to operate them. Who is to make the choices? Well, the doctors in the hospitals in both countries will be making these choices, and somehow or other they have to establish criteria for this choice. They shouldn't be asked to make these choices alone. I heard this matter discussed last week in a Board of Governors' Meeting in Birmingham, and it was decided that in addition to the doctors concerned there would be added to the committee which has to make these choices, a social worker and a lawyer. This seems to me the right kind of procedure, and it seems to me that these choices have got to be made on the periphery; they are not going to be made centrally.

CHAIRMAN: I think that the wider implication is that, where you have a limited amount of money to spend on the Health Service,

whether you should spend any on renal dialysis at all, or whether you should spend it on better Maternity and Child Welfare care, whether as far as the country is concerned the interest which comes from *that* expenditure might not be greater. Who is going to make these choices? Take another instance, is it better that we should admit to hospital cases of advanced carcinoma? They will be occupying beds, and they are virtually there to die, and young people might be kept out of beds for six or twelve months or anything up to two years. This is something which impairs the country's productive capacity. These are the choices that you have to make. I think it is wise in a particular field to decide who is going to take advantage of a particular form of treatment.

POYNTER: It follows from your own remarks that we must decide how much is to be spent, and it follows from Professor Titmuss's question yesterday. I can't take credit for the information that I am going to give you. It is contained in a paper which I have accepted for publication in *Medical History*, and I wish very much that the gifted young writer of the paper were with us, as he could put it much better than I will. I can paraphrase it. The paper is a very detailed study of the Treasury minutes concerned with the Local Government Board between 1880 to about 1900. Dr. Brand provided in some detail in her paper, and just implied it in her comments this morning, the conventional view of the achievements of the Local Government Board as if it were something that sprang from the natural progress in the country – Government supported, Government encouraged, and so on, and that the leaders of the Local Government Board were far-seeing and enlightened men. The detailed examination of the Treasury minutes presents a very different picture indeed. It shows a picture of one or two hard working doctors who decide to send out inspectors; these inspectors produce reports from which ideas are generated, which are presented in memoranda to the Treasury, and from these memoranda springs action – eventually. Now this is 'doctor-generated' action, and it ties up very well with the point of view held by Dr. Keele and which I believe he wishes to speak on later; that there is a special *medical* outlook. We have heard a good deal about how culture influences medicine, but not so much has been said about how much medicine or the physician influences culture. Here we have a situation where the doctor was doing his best to change society. The Treasury was in the hands of landowners, perhaps aristocratic landowners with a classical education, who among themselves probably spoke of doctors as quacks: 'Always giving us trouble, always asking for more money, always presenting us with schemes for doing things and in the end complaining because they are overworked. We don't

want them to overwork. We want them to come into their offices and stay from 10 – 4, write a few letters and be happy with their salaries!’ Now what was happening, in fact, was that Thorne-Thorne and these other people were working themselves to death. It was their own volition – nobody was *asking* them to do it. It sprang from their own awareness of the needs of their society, and it grew and grew like a snowball. They wanted more Inspectors, they wanted more Secretaries to write out the reports, and each time there was enormous Treasury opposition to their requests; it is quite clear from the letters cited that Thorne-Thorne and some of the others were almost suicidal about it and certainly extremely neurotic. I won’t go on any longer about this as you will have the opportunity of reading this very substantial and enlightening study. Dr. Brand will be pleased to hear that it is by a young American who has become more and more involved with medical history and medical problems and is now working at the Science Policy Research Unit in the University of Sussex as well as being a Fellow of Churchill College. I think it does reinforce Dr. Keele’s view that there *is* a medical outlook, that the doctor is a generator of ideas and a generator of action which benefits the community in which he lives and helps to change its structure.

HODGKINSON: This was only really possible to that extent in the 19th century when the doctor was very much closer to the people than he can be now. There were many doctors who had an intimate knowledge, far more than they have now, of the social conditions and the social policies which were needed.

BRAND: I should just like to respond to Dr. Poynter’s accusation that I had written conventional medical history in speaking of the accomplishments of the medical officers of the Local Government Board during this period. I should like to remind him that I was presenting a comparative study of the situation with regard to public health in two different countries, and by comparison with what was happening at the time in the United States these men were, in fact, achieving a great deal, even despite the political leaders of the Board.

LEAVELL: I was interested in Dr. Poynter’s comments about the physicians and their work with the Local Government Board, and I wondered what would have happened in America if we had had not only a thorn in our flesh, but a Thorne-Thorne. Dr. Brand didn’t specifically say so much about that; it seems to me she did mention the political aspects and the differences there – the absence of anything quite comparable to the State in the United Kingdom, which seems to me an enormously important point in analysing the two situations. There seemed to be nothing much between the Central Government and the Local Government Board as such, which

would certainly make up for States Rights problems and things of that kind, and that might be mentioned. She did mention the World Health Organization and social sciences. It seems to me that in the world there is no better opportunity to use the social sciences in relation to health than the World Health Organization, which has *almost* not used them at all, which I think is a very sad situation. They have had a few anthropologists on short-term assignments, but have consistently refused to build this into their establishment. She spoke of the need in planning for people who understand the dominant factors in culture, and I certainly agree with that. I was thinking yesterday afternoon what would happen to our medical students – and by 'our' I would like to include all of the countries represented here – if we asked them in their final examination: 'Please define what your Culture holds about health'. I wonder how much of a satisfactory answer we might expect to get from our students, and this might be the method we would use to evaluate how well we are able to relate the results of this conference to their incorporation into medical teaching. One point about Dr. Titmuss that I hoped he would develop a little more was the statement about the scientific aspects of health being 'culture-free', and the delivery system being 'culture-bound'. I hope that somewhere along the line this idea will be developed a little more. I think it generally is sound and should help us a good deal in our problems. I am reminded of what a very interesting physician in Sierra Leone once said about Africa. I cannot quote him precisely, but the substance was: 'Please do not send us potted plants. Send us seeds which we can plant in the African soil, which can go through the African rains and sunshine and develop their own fruits. These will probably be quite different from the potted plants, but they will be African and they will be ours, and we will like them and use them.'

GUERRA: Both the paper by Professor Titmuss and the one by Miss Brand apply to western society and I think it is pertinent to remind ourselves that there are other areas where the consumer market has a completely different connotation. I wish to bring into the discussion the problem of native pharmacopoeias, which are of considerable importance as far as the consumer markets for South America, Africa and Asia are concerned. We are now facing a great renaissance in studies of local pharmacopoeias and we have to keep in mind, for instance, that in the last five-year plan of the Chinese Government, the efforts of the Government tended to encourage the use of the native pharmacopoeia. As a pharmacologist, I was horrified to hear some colleagues of mine in the Pharmacological Society in America express the belief that the whole market of China had been forced back to the utilisation of traditional drugs, putting in jeopardy

all the scientific advance that had been made in Europe and America. My own experience is that in many places, the consumer market for patent drugs for western medicines, to which I believe Professor Titmuss was referring, has little relevance when applied to the South American or African scene. An Indian in South America, which has no scheme of social security, is faced with the choice of using a drug which is going to cost him probably the equal of three or four weeks' income, and a local drug which he can probably pick up in his back garden. Sometimes people are cured in spite of the medicine they take. I wish to call the attention of the Symposium to a very important cultural factor in consumer markets with respect to medical care. Two-thirds of the world population is still relying on medicines which are not scientific products and which are not supplied through any scheme of social security. From the economic point of view this probably has more relevance than the statistics given to us by Professor Titmuss.

DODDS: May I express, as a layman, a certain sneaking sympathy with Professor Titmuss's uncertainty principle in medical care. When we were discussing yesterday how to identify a good teacher, the general shaking of heads round the table seemed to imply that it is impossible to tell, that you just take chances. Dr. Galdston has pointed out that it is true in other professions too; it is true in Law just as much as in Medicine. It seems to me in general that the medical profession is even more protective of its inefficient members than the teaching profession. To find a good doctor is not only a very important social problem, it is a very important personal problem too.

TITMUSS: Before we close this session, I would like to say publicly what I have already said to Dr. Galdston privately, that his academic criticisms of my paper in no way change our good friendship. This is a healthy and frank discussion. I did say at the beginning that this was a brief and selective paper, particularly with regard to the case-study or example I took of blood transfusion services. I should like to answer his question about my sources. The Director of the New York Blood Transfusion Center, which is supported by all the great medical foundations and which has, I understand, very high standards, is one source. The Report of the New York Academy of Medicine, of 1956, supplemented by the Report of the Joint Blood Council of 1962, is another source. The Director of the second-best community blood centre in the United States, that at Seattle, is another source, and the Biologic Standards Division of the National Institutes at Bethesda is another.

Had I more time, I could have provided a more balanced paper by including studies of the blood transfusion services in the U.S.S.R.,

and I think that these would have reinforced my point that whereas what we know in terms of tested scientific knowledge about the composition of blood, the problems, in terms of health or disease, of cross-matching and incompatibility, this is a universal knowledge, applicable in China or India as it is in Great Britain or the United States. The problems in India, though, as in this country and the United States, are peculiar to the country, and the whole institutional structures through which blood is obtained, tested and transfused, break through systems and reflect the cultures of each society.

With regard to my choice of case-study, I selected blood transfusion not because it is a commonplace procedure, but because it seemed to me to be critical in the sense that in this area we are dealing with matters of life and death. I am not saying that one system is better than another. What I am saying is that different systems of culture or medical care affect the delivery of medical services. My choice of study is particularly important with reference to the rise of road traffic and the increase in road accidents – this is a critical area in many societies. My references to Skid Row were taken from American sources. It is clear from the studies that have been made in Chicago, New York, Los Angeles, and other great urban areas that the majority of donors are unemployed, unskilled, and of low-income groups, with a substantial proportion of negroes. I am interested in this as a system of redistribution in terms of the donors and recipients of blood in different systems.

I am sorry that this looks like a hotch-potch of statistics. It was meant as a value judgement.

HODGKINSON: The question of blood transfusion is only one of many factors in the field of medical care. What emerges from what Professor Titmuss has been saying is that we should aim at a universal system of medical care, for among the peoples of developing countries it is not only a question of cost but of knowledge as well. I am reminded of what the World Health Organisation has said about health being one of the social or human rights of every citizen of the world, and we have to make sure that people are able to exercise this right, even in the United States. I know from personal experience of families there, in a so-called affluent society, which have been almost ruined by the cost of medical care. If this right cannot be guaranteed even in the United States, how can we hope to do so in the very much poorer countries of the world?

PICKERING: I am sure you are anxious to avoid any discussion of the merits of the two rival systems because, from my experience, it can become rather heated. I think there are two minor errors of statement that I would like to correct, that is unless my colleagues disagree. I'm not sure that there has been any great change in the

freedom of the patient to consult the doctor of his choice since the National Health Service came into being. Dr. Galdston said that it was impossible to break off treatment in the middle. This is not so, and I have seen many instances of it. As far as free choice of doctor is concerned, I think it is still as free as it ever was, except with the minor bit of red tape that to transfer from one practitioner to another I think you have to wait two months. There is not such a free choice of doctor in the United States. The choice of doctor is always limited, first by geography, second by loyalty, and third, by ignorance. It is always difficult for a patient to know who is the right doctor unless he or she has access to some really skilled advice. I find that one of the things I have to do for patients who come to live in my area is to find out who is the right doctor for a particular patient – it isn't always the same man, because some people just don't get on well together.

CHAIRMAN: May I just make a correction of fact, because I do not want to enter this discussion. If you want to change your doctor under the National Health Service, the waiting period is not two months, but two weeks; you are able to change your doctor immediately with the recipient doctor's consent. The second point is that there is, as Sir George says, no freedom of choice when the doctor is prepared to accept fees, for these determine the choice on the part of the patient. What is true here as in other countries is that there is freedom to the extent that you need not have the doctor that you don't want to have. You may not be able to have the doctor you want because, very often, in the old days, there were some doctors who just could not see all the patients who wanted to see them even if patients were prepared to pay very heavy fees. Nowadays, and this may or may not be an advantage, under the National Health Service, no patient need have a doctor he does not want. This is a very small liberty and one which is sometimes very difficult to ensure, as there may be only one doctor in a village. On the other hand, geographical factors enter far less into the element of choice in Great Britain, except perhaps in the highlands of Scotland, than they do in the United States. Of course, the question of deciding who is the right doctor is, as Sir George has said, a question of the seed and the soil. The doctor may be the same but whether the seed flourishes or not depends upon the soil. This is the kind of choice we often have to make. For instance, how did we choose the members of this Symposium? It was done on the basis of previous experience and knowledge. But I won't go on – I wanted only to make the facts clearer on the changing of doctors and the choice of doctor.

GALDSTON: I have one or two comments. First, in reply to Professor Titmuss, to say how sorry I am that I had to comment as I did on a

paper which he confesses was unbalanced. Second, in reply to Dr. Hodgkinson's observations. She illustrates what I have tried to signal as a generalization which emerges out of certain persuasions about medicine which history has propounded, to wit: Medicine, that is, the administration of medical care, is really a terribly important component of health. I do not believe it is possible to substantiate that. If I were to follow the logic of this nice statement of the World Health Organisation's that health is a natural right then I would say that health depends on nutrition and a number of biological factors which are themselves linked with economic and political factors, and I would like to extend that argument to say that every man has a natural right to the best of all possible existences! Once you get into *that* I have to spill over into a consideration of Lord Cohen's very astute observation that – as the British Government has discovered – there is only so much money, and other resources, only so much time and skilled manpower. I just wonder whether the taxes drawn to provide for administration and expensive bureaucracy might not be more effectively distributed among the population to earn more bread and other things to achieve health. I don't know. That is the sort of thing an adequate perception of culture in relation to medicine should highlight and prevent us from making these statements that roll so wonderfully off the tongue but are so very bitter when it comes to administration and execution.

CHAIRMAN: I know that with great restraint Dr. Keele has been waiting for the opportunity to say something and I think that now I could give him the opportunity. Dr. Keele, do carry on as if you were contributing a paper.

KEELE: I wanted to stress the point that we have arrived at in the last few minutes. From the first we have all been aware of the influence of our culture on our medicine, of our different cultures on our different systems of medicine. We have been talking about our subject this way round for the past two days. I want to lay far more stress on the converse, on the influence of the doctor, physician or any medically qualified person – indeed any person with a medical outlook – on his own contemporary culture. This seems to me to be not only desirable but urgent for surely it is now more urgent than ever before that we should exert our medical influence on other sections of society. It all comes down to begin with I know, to certain conditions of health care. We have come by habit and convention to use the word culture to express values, and we expect to find these values in Religion, Art, and indeed during the past fifty years also in Science; and even between the wars in the organisation of our human Societies. They are the forms of expression of our

civilisation. Now these values have been derived by people who have good health and, as I have said before, the people who have health are not aware of it. They take no notice of it. If you ask people what they value most in Society they talk about the political situation, about Science, even about Religion, but they never mention health. The world of health lies deeply assumed, largely it is unconscious, at least sub-conscious. This point was appreciated a long while ago by various thinking people, perhaps first by the Hippocratic writer of the work 'Ancient Medicine' when he said that all sides of life could be reached by medicine. . . . It sounds an extraordinarily prejudiced point of view, but it was the point of view of at least one great Greek thinker. Another voice to which we should listen is that of Descartes, in his *Discourse on Method*. I will indulge in a quotation from this work because I think it is very relevant to our discussion. Descartes said:

'It is possible to obtain knowledge which is very useful in life. Instead of a speculative philosophy which is taught in the schools we may find a practical philosophy by means of which, knowing the forces of action, of the elements, the heavens, and all other bodies of the environment as distinctly as we know the different crafts, we can in the same way employ them in all those uses to which they are adapted and thus render ourselves masters and possessors of Nature. This should not be merely desired with a view to the invention of an infinity of arts and crafts which can be enjoyed without any trouble, but also because it brings about the preservation of health, which is without doubt the chief foundation of all our blessings in this life. For the mind depends so much on the temperament and disposition of the bodily organs that, if it is possible to find a means of rendering men wiser and cleverer than they have hitherto been, I believe that it is in medicine that it must be sought.'

We see that Descartes, who was not a medical man, put medicine in the central position in his concept of human development. In the same *Discourse* he remarks, 'I have resolved not to employ the time which remains to me in life in any other matter than to acquire a knowledge of Nature which shall be of such a kind that it will enable us to arrive at rules for Medicine more assured than those which have as yet been attained'. I would have said that Descartes' thought provides a motto for this particular Symposium. This is surely what we as medical men are trying to do. Descartes himself, though not a physician, combined a scientific outlook with a medical philosophy of life. He was medically orientated. This shows up in the rest of his works, even in his *Analytical Geometry* and his discovery of the laws of refraction of light which he applied to the Mechanism of

Vision.

One other person with a similar outlook whom I would like to quote is the great pathologist Virchow, who spoke particularly appropriately in his capacity of an anthropologist. He too, just 100 years ago, tried to launch the same ship of medicine in society, and he too failed. Virchow took the view that:

'If medicine is for the healthy human being as well as the ill one (which it ought to be), what other science is better suited to propose laws as a basis of the social structure in order to make those effective which are inherent in man himself? Once this theme is established as anthropology . . . the physiologist and practitioner will be counted among the elder statesmen who support the social structure. Medicine is a social science in its very bone and marrow. No physiologist or practitioner ought ever to forget that medicine unites in itself all knowledge of the laws which apply to the body and mind.'

Virchow with his medical vision saw anthropology as containing the seeds of a human social ideal. I don't like using the easily misunderstood word Humanistic, but I must use it at this stage in the limited sense of its human application in the term Humanistic Science. Humanistic Science extends naturally into the realms of Public Health, politics, patterns of civilisation, and throughout human culture. It is not a false hypothesis of Hippocrates that all who look for wisdom will find it in Medicine. We must appreciate that when people are educated, they are imbued with different outlooks; we recognise the artistic outlook, the scientific outlook, but somehow we seem to have developed our society without realising that there is an outlook for which it is difficult to find a word, but which I will call the medical outlook, which represents the most basic outlook on life of them all. I believe that there is an urgent need that this omission should be corrected. In the past medicine depended for its very existence on humanistic values, some of which we have been discussing. Medicine itself gave birth to many sciences – to astronomy, to botany, to zoology, if not to physics and chemistry. Itself the mother of these studies, Medicine has gone on generating arts and sciences. Now these young sciences have grown up; they have become independent, and indeed many of them have become more scientific than medicine itself. At one time Medicine was euphemistically called a science. Nowadays, within the last two or three decades, we carefully distinguish between scientists and 'medical' doctors. I think this is a healthy differentiation because it stresses the rich outlook of Medicine.

In Medicine we want all we can get from Science, but there will always be something left over even when this condition is fulfilled.

This is because the purpose of Medicine is homocentric; man is its basis, man is its coin, and in terms of Medicine man is the measure of things. Because we must have Medicine as scientific as we can make it, we in Medicine fall between the Arts on one side and the Sciences on the other. As Sir George said to us, Medicine is a bridge between the arts and sciences, and this should be its function in the cultural field. As I said, Medicine is only beginning to distinguish its own identity from the Sciences, as it does so it should develop its distinctive outlook and add strength to medical values; it should inculcate these values into the arts and sciences, because in truth neither the artists nor the scientists would be able to work without their help. But they assume this help, and go on assuming it. I like the apt reference to penicillin being 'culture-free'. If 'culture-free' means ridding ourselves of diseased local cultures and freeing the medium for a universal culture, a basic world health culture, then it is desirable. The World Health Organisation already tries to represent values which are international and which are greater than many of the local cultures which obstruct it. That medical men have greatly contributed to enlightenment in the past, Sir Aubrey emphasised this morning.

Reginald Scot, a man with a medical outlook, enabled us to get early enlightenment in this country regarding witchcraft; and I would raise high the name of Southwood Smith who started so long ago the campaign which through the non-medical Chadwick brought an administrative fruit which presaged the National Health Service. These are medical men who have influenced our society radically, but few artists or scientists seem to be aware of their existence; this is because their influence was deeper than the accepted level of culture. So it happens that this fruit of humanistic science is assumed as much as the sunrise or sunset. More recently one is seeing the effect on social values of psychiatrists in this country, which Sir Aubrey Lewis also mentioned. This is a result of focusing the medical outlook on the mental states and behaviour of our citizens. These are examples of fields where medicine may lead the way to culture, by altering our basic sense of values. After all, the essence of a growing culture is that it must change as our environment, and indeed we ourselves, must change.

CROMBIE: May I add a footnote to that? I hope you won't mind my correction, but it was not Descartes who made the two discoveries mentioned by Dr. Keele. The law of refraction was discovered by an Englishman, indeed an Oxford man, Thomas Hariot, in 1601. The mechanism of vision was discovered by Kepler in 1604, based not on the law of refraction, of which he was unaware, but on an approximation to it. In this connection we have a very interesting example

of what really happened in the discoveries of scientific facts of value to medicine. The medical profession looked to Galen as their guide to medical science, and although Galen gave a very interesting account of the eye, he seemed entirely unconcerned with its physiological mechanism. This was investigated as a problem by the natural philosophers, starting effectively with Alhazen around the year 1000 A.D., and carried on by Robert Grosseteste and Roger Bacon. It also attracted the notice of a group of what I might call 'artist-engineers', the most notable of whom was Leonardo, as well as those who were interested in what was called Natural Magic, represented by the work of della Porta.

What is interesting is that the medical profession for the most part ignored the work of the natural philosophers and mathematicians and was very suspicious of those who indulged in studies of 'natural magic'. In his own description of the eye, Galen apologised for using mathematical optics of the Ptolemy type and said something to the effect that his patients and the world in general would be very suspicious of his value as a doctor if he said he knew any mathematics. It seems that this became the general attitude of the medical profession towards such things, for we find that Fabricius, Harvey's teacher at Padua, gave an excellent anatomical account of the eye, but did not treat the lens as an optical instrument at all. He discussed it in the same way as Galen did, and yet Fabricius was aware of the work of della Porta and others, but simply refused to recognize the relevance of their work to the problems of vision. Here then we see new scientific knowledge growing quite independently and almost in spite of Medicine.

HODGKINSON: I am rather worried about this statement of Dr. Keele's. He begins by quoting Hippocrates and Descartes to imply that Medicine must be integrated with the whole of culture, and especially the whole of science, but then it seems that he goes on to re-define it to equate Medicine itself with the whole of culture. There are many aspects of culture which Medicine cannot concern itself with.

KEELE: I think I can answer that. *I* have not re-defined Medicine, but Medicine has re-defined itself. We are not limited now to mere diagnosis and treatment, and it seems to me that it has expanded far beyond that. If you accept prevention and all that it implies, you find that there is not very much which cannot be the concern of Medicine, much as some people may dislike the fact. As Dr. Hodgkinson said herself earlier in the discussion, the institution of practical measures of hygiene and public health in this country was not done by the unanimous will of the people – to a large extent it was imposed from above. When health laws have to be formulated

and imposed it is presumably those who have studied the problems from a medical as well as a social point of view who will make the decision, and this enormously expands the rôle of the doctor.

POYNTER: Isn't Dr. Keele claiming for doctors what Shelley said of poets – that they are 'the unacknowledged legislators of the world'?

CHAIRMAN: Medicine has made the point that health is a valuable commodity. There are many cultures where men put health on a pedestal as something that must be sought above all things.

GALDSTON: Dr. Keele has reanimated the idea that was propounded in ancient Greece, that the finest physician is the one who attains to philosophy. Perforce the physician had to become a philosopher. From our historical point of view I think it is significant that it was precisely with Descartes that the idea of a physician being also a philosopher was knocked on the head. Etienne Gilson, the French philosopher who has written an excellent assessment of Descartes, has emphasised that it was from that period arbitrarily accepted not only that philosophy was separated from Medicine, but that the exponents of Medicine began to regard any philosophical intrusion upon medicine as an undesirable foreign body. A number of them established the specific school which announced that anything that could not be mensurated was alien to them. I want to make a plea for the broadest possible interpretation of the realm of Medicine, and that if Medicine is to be really effective in the larger collective sense then mankind must have an appreciation of the value of health, and those who don't know it must be taught it.

CHAIRMAN: The rôle of doctors in public must be a limited one, and probably the best he can do is to inspire a politician to work for the ideals which he thinks are attainable and to convince him of the great benefit which would accrue to the community if the health of the people were improved. If we consider what was the average expectation of life at the beginning of the century, we cannot help wondering about what was lost to the world by early death. This is the medical point of view which has to be stressed. I agree that for a long time Medicine rejected science as appropriate to its function – look at the time it took for Harvey's discovery of the circulation to take effect – but now the pendulum has swung the other way. Medicine has broadened its base and now depends not only on many scientific workers but on many who belong to ancillary professions. Sanitary inspectors, inspectors of food and water supplies, are just as much part of the medical body which serves the community in contributing to its health. The medical outlook does not only apply to the medical profession. Dr. Keele has rightly stressed, I think, the close relations which existed for so long between medicine and philosophy, and medicine has also had throughout history

close relations with religion. This will be discussed by Dr. Guerra and will probably enter into the other papers which discuss medicine in India, Africa and China. We shall resume our discussions this afternoon.

END OF THIRD SESSION

THE ROLE OF RELIGION IN SPANISH AMERICAN MEDICINE

by *Francisco Guerra*

Tantum religio potuit suadere malorum . . .

Lucretius, *De rerum natura*. I, 101.

THE CATHOLIC CHURCH may be singled out as the most important cultural factor in the evolution of Spanish American medicine, from the initial transfer of western medical doctrines to the establishment of definite patterns of medical care in the New World, her influence deriving from her amalgamation within the dynamic psychology of pre-Columbian religions rather than from her charitable practices.

SPANISH MEDICAL COLONIZATION

At the dawn of the sixteenth century Spain was the strongest defender of the Catholic dogma, which had been of paramount importance during the process of her national integration, the struggle against the Arabs, the expulsion of the Jews, the stand on Reformation, and the proclaimed motive for the evangelical conquest of America. With the *Inter caetera* Bull of Pope Alexander VI in 1493 and successive decrees a grateful Papacy had granted Spain considerable privileges for the colonization of America, but committed her once and for all to the absolute 'Romanization' of the colonial enterprise, as has been pointed out elsewhere (1963). The Spanish conquest of America, which began as a multiple private enterprise of Catholic conquistadors contracting with the Crown, matured into large viceroyalties heavily dependent on centralized government, and medical care developed according to metropolitan models with severe limitations when applied to the enormous territories and large populations of the American colonies.

It was in 1541 when Charles V of Spain ordered the Viceroy to provide hospitals in every town for Spaniards and Indians in order to treat the sick poor and exercise Christian charity. In 1570 his son, Philip II, established the American Protomedicates after the image of the same Spanish councils which were empowered to examine practitioners, inspect pharmacies and hospitals, report on materia medica and decide on epidemic measures. Notwithstanding their rôle in regulating medical practice, the influence exerted by the

Protomedicates upon the Indian populace was negligible. Further orders by Philip II in 1573, studied in another work (1953), specified that the hospitals for non-contagious diseases should be built near the churches and by the parish church itself, and that the hospitals for contagious diseases should be situated away from the towns. The regulations drawn up by that king in 1587 and 1596 and by Philip III in 1612 and 1624 stimulated the foundation of more hospitals, maternity and foundling homes, thus expanding the scope of the charitable establishments of private origin.

CATHOLIC CHARITABLE TRADITION

The fact that Spain was the only nation which had remained faithful to the mediaeval tradition explains the authority given to the Church in charitable matters, as well as her attachment to traditional medical doctrines. Charity, as Westermarck (1904) indicates, had been urgently insisted upon by the religious law of the Hebrews, and was one of the cardinal disciplines transmitted to both the Christian Church and the Mohammedan mosque. The care of the sick had been precisely defined by Thomas Aquinas among the acts of charity in the *Summa Theologia* (II-II, 30 and 32) and this made it natural that the spiritual and corporal welfare of the American Indian be entrusted to the Catholic Church. The implementation of royal orders pertaining to medicine could never have been carried out without the support of the Church, as became apparent during the first Mexican Council of 1555 (Chapter lxx) in which it was decreed that each town should erect a hospital next to the church which should be financed by half the parish collections from fines. Furthermore the predominance of men of religion in Spanish America made them the most powerful social force and the only properly organized group to carry out medical care on a continental scale. This power became even more patent after the *Omnimoda* or all-embracing Bull of Pope Adrian VI in 1522, giving the religious orders – Franciscans, Dominicans, Augustinians and, much later, Jesuits – unlimited freedom of action.

As in the British colonies, theological training made the clergy, both Spaniards and Creoles, the most educated class in Spanish America. Their scholastic philosophy, however, followed punctiliously the Thomistic dogmas established by Thomas Aquinas in the thirteenth century, and it is well known that Catholic theology remained immutable throughout the three centuries of colonial rule. It is logical, therefore, to expect the medical doctrines transferred to Spanish America during the sixteenth century to follow the same lines, and understandable that most of the medical treatises of México and Perú during that period were written by friars whose

texts reflected Galenic and Hippocratic doctrines, inasmuch as Thomistic theology had elaborated on unaltered Aristotelian analogies. Thus medical science in Spanish America relied on humoral pathology and invariably followed the ancient tradition in all its wisdom and errors as it stood at the beginning of the Renaissance. It is not therefore surprising that Vesalius was ignored in the literature of the colonial period, nor can we wonder that Harvey was only discussed in a monograph a century after his discovery of the circulation of the blood. These authors had in fact much less influence, from the pragmatic point of view, on medical care among the Indian people than any of the prayers used against contagion.

MEDICINE IN PRE-COLUMBIAN RELIGIONS

The evangelical work of the Catholic Church among the American Indians is probably one of the best known and most admired in missionary annals: the aborigines were even excluded from the Holy Inquisition procedures from 1575. However, the momentous consequences brought about by the amalgamation of the Catholic faith and pre-Columbian religions so far as medicine is concerned have never been fully appreciated. All the highly developed civilizations of Central and South America shared the myth of an ancestral white hero with attributes of divinity who had given these peoples their basic laws, arts and industries and who had promised to return one day. He was *Quetzalcoatl* for the Aztecs, *Bochica* for the Chibcha, and *Viracocha* for the Inca. When the Spanish white hero conquered, he simultaneously imposed the Catholic faith, which was immediately accepted by the Indians. But a century later, when the image of the conquistador had long since faded, the pre-Columbian beliefs were resuscitated in the background of the Indian mind. There were three contemporary texts particularly illustrative of this process and its medical bearing, that by Ruiz de Alarcón (1626) for the Aztec, that by Arriaga (1621) for the Inca, and, to a lesser degree, that by Sanchez de Aguilar (1639) for the Maya. Allowing for regional differences, the pantheon of pre-Columbian religions all had at the summit of their theogony the usual fertility gods – the sun and the moon – male and female, named respectively *Tonacatecutli* and *Tonacacihuatl* by the Aztecs *Hunab* and *Ixchel* by the Maya, and *Punchao* and *Quilla* by the Inca. They also had a constellation of minor gods, *tlalocs* among the Aztecs and *conopas* for the Inca, and believed in the overall influence of their gods upon health and disease.

The idea of God had always been within the pattern of primitive American societies as a healing entity. The fundamental idea they

all shared was that diseases were the result of sinful acts – mostly sodomy, sexual excess, disobedience – and sent by the gods. This belief was far deeper and more universal in pre-Columbian civilizations than in western cultures and had a major difference: Christianity's idea of hell as a place of eternal punishment was alien to pre-Columbian religions; even their lowest underworld, the Aztec *Mictlan* or the Maya *Bolontiku*, was a peaceful abode of the dead, as was the Inca's *Machai*. Human suffering in expiation of our sins was endured in life, and mental stress, anxiety and bodily disease in pre-Columbian religions were the outcome of the gods' fury. Fasting, sexual abstinence, blood-letting and self-inflicted injuries were common expressions of repentance, but their crucial point of treatment was vocal confession. The wealth of terms to express mental disease among pre-Columbian civilizations is another indication that the *neyolcuitiliztli* among the Aztecs, the *hichuco* among the Inca and the *chockeban* of the Maya, even more than confession in the Catholic Church, played the most important rôle in the treatment of mental and other illness. When called to visit a very sick patient, the *aucachic* or Inca confessor, like his opposite numbers the Maya *ah-men* and Aztec *ticitl*, always inquired what sin had been committed.

SINS, SACRAMENTS AND HEALING

The first Mexican Council of 1555 (Chapter x) was fully aware of that point on confession and referred to the Aristotelian basis of psychosomatic medicine in the words of Pope Innocent III, '... many times bodily illness is due to spiritual indisposition, and applying a remedy to the ailment of the soul, our Lord sends health to the body'. The principle there was exactly the same as that of the pre-Columbian religions, and the holy sacrament of confession was eagerly accepted from the Catholic Church, surrounded as it was by a highly elaborate and rich liturgy. A survey of the early religious manuals printed in aboriginal American languages reveals that the usual outline of questions to be put by the confessor to the Indian, covers every aspect of sexual behaviour, aberrations and other sinful acts condemned by pre-Columbian religions, which were frequently referred to by American chroniclers.

The Catholic Church utilized this powerful process of vocal confession, but she offered a number of other elements which reinforced her position from the medical standpoint. Most pre-Columbian civilizations gave the female principle, Aztec *Teteoinam*, Maya *Ixchel*, Inca *Mamacocha*, a major influence on disease. The Catholic Church had a parallel female element in its dogma, that is, the cult of the Mother of God whom the Aztecs, for instance,

readily revered under the old name of *Tonatzin*, 'Our Lady'; it followed that the new shrine of the Virgin, Mother of God, under the advocacy of Our Lady of Guadalupe, was built upon the former temple of *Teteoinam*, the Aztec mother of gods. This pattern of church building on the foundations of former idolatrous temples went on all through Spanish America. From the medical standpoint it is important to remember that the new religious architecture and new names for the old gods – lords of health and disease – reached also the minor gods, the Aztec *tlalocs* and Inca *conopas*, because the Catholic Church also furnished the most bizarre hagiology of patron saints against disease. In much the same way as the religious sculpture and portraiture of catholic saints appeared in colonial Spanish America in the most exuberant baroque, so one of the distinctive characteristics of that period is the richness of medical hagiology. While in Europe and British America scientific printing was increasing in geometric proportion, the great medical books printed in México and Perú at the end of the sixteenth and beginning of the seventeenth centuries were followed by enormous wealth of prayers, novenas and religious tracts for the prevention and cure of disease. The little booklets containing a novena to St. Rocco for protection against contagious diseases, to St. Jerome against lust, to St. Boniface against sodomy, to St. Raphael for his protection in parturition, and many other specialists, were reprinted by the thousand and provided a method of substitute treatment in the absence of those medical incantations found in the Ritual of the Bacab Maya or those of the Aztecs recorded by Ruiz de Alarcón (1639), whose Nahuatl prayers for illicit love, fractures and parturition, sounded to the Indians very similar to the imported texts of medical hagiology. On attempting to appraise this literature we are faced, on the one hand, with the fact that epidemic and infectious diseases were the major cause of mortality in colonial America, and that during these centuries the status of therapeutics – but for a few outstanding exceptions – made medication useless, if not dangerous, and always a burden on an economically weak population. On the other hand, the Protomedicate's elementary quarantine measures would have been far more effective had they been imposed upon a people supported by the belief in the healing powers of medical saints, whose natural defences against disease had not been diminished by a diet undermined by the economic demands of medication. Furthermore the Church played the leading rôle in measures against epidemics by organizing charity committees to distribute food, medicaments and alms, to arrange burials and keep statistics. The excellent records of the Mexican *matlazahuatl* epidemic of 1736 and smallpox in 1798 give outstanding proof of this.

The Catholic sacrament of Holy Communion was a poor substitute in the aboriginal mind of certain groups, such as the Aztecs, where ritual anthropophagy had been prevalent; however, it carried certain weight, like Lent fasting, because together with religious processions and elaborate external liturgy, it had pre-Columbian counterparts in the treatment of diseases, which had been well described by Sahagún in the sixteenth century. During the colonial period convents of nuns retained a practice worth recording which was included in most rules for novices. They were directed to be bled twice a year, not merely as the standard European practice, but as a remnant of a primitive belief of penitence in the Indian and Creole novices.

COLONIAL PATTERNS OF MEDICAL CARE

The colonial chapter of hospital foundations in Spanish America is beyond praise. In México alone there were over 150 hospitals by the end of the sixteenth century; its first, the Hospital of Jesus which is still active today, had been established by Hernán Cortés in 1522, immediately after the conquest of México which he began in 1519. The early hospitals were the result of private charity; a few had been founded by the Spanish crown – the Royal Hospital of Indians in México City was such a one – but most of them had been established by the religious orders or by secular priests. To read, for instance, the series of Mexican prelates in Lorenzana (1769) is to read also the list of hospital foundations. Again taking México as an example, its viceroyalty increased by 30 the number of new hospitals during the seventeenth century, bringing the figure up to 200 in the eighteenth century. Although Franciscans and others founded these establishments and their dispensaries in the first place, by the end of the sixteenth century certain religious orders had begun to specialize in hospital administration and the care of the sick, and they took over the old foundations.

The most active hospitaller friars in Spanish America were the Brothers of the Charity of St. Hippolytus, founders of the first hospital for the insane in México in 1576; the Bethlehemites established themselves in Guatemala in 1656 and subsequently supported 22 hospitals in Perú and 10 in México; and the Order of St. John of God, established in Cartagena of the Indies since 1596, whose record of hospital foundations – 11 in the Nueva Granada viceroyalty, 20 in Perú and 28 in México – at the beginning of the eighteenth century, overshadowed that of all others. An accurate picture of hospital services offered by the brotherhood of St. John of God in Spanish America may be obtained from the statistics published (1774) for the hospitals of México, Guatemala and the Spanish Antilles between

1768 and 1773. This religious order had 36 hospitals in the area with a total of 1,316 beds; they had assisted 129,893 patients during the six-year period, of whom 9,829 had died. These records, impressive even today, obviate further comment on the charitable work of these members of the Catholic hospitaller orders.

Licensed practitioners during these centuries divided their activities between private practice among the high class of Spaniard and Creole and the hospital wards for the sick poor and the Indians, who were regularly provided with pharmacies and European drugs and attended by the religious orders. In the small villages the charitable establishments were run by *ad hoc* secular religious brotherhoods made up from the community and relying very heavily on traditional botanical lore. Here again the part played by the religious orders in recording the aboriginal materia medica was considerable. Sahagún included important sections of the Nahuatl pharmacopoeia, Acosta wrote on the preaching of the gospel among the Incas and followed this by referring also to their drugs, as did Cobo and many other chroniclers. The herbals of the Jesuit missions among the Guaraní Indians in the eighteenth century formed a self-contained group, though the systematic work, for México at least, was carried out by Hernandez between 1570 and 1577.

UNCHARITABLE HIERARCHIES OF CHARITY

In ominous contrast with centuries of Christian devotion to the care of the sick stands the uncharitable attitude of some hierarchies of the Catholic Church, indicted on certain points by Rivera (1893) in an obscure pamphlet which shows the differences between official ruling and the universal medical attitude towards the sick. The doctrine of the Catholic Church in respect of medical care was promulgated in the fourth Lateran Council under Pope Innocent III (Chapter xxii) in 1215 in which physicians were ordered, under penalty of excommunication, to exhort patients to confess, and to abandon their care if the patients refused, on the grounds that salvation of the soul was more important than bodily cure. The second Council of Ravenna of 1311 under Pope Clement V (Rubric xv) ratified the previous doctrine and made it easier for any parish priest to issue the anathema against physicians.

It might be expected that with the progressive liberalization of Renaissance Ideas these doctrines would be consigned to oblivion, but in fact the Council of the Church in Spanish America made a point of recording them. The first Mexican Council of 1555 (Chapter x) referred to the earliest doctrine of 1215 and shortly afterwards, in 1566, Pope Pius V issued *de motu proprio*, the encyclical *Supra Gregem Dominicum* (#3), which forbade physicians to attend the

sick under penalty of excommunication if, after three days of warning, the patients refused to confess to the Catholic Church. This official doctrine remained operative during the colonial period and was even reinforced in the Roman Provincial Council of 1725 under Pope Benedict XIII (Title 32, Chapter 1). This gave the bishops power of excommunication *latae sententiae* over physicians who dared to attend patients continuing to refuse the sacrament of confession.

SOCIAL REFORM AND MEDICAL SECURITY

Catholic dogma in Spanish America had been imposed upon medicine as much as upon art, politics, literature, economics and every other cultural manifestation. The political revolution of about 1821 which gained the independence of the former Spanish colonies in America found the hierarchy of the Catholic Church committed to the cause of the colonists, while humble priests joined the rebels or were their most ardent supporters. A century elapsed before some of the new nations were able to change the colonial system of land distribution and means of production into a more just social order. A few even had the rudiments of economic and industrial revolutions which gave the labour force an active social participation; others reacted to the extreme of regressing for many years into theocracies to all practical purposes. In any case, the participation of the Church in national movements had considerable importance even in current social upheavals throughout Spanish America. In those countries where social change had taken place, the old idea of medical care as a charitable institution in the hands of the Church first gave way to a service granted by the government and became one of the services earned by the working classes contracting with the state. However the programmes of social medical insurance in Spanish America are far from accomplished as there are still several nations desperately trying to reach a certain standard of medical assistance while their social and economic structure retains features of the colonial system and an increasing population places impossible demands on medical services.

Medical security earned through the new social status in some Spanish countries has destroyed the important charitable rôle the Church played for centuries in those areas, but it had limited repercussions on the grasp the Catholic Church had on the population as a whole, because some of the Church beliefs had been inextricably amalgamated with those of the aboriginal traditions. In countries where social reform had not yet taken place the potential medical work by the Church is considerable, notwithstanding the resources and planning of the international medical agencies. This has made

possible some success of outdated approach in the Catholic medical missionaries and the limited proselytism and accomplishments of similar non-Catholic missionaries in Spanish America.

COROLLARY

The integration of pre-Columbian civilizations with the Catholic Church followed patterns very similar to other historical examples. Certain aspects of the Catholic doctrine and liturgy – charitable work and vocal confession above all – gave the church the foremost rôle in the development of hospital foundations and medical care throughout Spanish America. Steadfastness to dogma resulted in traditional ideas in medicine as much as in religion, an excellent record of hospital services – though uncharitable attitudes often obtained in the high Church hierarchies – and a wealth of religious literature intended to promote faith healing.

After the colonial period the political and social reform of a few Spanish American nations led to high standards in the education, training and practice in medical sciences, and the changeover of medical care from a charitable work of the Church to a service earned by the working classes. On the contrary, the Church has maintained her hold and important medical rôle in rural areas and in nations where obsolete means of production and resistance to social reform have been unable to offer basic medical security or to provide for the increasing demands of population growth.

It may be concluded that the status of medicine in Spanish America has been moulded more by cultural elements than by science itself. Medical progress in those areas is at present determined by economic and social factors upon which the Catholic Church still wields considerable influence.

References

1. ACOSTA, JOSÉ, *De natura Novi Orbis libri duo, et de promulgatione Evangelii, apud Barbaros, sive de procuranda Indorum salute libri sex*, Salamanca, Guillermo Foquel, 1589.
2. ARRIAGA, PABLO JOSÉ DE, *Extirpación de la idolatria del Piru*, Lima, G. de Contreras, 1621.
3. COBO, BERNABÉ, *Historia del Nuevo Mundo*, Seville, E. Rasco, 1890–95.
4. GUERRA, FRANCISCO, *Historiografía de la medicina colonial hispanoamericana*, Mexico, Abastecedora de Impresos, 1953.
5. GUERRA, FRANCISCO, 'Medical colonization of the New World', *Med. Hist.*, 1963, 7, 147–54.

6. LORENZANA, FRANCISCO ANTONIO (ed.), *Concilios provinciales primero y segundo, celebrados en . . . México . . . en los años de 1555, y 1565, Mexico, J. A. de Hoyal, 1769.*
7. MANSI, JOANNES DOMINICUS, *Sacrorum conciliorum nova et amplissima collectio*, tomus vigesimus secundus, Venice, A. Zatta, 1778.
Ibid., tomus vigesimus quintus, Venice, Zatta, 1782.
Ibid., tomus trigesimus quartus, Paris, H. Welter, 1902.
8. ORTEGA, ALONSO DE JESUS Y, *Regla . . . Constituciones de la Orden y Hospitalidad de N.P.S. Juan de Dios, Mexico, J. Jauregui, 1774.*
9. RIVERA, AGUSTIN, *La oración del Arzobispo Alarcón . . . Paralelo entre las ideas que se tenían antiguamente en España i Mexico sobre las relaciones entre las ciencias médicas i la religión i las ideas que se tienen hoy*, Lagos [Mexico], A. Lopez Arce, 1893.
10. RUIZ DE ALARCON, HERNANDO, *Tratado de las supersticiones y costumbres gentílicas que hoy viven entre los indios, naturales de esta Nueva España (1626)*, Mexico, Museo Nacional, 1892.
11. SANCHEZ DE AGUILAR, PEDRO, *Informe contra idolorum cultores del Obispado de Yucatan*, Madrid, Vda. de J. Gonzalez, 1639.
12. WESTERMARCK, EDWARD, *The origin and development of the moral ideas*, London, Macmillan, 1904.

MODERN MEDICINE IN A TRADITIONAL INDIAN SETTING:

A NEW BREW IN AN OLD VAT

by N. H. Keswani

There is much controversy often about the place of the Ayurvedic and Yunani systems. There can be no doubt that both these ancient systems of India have an honourable history and that they had a great reputation. Most people know also that even now they have some very effective remedies. It would be wrong and absurd for us to ignore this accumulation of past knowledge and experience. We should profit by them and not consider them as something outside the scope of modern knowledge. They are parts of modern knowledge. But, in many directions, modern science, as applied to both medicine and surgery, has made wonderful discoveries and, because of this, health standards in advanced countries have improved tremendously. We can not expect to improve our standards unless we take full advantage of science and modern scientific methods. There is no reason why we should not bring about an alliance of an old experience and knowledge, as exemplified in the Ayurvedic and Yunani systems with the new knowledge that modern science has given us. It is necessary, however, that every approach to this problem should be made on the basis of the scientific method, and persons who are Ayurvedic and Yunani physicians would have also a full knowledge of modern methods. This means there should be basic training in scientific methods for all, including those who wish to practise Ayurvedic or Yunani systems. Having got that basic training, a person may practise either of these systems or homeopathy. The question is thus not of a conflict between various systems but of sound education in knowledge as it is today, and then the freedom to apply it according to any system. It is the scientific approach that is important. – Jawaharlal Nehru, 1957.¹

THIS WAS not a mere sentiment expressed by Jawaharlal Nehru, who was an experimentalist at heart and a scientist in his outlook. Even the political philosophy of this great statesman can best be summed up in one word – ‘experimental’, which gave birth to the unique idea of ‘democratic socialism’. He had a tacit reverence for tradition, but he never fought shy of trading an old tradition for a new one, particularly when it came in the way of scientific progress. During his seventeen years of stewardship of the Indian nation, he set out to build as many as thirty ‘temples of well being and happiness’ – as Louis Pasteur would call these institutions for scientific pursuit – for the worship of science. To him *Dharma* (religion) was good so long as it did not come in conflict with a rational and scientific outlook.² And, fortunately for us, the hoary cultural heritage of India, imbued with philosophical ideas and religious beliefs that appeal to the fundamental unity of all in the basic Reality which is spiritual, and a comprehensiveness of outlook which knows no narrow distinctions, has never in its passage through

the centuries, warranted a war between theology and science.

It was this passion for a scientific approach to the present day problems of India that prompted the passage of the now famous Scientific Policy Resolution by Parliament of India in 1958, which declared that the country's policy would be to foster, promote and sustain the cultivation of science and scientific research by *all* appropriate means. And Nehru was the architect of it.

It was in a similar setting that on a much earlier occasion after the Independence of India, the Central Cabinet under the irresistible, and often irrefutable influence of this Idol of India formulated in 1948 an All-India policy in regard to health, and laid down the aims and objects to be adhered to in regard to the development of the indigenous systems of medicine in India, which are important enough to warrant *verbatim* reproduction:³

1. 'Integration' of different systems of medicine on the lines contemplated by the Chopra Committee⁴ is impracticable, as the theories and principles of modern medicine are very different from the theories and principles enunciated by Ayurveda and Unani. The evolution of an integrated system will be possible only after the methods of modern scientific research have been applied to the principles and practice of Ayurveda and Unani and it has been ascertained what is of proven merit and value in these systems.
2. The Central and Provincial Governments should decide that modern scientific medicine should continue to be the basis for the development of the National Health Services in the country.
3. Facilities for research on scientific lines into the Ayurvedic and Unani systems of medicine should be promoted on as broad a basis as possible on the lines recommended in para 251 of the Chopra Committee's Report. The results of such research, as are of proved value, will not only enrich the Ayurvedic and Unani systems but will also be incorporated in modern medicine so that eventually there will emerge only one system of medicine. A start should be made by establishing one centre of research for this purpose. In order to work out the details of its development, a small committee consisting of suitable persons representing the Ayurvedic and Unani systems of Medicine, modern medicine and the natural and biological sciences should be appointed.
4. Pending the results of the research and the ultimate evolution of a unified system of medicine as contemplated in the previous sub-paragraph, the question of the nature and content of the training to be provided for those who wish to practise Ayurveda or Unani requires careful consideration. At present the Ayurvedic and Unani systems are taught in institutions of widely differing standards and even the best of them do not provide an adequate grounding in the basic sciences essential for the practice of any system of medicine. It is, therefore, proposed that a full course of education in modern scientific medicine should be the basis on which special training in Ayurveda, Unani and other systems should be engrafted for those who want to specialise in those systems of medicine. Such special training in Ayurveda, Unani and other systems can perhaps be incorporated during the last year or so in the undergraduate medical courses in the modern medical colleges for the benefit of those who desire to qualify themselves in those systems or alternately Ayurvedic and Unani systems can form subjects of post-graduate studies. The question of the curriculum of studies for those who wish to practise Ayurveda and Unani should also be examined by the Committee suggested under the previous sub-paragraph. On the basis of the recommendations of the Committee, a uniform policy can be prescribed.

5. All-India legislation should be enacted for the registration of people who have been practising Ayurveda, Unani and other systems of medicine for a specified number of years and the practice of medicine of unregistered persons should thereafter be prohibited.

6. Existing practitioners of Ayurveda, Unani and other systems who have had a basic training in the principles of modern scientific medicine may be given such further training in public health work as may be necessary and utilised by the Provincial Governments in the expansion of the health services to the extent necessary.

These decisions were a direct outcome of the Report of the Committee on Indigenous Systems of Medicine, popularly known as the Chopra Committee,⁴ appointed by the Government of India after the First Health Ministers' Conference in 1946, which passed a strongly worded Resolution to the effect that provision should be made for *training and research* in indigenous systems of medicine and that practitioners of Ayurveda and Unani should be absorbed into the State Health Organisation.

To follow up the recommendations of the Chopra Committee, the Pandit Committee was constituted, which recommended:³

1. that a Central Research Institute in Indigenous Systems of Medicine should be set up at Jamnagar;
2. that the incorporation of instructions in Ayurveda, Unani, etc., in the curriculum of modern medical colleges was not immediately feasible either at the under-graduate level or post-graduate level;
3. that teaching of modern medicine in Ayurvedic College was not advisable because of the low standards of the institutions and that the curriculum for integrated course proposed by the Chopra Committee will have to be revised only when the results of the work done at the Central Research Institute were available;
4. that such institutions should be upgraded before concurrent teaching of modern and indigenous systems was resorted to;
5. that higher basic qualifications for admission to Ayurvedic, etc., colleges be insisted upon;
6. that there should not be a diploma and degree course in Ayurveda because this will tend to continue the existing neglected state of affairs in Ayurveda; and
7. that therefore there should only be *one* uniform course of training in Ayurveda.

As a result of the above report the Central Research Institute in Indigenous Systems of Medicine came into being in Jamnagar in 1952.

Later in 1955, the Dave Committee⁵ was appointed to study and report on the question of establishing standards in respect of education and regulation of the practice of indigenous systems of medicine. This Committee formulated the regulations for the practice of indigenous systems of medicine, laid down the educational standards for training in Ayurveda, and even suggested a model syllabus for the integrated course in different systems of medicine. But, the Report had a mixed reception at the Central Council of Health, and the integrated system of medical education had thus an

official State burial.

In the meantime, the First Five-Year Plan (1951-1956) had provided a sum of Rupees 3.75 millions for the promotion of research in the Indian Systems of Medicine, and a further sum of Rupees 60.00 millions was earmarked in the Second Five-Year Plan for giving a fillip to the development of Ayurvedic, Unani, Homeopathic and other systems in the country. But it was found that either the State Governments were not enthusiastic or the projects themselves failed to come up to the standards prescribed and therefore, the Central Government wished to find out how far their aid for the development of the Indigenous Systems of Medicine had been effective and they appointed yet another Committee to assess and evaluate the present status of Ayurvedic system of medicine³ in 1958.

This committee, after going deeply into every aspect of the problem such as training, research, pharmaceutical problems and the status of practitioners, recommended *inter alia* the granting of recognition to Ayurveda as part of the medical system of the country; the continuation of the integrated system of training in modern medicine and Ayurveda as well as a separate training in pure Ayurveda with just a basic instruction in modern medical subjects; and the affiliation of Ayurvedic institutions to universities. The committee also expressed its opinion that the research and post-graduate training centre at Jamnagar needed reorganisation and planning. It proposed three more research and post-graduate training centres for conducting clinical research on remedies prescribed in Ayurvedic medicine as well as a programme of literary research, botanical surveys of indigenous medicinal plants, and intensive research on pharmacology to cover all herbs and drugs prescribed in the Ayurvedic text-books. The committee also recommended the establishment of the Central Council of Ayurvedic Research, separate Directorates in the States for indigenous medicine, proper emoluments and status for vaidas and the establishment of a non-official all-India organisation of Ayurvedic practitioners.¹

This Udupa Committee also recommended the establishment of a Council of Indian Medicine and a Council of Ayurvedic Research by the Central Government. A Council of Ayurvedic Research has since been constituted, which has set up a number of sub-committees on education, research and other matters. Besides its main body of recommendations, the Udupa Report has brought out some illuminating factual, statistical data regarding the status of the indigenous system of medicine vis-à-vis the modern system of medicine in India. It is revealing to notice from the various charts and tables how the number of the practitioners in the indigenous systems of medicine has increased by leaps and bounds, in spite of the very meagre financial support these systems have received from the Government of India, as compared to the efforts of the Government in promoting the modern medicine which are reflected in the Report of the Health Survey and Planning Committee⁶ which had its deliberations from August 1959 to October 1961 under

the chairmanship of our doyen of medicine, Dr. A. Lakshmanswami Mudaliar. The Mudaliar Committee was 'convinced that, on the long-term view, all those who cater to the medical needs of the people should be required to have a recognised qualification in Modern Medicine; Ayurveda will then become a subject for postgraduate study, its knowledge being engrafted on to this basic foundation of a knowledge of Modern Medicine'.

The very fact that since our Independence the nation has, with open arms, accepted the adoption of modern technical and scientific advances for the material progress of the people, one may ask why, in the vital matter of health and medical care, it has not been possible to follow the same clear lead, and there had to be so much soul-searching as is reflected by the repeated deliberations of various high-powered Committees appointed by the Government?

It is, also, legitimate to enquire that, with this attitude of mind of the men who matter in moulding the opinion of the masses, how the indigenous systems of medicine are still flourishing in the country?

The answers are many.

Are the traditions too tenacious at times, particularly when they are rooted in the religious and philosophical beliefs of a community? 'The sole reason that can be given for any social institution or form of human activity – I mean, not how they came to exist, which is a matter of history, but why they continue to encourage their existence lies in this: their existence tends to promote the welfare of human society, to increase social happiness or to strengthen social stability.'⁷ And, perhaps, traditions of 'science' are in no way governed by any different set of rules and regulations from those that control the continuation of tradition in any other field of human activity. In the contest between the old and new standards of thinking – be it political, social, philosophical, or religious – the physical and spiritual needs of an individual are touched so tenderly that it is difficult for him to be objective, and be a dispassionate judge of the age in which he lives. The Ayurveda, which has the sanctity of the ancient scriptures behind it, has served the sick and suffering humanity on this subcontinent for more than three millennia, and to no small extent continues to serve and save millions of them.

The reasons for this popular patronage of the indigenous systems of medicine are not to be sought merely in the opinion of some people that the Western medicine is alien to their beliefs, customs and experience, and that it revolts against their religious and philosophical traditions, as Henry Sigerist⁹ seems to emphasise; because many eminent sociologists are convinced that a number of

trends in Indian traditions are favourable to the growth of science, including modern medicine, since they recognise the fact of the existence of multiple values in the religious traditions of India.

Nor do I believe that it is the purblind patriotism, particularly of the politicians, which is a powerful force pushing the indigenous systems to the fore, contrary to what Henry Sigerist has said that 'There is another *most* powerful force that is backing the indigenous systems of medicine, Indian nationalism. The country is in the period of transition. After centuries of stagnation the people of India are awakening to new life and looking to the future. A regular Renaissance is taking place. A nation which had developed a great civilization at a time when we in the West were still savages, which for certain historical reasons too complex to be discussed here declined, is now reasserting itself.'⁹

The answer, primarily, lies in the socio-economic conditions prevalent in the country today. With all the stupendous efforts being made by the Government of India, a very quick and wide extension of the medical relief to keep pace with the enormous increase in population, is more than an Herculean task. There is one 'modern or allopathic' doctor for every 5,700 of population at the end of 1965, and the target, by 1976, is to have at least one doctor for every 3,000 of population, provided the trend in population increase follows the path as prophesied. The economic and social necessities force the majority of the meagre figure of doctors to practise in the cities, thus depriving almost 82 per cent of the population which lives in the villages from the benefits of modern medicine. It is estimated that there are today more than 400,000 practitioners in the traditional systems of medicine, chiefly in the rural areas, as compared with only 86,000 practitioners in modern medicine, mainly in the urban areas.⁸

The National Sample Survey, in 1961, estimated that only 2.2 per cent of a total of 550,000 villages in India, have an allopathic doctor available.⁶ Added to this is the fact that the transport and communication facilities are so poor that they create a physical and sociological barrier between the villager and the modern medicine, causing a lack of awareness among the rural folks of the mighty advances of modern medicine. The sick villager is left with no choice; if he must have medical help, the only recourse left to him is to an Ayurvedic Vaid, a Unani Hakim, a compounder, a quack or a good old granny! And, after all, a very large proportion of ailments is amenable to ordinary, simple treatment, if not to a placebo. Was it not said, even of the United States of America in 1910s, that 'a random patient with a random disease consulting a doctor chosen at random, stood better than a fifty-fifty chance of benefiting

from the encounter.' (Lawrence J. Henderson).¹⁰

Besides, an average villager is too poor to pay for the services of a modern medical man, or for that matter, for the costly imported drugs. George Bernard Shaw in his Preface to *The Doctor's Dilemma* rightly retorts 'The demands of this poor public are not reasonable but they are quite simple. It dreads disease and desires to be protected against it. But it is poor and wants to be protected cheaply. Scientific measures are too hard to understand, too costly, too clearly tending toward a rise in the rates.'

So the poor sick villager calls on an indigenous physician, who being a villager himself, understands his language, feels his pulse and not the purse, prescribes an herb he has somewhere heard of, narrates the nature of his disease in a manner more meaningful than what a modern medical man is ever capable of. The rapport is established, and the hold of the indigenous system becomes stronger and stronger.

The villager thus looks upon the medical practitioner of modern medicine with awe and often with suspicion. To remove this feeling of the villager who stands in awe of modern medicine, we need a rigorous programme of health education, for education is the proper vehicle through which the transmission and transformation of the ideas and attitudes, of understanding and of directive thought and feeling, can be achieved in the average man and woman, the bulk of the community. I believe with Allen Gregg that today we live in an *adaptive culture, not a traditional one*. 'What traditions have we to tell us the wise use of television, of jet planes, of atomic energy, of modern medical science? The advances of technology go beyond the experience gathered and distilled from the past. That modern technology transcends tradition is just another commonplace whose certainty is equalled only by our neglect of its implications. Our culture is not traditional, or, more precisely said, our present culture is not entirely traditional. Indeed, much of the confusion and bewilderment today comes from the mixture and conflict between the traditional elements of our culture and the adaptive measures we must devise and try in order to meet today's realities that are unprovided for by our traditions. Nor is the conflict made any more sensible by our divorcing Reason to marry Hate – turning our hatred of our own bewilderment into a hatred of other persons or groups.'¹⁰ The health education of today shall determine the patterns of health care of tomorrow.

But, what about some highly educated men who form a sizeable portion of the urban protagonists of the indigenous systems? They believe that the modern medicine is soul-less, mechanical and foreign to Indian thought. As an example let me quote an eminent exponent

of Ayurveda, referring to the utter inability of a physician trained in modern medicine to work with rural communities, described allopathy or the modern medicine as 'allopathetic' – which, when transliterated reads 'all-o-pathetic.'¹¹ To a certain degree, we must confess, that the modern medicine has become too much of an intellectual pursuit almost reaching the point of intellectual snobbery, and the present system of medical education has become divorced from the society it is intended to serve. But, this urban class of intellectuals who still blindly cling to the indigenous systems of medicine, have been aptly described by Howard W. Haggard as those who 'do not refuse all forms of healing; what they object to is the principle or philosophy of modern medicine. Such people accept and adapt themselves to the material conditions of modern life, which are the products of physical science, but they have not kept pace with the changing philosophies of modern life. They are merely savages riding in automobiles.'¹²

The question may be posed why the State recognizes the practice of indigenous systems along with the modern medicine, if it is wedded to the principle of approaching every problem with a scientific outlook. The exigencies of the situation demand that use should be made of this increasing, though inadequate, help available to the rural population. Even in a technologically advanced country of the West, Russia, where a similar paucity of doctors exists, the traditional Czarist 'feldshers' are pressed into service. In 1957 there were 360,000 doctors, 99,921 midwives, 71,151 feldsher midwives and 15,714 feldshers in the U.S.S.R.⁸ A more appropriate analogy can be seen in another totalitarian state of Asia. Communist China, faced with a similar predicament, has embarked on a large-scale programme of fully utilizing the services of practitioners of traditional Chinese medicine. The Chinese population of 600 million (1958) is served by half a million traditional practitioners with over 40,000 apprentices, supplemented by 70,000 practitioners of modern medicine. They have 4 colleges, 6 schools and 23 refresher courses centres for teaching Chinese medicine alone, where 5,000 highly trained modern doctors (300 of them full-time) are studying traditional medicine. The Government of China employs 20,000 traditional doctors to man 144 hospitals and 453 clinics exclusively for traditional medicine. All colleges of modern medicine and pharmacy in China are obliged to pay special attention to research in traditional Chinese medicine and pharmacy. Special Institutes for Research in Herbal medicine and for Research in Acupuncture have been established in Peking.¹³

Unlike the exclusively utilitarian attitude of the Russians, and the passionate chauvinistic stance of the Chinese, the Indian regard

for the traditional medicine is sustained by their rational and scientific approach to the problem.

Then, let us in this context examine if the indigenous medicine can uphold its claim as a progressive system on the touchstone of science. And, let us take Ayurveda, the most ancient of the Indian indigenous systems, as an example. There is no denying the fact that this system made great advances in its time, in antiquity and during the Medieval period; and intrinsic merit cannot be denied to it, whatever its shortcomings at the present day. The very fact that it has survived in the struggle for existence shows that there must be something scientific in this time-honoured, traditional system of medicine. Science, after all, does not exclude tradition, and necessarily involves a developing tradition, for 'man can no more free himself from the millennial tradition of science than from the language that he speaks or from the civilization in which he has been reared . . . Science seeks ever to correct, aid, extend and supplement our senses by technological devices'.¹⁴ For, have we not witnessed the philosophies of yesterday become the absurdities of today, and the scientific veracity of one age become the fad and fallacy of the next?

'The merely scientific physician,' says Clifford Allbutt, 'is apt to be blind to useful manoeuvres which rest rather upon the accidental than the more permanent qualities of things. The prevalent opinions, though not formal truths, contain truths and this the practical physician does not fail to perceive: nor does he forget that the observation of any person however profound, being the observation of an individual of brief life and limited faculties, need some tempering by traditional lore and by the embodied opinions of a vast number of observers over a long period of time.'¹⁵

Meeting, as we are today, under the auspices of the Wellcome Trust (and the Wenner Gren Foundation), I can not resist the temptation of quoting at length, from the Sir George Birdwood Memorial Lecture¹⁶ delivered, in 1929, by Captain P. Johnston-Saint of the Wellcome Historical Museum, before the Indian Section of the Royal Society of Arts on 'An Outline of the History of Medicine in India', with Sir E. Denison Ross, Professor of Persian and Director of the School of Oriental Studies, University of London in the chair.

Indian history in fact, we practically said, began with the English domination and before this was a farrago of myths and legends . . .

All Indian science was but a superstition, all its medicine but a matter of spells and charms. And this from English doctors who up to our own living memory were beginning their prescriptions with a traditional scrawl of the pious invocation 'Jupiter be propitious to us!' It was indeed a literal case of the mote in our neighbour's eye . . .

A disproportionate part of our education was devoted to ancient Rome and Greece where we learnt all about Apollo and Aesculapius and in Greek history we came to Hippocrates. Here we had got a founder of medicine all ready for us, and that there might have been any one before him few of us were disposed to enquire . . .

Certainly with all this classical knowledge so laboriously acquired, we were not prepared to venture still further afield, and most assuredly not into the clouds of the story of a land which we universally regarded as both black and barbaric . . .

that about the first European introduction to India, medical science in that country had fallen to perhaps the lowest point in the curve in all its long history, and so vast is the scope of this subject that it is only the fringe of it that I dare attempt roughly to trace . . .

this ancient Hindu science, whatever term is chosen for its designation, medicine, religion or philosophy actually antedates by centuries many a modern triumph on which present day Western civilization preens itself as the discoverer . . .

As Dr. Wise puts it 'Asia can benevolently give, but it does not need to borrow; its ideas and fantasies are as exuberant as its vegetation' . . .

Pythagoras himself imbibed his mysteries from the Brahmans of India . . .

discoveries made by Dr. Thomas Gann in his recent expeditions to Central America disclose in a startling manner the startling similarity of the design and architecture of some of the Maya temples to those of ancient India . . .

Hippocrates, the 'Father of Medicine', we know to have visited India. For what? save the fame of the Indian physician . . .

If we were to speak the truth we must call Greece not the parent of our modern medicine but its nurse . . .

Causes of Decline: Into the letter of the ancient learning as expressed in the old manuscripts corruptions began to creep. The glories of Hindu science were in rapid decline. With the coming of the Moslem conquerors the fall became more rapid. The invaders had brought their own doctors, and if their science was in many cases taken from that of the conquered of centuries back, at least it was the science of the masters, and felt no need to take into consideration the science of the mastered . . .

And so Hindu Medicine again slipped down many grades. Where the Moslem Hakeems flourished under princely protection the Hindu Vaidyas held only the lowly offices of spell-makers to the poor . . .

With the coming of the Europeans, first the Portuguese, then the Dutch, the French, the English, the Kings of India, both Moslem and Hindu, were concerned with rather the protection of their territories, the raising of armies and making of treaties, than with the care of science. The fire of Indian medicine had sunk almost to its last embers. The sneers of our pioneer writers were almost justified . . .

From 1715-1818 there seemed in the time of the Peshwas to be something like a faint revival of the ancient glories of Hindu Medicine but with the final victories of the English its hopes were extinguished, and as British rule spread all over the Peninsula, European Medicine was gradually introduced, and all that was left of the Hindu 'Vaids' was about the position of an English herbalist. To such a pass had come the learning of 'Charaka and Sushruta' . . . for the Hindu system of medicine is still today a living science, and millions of people in India are at the present time being treated according to this method . . .

a system which has thus survived through the centuries can not be lightly condemned as being unscientific . . . we may have every ground of hope that before long the true Indian medicine may once again hold its place in its own India, the birthplace of the medicine of the world.

This succinct summary shows the hoary, glorious past of the

Ayurveda, its achievements and contributions to the civilizations of the world, the inroads that other systems of medicine made into the body of the Ayurveda, its progressive decline and its efforts at survival, and its ambitions today to contribute again to the restoration of health, rehabilitation of the patient, prevention of disease and promotion of health.

In this kaleidoscopic survey of the Indian traditional setting, I hope I have not conveyed the false impression that India of today is trying to revive the old systems of medicine and do away with the modern scientific medicine. Far from it! After centuries of virtual stagnation, India is awake to the situation that if a nation has to survive as a nation, it has to give up many of its traditional notions and accept science with all its implications as a saving grace for suffering humanity. For, 'science in itself is neither good nor evil. It is an instrument in the hands of man, and it is he who is good or evil.'⁹

Unlike a business house of today that does not keep abreast of the time and awaits inevitable collapse, India has shaken off its traditional shackles and is making stupendous efforts to bring modern medicine to the doorstep of each hut and hamlet. The importance she has attached to health care, family planning and medical services and research, and to drafting and carrying out of her four Five-Year Plans is indisputable evidence of her desire to tackle the problem of the health of the Nation with a rational and scientific approach.

If India has revived her efforts at discovering the hidden gems in Ayurveda it is with the sole desire for making them available to modern medicine which stands to enrich itself from this amalgam for the service of humanity.

Thus, the new brew of modern medicine when matured in the traditional Indian Vat is bound to become full-flavoured and more mellow for mankind!

References

1. BORKAR, G., *Health in Independent India*, New Delhi, Ministry of Health, Government of India, 1957.
2. KESWANI, G. H., 'Nehru and Science in India', *Illustrated Weekly of India*, 24, January, 1965, p. 27.
3. Report of the Committee to Assess and Evaluate the Present Status of Ayurvedic System of Medicine, Ministry of Health, Government of India, New Delhi, 1959.
4. Report of the Committee on Indigenous Systems of Medicine, Ministry of Health, Government of India, New Delhi, 1948.
5. Report of the Committee appointed by the Government of India to study and Report on the Question of Establishing Uniform Standards in respect of Education and Regulation of Practice of Vaidyas, Hakims and Homoeopaths, Ministry of Health, Government of India, New Delhi, 1956.
6. Report of the Health Survey and Planning Committee, Ministry of Health, Government of India, New Delhi, 1961.

7. PEARSON, KARL, *Grammar of Science*, London, J. M. Dent, 1892.
8. RAO, K. N., 'Medical Manpower Needs for a Comprehensive Health Care in India', *Indian Journal of Medical Education*, April 1966, Vol. 3.
9. SIGERIST, HENRY E., 'The need for an Institute of the History of Medicine in India', *Report of the Health Survey and Development Committee, Ministry of Health, Government of India*, Vol. III, p. 204-213, 1946.
10. GREGG, ALLEN: *Challenge to Contemporary Medicine*, New York, Columbia University Press, 1956.
11. RAMALINGASWAMI, V., 'Summing up of the Conference', *Indian Journal of Medical Education*, Conference Number, April 1966, Vol. 3, pp. 458-462.
12. HAGGARD, HOWARD W., *Devils, Drugs and Doctors*, New York, Pocket Books, 1946.
13. GOULD, DONALD: 'Galen in China', *Lancet*, 20 September, 1958, pp. 633-35.
14. *Encyclopedia Britannica*.
15. Quoted by GANANATH SEN in *Hindu Medicine - An Address on Ayurveda delivered at the foundation ceremony of Benares Hindu University in 1916*.
16. Quoted by *The Pioneer*, Allahabad (India), 31 May, and 1 June, 1929.

TRADITIONAL AFRICAN CULTURES AND WESTERN MEDICINE

(A CRITICAL REVIEW)

by T. Adeoye Lambo

INTRODUCTION

THE PRACTICE of western medicine in Africa today raises one of the most fascinating challenges of our time, for in trying to understand without bias the basis of traditional medicine (otherwise known as 'primitive medicine'), its evolution, relationship to the traditional culture within which it operates and its position in a rapidly changing social situation, we may hope to derive the utmost benefit from it.

Medicine is nowhere following its own motivation. Its character, impact and dynamism depend on the place it takes in the society, its frame of reference to, and its compatibility with, other institutions of the culture. It is, therefore, inconceivable that medicine, as a component part of a living culture, should be practised or studied in isolation, quite apart from forms of patterns which are naturally wider.

In many African countries, traditional beliefs and much that could be termed 'mystical doctrines' operate side by side with 'rational' and scientific medicine and, in many ways, in conflict with it. This co-existence is a source of much anxiety and conflict in the minds of the practitioners of modern medicine in Africa today, most of whom have been trained outside their culture and, through the process of 'education', have been made to scorn and pass value judgement on much that cannot be measured in strictly scientific terms.

The conflict is accentuated by a severe degree of ambivalence to traditional medicine by these practitioners of western medicine whose cultural background, in spite of their training, is deeply rooted in traditional magico-religious or spiritual explanation of illness. However, the realities of the situation have compelled many western trained doctors working in Africa to take note, perhaps with reluctance, of the need for a more flexible approach and, therefore, the most immediate question to be asked is, can there be any hope of blending the two sets of philosophies, concepts and practices into a final functional whole? Would it be in the interest of the culture to fuse the two, standardize and even institutionalize the new sets of beliefs and concepts? Or is the confrontation irreconcilable?

After many years of practice in Nigeria in a branch of medicine which in these cultures is wholly considered to be the exclusive responsibility of traditional medicine, I have reached the conclusion that there is an urgent need for a workable compromise. The cultural heritage which in many places remains potent should function, apart from their historical significance, by lending charm to the new institutions with which they are expected to blend.

Although traditional medicine¹ has always remained an historical legacy of the traditional culture and covers an important period, it has been studied by scholars of history and behavioural sciences to a surprisingly small degree. Many of those who have been curious enough to examine this complex have been baffled by the unknown but had no medicine at all, while others conceded only through the employment of an evolutionary approach, that their medicine was embryonic. In this regard, the celebrated Zurich medical historian, Erwin H. Ackerknecht (1942) has rightly warned that 'modern scientific medicine is not the medicine nor our religion the religion, and there is not one medicine but numerous and quite different medicines in different parts of the world and in the past, present and future . . .'

My experience derives from close association with traditional healers in Nigeria (some of whom have participated in our programme of social psychiatry and behavioural science study), and in other parts of Africa and also from intensive study of the reactions of individuals who have been under our care. In addition, a survey of native treatment centres in Western Nigeria was undertaken in 1961. This review of fifteen years' study is coupled with a critical appraisal of the cultures of some of these societies in relation to traditional medicine. Efforts are also made to find points of congruence and relevance, so far as Freudian and other related theories are concerned. However, in this paper I shall take the Yoruba tribe of Nigeria as my main focus of study.

The institutionalization of traditional medicine was an important part of the historical evolution of many aspects of traditional cultures and, in fact, derived from the general development of many social institutions throughout the ages. The devotion of the tribal ancestors was chiefly connected with storms and pestilences and famine and death, which were regarded as penal inflictions, and which consequently created an almost maddening terror. Disease, which is older than man, has been one of the basic problems which

1. In view of the theoretical position which I hold my definition of medicine is much wider than that which is conventionally employed and will therefore include all activities (personal and communal) directed towards the promotion of human well-being.

face every society from early civilization.

Traditional healing which occupies such a vital part of the whole system of thought should not be regarded as an absurd system of thought which came into existence through chance or subjective experiences and superstitions, but should be conceived as a dynamic and meaningful part of a living culture, quite able to survive changes in spite of the basic differences from the pattern posed by Western culture. Thus Ackerknecht stresses the point that medicine is more clearly a function of the culture than of environmental conditions.

HISTORICAL DIMENSIONS:

There is no complete documentation of the different medicines of early tribal Africa. Available historical and ethnological material has proved inadequate for the purpose of unbiased evaluation. The material evidence we have today is but an insignificant portion of the entire corpus of African traditional medicine which is inextricably set in a matrix of the institution of tribal culture. This is even more obvious when dealing with the well-known Yoruba, Ibo, Ibibio, Bakongo and the Baluba arts of healing where exotic practices connected with the purification of the tribe, and which form an essential part of the institution of 'medicine', have stimulated tribal art which has in turn brought delicacy and sensitivity of tone, emotional inspiration and exquisite beauty to tribal sculpture.

The thorough knowledge of herbs and great familiarity with plants is well known and this has always provided the tribe with diverse sources of empirical remedies. In most tribes, most of the drugs used in the treatment of diseases were of plant and animal origin. In addition, many procedures such as acupunctures, cooling, fomentations, surgical and other manipulative techniques developed and became an important part of 'traditional' methods of healing.

In our study of traditional medicine we also lack penetration in depth when attempts are made to examine the evolutionary and historical development of tribal medicine, since it is almost impossible to isolate for study this segment of the culture without due appreciation of, or reference to, other systems of traditional thought.² The difficulties, are however, minimized because our inquiry extends over forms of belief and institutions of which there are living representatives.

The fact that although, in many parts of Africa the western way of life flourishes in considerable strength and yet the traditional concepts of health and disease are still established firmly in human

2. e.g. traditional religion.

minds, shows that the confrontation between the two concepts – traditional and Western – has yet to be resolved for the benefit of these societies. This and other observations also show that indigenous cultures have not yet accepted western concepts (especially the aetiological concepts of disease) and therefore their treatment, and many people today seek medical help, if they do at all, with a considerable degree of ambivalence, and often with resignation, which increases both the effectiveness and the difficulties of the physician to the point where he may earn undue credit or undue blame.

Western medicine has today reached a truly astonishing degree of perfection, but, though commanding admiration, there is something vital lacking in its practice in other cultures outside the west. Its practitioner tries to be a genius only in the fact that, using the word of Schopenhauer (1907), he is 'simply the completest objectivity', desperately trying to avoid the discredit of being 'huddled at either extreme, wholly engaged in guessing or ignorantly certain' (Sir Aubrey Lewis, 1958). Traditional medicine is, on the other hand, predominantly but not exclusively an art – an art derived from man, morals and society. Neither in the one form (western) nor in the other (traditional) is there any adequate rational motivation to satisfy an urgent sense of inner necessity of individuals in a rapidly changing society such as Africa.

The realization of these facts has caused me (and my Sudanese colleague Dr. Tigani El Mali) to recognize the part played by indigenous psychotherapeutic approach in the total management of the patient, without any lowering of standard of medical practice. Even though by Western standards this approach is indefensible and though some of these traditional cultural procedures (e.g. sacrifice) may be caricatured as primitive and antediluvian, they are nevertheless emotionally reinforced and, as an historical and traditional legacy, the medical practitioner working in this setting must be sensitive to their implications and reckon with them.

In other places, however, magico-religious ideas are dying like the sun; their last rays, possessing little energy, are expended in creating anxiety and ambivalence.

If we take the neo-evolutionary view of the development of human society, we could argue that our present exercise of trying to understand the fundamental basis of traditional medicine with the hope of reconciling both the indigenous and modern if necessary, is purely academic, since modern medicine, presumably based on rationalism and scientific edifices, would win the battle in any case. Today, we know that the problem is not so simple. In spite of its high technological and material advancement, modern scientific

medicine, in our observation, has yet to satisfy the basic metaphysical cravings and social needs of many individuals, irrespective of their levels of sophistication.

It is therefore my conclusion, after long and determined attempts to appraise both indigenous and modern medicines within the African context, that both are not mutually exclusive. In fact, total exclusion of the theories inherent in indigenous medicine from western medicine would seem to impede the total acceptance of western medicine by African societies as a meaningful substitute to beliefs and practices which have long satisfied certain basic human needs.

AFRICAN TRADITIONAL BELIEFS

Spirits
In many parts of Africa nearly all forms of illness, disease, personal and communal catastrophes, accidents, death and unusual happenings that happen to human beings are attributed to machinations of the enemy and malicious influence of spirits that inhabit the world around us. Among the Yoruba tribe the spirits of the ancestors which have been offended could also make themselves felt in this way. On the other hand, many of the tribes are also aware of the concept of natural causations – these are definite ideas of causation of disease by microbes, parasites and diseases due to environmental (such as climate) and other natural factors. The idea of natural causation reaches its highest peak among the Masai of East Africa who very seldom attribute disease to spiritual agency and only very rarely to human intervention. However, there is in the African cultures, in common with most non-literate cultures, a sense of an intensely realized perception of supernatural presence but with a kind of adolescent impetuosity, and a fatuous, almost fanatical, faith in the magic of certain symbols to produce certain results. In most African cultures, for example, if a man finds the hair or a nail belonging to, or even a piece of material which has been worn by an enemy, he believes he has only to 'use' them in order to bring about his enemy's death or injure him.

In this mode of thinking, there may be said to be a magical or mystical denial of the concept of causality and of the reality of their spatial and temporal relations. This has led many anthropologists to advance the theories that the naive mind of primitive man is not capable of thinking consistently and particularly not capable of comprehending the concept of a general law of inevitable causality and necessity.

Many of these out-moded anthropological theories were based on the views of Lucien Levy-Bruhl who accused primitive people of logical fallacy – the so-called 'prelogical' type of primitive mentality.

Levy-Bruhl, however, omits the fact that 'prelogical' mentality occurs in both civilized and primitive cultures.

If it is right to believe that the magical periods in the history of mankind was the 'pre-causal' one; then primitive man's magic is no sign of a 'prelogical' mentality, as Levy-Bruhl believes, but of 'pre-causal' (that is, pre-scientific) thinking. Strauss (1953) in *Reason and Unreason in Psychological Medicine* has stated that

Even primitive magic relies on the necessity of establishing a causal sequence, especially if anything has to be done (author's italics), seeing that man is a rational animal. For example, a tribal rainmaker must have the inner conviction that, when he pours a bowl of water on the ground with the appropriate incantation, the next rainfall has a direct causal relationship with his magical ceremony. A rainmaker who is not so convinced is a bad rainmaker. We shall see later that a psychotherapist – of any complexion – who doubts the validity of his own particular system is a bad psychotherapist. Magic develops into science when it can be shown that the chain of cause and effect is false; and this occurs more often as the result of trial and error (the experimental method) than through pure ratiocination. In this way alchemy, which according to Jung, started as a symbolic substitute-religious discipline, developed inevitably into chemistry.

The psychoanalysts, undeterred by their own tenuous scientific stature and premise based more on intuition and magic than rationalism, joined in this uncritical condemnation of a system of thought. Alfred Storch (1924), Schmideberg (1930), and Burstein (1952) have shown that the mystical thinking of primitive man is analogous to that of a schizophrenic. This, according to them, is exemplified in his lack of causal thinking, 'especially in his magical taboos, his unshakable belief in the omnipotence of thought and in the supernatural efficacy of physical phenomenon and further, in his lack of any sharply delimited ego-feeling.'

It is not impossible, in fact, that when one has succeeded in penetrating the basis of the traditional, culture-bound explanation of ill-health and disease, the modern psychoanalyst in particular, and the practitioner of modern medicine in general, may well find many points of congruence and may be tempted to take over some of the principles about causal relationships into his own body of beliefs. By the same token it will not be surprising if he rejects the primitive 'empirical' experience that enabled the traditional mind to formulate these theories in the first place.

The practice of western medicine is not so far removed from the basic principles of traditional medicine where the first question of the native therapist, in making efforts at accurate diagnosis, seeks to find if you are at odds with gods, spirit or man; where confession is both healing and prophylactic, for yourself and your kin; and where one of the first rules of health is, not to take care to avoid sitting in a draught, drinking bad water or getting your feet in a river infected

with parasites, but to live at peace with your neighbour and to obey the rules of the clan. In this way disease has been one of the most restraining social factors.

There is, however, no doubt that despite the 'opposition between western medicine based essentially on rationalism in spite of its magical elements and between primitive medicine based essentially on supernaturalism in spite of rational elements', some contributions to the theoretical framework of modern psychological medicine have come from this direction. For example, Horton (1966) in his brilliant exposition of the *Traditional Background to Medical Practice in Nigeria*, writes,

... there are several points at which Western psychoanalytic theory, with its apparatus of personalized mental entities, resembles traditional West African Religious theory. More specifically, as I have suggested elsewhere, there are striking resemblances between psychoanalytic ideas about the individual mind as a congeries of warring entities, and ideas found in a number of West African cultures about the body as a meeting place of multiple souls. In both systems of belief, one personal entity is identified with the stream of consciousness, whilst the others operate as an 'unconscious', sometimes co-operating with consciousness and sometimes at war with it. . . .

Now the more flexible psychoanalysts have long suspected that the various desires and fears Freud put into the subconscious may have been there in the Viennese subculture he so largely dealt with; but they may not be there at all in many other cultures. A study of West African soul theories, and of the desires and fears they attribute to various components of the mind, may well help the psychoanalyst to reformulate his theories in terms more appropriate to the local scene.

The Yoruba culture regards nature as an important part of the culture but only in so far as it implies a *social* and not a mystical association. Reality in the western world has gone the way of attempting to master things; reality for the African traditional culture is found in the region of the soul – not in the mastery of self or outer things, but in the acceptance of a life of acquiescence with beings and essences on a spiritual scale. In this fashion only is the traditional culture mystic. Not because of any prelogical function of mind but merely because the African is the possessor of a type of knowledge that teaches that reality consists in the relation not of men with things, but of *men with other men, and of all men with spirits*.

In western industrial and technological societies, 'human relations' are becoming relegated to relations between men and things. In these societies, it is becoming increasingly more possible to find 'peace' and happiness in their association with inanimate objects than with their fellow men. In traditional African culture, the interaction between man and man is the locus *par excellence* of order, predictability, and regularity. In traditional African culture all explanations are based on human relations. Peaceful living with

neighbours, abstention from breaking of taboo, obeying the laws of gods and men, are essential for the protection of oneself and one's family from disease. Thus every disease is defined socially and has therefore acquired very strong social components. In western culture disease is conceived almost as a purely biological phenomenon and modern scientific medicine as a response to it. Burstein (1952), writing on public health and prevention of disease in primitive communities, observes, 'Thus a seemingly independent biological problem is woven into the whole socio-religious fabric, in such a way that disease, its prevention and healing, play a tremendous social role'.

Although the attitude towards disease and the methods of preventing or fighting it varies considerably in many traditional cultures, they all share the same or similar theoretical framework with regard to its psycho-dynamics.

THEORIES OF CAUSATION OF DISEASE IN TRADITIONAL CULTURES

Traditional concepts of disease are based on the belief in gods, spirits of ancestors, supernatural power and other indwelling spirits which influence the activities of man. This, however, is not the whole story.

The search for theories of causation in traditional culture has been by necessity limited to the world of people and their social field, for spiritual and supernatural forces are considered to be agents employed by them. In view of this theoretical stand, disease is not considered an isolated phenomenon but considered within a larger framework of human relations and therefore medicine is likewise considered.

Traditional aetiological speculations very rarely attribute disease to natural causes *per se*. A man suffering from malaria, enteric fever, or tuberculosis would be told by the traditional diagnostician that the disease the patient has got has *naturally developed* (effects) from some antecedents in the social field (e.g. breach of a taboo or kinship morality, etc.) in which spiritual agency has been of secondary importance. This is where the employment of a theoretical stand to explain certain phenomena and to transcend the causal vision of common-sense is not often appreciated by the modern medicine man, who is invariably pre-occupied with the immediate natural causes, almost to the total exclusion of the causal relations between conflicts and irregularities in the field of social relations on the one hand and disease or misfortune on the other.

If we examine the general cause of taboo, then, we shall find that it is the fear of danger. If man – civilized now, and with science

perpetually at hand to steel him against the nightmares of childhood – still falls a constant prey to groundless fears, what must have been his thralldom, when, science yet undeveloped, every act, no matter how innocent, was liable to be taken as the direct cause of the next chance mishap which befell him? Are we not to this day everlastingly tempted to confuse temporal sequence with causal connection? *Post hoc, ergo propter hoc* – B follows A, therefore A is the cause of B – the fallacy is daily committed by western and non-western alike as well as by educated and illiterate alike.

The traditional African societies lacking a truly scientific notion of cause and effect and exposed to a particular range and area of experience (e.g. human interaction) but endowed with a memory, are certain to adopt a personal approach in shaping their notions of cause and effect. Are these traditional ideas of cause the result of flagrant theories and fantasies with no basis in reality or are they just dictated by practical needs of life?

My own experience of the situation is that, although these ideas and notions are the result of prevailing beliefs, they, at least, share that high degree of probability, in certain instances, which is the utmost we can expect in any investigation of social-psychological data.

If we examine the process of diagnosis of diseases in these traditional societies, we may be able to rid ourselves of many misinterpretations. The inferences of the traditional healers may not have the cast-iron rigour of a microbiological demonstration, but they register certain important features of the objective situation. Turner (1961) in his classic study of divination and diagnosis of diseases among the Ndembu tribe of central Africa, has demonstrated how in this diagnostic exercise, the Ndembu diviner not only refers to the influences of unseen spirits, but also emphasizes that the patient's condition is due to a whole series of upsets and disquiet in his social field. He refers to divination as 'social analysis'. In my experience much that is done in Yoruba diagnostic protocols resemble the well-known projective techniques of modern psychology. Turner finally observed that the Ndembu believe that a patient will not recover 'until all the tensions and aggressions in the group's interrelations have been brought to light and exposed to ritual treatment'.

Western medicine in recent times, in spite of its phenomenal technological advances, has once again started to toy with the idea that disturbances in a person's social life can in fact contribute to a whole series of sickness, namely 'psychosomatic disorders'.

In concluding, I should like to emphasize that traditional medicine as an art has still got an important part to play in non-western cultures. The integration of certain elements of traditional medicine *desire*

with western medicine in transitional cultures of Africa would seem most desirable. Dubos (1961) has observed that 'while modern science can boast of so many startling achievements in the health fields, its role has not been so unique and its effectiveness not so complete as is commonly claimed'.

References

1. ACKERKNECHT, E. H., 'Problems of Primitive Medicine', *Bull. Hist. Med.*, 1942, II, 501-21.
2. BURSTEIN, S. R., 'Public Health & Prevention of Disease in Primitive Communities', *The advancement of Sciences*, 1952, Vol. IX, No. 33; 75-81.
3. HORTON, R., *The Traditional Background of Medical Practice in Nigeria*, Ibadan, Institute of African Studies, 1966.
4. LEVY-BRUHL, L., *La Mentalité Primitive*, Paris, 1926.
5. LEWIS, A., 'Between guesswork and certainty in psychiatry', *Lancet*, 1958, I, 171.
6. SCHMIDEBERG, M., 'The Role of Psychotic Mechanisms in Cultural Development', *Int. J. Psychoanal.*, 1930, XI, 387-418.
7. SCHOPENHAUER, A., *The World as Will and Idea*, Eng. trans., 6th ed., 1907-9, I, 240.
8. STORCH, A., *The Primitive Archaic Forms of Inner Experiences and Thought in Schizophrenia*, New York, 1924.
9. STRAUSS, E. B., *Reason and Unreason in Psychological Medicine*, London, 1953.
10. TURNER, V. W., *Ndembu Divination, its Symbolism and Techniques*, Rhodes-Livingstone Papers, No. 31, Manchester University Press, 1961.
11. DUBOS, RENÉ, *The Dreams of Reason, Science and Utopias*, New York, Columbia University Press, 1961.

WESTERN MEDICINE AND AFRO-ASIAN ETHNIC MEDICINE

by Pierre Huard

OUR PURPOSE is to show the effect of Western medicine on native medicine and medical practice in Africa and the Far East.

This paper will deal first with the state of native knowledge or ethno-science in Africa, then with African native medicine and finally with the effect of European medicine and medical practice on Africa as a whole.

I. ETHNO-SCIENCE IN AFRICA

Every animal species develops a unique means of incorporating itself in the cosmos and securing for itself a survival which is only possible if there is perfect harmony between it and its environment, in other words between it and Nature.

Ecology is the science which studies these relationships. On the human level, however, this is not enough. In fact, where human groups are concerned, direct contact with Nature is impossible without, as an indispensable aid, the culture which these groups have themselves created.

A basic distinction must be drawn between Nature as such and Culture which amounts to a social order governed by rites and laws. The various factors which go to make up a particular culture may be few or many, but they will always comprise elements of both science and medicine.

The essays on the Bantus written by Roumeguère Eberhardt, on the Bambaras by D. Zahan and on the Diolas by Thomas afford us an opportunity of forming some idea of the theory of knowledge among peoples who possess neither writing nor machines.

Lévy-Bruhl's theory of the primitive, prelogical, animistic and anti-experimental mentality has now been finally discarded. Indeed, there is support for Griaule's view that there exists a system of institutions and rites where nothing is left to chance, and that this system possesses an undoubted value since it has enabled countless ethnic groups to survive through the centuries from prehistoric times down to our own day.

With reference to mid-Africa only, it can be said that knowledge is one of the purposes of culture and that the spread of knowledge in

all forms always implies some sort of give and take so that the person to whom the knowledge is imparted can be shown that he must make an effort proportionate to the importance of the knowledge he acquires.

Among the Bantus there are three degrees of knowledge (cf. Roumeguère Eberhardt):

1. Superficial knowledge, that of the bush, the 'third world', or the real world which is the only one sensed by women and uninitiated children. This form of knowledge is objective.
2. The initiation form of knowledge of the 'second' or intermediary world, that concerned with the nature of creation and with clan and totemic structures.
3. The weighty or profound knowledge of the 'first' world: that of the myths regarding the origin and initial creation of the relationships between the microcosm and the macrocosm.

Though the most important, the last two are purely subjective. Thus we can see that African thought is introverted and diametrically opposed to the extraverted thought of the West in which analogical and symbolical reasoning plays such a vital role.

Zahan is our authority for stating that the Bambaras possess a systematic view of the world which endeavours to provide an explanation for both the macrocosm and the microcosm. In order to do so, this group, alleged to be without writing, has devised a number of graphic signs of which Madame Dieterlen has identified 266. They represent a mixture of Arab letters, at times distorted, and a series of autochthonous Bambarian signs which, combined, make the reproduction of short texts possible. If the Bambaras had persevered along these lines, they could, like the Madegascans, have used Arab script ('*Sorabic*') in order to transcribe their language phonetically. In addition, the Bambaras devised a numerical system in which the numbers express the intrinsic composition of creation on the one hand and the half and the whole of the days of the year on the other.

Arithmetic and numbers are used to define numerically the constitution of matter and of the world in general. These conclusions in their turn gave rise to a synthesised overall picture of the cosmos and of the principal natural phenomena. This cosmology is both pre-Copernican and anthropocentric in form. In it the path of the celestial bodies (Earth, Moon, Stars and Planets, i.e. Venus, Mars and Jupiter) is expressed arithmetically by numbers (22 to 44) and graphically by means of a wavy line. The concept of a circle is non-existent as also is that of degree, since the cosmos is regarded

as a cylinder and not as a sphere. Nevertheless, there would seem to be some concept of degree in indentations representing the 360 risings and settings of the sun in the course of the year which are a characteristic feature of representations of the ecliptic or path of the sun. This zigzags through 440 days, corresponding to 360 Western days, since 100 Bambarian or Dogonian days are the equivalent of only 80 European days.

The two combined movements of the sun (daily and annual) are depicted as a spiral described by the sun around the earth. The graphical figure is a saw-toothed line in which there are 220 indentations on each side, giving a total of 440, corresponding to the number of days in a Bambarian or Dogonian year. In practice, this line amounts to 4 sections each representing 90 days, the equivalent of 110 days in the West.

It is possible to determine the position of the sun at the time of solstices and equinoxes over such periods as a decade or even a century by applying a method of calculation involving the reduction of very high numbers to no more than a few tens and units represented by cowries or seeds which can be easily preserved for several generations. Moreover, much is left to the memory, a faculty which is very highly developed in such script-less civilisations.

The orientation of the ecliptic is always north-south, east-west, and its representation also takes into account the height of the midday sun above the horizon.

There is also an awareness of the increased speed of movement of the sun as it approaches the southern portion of the sky, as also of its gradual shift northwards.

This 'equatorial' astronomy, based on the use of a gnomon or sundial, would presuppose the measurement of angles and the ascertaining of the inclination of the ecliptic at an angle of 22° by a method about which we now have no information (Zahan).

In the field of biology, the principal organs are known. Being unaware of the existence of the nervous system, these came to be regarded, as had happened in Greece, as the seat of the moral and intellectual faculties. The actual ascribing of faculties to the various organs was as follows: the will in the kidneys, the power of judgement in the liver; fear in the bladder and courage in the heart.

The explanatory theory of speech implies the interaction of 17 organs or secretions which constitute the word's path, namely: head, heart, lungs, liver, kidney, intestines, bladder, genital organs, glottis, tongue, saliva, teeth, lips and mouth. Other factors also play their part: God the creator; the three bases of creation (consciousness the life force in all things; the principle of concrete expression and limitation) and the four elements: air, earth, fire

and water.

But this is not all: the quality of the discourse may be further modified by oral mutilation hence a highly developed form of oral and dental care.

Bambaras, Mossis and Dogon all hold that the ritual number of human teeth is 44. These glisten like the sun and have the effect of enlightening the spoken word. Any mutilation further accentuates this particular characteristic. Therefore, any man or woman whose teeth are either cut or filed to shape no longer speaks like a man but as a god.

Devices for polishing the teeth, forms of toothbrush, chewing sticks and tooth picks are all means of speech conditioning. Their use is therefore subject to rules and regulations inspired by the nature of the discourse, the environment, the rank of the orator and so on. Forty-four kinds in all have been identified, corresponding to the 44 teeth. Far from constituting mere instruments for cleaning the teeth, they determine the essence of the word itself.

In women, the practice of tattooing the gums and lips is carried out in two stages (at the time of excision and to celebrate a girl's engagement) and is based on the idea that the woman is an open creature and not closed in like a man. She can therefore be likened to a hole which cannot retain its words. On the other hand, the mouth and the vulva were similar and it was therefore deemed essential to strip the one as the other of their 'flowers'.

Thus tattooing confers on a woman the power of control over her speech and her whole personality, which has now been fulfilled.

It would be legitimate to conclude, from these two examples, that there exists a form of serious thought in Africa which is capable of distinguishing various degrees of knowledge and of devising a cosmology of the micro-macrocosmic type.

In this system, which is pre-Cartesian in type, quality outdoes quantity and, though objectively perceived, phenomena are experienced subjectively. The following groups of opposites play a vital role:

sacred	material	technical etc.	(Thomas)
profane	spiritual	mystical	

It is therefore difficult to distinguish between metaphysical causality and material causes. The handling of the abstraction and of the various concepts involved in a given situation is very restrained. Logic is not syllogistic. However, this does not impede a spontaneous move towards knowledge which is perfectly valid and which could have developed in an appropriate context had it not been stifled by the overwhelming forces of magic and sorcery. In our view, the principal objects of African knowledge are the plants which contain

a form of spontaneous knowledge made available to man by Nature so that he may find in them the answer to his questions. They constitute a sort of 'word' broadcast by creation by means of which one arrives at total knowledge. True Knowledge or Science is therefore Botany, the study of plants, which are a synthesis of creation because they are a combination of the powers of earth and of heaven. This extends into the fields of dietetics, forensic medicine, the techniques of hunting, textiles and, of course, medicine proper.

In conclusion, therefore, we may say that the vigorous world of Africa is in no way a contradiction of the contemporary view of the world at large. This African world can be expressed in a rational form (Janheinz - John).

II. AFRICAN NATIVE MEDICINE

'Ethnoiatrics' (though I prefer to use the term ethnomedicine or native medicine) has its roots far back in antiquity since Hippocrates was acquainted with the macrocephalous peoples of the Black Sea, Herodotus with the tattooing practices of Thrace, Pliny with the customs of the Dacians and Sarmatians and Caesar with those of the Druids. As later examples, one might quote Martin de la Cruz (1552), Francisco Hernandez (1575) and Monardes (1574) who brought a knowledge of Indo-American medicine to Europe. Then we have the work of Prosper Alpino on Egyptian medicine (1583) and that of the Jesuits on Chinese medicine in the seventeenth and eighteenth centuries. In the nineteenth century, a number of works on such subjects were published in French, English and German; of these particular mention might well be made of *Die Medizin der Naturvölker* by Bartels, published in 1893.

Nevertheless, ethnomedicine, by which is meant the history, current status, evolution and interpretation of native medicine and medicinal practices has only recently become a subject in its own right. For this we have to thank Tommaso Sarenelli (1940) and Antonio Scarpa who launched a special course on this subject at Milan University during the 1956/7 academic year.

It is quite impossible to arrive at any understanding of native African medicine and medical practices without reference to the cosmology in which it is couched. We are dealing with a world which offers far more scope for the efforts of divines, magicians and sorcerers endeavouring, logically, to discover the relationship between the various elements of this world than for the patient observation of the sick and the diseases with which they are afflicted. Thus, except among the old in whom it is regarded as natural, death can only be conceived of as the result of an invisible cause

(sin, evil spells, incantations, etc.). One might express this concept better by saying that the native does not believe in death (total annihilation of the being, in the western sense) but in the dead. He thinks that, although they may no longer be alive, they nevertheless still exist and can therefore exercise an evil influence on the living. In a world of indissoluble unity resulting from the extraordinary harmony of its components, it was difficult indeed for any healer to contradict the universally accepted cosmology in expressing his own view.

Despite the predominance of unnatural causes in aetiology, and in spite of the profusion of charlatans and witch doctors, African medicine has in fact produced a number of genuine healers who have learned, through years of study, to know the virtue of herbs and to recognise the symptoms of sickness and disease and as a result have acquired valuable experience. Unfortunately, there are not very many of them; they may not reveal their secrets to anyone and they are becoming increasingly rare. One might say of them as was said of the 'Griots', 'the death of a genuine healer is tantamount to the loss of a library'. Such healers must, of course, be distinguished from ignorant healers and from midwives who themselves are little short of charlatans. Neither category has ever been initiated in the art of medicine or of healing in any way and neither has undertaken any special study of diseases and their cure. Moreover, the form of therapy applied by these three types of practitioner is quite different, since the genuine healers use purely African remedies, while the innumerable charlatans who there abound also use European products, administering doses which may well be toxic.

Their knowledge may thus be summarized somewhat as follows:

1 *Complete familiarity with native botany and a knowledge of plant poisons and antidotes. Knowledge of dosage.*

It is now recognised that native medicine has made a noteworthy contribution to medical knowledge in Europe. We have only to think of ipecacuanha, quinine and countless other similar products from America in the seventeenth century; of inoculation against smallpox; rhinoplasty and the plastering of fractures in the eighteenth century; nearer our own day we have strophanthin, ephedrine, strychnine, curare, ouabain, chaulmoogra oil, hallucinogen mushrooms, and *Rauwolfia serpentina* which is both a hypotensive and a tranquilliser.

In the Eastern Mediterranean, Khella (*Amni visnago*) has always been an antispasmodic plant and its alkaloid, Khelline, is now used in urology, cardiology and the treatment of asthma. The African medical ethnobotany has been studied in many papers and the arrow poisons have remarkably stimulated Western physiology.

2 *Awareness of certain forms of intoxication*

Bakongo metallurgists were aware of the toxicity of lead vapour. They endeavoured to forestall this form of professional saturnism by swallowing huge quantities of papaw and palm oil and to treat the condition by inducing vomiting (Balandier).

3 *The formulation of pathogenic theories* according to which a serious general infection can be either alleviated or cured by a counter-irritation.

Hence, in the case of pneumonia, plasters applied to the members act as a stabilising abscess and in the Cameroons it is held that such plasters 'make the sickness leave the body by the hands and feet' (G. Martin).

4 *Awareness of the possibility of contagion from infectious diseases* and provision for this by variolation or pre-scientific vaccination.

5 *Various forms of surgery.* To begin with, we have a form of ritual surgery covering such operations as circumcision, the partial amputation of the fingers, cranial deformation, extension of the labia minora (Hottentot Apron), perforation of the ear lobe and of the sub-septum in the nose; extraction of the incisors; deformation of the lips with (plate-wearing negresses) or without the insertion of foreign bodies; filing and encrustation of teeth; tegumentary mutilations in general; sub-incision of the urethra; infibulation and excision of the outer genital organs in women, the significance of which has already been discussed. Surgery for purely therapeutic purposes really begins with cuppings, blood-lettings, scarifications, the setting of fractures, the haemostatic dressing of wounds, the incision of abscesses and the extraction of Guinea worms (minor surgery). We have already discussed major surgery elsewhere and do not intend to go into the matter in detail here. We would, however, mention that there is evidence of cranial trepanning, of resection of traumatic pulmonary hernias (Oukerewe of Victoria Nyanza); adenectomy of cervical ganglia in those suffering from sleeping sickness (A. Corre); uvulectomy (Yemen and Korgoden); laparotomy in the treatment of wounds penetrating the abdomen, coupled with suture of the intestine (Abyssinia; Sudan); treatment of traumatic eviscerated conditions by a form of plastic surgery using a calabash disc and suture (Sudan); the removal of ovaries and Caesarian section. We found that cases of individuals operating on and mutilating themselves were fairly common.

Obstetrics as such amounted to no more than fumigation, the administration of preparations designed to ensure normal childbirth and some manipulation (massage, a form of podalic traction).

6 *Psychiatry.*

For centuries, the Africans have been aware of the phenomena of trance, hypnosis, possession and possibly also ecstasy and one can find in their midst a number of 'medicine-men' comparable to the shamans of the old world.

These witch doctors frequently have a bad reputation which, in many cases, is entirely unwarranted both socially¹ and technically.² Moreover, anthropologists have definitely established the existence of death by sympathetic magic or hoodoo. This is not to claim that the actual techniques of incantation and so on applied by the sorcerer are effective; the important feature is the impression created on the victim and it is this which is responsible for real and major personality upheavals. According to J. R. Carballo, death occurs as follows:

- 1 Total effective isolation of the terrorised victim;
- 2 Emotional stress accompanied by hyperactivity of the sympathetic nervous system;
- 3 Malignant anxiety syndrome (Misa);
- 4 Terror resulting in death.

Margetts, Colomb, and others have all contributed to the reinstatement of native African psychiatry and, indeed, the Ivory Coast furnishes us with a most enlightening example. I refer to a doctor-prophet named Albert Atcho, who was born in 1903 and who met Harris when he was about 10.

This man, who was already famous, had not, like Harris, been brought up on the Bible nor did he possess any special gifts for preaching. He was the son of, and himself a fisherman, and he lived in his native village, Bregbo, on the shores of the lake of Ebrie, some fifteen kilometres from Bingerville, the former Ivory Coast capital.³

1. One could show that psychoses and allied disorders are on the increase in non-shamanic groups whereas, in those where shamanism is practised, a similar increase is accompanied by a stability which remains relatively unchanged in the field of mental health (S. F. Nadel).

2. There is a certain affinity between shamanistic and psychoanalytical methods. Cl. Lévi-Strauss has shown that some, particularly latter-day, therapeutic techniques would seem to apply certain very archaic practices of the shaman. We would add that psycho-analysis defines as 'abreaction' the decisive moment in treatment when the patient relives on an intense level the initial situation which is at the root of his trouble before finally overcoming it (Cl. Lévi-Strauss).

3. His remarkable history has already been told by Jean Ravel (1958), Bouquet and Mme. Desants (1962), E. Lalou (French Radio, 1962) and above all by J. Rouch, who has illustrated his excellent study with a splendid coloured film, tape recordings and an ethno-botanical and sociological enquiry. Moreover, he proposes to complete his task by carrying out a psycho-medical enquiry also. I owe much to this invaluable work (J. Rouch, *Introduction to a Study of the Bregbo Community*, *J. S. Afr.*, 1963).

As he attained his majority, Atcho realised that he possessed remarkable powers of suggestion. These continued to develop and made it possible for him to effect a large number of cures, the exact nature of which has yet to be established.

Atcho does not consider himself competent in the treatment of purely somatic conditions. In such cases, he turns either to local healers or to European doctors whom he has already had occasion to consult on his own account. If he is engaged in the treatment of semi-somatic diseases, he is careful to administer drugs and medicines as appropriate. However, his own therapy is essentially psychological, his true field of activity being disorders of the mind or spirit. He uses this term to cover not only psychiatric disorders as such but also a wide range of psychosomatic syndromes in which the disturbances felt by the soul or 'double' are manifested in the third component of the human person, the body. Any deviation from the moral law, any proposal to harm others may be the cause of an illness. Similarly, a sorcerer or magician working on the 'double' or soul of another, whether possessed, bound, destroyed, killed or 'devoured', can produce serious bodily disorders in his victim, and the terror thus induced may even result in bodily death. If we accept this aetiology, it follows logically that purification and confession (whether collective or individual) provide a means for the sick to be cleansed of their faults and so cured of their disease. Hence it is that these practices are common throughout much of Western Africa.

Given this background, Mr. Atcho has set up an efficient organisation with a secretariat engaged in collecting confessions and preparing files (there are now over five thousand of these which can be seen by anyone undertaking a study of the subject). There are two degrees of such confessions: the *ordinary* confession which is concerned merely with what are termed venial faults (adultery, lying, theft, the violation of any sexual interdict); the '*diabolical*' confession, requiring the detailed avowal of magical practices and the use of fetishes, which must be handed over to the prophet and destroyed. It is often difficult to secure such a diabolical confession. This is not surprising since those who make such a confession live in an atmosphere of fear or terror such as has been unknown in the West since the disappearance of the last sorcerers but which is still well to the fore in Africa. Such would-be penitents are either sorcerers who have repeatedly tried to bring harm to their village or their clan (such efforts being punishable by death) or they are the victims of sorcerers, some of whom are convinced that they have been bewitched and suffer such anguish that they might well die of fear. Whatever the circumstances, however, the confession is

followed by repentance as a result of which the patient, who has hitherto been isolated from the community, gradually becomes reintegrated thanks to his own increased assistance and co-operation.

The confession is followed by consultation with the prophet surrounded by griots, the consultation being interspersed with chants and prayers. It is normally followed by ablutions in a 'water' which washes away the sins. Where necessary, these ablutions are supplemented by some form of traditional or Western medical treatment and by bathing in the lagoon. In exceptional circumstances, overwrought or dangerous patients are chained up in a hut. Those undergoing treatment, those who have been cured, the prophet's assistants and the inhabitants of Bregbo all form a 'Harrist'-type religious community in which each one is fed and clothed free. In return, each individual carries on a trade for which he receives no recompense. The prophet is thus surrounded by 'a sort of network in which those who are not so sick care for those more seriously afflicted and where everybody is involved in the healing of each one' (Rouch).

We may sum up by saying that most of the sick-cum-penitents who come to Bregbo are people who have been evicted from their normal place and way of life in their own ethnic grouping on account of their participation in magical activities, either as malevolent sorcerers or their victims. In both cases, the prophet's aim is to secure a return to normality as a prelude to reintegration in a community, which is first and foremost that of Bregbo. There can be no question of any Western-trained general practitioner being capable of effectively handling this highly individual pathology in the face of which laboratory discoveries and modern therapy are powerless.

It is equally unlikely that any psychiatrist, even if partnered by an ethnologist, could have successfully created a community such as that at Bregbo in which the dominant feature, Harrism (*see below*) confers a unique degree of prestige and authority on those who represent it. Hence it is that the prophet fulfills an important social function, in that he is engaged in injecting into neo-African culture the correct proportions of western practices and the local substratum into which these are to be assimilated. The choice is a difficult one, but one which had already been made by the great psychologist Harris: retain all that is fruitful in the way of life – in this instance in the Ivory Coast – namely social structure, dances, chants, vernacular and so on; reject magic and fetishism which have survived only through the operation of a process of delayed evolution down through the centuries.

7 There existed a knowledge of *anatomy*, acquired by comparison

with animal structures, as also either by the practice of human sacrifices or cannibalism or through the handling of corpses. We may rule out at once the first of these practices which would not be likely to provide an opportunity for any valid scientific observation. The second calls for more detailed consideration. Corpses were handled for two reasons; with a view either to preservation or to autopsy.

The practice of preserving corpses is a feature common to all known cultures and is particularly characteristic of those of Africa, even in those areas where the climate might seem to present a serious obstacle.

Amon d'Abi informs us that the technique adopted by the *Agni* of the Ivory Coast region was as follows:

- 1 laparotomy with evisceration or washing of the viscera with palm wine, alcohol or salt;
- 2 replacing the viscera;
- 3 hermetic sealing of all natural orifices with wads of cotton.

Little by little, the corpse dries up under the action of smoke given off by burning aromatic herbs under a wattle on which the body is placed. After three weeks, the corpse is washed and dressed.

Similar practices employed in the case of a chieftain's body have been recorded among the Baoulès and in many other areas (Upper Guinea; The Gaboon, Congo, Sudan, Nigeria, the Great Lake District and Nigeria) and described in detail by Derobert and Reichlen. At times, such practices amount to no more than dessication by fire or exterior embalming. In many cases, however, they also include evisceration, the washing of the splanchnic cavities with beer or a vegetable concoction and the wrapping of the corpse in strips of cloth, reminiscent of the Egyptian mummifying technique. Among the Bayandas in Central Africa, the head was separated from the body after a few months and the lower jaw removed and cleaned.

Ancestor worship (*Byeri*) was paid by the Fang people of the Gaboon to skulls prepared and preserved in urns made of wood or bark or else in bag-shaped reliquaries made of rattan which, however, have now been replaced by tin biscuit boxes (Raponda-Walker and Silas).

Of more interest to us are the autopsies which were forbidden as a regular practice among most of the old Eurasian civilisations.

Ritual autopsies were carried out systematically in the Gaboon in order to discover whether the deceased had been 'eaten' by a vampire, since a natural death was inconceivable. There were reports of cases of this kind as recently as 1961. The autopsy was carried out using a wooden-handled razor with which the splanchnic cavities

were slit. The next step was to examine the abdominal organs, the heart and the lungs to see whether there was any trace of an *inyembra* (parasitic evil spirit rendered incarnate in a tiny animal) which had driven its harbourer to commit evil actions, as also to see whether the soul had been eaten or whether it had itself eaten others.

Ritual autopsy was conducted in secret and women and children were not admitted. It was actually performed by a select few initiates who were well rewarded for their work but looked at very much askance by their compatriots. One such individual, Bokoso (1906), the great autopsy expert in the Okande, was cut up into little pieces after his death before burial. The inhabitants of his village wanted thus to make him pay the price of his autopsies which some Europeans may well have mistaken for human sacrifice. This practice later fell into abeyance (Raponda – Walker and Silas).

Gustave Martin has reported autopsies carried out by the village chieftain or by a specialist in the Cameroons. The individual concerned examines the heart and the degree of clotting, serosity and colour of the blood, with a view to ascertaining whether the deceased was a good or bad man and by what spirit he had been possessed.

In the Gaboon, crushed human bones and a powder prepared from the roasted or dried soft parts of the bodies of twins, either still born or sacrificed by the *nganga*, are used in the preparation of kaolin-based ritual paints. (Raponda – Walker and Silas).

All such practices might well have yielded a certain knowledge of anatomy and therefore also resulted in some attempt to account for the physiology of human pathology. But this was well-nigh impossible in a pre-Cartesian system where the Soma was confused with and mistaken for the Psyche and in which souls were held to be permanent and indestructible substances. To these, therefore, was attached much more value than to the ephemeral bodily accidents which were of but negligible worth. Moreover, although the body was opened in an attempt to establish the cause of death, posthumous diagnosis sought a moral culpability, a sin and not a lesion. In any case, the purpose of the autopsy was not to establish any clear-cut relationship between the clinical picture and the state of the corpse. Though the actual procedure might be the same as in the West, the underlying purpose was quite another.

8 *Veterinary care*

Among sheep-raising peoples such as the Peuhls and the Foulbés, there is evidence of a certain degree of veterinary science covering an awareness of the existence of epizootic diseases and liability to infection therefrom. Moreover, such peoples would seem to have

been able to diagnose by percussion certain resulting complications such as pleural pneumonia and to treat their flocks by a form of vaccination consisting in the application of a portion of diseased lung to scarifications made in the nostrils of healthy animals. The practice of blowing air into the vagina of cows to bring on milk was common as was castration by twisting (M. Dupire).

In conclusion, we may say that, on the whole, native African medicine and medical practice offers a fruitful field of thought for the pharmacologist, the medical psychologist and for the medical historian.

III THE CONFLICT BETWEEN EUROPEAN AND AFRICAN MEDICINE

A. *General survey of points of contact between European, American and African cultures*

Any attempt at grafting a foreign culture inevitably provokes a local reaction so that, even in the most ideal conditions, the attempted graft is always changed or modified as compared with the original pattern.

The fashionable term 'negritude' denoting the state of being a negro is used to describe just this condition in the African, cut off from his traditions, suffering by reason of his deprivation and longing to return more or less to their source. The ultimate aim must be to arrive at a syncretic formulation which will retain of such external cultures and contributions only those elements which can be assimilated.

For the past 150 years, primitive African cultures have become steadily degraded. Except for the colour of his skin, the Afro-American is just as much an American as any other. Among the Afro-American peoples of the Indies, woodoo practices, for instance, are clearly the result of the blending of a number of African rites with certain Christian influences.

In Africa itself, there co-exist a number of cultures which possess a common African denominator with an admixture of greater or lesser proportions of Western elements.

In some cases, the African share in the culture has been reduced to a minimum in spite of the fact that the Western culture has not been assimilated. Technological Western civilisation therefore comes up against a 'human material' deprived of true cultural status and for this very reason no longer representative of Africa at all. It goes without saying that Africa as such cannot exist apart from African culture and that the impact of the West on this culture must result in a balanced neo-African culture, though perhaps it would be better to speak in terms of several neo-African cultures. We say this because the cultures of the inland regions of Central Africa are neither so

adaptable nor so mobile as those of the coastal regions which have long been in contact with Europeans. On the other hand, *apartheid* came into being in South Africa in 1948, just when that country was undergoing the metamorphosis from the state of an under-developed country to that of an industrial giant and just when a form of social and racial stratification, comprising four separate ethnic groups, had been established (Joos).

1 A race of whites consisting of the descendants of English settlers (Britishers). They retain the ancient Dutch orthography.

2 A biologically mixed race descended from the Dutch, the Flemish, the French and the Germans, but possessing a predominantly Dutch culture (Afrikaners). These have adopted the new Afrikaans form of writing.

3 A non-European race generally known as Bantus, although the true Bantus were the conquerors who came down from the North in the sixteenth and seventeenth centuries at about the time the Europeans landed on the Cape of Good Hope. Alongside the Bantus there exist other autochthonous peoples such as the Bushmen and the Hottentots, now known as *Namas* where they are still tribal and *Neo-Namas* when they have left the tribe and intermarried.

4 Euro-Africans (*Griquas and Basters*), known as *Coloureds* by the Britishers and as *Kleurlingen* by the Afrikaners. This race will outnumber the Whites in less than thirty years. It will now prove difficult not to alter their status and the 'Whites' will be compelled to accept them as allies against the Bantus. If this happens, however, there will no longer be any philosophical justification for the entire *apartheid* system. The only problem then will be to discover whether, in practice, the Euro-Africans will combine with the Afrikaners or whether they will impose a 'common civilisation' open to the Bantus.

The Bantus have hitherto been the victims of a conspiracy of silence against which a voice must be raised in protest. Such men as Tchaka, Moshesh, Cetewayo, Witbooi, Oom Bandine, Khama and Luthuli have played at least as important a part in the history of South Africa as Van Riebeeck, Somerset, Pretorius, Krüger, Smuts and Malan (Joos).

Having thus summarised the situation, we can now turn to a review of the results of contact between the European and the African in two typical instances, missionary work and sexual intercourse.

Although missions began in the twelfth century, many years were to pass before it was realised that, as with Islam, there were limits. Full integration is extremely difficult. In most cases, there occurs first assimilation and then transformation, with the result that it is

not the African religion which is Christianised, but rather Christian thought which is Africanised along the lines of any of a wide variety of Afro-Christian syncretic religions. The earliest example of this phenomenon is that of Dona Beatrice (*Kimpa Vita*, 1704), who combined the Congolese and Christian traditions in a single national cult in which she presented herself as the mother of the Saviour of the people (*G. Balandier*). A more recent example is that of William Wade Harris (1850–1929), a Krouman born in Liberia, near Cape Palmas, not far from the frontier of the Ivory Coast. He engaged in the coasting trade up and down the Benin Coast. Having been converted to Christianity at the Lagos Methodist mission, he became a schoolmaster at the American Protestant mission in Cape Palmas where he taught for two years. Married, and the father of six children, he later engaged in what might be termed revolutionary activities which landed him in prison on three occasions, the last one being in 1910 when he was 60. It was round about this time that, while reading the Bible in his cell, he saw, in a vision, the Angel Gabriel announcing that he was to be a prophet like Daniel. He began to preach in 1911 but was again sent to prison. Nevertheless, he preached triumphantly in the Ivory Coast from the end of 1913 until the end of 1915. On being expelled, Harris returned to Liberia where he died in his seventies, in poverty and despised by his fellow-countrymen.

His great adventure did not, therefore, last for much more than a year, but while it did, some 100,000 to 120,000 people were rescued from the toils of fetishism. Converted to an African form of Christianity, they formed the nucleus of a new religion, Harrism, which survived without any difficulty after the departure and subsequent death of its founder and which still has some 40,000–50,000 adherents.

Is there any explanation for such an extraordinary achievement, bearing in mind also the very scant victories achieved by contemporary Christian missionaries?

Harris was tall and handsome; he was a tireless walker and addressed the peoples of the lagoon area in thundering tones, exercising over them a strong ascendancy thanks to his simplicity, his poverty and his clear and simple faith, not to mention his courage and ability to defy effectively both fetishes and fetishers. He thus succeeded in completely transforming the customs of the lower Ivory Coast, which he freed of terror and abuses because he was looked upon as a saint and not merely as a priest and official. He possessed an astonishing sense of the spiritual potential afforded by, and of the reactions of his racial brethren to, White Christianity. Though he may have administered baptism, crozier in hand, after a

confession of sins, though he forbade stealing, the defying of authority and adultery, he was wise enough, in a matriarchal country, to tolerate polygamy (of which he himself provided an example) and to replace the Christian hymns by chants with calabash accompaniment, closely resembling traditional airs.

Sexual intercourse between the races and its most valid manifestation, marriage, is a subject which has been much studied, particularly by Turnbull.

So far, no-one has formulated a valid biological argument against such intercourse. However, the prospects of success for such a union vary considerably, depending on psychological and sociological circumstances. Eastern and Southern Central Africa are shocked by what may well leave unmoved those in West Africa, where *apartheid* is unknown. However, very many difficulties have still to be overcome even in the most highly developed regions where wealth, education, culture, religion, beauty and love are deemed of more importance than the colour of a person's skin. It has happened that even those unions which were, in themselves, happy, did not, in fact, succeed in fusing black and white. Instead, they became the point of departure for yet a third world, that of the Euro-Africans, which was as far removed from its progenitors as these had been from each other.

The marriage of the South African chieftain Seretse Khama to Ruth Williams, a London typist, and that of Joseph Appiah (of the Ashanti royal family in Ghana) to Peggy Cripps, daughter of Sir Stafford Cripps, are of great interest in this context. They constitute two rare successes in which each partner had an opportunity to change 'not by becoming like the other partner but by approaching his or her own fulfilment'. There was no hesitation on either side as to the concessions which had to be made nor as to those which had to be courageously rejected.

In a daring work, Colin Turnbull has seen that the tribe is still very much a living concept and that arbitrary colonial frontiers effectively separating sister tribes or bringing hostile ones together have helped to rob the concept of nationhood of all vital significance and turn it into a worthless notion in the eyes of many Africans.

This traditional concept of the tribe (or at least of the family) is still the root of all morality, strength and spiritual pride, even in the eyes of those Africans who are now Christians. If such a concept cannot survive within an urban context modelled on Western lines, neither can the values which this concept has nurtured. The problem therefore is to know exactly what will disappear from the way of life or even from the very manner in which that life is lived. This brings us to the problem of the adoption of Euro-African values, as

modified by circumstances, or alternatively of the adaptation of Western values to the current situation in Africa. An ideal solution would be for the two worlds, black and white, to meet without destroying all that is good in each and that they should ultimately result in the development of a completely original and dynamic, rather than static, system within a new and mixed context.

B. Western medicine and African patients

Long before Europeans made their presence felt in Africa, the native African population had acquired from Islam some notion of traditional Arab medical practice which, of course, was Hellenistic in origin. Fr. Crozat (1858–1892), a doctor attached to the Quinquandon mission to the Sudan (1890) and to the Binger mission to the Ivory Coast (1892) found an Arab medical school among the Foula people at Foujoubba. Later, Dubié detected a Greek echo in an apparent corruption of the name of Plato to *Iflatoun* in Moorish medical parlance. Like Islam, through which it was channelled, Arab medical practice was much africanised as it penetrated the heart of Black Africa.

Contact with the medicines and medical practices of the West came about in entirely different circumstances.

1 The first Portuguese doctors who arrived in Africa in the sixteenth century were completely ignorant of the pathology of tropical diseases and so were unable to display to the Congolese the same superiority which was theirs in other fields. In the seventeenth and nineteenth centuries, Western naturalists and doctors became interested in native African medical practice and studied it at a time when little was as yet known about tropical diseases and there was, in any case, far less of a chasm between the two forms of medical practice.

2 Generally speaking, the medical attitude of the conquering colonials has been to despise the local brand of African native medicine, which was held to be of very poor account in comparison with their own outstanding discoveries.

3 Since gaining independence, many African nations have appeared to turn somewhat against Western medical practice in general, and the reasons for this may be said to be both political and economic and also, not surprisingly, psychological.

There are some considerations worthy of note:

1 The form of medical practice and therapy applied intensively to a high standard of living in highly industrialised countries can certainly only be made available to the majority of Africans through a system of aid and co-operation which in any case can only be temporary and, indeed, diminishing in extent.

It is therefore a mistake to reject out of hand a traditional form

of medical practice, the psychology and medicines of which possess certain valid features. Countless trivial mental and somatic disorders are quite open to treatment by a traditional form of therapy which has, in any case, been reinstated in the light of present-day knowledge and which is materially and psychologically well suited to the African way of life. The only difficulty would be to have this re-instatement of local medical practice agreed to and accepted by African doctors and governments.

2 Where it is found necessary to send the patient to hospital, is it also necessary to subject him to the sort of regime which applies in the West generally? Is there not a case for employing the principles advocated by Dr. Schweitzer and setting up hospital villages where the sick man, escorted by his family and even by the family's livestock, could live as he chose in African style? Though deemed acceptable in the colonial era, this idea has been much criticised in this post-colonial age and, indeed, would seem not to have long survived the death of its great advocate.

3 There would seem to be a vast field open to preventive medicine along Western lines. Though, initially, the traditional form of Western medical practice – treating individual patients for their complaints – closely followed the European pattern based on a static urban network, in Africa this set-up very quickly proved inadequate. It was soon realised that patients had to be sought, and mobile teams moved out into the bush instead of waiting for the sick man to turn up at the local metropolis. Preventive medicine became the order of the day. The need was felt for mass treatment, social medicine and health training with a view to showing rural populations the dangers to which they were exposed and how to combat them by the treatment and sterilisation of sources of viruses resulting in the eradication of endemic diseases (trypanosomiasis or sleeping sickness, leprosy, syphilis and allied diseases, bilharziasis and blindness). Nowadays, the beta-2 macro-globulins make it possible to track down three cases of trypanosomiasis where formerly only one would be identified. A single injection of Mel W is now the only treatment required for oncocerciasis. Vaccination against measles and cerebro-spinal meningitis has proved effective. The injection of anti-malarial preparations having a very delayed action now affords some prospect of eradicating malaria.

In such a context, there is absolutely no place for an isolated medical practitioner. The smallest medical unit is the team which tours the villages where rural 'propaganda' experts have already been at work. It can well be said that a nation-wide scale is too small on which to combat endemic diseases effectively. The only really worth-while projects are those undertaken on an international

scale within the framework of the World Health Organisation, UNICEF, American A. I. D., the West African Council for Trypanosomiasis Research, and the inter-departmental African Conferences. In French-speaking areas, we would mention the Bureau for Dietary and Nutritional Research in Africa (O.R.A.N.A.) located in Dakar and the Organisation for co-ordination and co-operation in the control of the principal endemic diseases (O.C.C.G.E.) centred in Bobo-Dioulasso. This body is financed by seven African States plus France. In all cases, the aim is the integration of multiple mobile teams in an overall nation-wide or international rural medical service.

These, indeed, were the aims of Eugène Jamot (1879–1937). Between the wars, he realised the ineffectiveness of urban medical practice of the traditional pattern. Faced with endemic diseases which were decimating the rural populations, he felt its methods were tantamount to trying to put out a fire with a dropper (Lapeyssonie). He realised full well that, in the case of trypanosomiasis, for example, it was absolutely impossible to make the initial clinical diagnosis and send the sufferer to hospital as things then were and so both these tasks had to be carried into the farthest corners of the bush in the form of laboratories and hospitals run by personnel recruited on the spot, without prior training or diplomas and so of a generally low level of education as compared with European practice. Jamot's genius lay in his ability to give the very best of what it was in his power to give, namely to carry out correctly two or three simple operations, involving straightforward and effective techniques which were fully standardised by means of a strict allocation of duties. Thus, in straw hut locations, punctures, blood smears, lumbar punctures, a search for trypanosomes and albumin tests, carried out thousands upon thousands of times made it possible to detect sleeping sickness in its early stages, to supervise confirmed cases and to treat them at the same time.

Round about 1931, the method had proved itself. Jamot was invited to address the Academies and his audience included government ministers. Journalists like Pierre Mille and René Maran made him a public figure and there was talk of proposing his name as a candidate for the Nobel Prize. But his theories were too revolutionary to be swallowed easily by the conservative practitioners of tropical medicine and the members of the colonial service. He was therefore sacrificed on the altar of tradition and he had died before the Americans discovered him and the Swedish Academy set the seal of approval on his efforts.

We have no means of knowing quite what the sufferers from sleeping sickness who were cared for by Jamot's travelling teams

thought of the whole thing. Their feelings were probably very mixed. Bearing in mind this reservation, we can perhaps quote Jamot himself on the subject: 'I have often seen in the eyes of my most primitive patients an expression of infinite gratitude and it is my belief that much happiness and a supreme reward are to be found in the relief of suffering' (Jamot).

IV. WESTERN AND NATIVE ASIAN MEDICINE

We will not go into great detail here as we have already discussed this subject on a number of occasions with particular reference to China and to Sino-Japanese and Sino-Vietnamese medical practice.

The local culture reacted in widely differing ways to the invasion of these medical practices by the West.

Japan suffered less than China from the process of introducing European values into its culture in place of outmoded Chinese ones. By virtue of a very enlightened form of syncretism, Japan endeavoured to retain all that was valid in Chinese medical practice (pents'aology, forensic science and inoculation) while at the same time mastering those branches of medical science which accounted for the superiority of European medical practice (anatomy, surgery and micrography). Thus, the first operation for the removal of a cancer completed with a general anaesthetic was performed, not in Europe, but in Japan by *Seishu Hanaoka* (1760-1835) in the year 1805. The surgeon had applied Western surgical practice and the ancient Chinese methods of anaesthesia (aconite, datura, Indian hemp, angelica and so on).

In China, the trading and seafaring centres of the South, and of course the Imperial Court, afforded a far better welcome to Western medical practice generally than the more feudal population in the northern mainland. Generally speaking, the conservative peasantry was most unreceptive.

During the Boxer movement, charms, incantations and hypnosis were widely practised to cure sickness and disease and render the combatants invulnerable. This marked the end of a medieval outlook, the xenophobic and magical elements in which were destined to be gradually uprooted by a universally secularised form of nationalism deprived of all sacred connotations and concerned only with social and national aims.

At the time of the serious outbreaks of plague and cholera not only within the Chinese Empire but also among the Chinese colonies in Cambodia and the United States, there was widespread acceptance of an aetiology which blamed the supernatural, with the result that collective preventive hygienic measures were regarded as an unpardonable liberty taken with the divine.

In the nineteenth century, mission hospitals had to be very careful indeed not to allow a death to occur on the premises during their first year, otherwise they were forced to close down completely.

As late as the beginning of the twentieth century, traditional medical practices were widely popular among the masses, though they were on the way out among the educated classes, comprising both forthright Europeans and 'progressive' Chinese ashamed of their past.

The Court Medical School was by now in full decline. No instruction was given and the only occupation followed by those attached to the School was the care of the Imperial Family and its retinue.

One by one, those schools where traditional medicine had been taught were closed down, the target date at one time being as early as 1929. Between 1911 and 1948, only eight of these Schools were left.

However, in a country like China, it is extremely difficult to blot out the past completely and at once. Thanks to the efforts of Li Cheng Tchi, a School of Pharmacy was founded in Hangchow in 1913. In 1926, the Society of Pharmaceutical Scientists amended its statutes and set up a nine-man commission in Shanghai under the leadership of Yei Han-Tchen.

In 1936, King Li-Pin, Director of the Institute of Physiology in Peking coined the word '*Pents'aology*'. Though the modernist movement was important, it was nevertheless unable to shake the preference of millions of peasants for a form of medical practice which was, in effect, the only one to which they could turn or, indeed, to do away with a vast industry dealing in time-honoured potions and remedies. As in the case of Japan, Vietnam and Korea, though dormant, traditional medical practice was again to prove its worth and indeed usefulness in China too.

During the Second World War, the shortage of drugs imported from the West and the reassessment of all that was of the people served to reinstate traditional medicines and medical practice. Indeed, the extreme cheapness and universality of the latter throughout the country could not but attract the attention of the authorities.

In the present post-colonial era, the pattern of the spread of Western medical practice differs widely in Asia as compared with Africa. This difference can be accounted for by the following factors:

- 1 The density of population in Asia, where the annual rate of growth in North Vietnam, for example, is over 3.5%, which means that priority is given to the problem of feeding these populations rather than providing for their medical care. It is an established fact

that more people die of hunger than of disease.

2 The very low level of economic aid contributed by the West.

3 The existence of an important and in part knowledgeable tradition of medical practice, manifested in textbooks and a system of organised teaching. This is, of course, countered by popular medical practices which are largely handed down by practical demonstration and word of mouth. Being a multi-racial area, China itself comprises, in addition to the Hans, dozens of other races: Mongols, Houeis, Tibetans, Ouigours, Miaos, Yis, Tchouangs, Pouyis, Koreans, Manchus, Tongs, Pais, etc. The medical patrimony of all these ethnic minorities has not been overlooked. Whenever the opportunity presented itself, medical practitioners of the traditional school have been invited to participate in official health programmes and to pass on their knowledge to succeeding generations.

4 The establishment on a firm footing of Western-type medicine of extremely high quality in the fields both of prevention and cure.

Certainly, the most important event of the past decade has been the effective symbiosis of Western and traditional medical practices in Chinese hospitals and in Chinese medical care generally. Programmes for the eradication of a number of endemic diseases (malaria, schistosomiasis, filariasis, ancylostomiasis, kala-azar, tuberculosis and leprosy) have been carried out energetically and spectacular results have been achieved.

The astonishing thing is that the traditional medical practice of the Far East has spread beyond its natural frontiers and penetrated as far as Europe and, what is more, into such traditionally hostile countries as Great Britain and the United States.

How so?

We might say that, until 1914, the twentieth century was but an extension of the nineteenth. When the First World War was over, however, it was no longer felt that the traditional order was unshakable. The Second World War had an even more far-reaching effect on a Europe which could not now impose its will on the world.

The desire felt in certain quarters for far-off lands, the mysterious and the supernatural; the loss of a feeling of self-sufficiency by comparison with non-European civilisations; the fact that, after the collapse of the colonial system, millions of Asians continued to multiply in numbers without any recourse to costly and complicated forms of medical treatment are all factors which explain why it is that Eastern and Far-Eastern medicinal preparations are now viewed with some favour by patients and doctors in the West. Yet another important factor in the establishment of this new attitude is that, thanks to the efforts of the Orientalists of the last century, a 'new humanism' has come into being by virtue of which all

civilisations are deemed worthy of study. Given this background, all medical systems are of equal interest in the eyes of the medical historian, regardless of their practical value. To quote Walt Whitman, the earth will never be really round until due account is taken and importance given to all aspects of the art of healing in all places and at all times. Only then will it be possible to establish an atmosphere of mutual co-operation in which doctors from all over the world will feel at home. It follows that non-European doctors and healers, so long held in contempt, must play their part in the fashioning of a new system of medical art and practice which will no longer be restricted to our characteristic of a particular culture but will be, in every sense of the word, universal.

One last factor contributing to this trend has been the change which has come about in the medical 'doxology'. For the first quarter of the present century, Western medicine was basically of the anatomico-clinical variety by virtue of which all symptoms were to be traced to macroscopic or microscopic lesions which could be detected either by autopsy or under the microscope. Virchow refused absolutely to enter into discussion with anyone postulating the theory of 'general sickness'. It has since been shown that real illness can result not from lesions but from nervous disorders. Medical psychology and psycho-somatic medicine have confirmed the importance of psychical, moral and mental factors in the genesis of disease and the behaviour of those suffering therefrom. There has been renewed interest in ancient and outmoded medicines for other than anatomical reasons. It has been realised that the substances (particularly those of plants) used in the preparation of tropical and native medicines have not yet yielded all their secrets and a systematic study of these is therefore called for.

The practice of acupuncture has enjoyed a wave of popularity ever since Pavlov publicised his theories, and the discovery of the particular electrical properties of the skin has afforded an opportunity of incorporating this ancient treatment in Western medical practice. There can be no doubt that it had been applied in Europe as far back as the end of the eighteenth century. However, it had fallen into complete oblivion from which it has now been resurrected.

Finally, breath control which is a primary feature of the various Indian *yogas* turns the spotlight onto all the physiological and psychosomatic phenomena which have been discovered through encephalo-cardiography (Th. Brosse). Doctors are thus afforded an exceptional field of study in which they may 'cultivate, to a certain extent experimentally, but in accordance with a traditional and specific technique, the potentialities of both body and mind which are

not normally open to examination by the physiologist and psychologist' (J. Filliozat).

CONCLUSIONS

'Anything which liberates the spirit without producing a corresponding growth in interior discipline constitutes a danger' (Goethe).

'Mechanical progress requires at least a corresponding degree of mental progress; if the spirit is absent or asleep, it will be crushed by the very forces which it has itself set in motion. It will be buried by what it pleases to term its victory over Nature' (E. Quinet 1840).

Since the end of the seventeenth century, the West has created for itself a mechanical image of the world and this has played a considerable part in promoting the development of techniques generally and all the sciences (with the sole exception of the humanities which lag well behind). One might even say that a certain level of material comfort and civilisation did not prove equally beneficial to all aspects of culture, some of which were, in effect, trampled underfoot. This was not, of course, the case as regards scientific medicine, which secured pride of place in the system just described. Its great strides forward very quickly severed it from its connections with its despised Eurasian and Amerindian counterparts. It is true that such ancient medicines are now outmoded and that you have to shake a great many trees before you are likely to bring to light the occasional rare bluebird. Nevertheless, they and their practices are of by no means negligible interest.

In all the developing countries, there exists what amounts to a two-tier economy, one of which is as yet well-nigh intact and autochthonous while the other has already turned Western in style and outlook. Western medical practice is held in very high esteem in some of the more fortunate built-up areas. Elsewhere, in the absence of the necessary groundwork, it has failed as yet to dislodge popular medicine which, by definition, is admirably suited to the economic and psychological condition of the present masses who make use of it. Being cheap and given a little good fortune, it fulfills a basic social function which could be met in no other way. This traditional medicine (which also has its 'officials' and its healers) is of interest not only to doctors on account of the widely differing therapies employed but also to linguists, ethnologists, sociologists, psychologists and all those other specialists and experts who realise that a fruitful approach to other civilisations can be made through the medium of medicine and, indeed, that riches can thus be culled by modern science which has already destroyed those traditions which formerly constituted the only wisdom possessed by the

illiterate masses. The West has thus roughly thrown out of balance these cultures for the benefit of the exact sciences and to the detriment of the humanities, and so has accelerated history. Although a form of cultural syncretism resulting from the total osmosis of civilisations is sometimes achieved to a certain extent, in very many cases the threatened cultures react by becoming static and by imbuing their defence mechanism with a certain sacred quality. The way is thus paved for conflict and the creation of belligerent states of mind the deeper origins of which may be quickly analysed.

The spread of Western medicine and medical practice in the under-developed countries must be viewed in this context. It encounters both material and psychological obstacles. It is the psychological obstacles which give cause for the greatest concern and prove the truth of the old adage *ars artium regimen animarum*. To put it another way and depending on circumstances, a dialogue must be either opened up or reopened at once between the more advanced nations and those which are less so, and this dialogue must embrace medical and other fields.

'We must learn again from scratch, without contempt and with patience, how to talk to our fellow men and listen carefully to what they say: this is our only claim to integrity'. (R. Oppenheimer).

BIBLIOGRAPHY

- ACKER, P., CURUTCHET, F., and JOLIBOIS, C., 'Note au sujet de deux médicaments antianémiques utilisés en médecine indigène en Afrique Équatoriale', *Bull. Soc. Path. exot.*, 1964, 57, 1196-1200.
- AMON D'ABY, FRANÇOIS JOSEPH, *Croyances religieuses et Coutumes juridiques des Agnis de la Côte d'Ivoire*, Larose, 1960, pp. 184.
- BERTRAND, H. A., 'En plein vingtième siècle. La chasse au lion à l'arc - Un document ethnographique', *Sci. Vie*, 1966, no. 580, 70-74, 76-81.
- CARBALLO, J. R., 'Thanatos', *Ciba Symp.*, 1964, 12, 79-86.
- DECARY, RAYMOND, 'La bouche et les dents dans les coutumes malgaches', *J. Soc. Afric.*, 1953, 23, 35-42.
- DECORSE, J., 'Le tatouage, les mutilations ethniques et la parure chez les populations du Soudain. Pt. II - Déformations et mutilations ethniques', *L'Anthropologie*, 1905, 16, 136-43.
- DECORSE, J., 'Médications indigènes', *Rev. méd. hyg. trop.*, 1907, 119-28.
- DEREN, MAYA, *Divine Horsemen. The Living Gods of Haiti*, London and New York, Thames and Hudson, [1953], pp. 350.
- DIETERLEN, GERMAINE, *Essai sur la Religion bambara*, Paris, Presses Universitaires, 1950, pp. 240.
- DIETERLEN, G., and LIGERS, Z., 'Note sur un talisman bambara', *Notes Afr.*, 1959, no. 83, pp. 89-91.
- DIETERLEN, GERMAINE, *Signes graphiques soudains*, (*L'Homme*, no. 3), Paris, [1951], pp. 86.
- DUBIE, PAUL, 'Médecine maure', *Bull. Comm. Étud. hist. scient. Afr. occid. fr.*, 1937, 312-35.
- DUPONT, LE ROY DES BARRES, TANON, 'Propos de la protection contre la variole. Coutumes des peuplades noires de la boucle du Niger et coutumes chinoise', *Société française d'Histoire de la Médecine*, 1912, 11, 49-55.

- ESTERMANN, CHARLES, 'Les Bantous du Sud-Ouest de l'Angola. Pt. II - Le cycle de la vie individuelle', *Anthropos*, 1964, 59, 24-38.
- GANAY, SOLANGE DE, 'Notes sur la théodicée bambara', *Revue de l'Histoire des Religions (Annales du Musée Grimet)*, 1949, 135, 187-213.
- GANAY, SOLANGE DE, 'Graphies bambara des nombres', *J. Soc. Afric.*, 1950, 20, 295-305.
- GRIAULE, MARCEL, and DIETERLEN, GERMAINE, *Collection des Actualités scientifiques et industrielles*, (L'Homme, no. 3), Hermann, 1952, pp. 88.
- GRIAULE, MARCEL, *Dieu d'eau. Entretiens avec Ogotemmêli*, Éditions du Chêne, 1948, pp. 263.
- GUEDEL, J., 'Contribution à l'étude des ictères en A.O.F. - Le Diekouadio; symptomatologie et traitement indigènes', *Notes Afr.*, 1955, no. 66, pp. 50-53.
- HALEVY, D., 'Essai sur l'accélération de l'histoire', 2nd ed., *Collection des Idées et de la Vie*, Fayard, 1961, pp. 166.
- HUARD, P., 'Médecine occidentale et médecine populaire africaine en Côte d'Ivoire', *Concours Méd.*, 1965, 87, 3199-3203.
- HUARD, P., 'Quand l'Afrique s'ouvrait - Les premiers médecins africains de formation occidentale', *Concours Méd.*, 1966.
- HUARD, P., 'Adrien Atimon (1866-1956)', *Annales de l'Université d'Abidjan*, 1965.
- HUARD, P., 'Les Universités africaines et quelques uns de leurs problèmes', *Concours Méd.*, 1964.
- HUARD, P., 'Albert Schweitzer l'africain (1875-1965)', *Concours Méd.*, 1966, 88, 113-23.
- HUARD, P., *État et Perspectives des Études africaines et orientales - Colloque de l'A.U.P.E.L.F.*, Beyrouth, 1965.
- HUARD, P., and MING WONG, *Médecine traditionnelle et Médecine occidentale dans l'Asie du Sud-Est . . . la Tradition et le Développement économique dans l'Asie du Sud-Est*, Brussels, Institut de Sociologie de l'Université libre de Bruxelles, 1962.
- HUARD, P., and MING WONG, *Education traditionnelle et moderne et enseignement médical au Vjet-Nam . . . l'Education et le Développement dans le Sud-Est de l'Asie*, Brussels, Institut de Sociologie de l'Université libre de Bruxelles, 1966.
- HUDSON, E. H., 'Treponematoses and African slavery', *Brit. J. vener. Dis.*, 1964, 40, 43-52.
- JOOS, LOUIS C. D., *Histoire de l'Afrique du Sud.*, Paris, Le Centurion, 1966, pp. 344.
- JUNOD, HENRI ALEXANDRE, *Moeurs et Coutumes des Bantous. La Vie d'une Tribu sud-africaine*, 2 vols., Payot, 1936.
- KAGAME, ALEXIS, *La Philosophie bantu-rwandaise de l'Être*, Brussels, Académie royale des Sciences coloniales (Classe des Sciences morales et politiques, Mémoires nouvelles, Sér. T.VI, fasc. 1), 1955.
- KONIPO, M., 'Traitement de la lèpre chez les Bozo', *Notes Afr.*, 1959, no. 81, p. 8.
- KROEBER, A. L. (ed.), *Anthropology Today*, [Collected papers, International Symposium on Anthropology], University of Chicago, [1953].
- LAGERCRANTZ, STURE, 'The chewing brush, especially in Africa', *Ethnos, Stockh.*, 1946, 11, 63-70.
- LEMMET, 'L'hygiène de la bouche chez les indigènes du Sénégal', *Bull. com. Étud. hist. scient. Afr. occid. fr.*, 1918, 400-4.
- LEVI-STRAUSS, C., *Anthropologie structurale*, Paris, Librairie Plon, 1958, pp. 454.
- LIGNITZ, HANS, 'Die künstlichen Zahnverstümmelungen in Africa im Lichte der Kulturkreisforschung', *Anthropos*, 1919/20, 14 and 15, 891-943; 1921/22, 16 and 17, 247-64, 866-89.
- MARTIN, GUSTAVE M. E., *L'Existence au Cameroun. Études sociales, études médicales, études d'hygiène, et de prophylaxie . . .*, Paris, 1921, pp. 533.

- MEYEROWITZ, E. L. R., *The Sacred State of the Accan*, London, Faber & Faber, 1951, pp. 222.
- MIDDLETON, JOHN FRANCIS MARCHMENT, and WINTER, EDWARD HENRY, *et al.*, (eds.), *Witchcraft and Sorcery in East Africa*, London, Routledge & Kegan Paul, 1963, pp. 302.
- MONDE, LE, *Du Sorcier, Egypte, Babylone, Hittites, Israël, Islam, Asie, centrale Inde, Népal, Cambodie, Vietnam, Japan*, (Coll. Sources orientales, 7), Editions du Seuil, 1966, pp. 395.
- MONOD, T., 'Autour du batonnet-brosse à dents ouest-saharien', *Notes Afr.*, 1953, no. 60, p. 117.
- MONTANDON, G., *Traité d'Ethnologie: cyclo-culturelle et d'ergologie systématique*, Paris, Payot, 1934, pp. 778.
- NADEL, S. F., 'A study of Shamanism in the Nuba Mountains', *Jl. R. anthrop. Inst.*, 1946, 76, 25-37.
- PAUR, J.-B., 'Médication africaine contre les parasites intestinaux', *Notes Afr.*, 1954, no. 64, pp. 118-19.
- PETTERSSON, OLAF, 'Magic and medicine in South African Bantu psychiatry', *Centaurus*, 1963, 9, 293-316.
- RENAUD, H. P. J., 'De quelques acquisitions recentes sur l'histoire de la médecine arabe au Maroc', *Fifth International Congress of the History of Medicine*, Geneva, 1925, pp. 114-21.
- RIDET, J., and CHARTOL, A., 'Les propriétés antidysentériques de l'Euphorbia hirta', *Méd. trop.*, 1964, 24, 119-43.
- SCARPA, ANTONIO, *Nozioni di Etnoiatria . . . Verona*, Tip. Vardonega, 1962, pp. 312.
- TEMPELS, P., *La Philosophie bantoue* (trans. from the original Dutch by A. Rubbens, Elizabethville, 1945, pp. 159).
- THOMAS, LOUIS VINCENT, 'Les diolas: essai d'analyse fonctionnelle sur un population de Basse-Casamance', *Mém. Inst. fr. Afr. Noire*, nos. 55 (1) and 55 (2), Dakar, 1959.
- TURNBULL, COLIN MACMILLAN, *L'Africain désemparé*, (trans. by J. Pernot), Paris, Éditions du Seuil, 1965, pp. 208.
- ZAHAN, D., 'Aperçu sur la pensée théogonique des Dogon', *Cahiers internationaux de Sociologie*, 1949, 6, 113-33.
- ZAHAN, D., 'Principes de médecine bambara', *Zaire*, 1957, 11, 967-77.
- ZAHAN, D., *La Dialectique du Verbe chez les Bambara*, (École pratique des hautes études, Sorbonne, Section VI: Sciences économiques et sociales), La Haye/Paris, Mouton, 1963, pp. 207.
- ZAHAN, D., and GANAY, S. DE, 'Études sur la cosmologie des dogon et des bambara du Soudan français', *Africa*, 1951, 21, 13-23.

DISCUSSION

CHAIRMAN: Now Dr. Guerra, may we come to your paper, do you think?

GUERRA: In discussing the contributions made by Sir George Pickering and Professor Hubble on the cultural role of medical education, we agreed that it was the cultural outlook of the medical teacher which made medical education something more than the transmission of technical knowledge. I should have liked the discussion to have gone one step farther to see if we could not agree that medical history is the integrating study where the medical student may learn, as well as the evolution of his profession, the cultural influences modifying the idea of disease and of the effects of disease on medicine in any particular culture.

For the benefit of medical history, I have used some tools of cultural anthropology in the study of an area, Spanish America, where two important cultures have been amalgamated. I attempt to review historically the main factors concerning Medicine which could be utilised to serve the purposes of health education, and I try to explore the future taking advantage of past experience. I am well aware of the historical bias but the similar evaluation found in the contributions of Professors Huard, Needham and Keswani give me some degree of reassurance. One very important point where I completely disagree with my colleagues is their complete acceptance of the pharmacological values of the indigenous pharmacopoeias. With a few notable exceptions the contents of the indigenous pharmacopoeia are of little real use. The only valuable thing in connection with them is the ritual of culture.

In studying the role of religion in Spanish American Medicine I have first surveyed the conditions in Spain in that period and I hope to show the profound effect of the encyclical of Pope Alexander Borgia which granted Spain the right of colonising America. That committed Spain once and for all to the absolute Romanisation of Latin America. The Charitable Commission of the Catholic Faith also had considerable importance in the development of medical care in Latin America. Glancing at the religious tenets in the pre-Columbian cultures we discovered that, just as Professors Huard and Keswani found in their areas, there are many basic ingredients in the beliefs of all these American cultures which seem to me to explain the reason why the Catholic faith was so important as a cultural factor in the evolution of the medicine of the early colonial period and even today. Many of the sacraments in the Catholic faith fit particularly well all the American-Indian ideas of the causes of disease. Some years ago I had the pleasure of discussing with

Dr. Poynter that in my experience of going through the American codices and the American chronicles prepared by the Fathers, I was finding continuous reference to sodomy as very much a practice among the American Indians. Later on, when I was able to put my hands on the early books prepared for the priests in order to administer confession, I found that among the questions the priest was supposed to present to the Indian, there was a complete description of all sexual perversities, even beyond my knowledge. I went further into this problem, and I discovered that in most of the American cultures the idea of sin is completely integrated with the idea of disease, and that disease is the result of sexual deviations and excess.

After the conquest of Spanish America, the pattern of medical ideas in the mind of the Conquistador was immediately impressed on all the native religions. But the American-Indian, in amalgamating their Spanish Catholicism compromises with the cults, and where the Catholic priest puts the image of the Virgin Mary, the Indian substitutes the Mother image with the local equivalent, and where the Spanish priest imposes the sacrament of Communion instead of anthropophagy the indigenous culture imposes an adaptation which is also found in terms of medical ideas. I have come to the conclusion that the greatest field of research in the primitive cultures of America in respect to medicine, is going to come through the analysis in cultural anthropology of the ideas of disease in these cultures and the ways of treatment. I have pointed out before the misunderstanding arising from the great number of plants used by the local cultures in the treatment of disease. In my view the only value of this pharmacopoeia lies in its association with procedures very much within the tradition of these cultures. It forms part of the medical culture based on the transmission of disease, the process of transference when the Indian passes to the witch-doctor and the witch-doctor asks the patient 'What sin have you committed?' The first question that we find established in a clinical case between local doctors and the native patient is not 'What is your disease?' but 'What sin have you committed?' We find this throughout the whole literature of the 16th century, and even nowadays it is a significant part of the relationship with the Catholic priest, who has still a great power over the natives.

The coming of social reform has passed through the moment of political freedom and independence in Latin America but it has brought new problems. Social reform and systems of medical care cannot be established without economic reform. And when it becomes economically possible to establish such a system, then it will be necessary to base it upon the traditional cultural background of

the people, so that they may have scientific medicine in the framework of medical ideas which are a familiar part of their cultural pattern.

CHAIRMAN: Thank you, Dr. Guerra. Now Dr. Keswani.

KESWANI: Lord Cohen and friends, I realise very well my limitations as a student of history or a student of medicine, and even more of philosophy and religion. I mention this because since this morning two people have asked me why I did not talk more about the philosophy and religion of India. Another asked me why I did not talk about the history of my race. I deliberately left these matters alone because to get into the metaphysical or other laws of India will probably lead us far from the subjects we are discussing. But as far as philosophy in general goes, I have to say that, in spite of the fact that the westerner expects the Indian to be a philosophical person, I may give you a rude shock by saying that I am as materialist as you are. That is a fact. There was a Muslim in the 16th-17th century, who has a beautiful poem which says: 'O God, take this rosary from me. How can I worship you when my stomach is empty?' I think that would summarize the philosophy of an average Indian, in spite of the claims that we are not *that* poor. My contribution to this Symposium on Medicine and Culture in India is presented in the context of the so called Hindu view of life and therefore the Hindu view of the ancient Indian and other indigenous systems of Medicine. I have, as you may have noticed in my paper, deliberately avoided the term 'Western Medicine' because I do not think that modern medicine is only 'Western'. To me modern medicine is a hangover of the medicine of all civilisations. Whether you like to call it that, the Egyptian and Mesopotamian distilled into Greek, or the Chinese percolating through the Persian and Aryan areas and certainly then mixing up with Indian, 'Western Medicine' so-called is nothing more than the culmination of the medical cult of all these civilisations aided, if you permit me, Sir, *abetted* by the technological advances begun in the European countries and the United States. That is my view at any rate. Coming back to what is in general, the philosophic view of the average Indian, life in India, I refer you all to a book you must have read by our President, Dr. Krishnan, on the Hindu way of life which very succinctly and in a sweet and sharp way gives you the view of life as it looks to an average Indian. My view is that, leaving aside all those ritual and traditional exercises that we are used to going through every morning, if not every Sunday morning, leaving that aside, I believe that the average individual in India, as anywhere else in the world, is an individualist. Every one of us has our own concept of what religion needs to be; every one of us has our own philosophy to follow. But if you come

to the so-called illiterate group of people, who are more buried in the ruins and the relics of the past traditions of the philosophy of the ancient times of India, they look on this world as something of an illusion. An individual might go to pray, whether it is twice a day or once a week. When his health is affected, he thinks it is because he has committed a sin for the repentance of which he has to go to the temple. He also goes to the temple if he has a great monetary loss, or for that matter if he wants a good promotion next time in his job. I have a colleague who belongs to the category of Hindu who must go to the temple every Tuesday morning. He is a modern physician (so-called) and he believes that one day he will get a Nobel prize because he goes to the gods and asks for their help. Therefore, I do not know if my friend Dr. Guerra is right about the association with sin. Yes, it *was*, but I don't think it is in modern man as far as India is concerned. When it comes to disease, when all modern, as well as non-modern physicians fail to cure the condition or take care of the patient, we have nothing else to face back on. The human mind needs something to cling to and all he has left to him in this otherwise material world is to go to a god or a goddess. I remember an interesting Catholic priest in Bombay when I was doing a residency at the Kalim Hospital there. We used to have discussions with this Father, who was originally Spanish and had spent a lot of time in Bombay. I asked the Father, 'What is the attitude of the people who come to your church?' He was very frank. He told me there were young men of the labouring class particularly, who come to the church on a Sunday morning and in the evening they go to their temple. He said 'I repeatedly ask them why? They say, "Sir, my child is sick. I have prayed to the Lord Jesus and Mary every morning for the last three months. I thought if Jesus couldn't help, maybe my ancient gods would help me." ' I think this is a typical attitude of an individual whose philosophy is neither this way or that way. He is practical, he is interested in the present; he is not really interested in the means, he is interested in the end that he achieves whatever he does. A fundamental aspect of Hindu religion, and in the context of what you call philosophy, is that the Hindu believes it himself. The word for Religion is Dharma and Dharma means Religion, not only some codified, canonised, ritualised help or relief. Dharma strictly means in Sanskrit 'righteousness', therefore this was a word fundamentally adapted for the belief that if you are righteous in your ways you are relieved. Maybe you are over-righteous or pious and so you demand still more. I think that this is a beautiful way of looking at religion; as long as you are righteous you are religious.

If you look at the medical centres opened by various groups of missionaries in India, which are particularly situated in those

regions inhabited by so-called groups of aboriginals – I hate and abhor the word aboriginal – but I will say the real sons of the soil, unspoilt by any influence of modern Western civilisation, as we are – it is only rarely that they do not get satisfaction, as earlier we were talking about getting satisfaction from Dr. A, B, C, through X, Y, Z. Similarly, if the Indian does not get satisfaction from this modern medicine, he goes back to his Medicine Man; and I do not think it is his culture which turns him from the path to modern medicine. I think it is just human nature; we are never satisfied with what we have.

With these few remarks as introduction, I chose only this specific topic because I knew there would be enough to throw back at me regarding modern medicine in a traditional Indian setting; and my sub-title, the 'New Brew' and all that did not come out of my living in an area of prohibition, but really in thinking that we all need to be intoxicated with modern medicine today, at least in India. I am proud of belonging to modern medicine and therefore I took it as a privilege to defend modern medicine, if it ever needed a defence. But in an Indian setting it *does* need defence, as you see if you have gone through the statistics which are quoted. I have already talked about the philosophy of the average Indian, therefore I do not believe, however much regard for Sigerist I might have, his opinions on Indian medicine in modern times which he wrote in 1946, and it is twenty years after that we are meeting today. I have already said that I do not believe in the philosophy of every Indian that comes in the way of his accepting modern medicine. Then comes the question of the choice, or as Henry Sigerist calls it, the nationality. In 1946 we were partly independent but mostly dependent, and it is in that context that, if he wanted to know about Indian medicine, he had to meet those Ayurvedic practitioners who are really zealots, if I may be allowed to use the term, and they all told him that once India were free their medicine would be Ayurvedic and not modern. This is what I am told by some people who talked with the late Henry Sigerist when he visited India in 1946. In those days men were not independent. Everybody wanted everything Indian. There was a time in my life when I never wrote a letter in English even though I was in a private school where everything was taught in English. But these were the attitudes of, if you will allow me to call myself so, an intellectual of those times. This factor does not now affect the progress of modern Medicine in India, though some of the politicians are proposing that we should go back to the ancient Indian systems. As I have told you in my paper, thanks to the late President Nehru, this purblind enthusiasm was curbed and luckily we are still reaping the harvest. There is committee after committee which has been appointed by the

Government to go into the question of our medicine, or the indigenous system of medicine with reference to its application to modern times. I did not want to put it in black and white but I can now confide in you that whenever an ayurvedist was a Chairman of this committee the plans were in favour of an indigenous system of medicine and whenever it was a modern medicine man who was Chairman the balance was in favour of us. Whatever the final judgement may be, the solution of the Indian health problem lies only in the adaptation and acceptance of the scientific method of modern medicine. The only health education which we need today is the education that will tip the balance in favour of modern medicine, not because modern medicine is begging for it, but because humanity must have it if we are to survive. One of my colleagues who went through my draft the night before I left for London thought I was unkind and uncharitable to those educated men who accept the indigenous system of medicine. Quoting Howard Haggard, I called them savages riding in automobiles, and I still believe it and mean it. The recognition by the State, at least temporarily, of these indigenous systems does not help matters – there is the utilitarian attitude of Russia, and also the totalitarian and chauvinistic attitude of China with regard to absorbing these indigenous practitioners. The indigenous medicine and ayurveda in particular, as a science, may have been as good as any in its own time, and even until the 15th century. I shall conclude my introduction by saying that I am sure this 'New Brew' of modern medicine is going to be accepted if we also amalgamate the pharmacological part, if not necessarily the clinical. I accept that originally their basic sciences were greater than they were in the West. Today they are deficient and even the greatest of ayurvedists agree that they need revision. I am sure there will be no difficulty in accepting the products of modern medicine. They will also accept and be happy to accept for the sake of suffering humanity those other products which might be useful. I have given certain charts to Lord Cohen and if any of you are interested in looking at them, do so now or later on, to give you a comparative idea of how indigenous systems happened to become more popular with the Indian races.

CHAIRMAN: I think it might be helpful, Professor Keswani, if you would just explain, very briefly, the basic principles of Ayurvedic medicine. I have been asked to put this to you.

KESWANI: I would like some clarification of what is meant by 'principles' in this context – whether you mean the ideas of the individual exponents of ayurveda or just the general basis of the original ayurveda.

CHAIRMAN: We can see it being practised in a number of ayurvedic colleges; this is contemporary. What are the principles which are

taught in these colleges today? Very briefly.

KESWANI: As far as the basic sciences are concerned, anatomy and physiology are taught on much the same lines as they are taught in your own medical schools. When it comes to actual therapeutics – which is the most substantial part of the teaching – the same medicines are in use as were used in Western medicine until the advent of antibiotics and chemotherapy. The differences are in the form in which they are used. We use iron in all chemical forms which are easily assimilable. The ayurvedists use iron as ashes; they also use mercury. A director of the Health Services years ago used to swear by mercurial compounds and thought there was no better medicine to be found in the whole of the British Pharmacopoeia.

In the textbooks of therapeutics there are chapters on all the usual specialities, from surgery to paediatrics and mental diseases, but in addition there are two sections which are never found in western textbooks. One is concerned with the prolongation of life in vigour and health; and the other with the means of increasing the vital powers, considered as most important for the general health as well as for procreation. These are central to the whole science of ayurvedic medicine and spread beyond the sphere of medicine alone into what W. H. Auden calls 'Restoration and Preservation', which are more in keeping with the findings of modern preventive and social science.

Their doctrine is classified according to the strict rules of logic – an essential study for the medical student – on the following lines:

1. The description of the organism, its structure and function
2. Its normal maintenance in health
3. The causes of disease and differential diagnosis
4. The curative action
5. The effect of treatment – prognosis

If the condition fails to conform with any of the recognized specialties, the patient is not treated, but recommended to pray to the gods. These are the general principles.

CHAIRMAN: Thank you very much.

BOWERS: May I ask a question? Were the anatomy and physiology based on dissection and the study of the human body?

KESWANI: Yes, sir and no, sir. Yes, because if you go to a social science college that represents the whole corpus of medical knowledge existing around 600 B.C. with a full chapter on pure anatomy, and India was one place where there was a taboo. It was only the lowest class of the caste at the time called the Shubra which was allowed to touch the dead body of the corpse. Therefore teachers advise, as a matter of routine, that students should go to the river bank as poor Vesalius had to do in his time when the students stole a body

from the graveyard and took it down the basement of a church, similarly the bodies were kept hidden in the long grass under water, so that the skin used to peel off and Sushruta said that if you want to be a good physician and particularly a surgeon, you must have direct and detailed knowledge by observation of every part in the body.

BOWERS: Was surgery developed to compare with western surgery?

KESWANI: I think that surgery was far more advanced than it ever was in western medicine until the 12th century. Historians unfortunately keep repeating that it was the great Tagliacozzi who gave the rhinoplasty idea to modern medicine. No. He himself had it from the ancient medicine of India. There were beautiful reconstructions of the nose with skin from the cheek or the forehead; and of the ear, for cutting off the ear was one of the commonest punishments as you know in those days, even for minor crimes.

KEELE: Is the physiology, the psychological physiology just the same in ayurvedic medicine as it was in the times of Charaka, or has it altered at all?

KESWANI: No. In modern schools of Ayurveda, the ones that are recognised by the Government and by registering with the Medical Council, they have techniques of physiology just as we have here.

PICKERING: May I ask just one more question? Does modern ayurvedic medicine use penicillin and vitamin B drugs.

KESWANI: Yes sir. Whether they know the proper use or not, that's immaterial.

CHAIRMAN: Now Dr. Galdston.

GALDSTON: May I submit that in my humble opinion this is the most interesting session. This is the one for which all the antecedents have been justified. I have had the privilege of spending a month or so in India and have much benefited by the help and guidance of Keswani, and that experience plus some earlier thinking of the subject made me feel very strongly about the impact of Western medicine on the medicine of the so-called underdeveloped countries. That in India interests me particularly because I am persuaded that India can intercede between the Western world and the Eastern world and possibly reconcile the two by spanning a true intellectual bridge.

I have been very much impressed with the paper of Professor Huard. I have known his pre-eminence in this field and admired his work and the work of his associates, particularly Professor Wong's contribution on Chinese medicine, but I must confess that this paper, Professor Huard, much exceeds my most sanguine appreciation of your competence. I think it is a superb paper and I would just like to accent one or two points. I subscribe profoundly to the idea that the ultimate aim must be to arrive at the syncretic formulation which will retain such external cultures. I don't know why you use the word

'external' in contributions only for those elements which can be assimilated; I am going to address a question to you on that score. I agree with your statement that an ideal solution would be for the two worlds, I don't know why you say black and white, but I think white and all the shadows, should meet without destroying all that is good in each, and they should ultimately result in a completely original and dynamic rather than a static system within a new and mixed context. I think you are too much an optimist in stating that, given this background, all medical systems are of equal interest in the eyes of the medical historians, regardless of their practical value; I find that they are not. Many of them are dismissed as archaic, just as historical curiosities. I hope that they will arouse not just interest but appreciation and I should like you to tell us how we might effect this.

If I may now turn to my friend Keswani and his paper, I do not believe as things are at present and in the very countries that are involved the prospects for such a union are very good and I hope that you will comment on that, Dr. Leavell. You are in India; you appreciate such things. For example, let me refer to some of the statements that were made by Keswani and then I will speak of my own experience. You made the statement this morning, unless I misheard you, that medicine, modern medicine – and you used the word modern, not Western – is an amalgam of all the earlier systems of medicine, and I disagree with that one hundred per cent. I think that western medicine is a deviant medicine, a historic deflection effected by the economic, technological and social systems of the western world. Western medicine is after all an amalgamation of the works of great men whom I am not going to catalogue, which began with the work of Vesalius and came down to the discovery of penicillin. Now when I was in India, if you will pardon my speaking pontifically about a month's experience, I was very much interested in this problem and I took every opportunity I could get to tease the medical men and the philosophers and anyone else I could find who was willing to discuss this matter with me. I confronted them with the question: What is the relationship between ayurvedic and western medicine? My experience was that the younger men treated my question with a contemptuous, but respectful attitude; respectful because I had grey hair, contemptuous because they thought the question was idiotic. When I went to the Institutions I found that they were developing western medicine as well as they could. I did also encounter some people, and this was in New Delhi and elsewhere, who insisted that ayurvedic medicine was *sui generis* a top medicine and they were consistently developing that, and were arguing for schools, etc.

In fact, there was no intelligent amalgamation, no effort to

interweave them – you'll correct me if I'm wrong on this, I'm sure – but my impression was that there was a marked division, with ayurvedic medicine ultimately seeming on the losing end. On the other hand, practically, when I went around to these psychiatric institutions, I was amazed and impressed with what some of the psychiatric institutions were able to do. With miserable endowments in terms of material assets but with a magnificent utilisation of their inadequate resources, I found them with open wards, with group therapy, with vocational occupations in a realistic sense, not just 'make-do' work. Some of the institutions couldn't exist if the patients didn't make the beds and didn't make their drinking vessels and didn't make everything else, and they did it gladly and not under compulsion. I saw group therapy of the finest order, where somebody who could play an instrument, somebody who could beat drums, sat in the middle of a group chanting classic songs and the rest of the patients were around participating. I saw families coming in and participating in the therapy of the patients; I talked to the directors of these institutions and they had to my mind some of the best insights into the dynamics of illness, therapy, social context of the patient, etc. and this was not Western medicine although many of these people were trained in psychiatry in Canada and the United States and quite a number, Sir Aubrey, in your institution in London. Now it seems to me a threat to us all that we do not appreciate the heritage of these people. We will be like the ignorant Turks who put gun-powder in the Acropolis; I feel that unless an effort is made by the Western scientist, the Western educator, the Western invader in these so-called under-privileged, under-developed countries, unless this effort is made by the Western, these other people will be swamped by the grandeurs of penicillin and the grandeurs of our specific remedies and they will thus be obliged to go through the blundersome experiences of the West. I submit this to Professor Huard hoping that he will respond to this question; and you Keswani, I hope, will correct me where I misunderstood you.

TITMUSS: I am puzzled by some points. We have had four very interesting contributions on traditional medicine and what has been called modern and scientific medicine. In all these four papers, two major concepts have been used. A concept of conflict between the systems and a concept of accommodation. Dr. Galdston has asked for amalgamation. I want to make a distinction between these concepts accommodation and conflict as they appear to the eyes of the physicans, those trained in Western medicine, or to the eyes of the traditional medicine man, whether in Nigeria or in India, and ask whether we see this problem of accommodation and conflict through

the eyes of the individual, the patient. Professor Keswani said that the Indian man was practical. I think he also said he was an empiricist, that he looked for certain elements in traditional medicine and for certain elements in scientific medicine. What I would like to know is, what are the elements the ordinary man is looking for and on what basis does he make the choice between traditional, indigenous medicine and Western medicine? It seems to me that there are three major categories. People as logical human beings; here I support what Professor Lambo had to say about outmoded prelogical conceptions, people looking for somebody to listen and somebody who will recognise their identity as individuals. I have seen this myself in East Africa and Mauritius. They will choose the missionaries or they will choose the traditional medicine-man because they are recognised as human beings and they want somebody to listen. This is one. The second element they are looking for is explanation, names. We all know that names of things that are unknown mean something: an explanation, an identity, a name, even if you call it a diagnosis. The third thing they are looking for is treatment. I think we want to know more of how these empirical choices are made, if we want to see through the eyes of the people, and not through the eyes of the traditionalist or the Western physician.

CHAIRMAN: Professor Huard, you are called upon to reply.

HUARD: Medicine is the expression of a civilisation as much on the material plane as on the moral and intellectual plane. Therefore one must consider it from the economic as well as from the material and spiritual point of view. As far as the economic side is concerned, there is no doubt that many races cannot afford western medicines. The case of China has been raised, and I believe that the situation has resolved itself as follows: The Chinese Government greatly desires to unite and combine traditional medicine and western medicine. However, it is impossible to apply this to the whole of China, to all its peoples, because apart from the true Chinese, the sons of Han, there are the Tartars, the Mongols, and many other native races, who all have their own medicine. It is the policy of the Chinese Government at the present time to take these into consideration as well as the others. Thus it is recognized even now that in the interior of China there are certain systems of traditional medicine which differ one from the other because of variations in the flora, fauna, or simply, the customs and habits. Consequently, the Chinese Government, when it attempted this symbiosis, was able to effect it only in certain regions, for example, the industrial regions, where the workers have a system of aid, which means that when they fall ill, the factory to which they belong pays a part of their hospital expenses. In such conditions one can employ a

kind of 'mass medicine' which is both western and oriental. But it cannot be denied that in the great plains of the West, for example, where there is less industry, the situation is much more difficult. However, it must be kept in mind that they are trying to settle the difficulties, and that the problem is enormous, because in Ancient China things were very difficult. If you read the accounts of the English missionary hospitals of the 19th century, you will see that no hospital, during its first year of installation, could allow any deaths. It required no more than one death for the native population to abandon the hospital.

I read, in the account of one of these missionary hospitals, the story of a Chinese captain who was attacked by pirates and was struck by a bullet in the liver. An English surgeon operated on him, carried out a laparotomy, stitched up the liver and thus healed him. When he had recovered his father was brought to see him and, contrary to what one might expect, when he had been told what had happened, the father spat on the floor and said 'What! My son had just this little hole and that foreigner made a great scar like that!' He was not at all pleased. So there is a mentality to be adapted, and if you do not have this mentality, you can't oblige people to be supporters of Chinese medicine, or traditional medicine.

Then there is the psychological point of view, and on that topic I agree with Professor Titmuss. A French journal to which I contribute, has made an inquiry on the subject of 'healers'. They found a healer who lived near Orleans, who had a large practice, and they paid him to hand over his practice for a month to a doctor, who was delegated by the journal, without the clients' knowing. He was there in the capacity of healer. So he related what happened. What happened was that in his surgery he had far more women than men. And of these women a great number were extremely rich, and had been to see leading doctors in France, and even in England and Germany. But these women had very mild, in fact quite insignificant disorders, and the doctors whom they had seen had simply told them, after a routine examination 'Madam, I do not wish to waste your time and money. There is nothing at all the matter with you. Goodbye.' And this lady, extremely annoyed, departed. On the other hand, when she visited the healer, she was able to tell him her problem. The healer said to her 'Please sit down, Madam, Now what seems to be the trouble?' And that was what the lady wanted. And so here I join with Professor Titmuss - it is obvious that our scientific medicine, which is extremely demanding, which calls for extensive and thorough examinations, means that the doctor no longer *sees* his patient, that he sees him only as a case-history, and consequently that the problems which the patient considers to

be vital hardly exist for the scientific doctor. I believe that this is the crux of the matter, and so this is obviously the reason why we are now seeing acupuncturists and healers in every civilised country regain a certain amount of influence. Because one can confide in them, because they will listen to you, whereas the hospital doctor, who is overburdened, who is obliged to concern himself with his obligations in the laboratory, with his obligations to his collaborators, with purchases for the library, with his congresses, he really can't be bothered with these things. And so, from this it is evident that our medicine ends up by becoming inhuman, as Professor Titmuss said, and that something really has to be done about this, because there is a lag between the progress that western medicine is making, between the vast means at its disposal, and the way in which it denies the personality of the patient. And besides, I noticed this very thing on my last journey to Saigon, where I saw healers who had large practices because they had the time to bother with the patients. Many patients have psychological problems; have problems of various kinds, and they want to confide them to someone. Refusing to listen to them obviously means that the trouble persists. And so I think that there are these two aspects, a material aspect and a psychological aspect, which can be seen just about everywhere. CHAIRMAN: Thank you, Professor Huard. Dr. Guerra, do you want to say something?

GUERRA: After the presentation of the ideas by Professor Huard, there is very little for me to say, but I was going to deal with the suggestion put forward by Professor Titmuss that the cultural problems we have been discussing can be settled in the context of the economics of native medicine and also the psychological dynamics involved. We have heard from Professor Huard the permanence of the botanical lore in China, very much as I presented my own case for Latin America. That is most important because it is not due to the actual pharmacological activity of native drugs, which is very limited, but to the psychological ingredient which enters into their use and still more to the economics behind the use of native drugs as against the use of European drugs in Western medicine. Therefore, it seems to me that the question as presented by Professor Titmuss fits very well. We are presented not with native medicine as against Western medicine, but as has been suggested by Professor Huard and by more than one of us here, native medicine in South America as much as the ayurvedic or the traditional medicine in China can be and must be put together. We all know perfectly well that over 60 per cent of the cases we see are problems of the mind, and a great deal of the symptoms and illness could be cured just by giving placebos, whether native placebos or western placebos.

Therefore it seems to me that the conclusion should be to emphasise the value of medicine from the point of view of cultural anthropology, because it is active, inasmuch as it helps the mind of the people to be understood by the physician, and at the same time it serves to introduce the methods of hygiene and active pharmacology that can be provided by Western medicine.

CHAIRMAN: Dr. Wong.

WONG: But I think that two very important conclusions are to be inferred in the mentality, or rather the interpretation of Chinese medicine: traditional or ancient; and modern traditional medicine. In fact, if you consider the Canon of Chinese Medicine, which was drawn up round about the 4th or 5th century B.C., you will see that China's historical continuity is greater than that of any other country in the world. From the 4th or 5th century B.C. there has been an unbroken line of editions, more or less authoritative, of this text. But of course, the text, the interpretation used by doctors of today is scientific. And one must, I think, make a clear distinction between medical theory and medical practice. Traditionalist doctors of today are first and foremost medical practitioners, whilst those of bygone days were medical commentators. I would like to take a very precise example as far as the handing down of texts is concerned, because often, where it is a question of Chinese texts, it is this transmission which is the decisive factor, because for many languages there is no difference between autopsy and dissection: they are both the same word. But this phenomenon is not peculiar to China. It applies equally to other countries. For example, if we take the text of the Circulation of the Blood of Harvey, which is so vital; we then notice that the complete translation of the text into Russian was not available to the Russian public until 1926. That is because thought travels very slowly when going from West to East, but I believe it travels more slowly still when it comes from the East to the West. This is why I think it is impossible to confuse ancient traditional medicine, Chinese medical theory and present-day traditional medicine which is practised in Chinese hospitals.

GUERRA: There is quite an important thing I would like to point out. I want to emphasise that the attachment to the traditional system of medicine must not be confused with the adaptation of the native pharmacopoeias. I was referring to the great error of the Mao-Tse-Tung programme in the Chinese Republic in talking for five years of the progress of Western pharmacology and putting a considerable amount of resources in men and money into research which, according to my information, as analysed in the meeting of pharmacologists in San Francisco three years ago, has done considerable damage to the practice and therapeutics, and the Institute of

Chinese Medicine in Peking suffered a great blow. Therefore, I want to emphasize that from the cultural point of view, this shadow that Professor Titmuss is projecting from the front of economics in medicine and culture must be kept always in view because it is one thing to encourage the use of the tools of cultural anthropology as part of native medicine in these areas and another thing to close our eyes, as the Chinese Government has done, for almost ten years, and say that the local pharmacopoeias are worthwhile; they are trash. The value of the native systems of medicine lies in the cultural elements as applied to the mind of the individual of that culture and that is what Professor Huard is mentioning of the success in Western culture as much as in non-western culture, of the charlatan, of the psychiatrist in another context. I want to emphasise that we must differentiate. It is true that a great mass population is tied down to the use of native pharmacopoeias chiefly for economic reasons, because native pharmacopoeias are cheaper than the products of the West.

CHAIRMAN: May I just say this. In these older pharmacopoeias there have occasionally been found drugs of real value. Ephedrine, for example, and several others, as I understand it, were introduced in China before they came to any European country. I wouldn't like to erase the total pharmacopoeia and say that the only effect of these drugs is psychogenic.

GALDSTON: I think your point is excellent about pharmacopoeias; there is more in primitive medicine than pharmacological products which we know are not much use. There is massage, there are steam baths, there are exercises and blood lettings. I would like to refer to the question of Professor Titmuss, which I think is a very pertinent question. I am aware that this question of what is the contact of a patient with his doctor always carries a lot of danger. Anatomy is the dismemberment of a body; it takes a great deal of effort to reconstitute the body you have anatomised. The question was, what does this member of the underdeveloped country get out of his indigenous medicine or what does he turn to in indigenous medicine and what does he turn to in Western medicine. That problem operates among us today and the way to visualise this is to assess what are the experiences of an average individual with his doctor. By and large these experiences can be divided into two categories of problems. The problems of the emergent situation and the problems of maintenance medicine. Accent has been put upon the emergency situations; the wonderful reconstitution of someone who has been broken up in an automobile, or the transfusion of blood in this instance, or the use of critical materials in this and that and so on. The larger number of issues which bring a person to the doctor are the

pip, or a cold, or an indisposition, or a strain, or a headache, or some psychological what-not. In fact, it is commonplace to say that from 50-75 per cent of patients come with no real difficulty, as Professor Huard has said, that our technological advances need to establish. These patients are treated and very often are treated just by listening to them and the laying on of hands. Now a lot of primitive medicine as I have seen it, and I don't pretend to be an authority, is ecologically oriented and this is the thing that impressed me enormously among the Indians; they shared this world with the rest of the animal world. Somehow, they had an attitude towards experience, the world and other people which is quite different from what any of us has found, possibly. I couldn't help but see, for example, an Indian sleeping on the sidewalk and hear some of my friends go by and say 'Isn't that outrageous, the boy's crazy'. The Indian felt that the world belonged to him just as much as to anybody else and when he was lying there he had a right to it. He simply projected our view of the fact that any man sleeping on the sidewalk is a bum and consequently this Indian had to be a bum. But this Indian had no such feelings and what is more the Indians who passed by didn't have that feeling. I think that really our problem is to take and include the meritorious aspects of that particular orientation to existence so that we do not commit the blunders to which Professor Huard pointed; so that we do not say to somebody - because they do not show by spectroscopic or other evidences - there is nothing wrong with you. I think there certainly is a lot wrong.

BOWERS: I think that Indian medicine is certainly not a primitive medicine. I think we have to be very clear about our terms here. To my mind there are three systems of traditional medicine. One is Chinese, the second is ayurvedic, the third is Unanric, and these are the systems on which we are focusing. I think that some of the medicines that are practised in parts of Africa and parts of Latin America I would call a primitive medicine. I think these patient systems are quite different.

CHAIRMAN: Now we have five minutes for two speakers. First Dr. Keele, and then Professor McKeown.

KEELE: I would like to say a word about the Indian patients with whom I had a limited experience. I want to draw attention to the fact that sickness and seeing a doctor is a somewhat different phenomenon from what one is used to in Western Europe. There is a capacity for suffering among these people, among the Indian peasants. This is probably fairly general. I got the impression that they suffered well, almost too well, and never troubled the doctors or nurses, and they died well without fuss and one wondered if this was part of their philosophy, part of their outlook on life, or simply the

passivity from malnutrition.

CHAIRMAN: I think that Professor McKeown had better have the last word.

MCKEOWN: I wish I were clearer about whether those people who advocate the fusion between scientific and primitive medicine do so on the grounds of goals or of methods, or of both. I can see many grounds for criticism of the goals of so-called scientific medicine; one of them is this failure to interpret clearly what has happened to health, and why it has happened; another is the failure to realise the way in which medicine as a Science is unique and has unique social responsibilities and so on. But at the same time, it has obviously worked out, very painfully and slowly, a number of things which are very soundly substantiated, and really when I hear Professor Keswani saying that most of our therapy was there already, I am really rather uncomfortable. It really isn't enough to show that foxglove was used before digitalis, and it seems to me that this is the case in most of these analogues which are taken. I think, therefore, that one surely has to focus on the fact that there is very little margin of births over deaths until the 18th century and it seems to me that it is impossible to show at a larger level that any of this treatment did anything at all. I recognise that in the field of mental illness it might have done a great deal of good and I am prepared to have it said that what we have to learn from primitive medicine is largely in the field of psychiatric illness. But I certainly think that when we speak in general of fusing these two things, what we have to recognise is that we may throw away as much as we might gain, and that whatever might be bad about our scientific medicine, it begins to be a little critical of itself. At least it knows what it *can't* do and I think no criticism of its inadequate goals really by-passes that fact. Therefore, the taking over of a whole lot of primitive remedies on the premise that they may be doing good unless there is something to show that they may be doing harm seems to me a quite inadequate approach.

End of Fourth Session

CHINESE MEDICINE

by Joseph Needham and Lu Gwei-Djen

THIS SYMPOSIUM is devoted to the relations between the great medical systems of humanity and the cultures or civilisations in which they arose. It is surely a very hopeful circumstance that Europeans are now giving up their rather self-satisfied parochialism and are eager to look at other systems of medicine, not only in the past before our modern civilisation came into being, but also in other parts of the Old World which have highly continuous and complex civilisations paralleling our own. We are to speak about Chinese medicine, and one may immediately say that its attachment to its own culture is so strong that it has not yet entirely come out of it. All the sciences of ancient times and the middle ages had their very distinct ethnic characteristics, whether European, Arabic, Indian or Chinese, and it is only modern science which has subsumed these ethnic entities into a universal mathematised culture. But while all the physical and some of the simpler biological sciences in China and Europe have long ago fused into one, this has not yet happened with the medical systems of the two civilisations. As we shall later see, there is much in Chinese medicine which cannot yet be explained in modern terms, but that means neither that it is valueless, nor that it lacks profound interest. We hope that the present contribution may lead to greater mutual understanding in the current inter-cultural and inter-civilisational confrontations of our times.

We shall divide what we have to say into three sections. First, the general position of medicine in traditional Chinese society, secondly, the influence of philosophical and religious doctrines upon Chinese medicine, and thirdly, the effects of the transition in contemporary times from traditional society to Marxist socialism. Under the first of these heads there are several questions about which something must be said. There is, for example, the social position of physicians, the nature of the fundamental theories with which they worked, the dates of the Fathers of the doctrine and something on the doctrine itself. Equally important is the fact that Chinese medicine grew up in a social order widely different from that which was known in the West; namely feudal bureaucratism, not ancient slave-based city-state imperialism or aristocratic military feudalism. This had profound repercussions in many directions, in

due course to be pointed out. Under the second heading we must consider the position of Confucianism, Taoism and Buddhism. But besides this we ought also to say something of the position of mental health in the culture throughout the ages. In the last section we must consider the collaboration of old-style physicians with modern-Western-trained physicians and the principal features of Chinese medicine which are not yet understood in Western terms.

Pride of place in any sociological investigation of medicine and the medical profession must be taken by the problem of their social position. Greek appreciation of doctors is well-known, as witness the quotation which my father was always citing to me:

A good physician skilled our woes to heal
Is worth an army to the public weal.

In China there can be little doubt that physicians (*i*) came from the same origin as wizards (*wu*). They were therefore connected with one of the deepest roots of Taoism. Far back at the dawn of Chinese history in the —2nd millennium,* probably before the beginning of the Shang kingdom, Chinese society had its 'medicine-men', something like the shamans of the North Asian tribal peoples. During the course of the ages these differentiated into all kinds of specialised professions, not only physicians but also Taoist alchemists, invocators and liturgiologists for the ouranic religion of the Imperial Court, pharmacists, veterinary leeches, priests, religious leaders, mystics and many other sorts of people. By Confucius' time, the end of the —6th century, the differentiation of physicians had already fully occurred. He himself made a celebrated reference to them when he said that 'a man without persistence will never make a good magician (*wu*) or a good physician (*i*)'. We find mention of physicians of these ancient times in the *Tso Chuan*, the greatest of the three commentaries on the *Chhun Chhiu* (the 'Spring and Autumn Annals') of the State of Lu (—722 to —481). More than forty-five consultations or descriptions of diseases occur in these celebrated annals. Among the older ones is the incident when Huan the Physician (I Huan) diagnosed correctly in —580 the illness of a Princess of Chhin. But the most important is the consultation dated —540 which another Prince of Chhin had with an eminent practitioner, Ho the Physician (I Ho), who had been sent to him by the Prince of Chhin. Physician Ho, as part of his bedside discourse, included a short lecture on the fundamental principles of medicine, which enables us now to gain much insight into the earliest beginnings of the science in China. We shall mention this again presently.

*As it is inappropriate to use the Christian B.C. and A.D. for Chinese dates, the minus and plus signs are used instead.

The whole history of the social position of doctors in China might be summarised as the passage from the *wu*, a sort of technological servitor, to the *shih*, a particular kind of scholar, clad in the full dignity of the Confucian intellectual, and not readily converted into anyone's instrument. As it is said in the Confucian *Analects* 'the scholar is not an instrument (*chhi*)'. During the —2nd and —1st centuries, in the Former Han period, there were many men of an intermediate sort called *fang shih*; these were magicians and technologists of all kinds, some of them certainly pharmaceutical and medical. Some sinologists have translated this expression as 'gentlemen possessing magical recipes' and this, if somewhat stilted, is certainly not wrong.

Centuries later, for reasons we shall mention in a moment, the ranks of the physicians were joined by scholars of high degree. Indeed there was a general move throughout the middle ages to raise the intellectual standing of the physician. As early as +758, in the Tang dynasty, one can find the beginnings of an important development, the examination of medical students in general literature and the philosophical classics. Presently we shall say more about medical qualifying examinations but here we are concerned with general education. In Hangchow from about +1140 onwards the candidates were expected to pass tests in the literary and philosophical classics as well as in medical subjects. An imperial decree of +1188 ordered that unqualified medical practitioners must pass the provincial examinations, and these included the general classical writings as well as sphygmology and other medical techniques. Anyone who did really well could gain an opportunity of rising to the ranks of the Han-Lin Medical Academicians. This gradual change was important, for it ensured the existence of considerable numbers of physicians well educated in general literature and with greater culture than their predecessors had possessed. Such men were called *ju i* (literally Confucian physicians) as opposed to *yung i*, common practitioners, and *chhuan i* or *ling i*, wandering medical pedlars, who went about jingling their special kind of bell on a staff and handing out herbal remedies for the smallest of fees. Of course these latter types never ceased to exist and indeed the grandfather of the greatest pharmaceutical naturalist in all Chinese history, Li Shih-Chen (*d.* +1593) was one of them. We ourselves have often met with them and recall with particular pleasure a brilliant impersonation of the type in a revolutionary opera which we had the pleasure of witnessing at Taiyuan in Shansi in 1964. We can thus exclude at the outset any idea that the profession as a whole was a despised one in Chinese civilisation.

Now something about the doctrine, the fundamental philosophy of Chinese medicine. We like the saying of Keele that 'it would seem probable that the first civilised people to free themselves from the purely magico-religious concepts of disease were the ancient Chinese', but we cannot follow him in his belief that this liberation was achieved only briefly until the acceptance of Buddhist thought from India. Nor can we agree with him that the ancient Chinese substituted 'metaphysical' modes of thought for the primitive magico-religious conceptions and practices. Everything depends, of course, on what one means by metaphysical, but if we use the term in its generally accepted sense in modern Western philosophy as meaning ontology, the problem of Being and the dispute between realists and idealists, it is surely not applicable here. Surely what we have to deal with is an ancient philosophy of Nature, a set of hypotheses about the universe and the world of man, which can hardly be called metaphysical because they did not succeed in being scientific in the sense of modern science. One must be quite clear in distinguishing between the mathematised hypotheses of modern science as we know it since the time of Galileo, and the non-quantifiable hypotheses of ancient and mediaeval times, both in East and West.

Here there is no space to explain at length the natural philosophy which was current among the ancient Chinese. We can only say that, as is generally known, this philosophy was based upon the idea of two fundamental forces, the Yang and the Yin, the former representing the bright, dry, masculine aspect of the universe, the latter the dark, moist, feminine aspect. This conception is probably not much older than the —6th century, but it was certainly dominant in the minds of the early royal physicians whom we mentioned just now. We have already referred to the short lecture given by Ho the Physician in —540 to his patient the Prince of Chhin. Here we can see Chinese medical thought *in statu nascendi*. Especially important is his division of all disease into six classes derived from excess of one or other of six fundamental, almost meteorological, *pneumata* (*chhi*). Excess of Yin, he says, causes *han chi*, excess of Yang, *jê chi*, excess of wind *mo chi*, excess of rain *fu chi*, excess of twilight influence causes *huo chi* and excess of the brightness of day causes *hsin chi*. The first four of these are subsumed in the later classifications under *jê ping*, diseases involving fever; the fifth implies psychological disease and the sixth cardiac disease.

This classification into six is of extreme importance because it shows how ancient Chinese medical science grew up to some extent independently of the theories of the Naturalists, which classified all natural phenomena into five groups associated with the Five

Elements. These ideas were first systematised in the school headed by Tsou Yen in the —4th century, and the doctrine of the Five Elements became later universally accepted in all branches of Chinese traditional science and technology. As is well known, these elements differ from those of the Greeks and other peoples in that they comprised not only fire, water and earth but also wood and metal. Chinese medicine, however, never lost entirely its sixfold classification, and in spite of the Five Element theory the Yin and Yang viscera (*tsang, fu*) were always mustered as six of each. In view of the duodecimally based mathematics and world outlook of the Babylonians, one cannot but suspect an influence from ancient Mesopotamia on early China in this respect.

It is not the only example of such an effect either. The twelve double-hours of the Chinese day and night, which go back to the beginning of Chinese culture, have long been thought to be Babylonian in origin, and some evidence has been brought forward also for close parallels in State astrology. As far as medicine is concerned, we can look for them too in another direction, namely in the very prominent part played by the conception of *chhi*, closely analogous to the Greek *pneuma*. Both words are almost untranslatable but we know that they had significations such as 'life-breath', 'subtle influence', 'gaseous emanation' and the like. Somewhat later on Chinese medical theories also dealt much with another word of very similar meaning, *fêng* (wind). Now Filliozat, in a classical monograph, has shown that the *pneuma* of Greek medicine can be matched word for word and statement by statement in the *prana* of the great Indian medical writers. Thus we see, as in perhaps hardly any other science except astronomy, a widespread community in high antiquity between the peripheral areas of the Old World; from Greece, through India, round to China, there is 'pneumatic medicine'. We are well aware that until now, so far as the cuneiform texts have unravelled it, Babylonian medicine has been largely magico-religious in character, but one cannot help feeling that there must have been some schools of proto-scientific medicine in Mesopotamia which bequeathed their ideas about the subtle breaths, both of normal function and pathological condition, with which the physician must contend. One cannot help feeling that some civilisation older than either Greece, India or China must have originated such conceptions and sent them out in all directions. The Iranian culture-area can hardly qualify on account of its relatively younger age, so that Mesopotamia must have been their home.

Another doctrine prominent in ancient Chinese thought was that of the Macrocosm and the Microcosm. A great interdependence of

the State on its people and of the health of the people on the cosmic changes of the Four Seasons was envisaged. The Five Elements were associated together in 'symbolic correlations' with many other natural phenomena in the groups of five, and these conceptions were applied in a remarkably systematic way to the structure and function of the living body of man. As might be expected in a society which was developing the characteristic form of bureaucratic feudalism, great importance was attached to the prevention of trouble, both in the political and personal life of the people, rather than to its control when it arose. And thus in the field of medical thought prevention was considered better than cure. In spite of all influences which may have acted on Chinese medicine from the outside from the beginning onwards, it retained an extremely individual and characteristic quality, and this is still clearly present today. We must, of course, willingly grant to Keele that the practice of using charms, incantations and invocatory prayers to deities persisted through most of Chinese history, particularly among the poorer strata of society and in the exorcistic activities of Taoist adepts and Buddhist monks. In +585 for example, under the Sui dynasty, the Directorate of Medical Administration included, besides two professors of medicine (*i*), and two professors of physiotherapy (*an-mo*), two professors of apotropaics (*chu-chin*); thus there was official sanction for magico-religious techniques.

But Keele is absolutely right in giving the impression that all these phenomena were 'fringe activities' of Chinese traditional medicine. They were quite peripheral to the practice of medicine as such, kept far indeed from the centre of the stage, and it can confidently be asserted that from the beginning Chinese medicine was rational through and through. 'The transmutation from magico-religious to metaphysical pathology was an achievement' writes Keele, 'but it was not enough to provide a basis for progress in medicine, for it was not scientific, either in its method of observation or in its reasoning, in that it entirely failed to make use of the method of induction'. Re-writing this in our own language we should say that the advance from magic and religion to primitive scientific theory was an immense achievement, but that for a wealth of reasons, which we cannot go into here, Europe was the only civilisation in which ancient and mediaeval science could give way to modern science. We would not say that the old Chinese scientific theories gave no basis for progress in medicine, nor that they were unscientific in observation or reasoning. Undoubtedly they did make use of the method of induction, but they remained pre-Renaissance science and never became modern science.

So much for social position and perennial philosophy, now a

word about the Fathers and their history. A comparison between the early classical period of Chinese and Greek medicine is of much interest. In China there is a figure paralleling Hippocrates (—460 to —370), but not quite so much is known of his personality and he is not directly connected with what corresponds to the Hippocratic *corpus*. This was Pien Chhio, for whose life we have an authoritative source in the *Shih Chi* (Historical Memoirs) of Ssuma Chhien, the first of the wonderful series of Chinese dynastic histories. He must have been of the generations preceding Hippocrates, for we have a firm date for a famous consultation of his, —501; this links him with the more ancient physicians already mentioned because he in his turn was in this year called to attend a Prince of Chhin. On this occasion the holistic character of traditional Chinese diagnosis was clearly shown, for Pien Chhio was asked by the court chamberlain whether he followed the methods of the legendary physician Yü Fu. Pien Chhio looked up and sighed, saying 'the methods of which you speak are no better than viewing the sky through a thin tube or considering paintings by looking through a narrow crack. In my way of going about the business I have no need to feel the pulse nor to look at the colour of the patient, nor hear sounds or examine behaviour, in order to say where the disease is located'. And he went on to explain that he judged by the history and condition of the patient as a whole. But the passage is also important because it shows that already at this early time the four important diagnostic observations (*ssu chen*) typical of Chinese medicine, were in use. These comprised first the inspection of the general physical state of the patient, including colour and glossoscopy (*wang*), primitive forms of auscultation and osphristics (*wên*), anamnesis, including the patient's medical history (*wên*, another character), and finally palpation and sphygmology (*chhie*). The text also shows that here at the time of Confucius himself the physicians were using acupuncture needles, gentle radiant heat (moxa), counter-irritants, aqueous and alcoholic decoctions of drugs, massage, gymnastics and medicated plasters. It is striking to find so many therapeutic methods already elaborated before the time of Hippocrates.

Now what corresponded in China to the Hippocratic *corpus*? We know that the books in that great collection were written during a period of time covering much more than the life of Hippocrates himself, i.e. from the beginning of the —5th century down to the end of the —2nd. Only a few of them are now considered 'genuine', in the sense of having come from the pen or the dictation of Hippocrates himself. The corresponding collection in China is the *Nei Ching*, and the fact that it is divided into separate chapters in the forms we have now, appearing to be a single book rather than

a series of tractates, must not disguise the fact that it is to some extent a parallel compilation. It deals indeed, just as the Hippocratic *corpus* does, with all aspects of the normal and abnormal functioning of the human body, with diagnosis, prognosis, therapy and regimen. The *Nei Ching* was, we think, approximately already in its present shape by the —1st century, in the Former Han dynasty. No-one disputes that it systematised the clinical experience and the physio-pathological theory of the physicians of the preceding five or six centuries. A minor difference from the Hippocratic tractates is that in the *Nei Ching* a great deal of the text is cast in the form of a dialogue between the legendary Emperor Huang Ti and his biological-medical preceptors and advisers (equally semi-legendary) such as Chhi Po.

The full title under which the *corpus* is commonly known is the *Huang Ti Nei Ching* (The Yellow Emperor's Manual of Corporeal [Medicine]). It consists of two parts. The *Su Wên* (The Plain Questions [and Answers]) and the *Ling Shu* (The Vital Axis). This separation was the recension which came from the editorship of Wang Ping in the Thang dynasty, but it is certain that this was not the form which the *corpus* had in the Han period. Another form, known as the *Huang Ti Nei Ching, Thai Su* (The Yellow Emperor's Manual of Corporeal [Medicine]; The Great Clarity), which was edited a hundred years or so earlier than Wang Ping by Yang Shang-Shan in the Sui period, and which has only in very recent times come to light, may be considered nearer the original text of the Han. It contains almost all the material distributed in the two more usual parts, but organised in a different order.

The *Nei Ching* scheme of diagnosis (systematised in the *Shang Han Lun*) classified disease symptoms into six groups in accordance with their relation to the six (N.B. not five) tracts (*ching*) which were pursued by the *pneuma* (*chhi*) as it coursed through and around the body. Three of these tracts were allotted to the Yang (Thai-Yang, Yang-Ming, Shao-Yang) and three to the Yin (Thai-Yin, Shao-Yin, Chüeh-Yin). Each of them was considered to preside over a 'day', one of six 'days', actually stages, following the first appearance of the feverish illness. In this way differential diagnosis was effected and appropriate treatment decided upon. These tracts were essentially similar to the tracts of the acupuncture specialists, though the acupuncture tracts were composed of two six-fold systems, one relating to the hands and the other to the feet, and crossing each other like the cardinal (*ching*) and decumane (*lo*) streets of a city laid out in rectangular grid arrangement. Moreover, by the time of the *Nei Ching* the physicians had achieved full recognition of the fact that diseases could arise from purely internal as well as from

purely external causes; the ancient 'meteorological' system explained by Ho the Physician had therefore been developed into a more sophisticated six-fold series, namely *fêng, shu, shih, han, sao, huo*. As external factors they could be translated as wind, humid heat, damp, cold, aridity and dry heat; but as internal causes we could name them blast (cf. Van Helmont's *blas*), fotive *chhi*, humid *chhi*, algid *chhi*, exsiccant *chhi* and exustive *chhi*. It is interesting to notice the partial parallelism with the Aristotelian-Galenic qualities which were part of a quite different fourfold system.

It will have been noticed that in the previous paragraph we translated the title *Huang Ti Nei Ching* as 'The Yellow Emperor's Manual of Corporeal [Medicine]'. This raises an extremely interesting question. In recent times there has been a tendency among medical sinologists to translate it as 'The Yellow Emperor's Manual of Internal Medicine'. But this is indisputably wrong and should be abandoned as soon as possible. Not only does it introduce a particular modern conception where it has no place to be, but it also entirely mistakes the significance of the word *Nei*. The chapters of many ancient Chinese books are divided into two groups, the 'inner' and the 'outer'; so, for example, we find the two parts *Nei Phien* and *Wai Phien* in the greatest of Chinese alchemical books, the *Pao Phu Tzu* (Book of the Preservation-of-Solidarity Master) written by Ko Hung about +300. One might be tempted to translate 'inner' and 'outer' by esoteric and exoteric respectively; the former being secret doctrine not to be revealed to people in general, the latter being the overt publicly-preached system. But this would involve just as serious a mistake as that which we are trying to correct. The key to the real meaning for which we are seeking is to be found in the classical statement of the Taoists that they 'walked outside society'. Again, the *Chuang Tzu* book says: 'outside time and space is the realm of the sages, and I am not speaking of it here'. In other words, *nei* or 'inside' means everything this-worldly, rational, practical, concrete, repeatable, verifiable, in a word, scientific. Similarly, *wai* or 'outside' means everything other-worldly, everything to do with gods and spirits, sages and immortals, everything exceptional, miraculous, strange, uncanny, unearthly, extra-mundane and extra-corporeal or incorporeal. Let it be noted in passing that we are not here using the term supernatural, because it is deeply true to say that in classical Chinese thought there is nothing outside Nature, however strange it may happen to be. This is why we propose the translation 'The Yellow Emperor's Manual of Corporeal [Medicine]'. It is fascinating here to notice that the ancient bibliographies also contain a *Huang Ti Wai Ching* 'The Yellow Emperor's Manual of Incorporeal (or Extra-Corporeal)

[Medicine]', but this completely disappeared during the early centuries of our era. The fact that the *Wai Ching* was lost so early emphasises once again precisely the quite secondary character of the magico-religious aspect of medicine in China; for cures effected by charms, cantraps and invocations must certainly have been included in the 'outside' *corpus*.

Before leaving this subject we should like to refer to certain other uses of the term *nei* and *wai* which might be made to explain the title of the Chinese Hippocratic *corpus* but in fact cannot be. In recent centuries there has been an every-day distinction between *nei kho* and *wai kho*, the former meaning internal and general medicine in the modern sense, and the latter 'external' medicine, formerly usually called *yang kho*. This included such surgery as the Chinese carried out, but it was much wider than surgery in the modern sense for it included dermatology, the treatment of fractures and dislocations, together with that of boils and eruptions and any pathological conditions which could affect the outer surface of the body. This distinction, however, does not go much further back than the Sung period (+10th to +13th centuries) where it began with three specialities (*kho*) and went on to six and nine; eventually in the Ming a classification into thirteen specialities became usual. All this can have nothing to do with the *Nei Ching*, the text of which recognises no such distinctions. Another *nei-wai* differentiation occurs in historical writing associated with the words *shih* or *chuan* referring to events within the Imperial Palace as opposed to others outside it. Again, this does not apply in any way to the *Huang Ti Nei Ching*. In alchemy there is an important distinction between *nei tan* and *wai tan*, the former term referring to 'spiritual alchemy', the psychological refining of the mind by spiritual exercises closely paralleling the trend of thought and writing in the West now so familiar because of the work of Jung. *Wai tan* on the other hand referred to the actual processes of manual operations whereby elixirs of longevity or immortality were prepared in the practical laboratory. Here, as in the case of esoteric and exoteric, the meaning is almost diametrically opposite for the 'inner' was the spiritual and the 'outer' was the practical and proto-scientific. Lastly, the words could be used in a perfectly straight-forward and unsophisticated way; as in the title of an anatomical book written by Chu Hung in the Sung period – the *Nei Wai Erh Ching Thu* (Illustrated Treatise of Visceral and Superficial Anatomy). We think that this sort of philological excursus into the proper nuances of words is abundantly worth while for the prevention of serious misunderstanding.

It is indeed fortunate for the historian of Chinese medicine that we have an extremely important physician's biography dating from

just the time when we believe that the *Huang Ti Nei Ching* was being put together. The biography of Shunyü I by Ssuma Chhien is contained in the same chapter of the *Shih Chi* as that of Pien Chhio already referred to. The second part is much more important however, because it contains twenty-five clinical histories related by Shunyü I as well as his replies to eight specific questions all on the occasion of an imperial decree commanding him to reveal the nature of his practice about —154. To the life and times of Shunyü I has been consecrated by Bridgman the most scholarly monograph yet produced in the field of the history of medicine in China. Born in —216 in the old territory of the State of Chhi, Shunyü I had practised widely among princes as well as officials and common people, and after having held the post of Granary Intendant from —177 onwards he was ten years later accused and taken to court upon charges of malpractice, but acquitted after the supplication of his youngest daughter. This was the famous occasion when mutilative punishments were revoked, alas only temporarily. Shunyü I died between —150 and —145. It is possible to explain the nature of nearly all the cases attended by Shunyü I in modern terms, and though a few of these interpretations may be subject to revision, the majority are perfectly clear. We have thus a unique record of medical practice and knowledge in the —2nd century.

On the occasion of his interrogation in —167 Shunyü I referred to the chief book which had been handed down to him by his teacher Yang Chhing (or Kungchhêng Yang-Chhing). This was the *Mo Shu Shang Hsia Ching* (Treatise on Sphygmology in two Manuals) one of these being associated with the name of Huang Ti and the other with that of Pien Chhio. It seems fairly certain that this was some early form of the *Huang Ti Nei Ching*. Shunyü I further mentioned what appear to be the titles of separate chapters or tractates within this corpus as follows:

1. *Wu Sê Chen* (Diagnosis by the Five Colours)
2. *Chhi Kai Shu* (The Art of Determining the Loci of the [Eight] Auxiliary Tracts). This was undoubtedly a treatise on acupuncture.
3. *Khuei Tu Yin Yang* (The Determination of the Degree of Yin and Yang [involved in different diseases]).
4. *Pien Yao* (The Drugs that effect Changes [in the Body]).
5. *Lun Shih* (Discussions on [the Use of] Mineral Drugs).

The fact that no parallel titles to any of these can be found in the bibliography of the *Chhien Han Shu* (Dynastic History of the Former Han Dynasty) suggests that all these titles were those of chapters or tractates within the *Mo Shu Shang Hsia Ching*. And indeed, as

Bridgman showed (though we have not been able to follow him entirely in the definition and interpretation of the titles), close parallels to some of them can be found in the chapter headings of the present *Huang Ti Nei Ching*. All this is very significant because it was just at this time that we think the *Huang Ti Nei Ching* was being constituted.

Bridgman ends his monograph by making a weighty comparison with Greek medicine. Far, he says, from being an assembly of magical practices and inapplicable fantasies, it appears that the examination of the sick person, the investigation of the clinical history, the comparison of data from different examinations and the therapeutic deductions, all formed part of a discipline which constituted a valid and valuable precursor of contemporary clinical science. In this light ancient Chinese medicine can fully sustain any confrontation with Greek or Roman medicine of the same period. With this we whole-heartedly concur.

The Later Han, San Kuo and Chin periods then brought a number of outstanding physicians and medical writers roughly corresponding to Aretaeus, Rufus, Soranus and Galen. The life and work of Galen (+131 to +201) is closely paralleled by that of Chang Chi (Chang Chung-Ching) who probably lived from +152 to +219. One could hardly say that the influence of this younger contemporary of Galen during later Chinese histories was less than Galen's in the Western world. For his *Shang Han Lun* (Treatise on Febrile Diseases), produced about +200, was one of the most important medical classics after the *Huang Ti Nei Ching* itself. Next came Hua Tho (+190 to +265) active in the San Kuo or Three Kingdoms period, a man about whom many stories subsequently clustered. Little of what he wrote has come down to us, but the great development of medical gymnastics in China, massage and physiotherapy, can be traced back to him. The third century brought two more men of the highest importance. First Huangfu Mi (+215 to +282) whose *Chen Chiu Chia I Ching* (Systematic Manual of Acupuncture) was a most influential work. No less important, however, was the *Mo Ching* (Pulse Lore Manual) compiled by Wang Shu-Ho about +300, and the foundation of all later works on the pulse. As Wang Shu-Ho was born about +265 and died in +317 we have come down to the time of Oribasius, and the classical period of Chinese medicine draws to a close. Its vast developments in later ages we cannot follow further here.

Let us now turn to the social effects exerted upon the medical profession as a result of its developing within a society based on bureaucratic feudalism. It is far too little understood by Westerners that for some two thousand years Chinese society was constructed in

an entirely different way from anything known in the West. The principles of aristocratic military feudalism are familiar to all educated Europeans, though historians are aware that the practice of it was far more complex and diversified than is usually imagined. Nevertheless, broadly speaking, traditional China lacked the apparatus of fiefs and feudal ranks, of primogeniture and inherited lordships; instead of all this the culture was governed by a non-hereditary bureaucracy, an immensely elaborate civil service, the members of which were drawn from the ranks of the educated gentry. Instead of earls and barons there were governors and magistrates. Access to this 'mandarinate' was by means of the official examinations, so that the 'carrière ouverte aux talents' was a Chinese invention made a couple of millennia earlier than its successor in France; 18th century France was, we know, greatly influenced by knowledge of Chinese customs. All this of course is not to say that China never had a feudal or proto-feudal society; on the contrary, it is very probable that the society of the —1st millennium, the time of the Spring and Autumn period and the period of the Warring States, should be so characterised. But it is at any rate certain that with the passage of time all feudal elements persistently declined and were replaced by the non-hereditary bureaucratic society. Why this happened is a problem that we cannot go into here.

As might be expected, the influence of this very different form of society upon medicine was profound. It is demonstrable that examinations of scholarly proficiency were inaugurated by the Han Emperor Wên Ti in —165 (during the life-time of Shunyü I); while the Imperial University (Thai Hsüeh) was founded in —124. Although literary, philosophical and administrative culture was always its primary aim, it is not surprising that instruction should have begun early in those sciences which appeared to be of importance to the State, for example astronomy, hydraulic engineering and medicine. So we find that Regius Professorships and Lectureships in Medicine (Thai I Po Shih, Thai I Chu Chiao), implying examinations for qualification to practice, date from as early as +493. Then between +620 and +630 an Imperial Medical College was established, together with medical colleges in all the chief provincial cities, and medical degrees were awarded from then onwards. Although at first the remarkable precocity of these dates may seem surprising, it is less so once the distinctively bureaucratic-feudal character of Chinese society is understood, together with the age-old respect of the Chinese for learning and for a learned, non-hereditary civil service. The year +931 constitutes a focal point in transmission of the principle of qualification for practice westwards,

for that was the date of the first qualifying examinations in the Arabic world, decreed by the Caliph al-Muqtadir at Baghdad under the superintendence of the eminent physician Sinàn ibn Thàbit ibn Qurràh. Of Chinese-Arabic contacts during the preceding two centuries much is known, and there is no difficulty in supposing that the Arabs were taking up energetically a much older Chinese idea. Lastly it passes to the West when, in +1140, Roger of Sicily issues laws concerning State examinations for physicians, and when the school of Salerno begins to graduate men as *Doctor Medicinae* (+1224). It looks as if the Arabic and the Western worlds borrowed the idea of examinations in medicine from Chinese culture just as civil service examinations in the 19th century so long afterwards were introduced with full knowledge of the age-old Chinese parallel in mind. It would hardly be possible to imagine a deeper effect of the environing culture on medicine than this 'bureaucratisation' of medical knowledge, which had the extremely happy effect of protecting people at large from the activities of ignorant physicians.

But we can go much beyond this. Besides the traditions of officially recognised scholarship just referred to in connection with medical qualifying examinations, there was another important factor which helped to bring these into existence so early, namely the generation of what can only be described as a national medical service. From the beginnings of this in the Han period (broadly —200 to +200) its later form throughout the centuries can be described, particularly its division into an Imperial Palace service and a Public or National service, the latter responsible also for provincial and medical administration and for the medical staff of the army. In the history of military medical care the Chinese contribution is at least as important as anything which one can find in Greece and Rome, and perhaps a good deal more so, though never yet adequately considered in the world medical-historical literature. For instance, we probably possess in the bamboo tablets of army administration, which have been preserved in the sands of the Gobi along the *limes* of the Great Wall, at least as much information about the military medical service of the Han armies as we have about those attached to the legions of Rome. We even have details of their standard prescriptions dating from the —3rd century.

In a bureaucratic society it was quite natural that in the development of the conception of hospitals religious and governmental initiatives should, from time to time, contend together. The general picture emerges that the idea of the hospital in China first arose in the Han before the introduction of Buddhism, but that during the Liu Chhao (Six Dynasties) period religious motives led to the foundation of many institutions, not only by Buddhists but also by

Taoists. Then, when Confucianism regained strength towards the end of the Thang and especially during the Sung dynasties the national medical service more and more took over the hospitals. Under the Yuan dynasty at the time of the Mongol conquest of Persia and Iraq, medical organisations of Arabic type and tradition were added, just as a Muslim Bureau of Astronomy was set up as an auxiliary to the age-old department of the Astronomer-Royal. Finally, however, under the Ming and Chhing dynasties social organisms of many kinds decayed, and the hospitals shared in this, so that when Westerners first began to visit China in any numbers (early in the 19th century) they gained an altogether wrong idea of the history of medical administration in China. Nevertheless, many interesting hospitals and public charities did continue in these late times.

As in so many other fields, the beginnings of the hospice go back to the troublous but venturesome times of Wang Mang, the only Hsin Emperor between the Former and the Later Han dynasties. On the occasion of a severe drought and locust plague in +2 an edict ordered that the sick should be accommodated in empty palaces and given medical treatment. In +38 Chungli I did the same for his people in a time of epidemic. But these were not, it seems, permanent institutions. The first description of a permanent hospice with a dispensary is that of the foundation of Hsiao Tzu-Liang, a Buddhist prince of the Southern Chhi dynasty, set up in +491. Characteristically, the first government hospital followed very soon afterwards when in +510, Thopa Yü, a prince of the Northern Wei dynasty, ordered the Court of Imperial Sacrifices to select suitable buildings and attach a staff of physicians for all kinds of sick people who might be brought there. The significance of this is that the Court of Imperial Sacrifices (Thai Chhang Pu) had from the beginning of the Han been responsible for the Imperial Medical Service (Thai I Chu). This hospital, which was called a Pieh Fang, had a distinctly charitable purpose, being intended primarily for poor or destitute people suffering disabling diseases, and severe epidemics were again the background of the initiative. Later in the same century we have a good example of the pattern of semi-private benefactions by government officials which afterwards became widespread; Hsin Kung-I, one of the generals who had conquered the house of Chhen and helped to unite the empire under that of Sui, encountered a violent epidemic in the province where he had retired to be governor. He turned his own residence and offices into a hospital and provided drugs and medical attendants to thousands of people (c. +591). The classical example of such a benefaction no doubt was the action of the great poet Su Tung-Pho

when Governor of Hangchow in +1089; he gave rich endowments to a government hospital which he set up there and which formed a model for other provincial cities.

It is in the Thang however that we can best study the conflict between religious and governmental control of hospitals. In +653 Buddhist and Taoist monks and nuns were forbidden to practice medicine. In +717 the minister Sung Ching memorialised the throne saying that ever since Chhang-an had been the capital (i.e. since the beginning of the Western Wei in +534) hospitals there had been supposedly controlled by government officials, but because of neglect the Buddhist religious had taken over these functions more and more. By +734 action was taken, at least in the capital, to establish government-supported orphanages and infirmaries for the destitute. By +845, as part of the great dissolution of the monasteries under Wu Tsung the hospices long called Pei Thien (Compassion Pastures) were transferred to lay control under the name of Ping Fang (Patients' Compounds). At the same time, much temple property in land and buildings was expropriated by the Emperor and allocated to these hospitals. Meanwhile, since the beginning of the dynasty in +620, there had been a special hospital and clinic (the Huan Fang or Affliction Compound) within the Imperial Palace, with its own medical stores under the control of a special superintendent. The Chief Medical Directors of the Imperial Medical Service (Palace), (I Chien), Assistant Directors (I Chêng), and Staff Physicians (I Shih), took turns to be on duty at this institution. The regularisation of hospital services carried out in the Thang bore great fruit in the Sung when we find (c. +1050 to +1250) a wide variety of State institutions at work both in capital and provinces. There were infirmaries for the care of the aged and the sick poor (Chü Yang Yuan and An Chi Fang from +1102, and the Fu Thien Yuan), a hospital mainly for foreigners (the Yang Chi Yuan from +1132), another for sick officials (the Pao Shou Tshui Ho Kuan from +1114) and even one for Chin Tartar prisoners of war (another An Chi Fang founded by Huang Chün about +1165). Besides all these there were orphanages (Tzhu Yu Yuan from +1247, and the Yu Ying Thang), out-patient clinics (Hui Min Yao Chü from +1151 and Shih Yao Chü from +1248), and subsidised government apothecaries (Mai Yao So from +1076).

Comparative data suggest that in hospital organisation Chinese practice was not so far ahead of the rest of the world as it was in the matter of qualifying examinations and government medical services. Hospitals of some kind (more exact studies are needed to elucidate their nature) are attested by the 1st century +both for India (as in the *Carakasamhita* or at Mihintale in Ceylon) and for the Roman

Empire (the *valetudinaria* of legionaries, gladiators etc.). The Indian facilities of his time were described by the Chinese Buddhist pilgrim Fa-Hsien in the +5th century, and it was just at this period too that there arose the great hospital of Gundashapur in Persia, heir of the former University of Edessa and precursor of the splendid foundations of Iraq, especially Baghdad, from the +8th to the +12th centuries, which correspond with the institutions we have mentioned in Thang and Sung China. It is curious that the +5th century was so important in this way in all three of the major Asian cultures. After classical times the oldest European references seem to be rather of the +7th century, after which monastic initiative played a part in the West very similar to that of the *sangha* in China.

For a bureaucratic society there is also interest in examining the beginnings of quarantine regulations. By way of example, as early as +356, the Chin Emperor, on the occasion of a disastrous epidemic, applied what were called the 'old rules', which prohibited officials whose families had three or more cases from attending court for a hundred days. Another question arising is the isolation of lepers. Though we are as yet uncertain when this started, it is sure that the Indian monk Narendrayāśas, who died in China in +589, established leprosaria for men and women at the Sui capital. During the Thang these institutions continued and another monk, a Chinese, Chih-Yen, acquired much fame by his preaching and nursing in a leper colony where eventually he himself died (+654).

Whatever may be said against bureaucratic systems of society they do at least go in for rational systematisation. This is certainly relevant to that wonderful series of pharmacopoeias, or rather pharmaceutical natural histories, or, as we are thinking of calling them, pandects of natural history, which followed each other throughout the centuries between the Former Han dynasty and the Chhing. The first of these, the *Shen Nung Pên Tshao Ching* (Pharmacopoeia of the Heavenly Husbandman), which must be referred to the 1st and 2nd centuries, was not produced under imperial auspices but several later ones were. All these treatises, some of which were vast in size, go under the generic name of Pên Tshao, and most of them have these characters in their titles; perhaps the best translation of the phrase would be 'the fundamental simples' or 'the botanical basis (of pharmacy)'. The term first appears in the *Chhien Han Shu* for +5, when the Hsin Emperor Wang Mang called what might be described as the first national Chinese scientific and medical congress. They also appear in the biography of Lou Hu, an eminent physician who was a friend of this Emperor (+9 to +24). In later centuries the *Hsin Hsiu Pên Tshao* was a striking example of an imperially commissioned pharmaceutical natural history

(+659); it has not survived except in the form of certain chapters which were copied by a Japanese monk and so preserved. In the Sung there followed Su Sung's *Pên Tshao Thu Ching* (Illustrated Pharmaceutical Natural History) of +1062, and the many successive editions of the great *Ching Shih Chêng Lei Pei Chi Pên Tshao* (Classified and Consolidated Armamentarium of Pharmaceutical Natural History). What was true of plants and animals was also true of the books of standard prescriptions. For example, in +723 the *Kuang Chi Fang* (General Formulary of Prescriptions) was composed by the Emperor Hsüan Tsung himself with his assistants, and then published and sent out to each of the provincial medical schools. Some of the prescriptions in this work of an Imperial pharmacist were actually written up on notice-boards at cross-roads so that the ordinary people could take full advantage of them. This practice was observed and described by the Arabic traveller Sulaimân al-Tâjir who was in China in +851. By +739 it was the law that every provincial city with more than one hundred thousand families was to have twenty medical students (I sêng) and those of less than one hundred thousand were to have twelve. Subsequently the numbers were increased. Then in +796 the Emperor Tê Tsung published throughout the country his *Chen-Yuan Kuang Li Fang* (Valuable Prescriptions of the Chen-Yuan Emperor).

This systematisation applied to plant and animal drugs on the one hand and to prescriptions on the other, was extended to diseases by the beginning of the +7th century, for then it was that Chhao Yuan-Fang produced, about +610, his great work, the *Chhao shih Chu Ping Yuan Hou Lun* (Mr. Chhao's Systematic Treatise on Diseases and their Aetiology). The great interest of this large work is that it made a systematic classification of pathological states according to the ideas of the time, without giving any attention to therapeutic methods. It was thus essentially a natural history of disease, and this was a thousand years earlier than the time of Felix Platter, Sydenham and Morgagni. One cannot but feel that the bureaucratic mentality of 'pigeon-holing', and routing things 'through the right channels', had something to do with this early appearance of systematisation in medical science. Indeed, the classificatory sciences as a whole were strong in traditional China, and the very word for science itself in modern Chinese, *kho hsüeh*, adopted in the 19th century, means nothing other than 'classification knowledge'. Of course the bureaucratic world-outlook affected many other things besides medicine and, as we have shown elsewhere, it is in China that one must look for the beginnings of filing and card-indexing systems, and the differentiation of texts by different coloured inks.

This brings us to the influence of the religious systems of China upon medicine. As is generally known, the three great religious systems or doctrines, the San Chiao, were Confucianism, Taoism and Buddhism. Only the first two were autochthonous, for the latter came in after the Han from India. The thought of these religious philosophies affected all aspects of medicine, and they must have influenced entry into the profession. Although a great number of medical men throughout the middle ages in China were trained at the government's expense, and often carried out administrative government functions afterwards, even rising to the ranks of Imperial Physicians (Thai I), there must always have been a host of auxiliary practitioners resorted to by the poor, whose knowledge had been obtained by the apprenticeship system. There can be no doubt that there was a tendency for physicians to come from the families of medical men, a process which might extend over several generations; indeed, a famous text contemporary with Confucius himself (early in the —5th century) has been interpreted to say that one should not take the medicine of a physician whose family had not been physicians for three generations. From what we have already said it is clear that the class-structure in mediaeval China was quite different from that of Europe, because of the non-hereditary bureaucracy of the scholar-gentry. Social mobility was great, families rose into this estate, and sank out of it, within a few generations. The medical profession, as we have emphasised, was not wholly looked down upon after its early beginnings, for as the centuries went by more and more Confucian scholars tended to enter it. One interesting reason why men of scholarly families tended to take up medicine was because of the duty enjoined by Confucian filial piety of attending upon their parents. This it was for example which made Wang Thao, one of the greatest medical writers of the Thang, embark upon those studies which issued out in the *Wai Thai Pi Yao* (Important Family Practice of a Frontier Official) produced in +752. There are many examples of a like kind. Cases are also known of men who became physicians on account of the challenge of an illness from which they themselves suffered.

We must not forget here the role played by Buddhist compassion. The somewhat forbidding aspect of Buddhism which may be epitomised in the word *sunya* or emptiness, i.e. utter disillusionment with this world, and the conviction of the necessity of escaping from the wheel of rebirths, was always modified in all varieties of Buddhism by a limitless compassion for all created beings, which may be epitomised in the word *karuna*. Thus it came about that no Buddhist abbey was likely to be without its medical specialists, and for many centuries, as we have seen, the Buddhists were active in the foundation

and maintenance of hospitals, orphanages etc. The Taoists also participated in this movement, because as an organised religion Taoism tended more and more to imitate Buddhist practices. But they were not so important in the field of medical organisation.

The profound influence of Taoism on Chinese medicine was exerted in quite a different direction. At an earlier stage we had occasion to speak about the primitive shamans of Chinese society, the *wu*, and there can be no doubt that Taoist philosophy and religion took its origin from a kind of alliance between these ancient magicians and those Chinese philosophers who, in ancient times, believed that the study of Nature was more important for man than the administration of human society, upon which the Confucians so much prided themselves. At the heart of ancient Taoism there was an artisanal element, for both the wizards and the philosophers were convinced that important and useful things could be achieved by using one's hands; they did not participate in the mentality of the Confucian scholar-administrator who sat on high in his tribunal issuing orders and never employing his hands except in reading and writing. This is why it came about that wherever in ancient China one finds the sprouts of any of the natural sciences the Taoists are sure to be involved. The *fang shih* or 'gentlemen possessing magical recipes' were certainly Taoist, and they worked in all kinds of directions as star-clerks and weather-forecasters, men of farm-lore and wort-cunning, irrigators and bridge builders, architects and decorators, but above all alchemists. Indeed the beginning of all alchemy rests with them if we define it, as surely we should, as the combination of macrobiotics and aurifaction.

These words are a little unusual but they are carefully chosen. The ancient Alexandrian proto-chemists in the West were aurifactors, i.e. they believed that they could imitate gold, not that they could make it from other substances, and though they had a spiritual side to their endeavours, it was not a predominating one. Macrobiotics, on the other hand, is a convenient word for the belief that it is possible to prepare, with the aid of botany, zoology, mineralogy and alchemy, actual substances, drugs or elixirs, which will prolong life giving longevity (*shou*), or immortality (*pu ssu*). Similarly, aurifaction is the belief that it is possible to make gold from other quite different substances, notably the ignoble metals. These two ideas came together first in the mind of the Chinese alchemists from the time of Tsou Yen in the —4th century onwards; and Europe had no alchemy in the strict sense until this combination had made its way from China through the Arab culture-area to the West. Hence Chinese alchemy (*lien tan shu*) had been, as it were, iatro-chemistry, almost from the first, and many of the most important physicians and

medical writers in Chinese history were wholly or partly Taoist. One need only mention Ko Hung about +300 and the great physician Sun Ssu-Mo of the +6th century. There was never any prejudice against the use of mineral drugs in China, such as existed long in Europe, and indeed the Chinese went to the other extreme, preparing all kinds of dangerous elixirs containing metallic elements which must have caused a great deal of harm. The object of the devout Taoist was to transform himself by all kinds of techniques, not only alchemical and pharmaceutical but also dietetic, respiratory, meditational, sexual and heliotherapeutic, into a *hsien*, in other words an Immortal, purified, ethereal and free, who could spend the rest of eternity wandering as a wraith through the mountains and forests to enjoy the beauty of Nature without end. These are the beings that one can discern, tiny against the immensity of the landscape, flitting across remote ravines in many beautiful Chinese paintings.

As time went by the hope of developing into an Immortal receded somewhat, and from the Sung onwards alchemy shaded imperceptibly into iatro-chemistry. What Chinese iatro-chemistry was capable of can be seen by the extraordinary fact, recently discovered, that the mediaeval Chinese chemists succeeded in preparing mixtures of androgens and oestrogens in a relatively purified crystalline form and employing them in therapy for many hypo-gonadic conditions. To understand this we have to say a word about the Chinese ideas on sexual endocrinology. This is highly relevant, for sexology and special sexual practices had always been one of the Taoist methods designed to attain material immortality. The importance of the integrity of the sex glands was early noticed, and the interest of Chinese physicians and Taoist naturalists awakened very early by all the phenomena of hermaphroditism. Already in +80 the great sceptical naturalist Wang Chhung had an enlightened discussion on the phenomenon of sex-reversal, and it is possible to compile from the dynastic histories records of a great many such cases during the ages. From the +13th century onwards preparations of testicular tissue taken from various animals were administered for conditions for which androgens would be prescribed today. It is rather striking that the use of human placenta and the placentas of animals was prominent in mediaeval Chinese opotherapy; first mentioned in the +8th century but common after the +14th. The most extraordinary development however in China was the preparation of sex-hormones from urine.

The origins of urinary therapy go far back into ancient Taoism. The Taoists had a philosophical and magico-scientific attitude to sex rather than an ascetic one in the ordinary sense, and in the

lives of adepts who lived in the —3rd century one finds references to the effects of ingestion of urine on sexual health and activity. There can be no doubt that as time went on the theory arose that if urine had valuable properties it owed this to the fact that it was 'of the same category as' (*thung lei*) the blood. More than one mediaeval writer was clearly of the opinion that even the yellow colour of the urine was related to the red colour of the blood – and they were certainly not wrong. If then the organs were contributing each some valuable constituent to the blood, it was not impossible to hope that some of these valuable properties might appear in the urine.

Thus it came about that the iatro-chemists started with large amounts of urine from adults or adolescents of each sex: almost as a pharmaceutical factory might today. The simplest, and probably the oldest, process consisted in evaporating the urine to dryness, including the steroid glucuronides and sulphates with much else. But most of the procedures embodied various precipitations to obtain a colourless and odourless product. One used calcium sulphate, which would have assisted protein precipitation, and therefore that of the conjugates also; another made use of the saponins from the soap-bean tree *Gleditschia sinensis*, the bean-juice being added to the urine at the rate of one bowlful for every tub. The precipitate was afterwards extracted with boiling water so that all the steroids carried down upon the protein were probably released as it denatured, while those combined with the saponins remained insoluble. The striking feature of all these methods is that they ended by sublimation, and in fact it is true that the urinary steroid sex-hormones do sublime unchanged in air between about 140° C. and 280° C. The end products of the iatro-chemists were no doubt complex mixtures of many different compounds, depending on the fractionation procedures and the original source material. But it is interesting that some of the methods specifically direct that the urine of male and female subjects should be worked up separately, as also from donors of different ages, and in certain cases there are directions about the mixing of the final products in varying proportions. The texts which describe these fascinating procedures date all the way from the +11th to the +16th century. The 'Society of Chymical Physitians' in +17th-century England would indeed have been surprised to know how strong Chinese medicine had been on the iatro-chemical side, and there can be no question that this influence was the fruit of its association with philosophical and religious Taoism.

In connection with the possible influence of religious systems upon medical science we ought perhaps to take up a very different matter,

namely the question of the mental health of the mass of the people in the culture. This opens many wide perspectives. In the absence of adequate statistical analyses we can only give our impression that in traditional and indeed in contemporary Chinese society, while the incidence of psychoses is about the same as in the West, that of the neurotic conditions is considerably less. The incidence of suicide may have been about the same in the past, but for different reasons. There is much here that needs further thought and investigation, but it is generally agreed that neither of the three Chinese religions gave rise to a sense of sin and guilt as Christianity did in the West. Perhaps China was a 'shame-society' rather than a 'sin-society'. Other facts are interesting in connection with the low incidence of neurosis, e.g. the general acceptance of Nature and natural phenomena inculcated by Taoism, and the extreme permissiveness of Chinese parents in the house-training and home life of young children. If Chinese mentality was on the whole better balanced than that of the West, this was in spite of great uncertainty of life. Since capitalism did not spontaneously develop in China, and there was no bourgeois revolution, bourgeois policed society did not develop either, and even as late as the end of the 19th century public life could be quite dangerously at the mercy of bandits, bullies, loafers, corrupt magistrates and family tyrants. We could not dare to follow the sociological avenues opened up any further here except to say that the universal squeeze, graft and corruption, complained of by the 'Old China Hands' in the last century was simply the way in which the bureaucratic mediaeval society had always worked – it only seems strange because Western society, having passed through the stage of 'serving God in the counting-house', had already got away from that level some time before. Of course in making sociological comparisons between Chinese and Western society one must take all periods as well as all aspects into account, and to the credit of the Chinese side must be placed an almost total absence of persecution for the sake of religious opinion. No such phenomenon as the Holy Inquisition can be found in all Chinese history, nor was there anything corresponding to the witchcraft-mania which makes so great a blot on European history between the +15th and +17th centuries. Chinese psychology and psycho-therapy remains as yet a closed book to the Western world, but there are many texts available which could be drawn upon to outline it, not least some extremely interesting books of the middle ages and later, on the interpretation of dreams. A great work remains to be done in this direction.

We now come to the last section of this contribution, in which we have to consider the effect upon traditional Chinese society and

medicine of the transition to Marxist socialism which has been accomplished in our own time by the revolution after World War II. The simplest interpretation of this revolution is that it was a recognition by the Chinese people as a whole that while there must be modernisation it need not be Westernisation, and it need not involve going through all the stages of capitalism in the Western world. The old bureaucratic feudalism could give place directly to socialism, with all that that implied, profoundly and on a vast scale, for the bettering of the lot of the people as a whole.

There has necessarily followed a tremendous demand for the improvement of the health of the people and for increased medical facilities. Since there were so few Western-trained physicians in comparison with the size of the population, there has been, since the revolution, a great 'revival' of traditional Chinese medicine. There are now many medical schools which teach it and general encouragement is given to its practice. Refresher courses have been introduced for men trained only in the traditional medicine so that they may play their part in modern health measures, while at the same time the 'modern' physicians have been persuaded to take traditional Chinese medicine seriously. Today the traditional medical men are working side by side with the others in full co-operation. This is a very remarkable fact which we have witnessed ourselves in 1952, 1958 and 1964. It has been brought about in China by the national renaissance which has taken place during the past fifteen years. The two types of physicians and surgeons have joint observations, joint clinical examinations, and there is the possibility for patients to choose whether they will have their treatment in the traditional or the modern way; in other cases the physicians themselves decide which is best and proceed to apply it. And if one reads the *Chinese Medical Journal*, for example, carefully, one will find certain fields, as for instance the treatment of fractures, where prolonged consideration has decided that in fact there were many valuable features in the traditional methods, and what is in use now is a combination of the two, the Chinese and the Western. Such fusion is going to happen more and more, giving rise to a medical science which is truly modern and oecumenical and not qualifiedly 'modern-Western'.

All this is being done under the aegis of a conviction that an integration of the Chinese and the 'Western' or 'modern-Western' systems of medicine must emerge. The mathematics and astronomy of China and the West fused into one science quickly in the +17th century, but the fusion of other sciences, such as chemistry and botany, took much longer. One has to realise that fusion cannot yet to be said have occurred with the highly complicated sciences of the living organism in health and disease, and it is to be expected that

such a fusion may take more than a generation. Actually what is at issue is the comprehension in modern terms of the quasi-empirical practices which grew up in China through the centuries. Since the theories of traditional Chinese medicine always remained relatively 'primitive' and 'pre-Renaissance' in type, there cannot be much future for them except in so far as they may be re-interpreted in modern terms. There is danger here for the historian of medicine, who must be careful not to read too much into the ancient theoretical formulations, but at the same time must be careful to avoid making them seem quaint, archaic or senseless. This situation in China contrasts sharply with that in Ceylon and India, as we have also had occasion ourselves to see. Ayurvedic medicine in those countries has some similarity with Chinese traditional medicine, though less original and peculiar in its methods, and laying more emphasis on *materia medica*. But in South Asia unfortunately there is a positive hostility to any contacts with modern-Western medicine. In Ceylon the Ayurvedic physicians have joined forces with the Buddhist monks in trying to gain an influence over the university in a movement of pure traditionalism. One can thus see how much Chinese tolerance has to teach the rest of Asia.

The most fundamentally characteristic system of therapy in Chinese medicine is of course acupuncture. It is a system which has been in constant use throughout the Chinese culture-area for some two and a half thousand years; and the labours of hundreds of learned and devoted men through the centuries have turned it into a very highly systematised doctrine and practice. Briefly, this system, as is well-known, consists of a large number of points on the surface of the body (we call them loci) in which needles of varying length and thickness are inserted by the physician in different specified manners. The oldest catalogue of these points occurs in that part of the *Huang Ti Nei Ching* which is called the *Ling Shu*. In the —2nd century the number of these loci (*hsüeh*) were 360 in number, possibly because of fancied equivalence with the number of bones in the body, possibly in its turn connected with the rough estimate of days in the year. Each point has a distinctive technical name which has developed through the ages, but there is a good deal of synonymy so that the total number of loci which have been identified as distinct names is about 650. At the present day about 450 are recognised and might be said to be in current use, but those most commonly employed are much fewer in number, not exceeding perhaps about 100. Before the Sung period (+11th century) we know the titles of some eighty books on the system of acupuncture loci but the majority of these were lost. We have already taken note of the *Chia I Ching* by Huangfu written about +280.

If this were the whole story the system would be indeed empirical but it is far from that. The points became connected with each other in a complicated reticulate system quite resembling a map of the London underground railways. These connections are known as *ching* (cardinal tracts) and *lo* (decumane tracts). The analogy can be carried somewhat further because the *ching* and *lo* are indeed invisible, like the principal blood vessels and nerves, running along under the surface of the city. It is as if one had two transport-system companies with exchange points for the public well defined at the junctions where they meet. We call these junctions (*hui hsiieh*) anastomotic loci, and there can be no doubt that the names of the points, at least many of them, ante-dated the system of the *ching* (tracts), for we find named points mentioned in the discussions recorded from Ho the Physician in —540, and more of them in the case histories of Shunyü I. It is the *Ling Shu* (systematised in the Chia I Ching) which connects the loci into the tracts and adds correlations with the Yin-Yang forces and the six *chhi* (*pneumata*). There is no doubt that in the *ching-lo* system we have to deal with a very ancient conception of a traffic nexus with a network of trunk and secondary channels and their smaller branches. It seems as if from the beginning these were thought of in hydraulic engineering terms, for there are greater and lesser reservoirs of *chhi*. We are thus in the presence of an important doctrine arising from the idea of the microcosm, the body of man representing the macrocosm in little. And the basic idea of circulation which originates unmistakably in the Former Han period may well be derived from a recognition of the meteorological water-cycle — the exhalations of the earth rising into the clouds and falling again as rain.

The question of the origin of the whole system is surely one of extraordinary interest. There must have been close observation of symptoms, especially pain and its relief by various methods. But we suspect that the profound conviction of the organic unity of the body as a whole, which was reflected in the acupuncture system, may have arisen challengingly out of the phenomenon of referred pain. Perhaps some passages in the ancient Chinese texts not yet noted will justify recourse to this as part at least of the explanation. The relation of transitory pain in the extremities or trunk with passing malfunctions of the viscera is so common an observation of every day physio-pathology that it may well have struck the ancient Chinese physicians with particular force. The sudden relief of cardialgia or flatulence may be preceded by quite severe though very transitory pain in remote parts of the body and we expect that a close examination of referred pain as it is understood in modern physiology may throw considerable light on the genesis of the Chinese

system. One must also remember the zones of the skin in mammals which are related through the sympathetic nervous system with specific viscera; first investigated by Head and named after him. Besides all this there must of course have been a saecular accumulation of clinical experience which convinced the Chinese medical profession indubitably of the efficacy of acupuncture.

No-one will ever really know the effectiveness of it, or of other special Chinese treatments, until accurate clinical statistics have been kept for several decades. The Chinese are not doing much about this at the present time because the practical job of looking after the health of seven hundred million people does not readily permit it. But we have no doubt that within a century accurate clinical statistics will be kept and this will be a fundamental contribution to our knowledge of traditional Chinese medicine. A view commonly expressed (mostly by Westerners) is that acupuncture acts purely by suggestion, like many other things in what they often call 'fringe' medicine. This is, we believe, a question of what one might call relative credibility (or perhaps a calculus of credulity). In matters so uncertain which belief is the most difficult? It may well be more difficult to believe that a treatment which has been engaged in and accepted by so many millions of people for something like twenty centuries has no basis in physiology and pathology than to believe that it has been of purely psychological value. Of course it is true that the practices of phlebotomy and urinoscopy in the West had exceedingly little physiological and pathological basis on which to sustain their long enduring popularity, but none of these had the subtlety of the acupuncture system. Perhaps blood-letting had some slight value in hypertension, and extremely abnormal urines could tell their story, but neither contributed much to modern practice. We can only say that for our part we find the purely psychological explanation of acupuncture much more hard to credit than an explanation couched in terms of physiology and pathology. Experiments on animals, where the psychological factor is ruled out, are now being actively pursued in Chinese and Japanese laboratories, and results so far support this opinion. Surely in due course the scientific rationale of the method will be found, but until it is, Chinese and modern-Western medicine will not have fused.

Today there are dozens of laboratories in China and Japan actively working with modern methods of a physiological and biochemical character to elucidate what happens in acupuncture. One suggestion now under test has been that the action of the needles may stimulate the production of antibodies by the reticulo-endothelial system. It had always been a matter of surprise for Western biologists that the acupuncturists claim their treatment to be

effective, at least in some degree, not only in diseases such as sciatica or rheumatism where no treatment in any part of the world can be considered very successful, but also in cases of infectious disease where an external causative agent is fully recognised. For example, it was difficult to believe that in such an entity as typhoid fever acupuncture could be effective; nevertheless that was the claim of the traditional physicians. However, if the reticulo-endothelial system could be stimulated to produce antibodies in larger quantity, possibly by indirect stimulation through the autonomic nervous system, that could explain the results. Alternatively, there may be a neuro-secretory effect mediated through the autonomic and sympathetic systems upon the suprarenal cortex inducing a rise in cortisone production. Again, there may be a neuro-secretory influence upon the pituitary gland – a wealth of experimental approaches lies open.

Lastly, something remains to be said about the theoretical setting of acupuncture and other traditional methods, such as the medical gymnastics for example; that is, the relative value placed in Chinese and Western medicine on aid to the healing power of the body on the one side, and a direct attack upon the invading influences on the other. Now both in Western medicine and in Chinese medicine these conceptions are both to be found. On the one hand, in the West, besides the seemingly dominant idea of direct attack on the pathogen, we have the conception of the *vis medicatrix naturae*, so that resistance and the strengthening of resistance to disease is an idea strongly embedded in Western medicine from Hippocrates and Galen onwards. On the other hand, one can also affirm that in China, where the holistic approach might be thought to have dominated, there was the idea of combating external disease agents, whether these were sinister *pneumata*, the *hsieh chhi* from outside of unknown nature, or whether they were distinct venoms or toxins left behind, for example, when insects had been crawling over food – this is a very old conception in China – so that the combating of external agents was certainly present in Chinese medical thought too. This may be called the *i liao* aspect (or in ordinary parlance *chih ping*); and the other one, the *vis medicatrix naturae*, was what was meant in China by *yang shêng*, the strengthening of vital resistance. Now it seems clear that whatever the acupuncture procedure does, it must be along the lines of strengthening the patient's resistance (e.g. by increasing antibody or cortisone production), and not along the line of fighting the invading *pneumata* or organisms, venoms or toxins, i.e. not the characteristic 'antiseptic' attack which naturally has dominated in the West since the origin of modern bacteriology. It is surely very interesting that both conceptions (the exhibition of

hostile drugs and the strengthening of the body's resistance) have developed in both civilisations, in the medicine of both cultures; and one of the things which any adequate history of medicine in China will have to do will be to elucidate the extent to which these two opposite ideas dominated in the systems of East and West at different times.

The dichotomy just elucidated, the dichotomy between strengthening the defender of the organic citadel on the one hand, or sallying forth to attack its attackers on the other, is obviously closely related to another dichotomy, another pair of antitheses in pathological thought. The idea of the attacks of external agents, whether parasites or toxins, corresponded well enough with the biological idea of the stimulus, while the strengthening of the patient's resistance corresponded equally well to the biological idea of reactivity. But what if there was no attack from outside at all and therefore no special possibility of reacting to it well or badly? Perhaps illness could be caused by some imbalance of the normal processes going on in the body, some imperfect organisation, in fact what the Greeks understood by an abnormal *krasis*, a failure to achieve the right mixture or combination. The history of these ideas in the West has been brilliantly sketched by Temkin in recent writings, but the extraordinary parallels in Chinese thought, which constantly envisaged failures of balance between the Yang and Yin, and among the Five Elements, have been little commented upon. The topicality of the whole question is extraordinary, for modern endocrinology has abundantly shown the calamities which may ensue upon glandular malfunction. Again, it will be necessary for any adequate study of the history of Chinese medical thought to do justice to the parallels in the field of morbid imbalance.

We have already mentioned the importance of the detailed study of the ancient and mediaeval Chinese system of diagnosis (*liu ching pien chêng*, 'differentiating and diagnosing in accordance with the six *ching*'), never yet properly expounded in a Western language. The term *ching* has been known in the West only as the name for the linear arrays of acupuncture points on the surface of the human body. But it has a much deeper meaning than this, denoting a basic physiological conception in ancient Chinese medicine founded on the theory of the Two Forces (Yin and Yang) and the Five Elements, in which six patterns of physiological function and pathological dysfunction were recognised. During the course of a disease these patterns were affected in diverse succession according to its causative factors. Traditional Chinese medicine classically recognised three fundamental causative factors (*san yin*) in disease (a) external agents [climatic, infective, contagious i.e. *wai*, a Yang

group] (b) internal dysfunction or abnormal *krasis* [*nei*, a Yin effect] and (c) traumatic and accidental injuries including war wounds [*pu nei wai*, partly Yin and partly Yang]. An important component of the second class was constituted by congenital susceptibility factors (*thai tu*, literally 'morbific force latent in embryonic life'). In so far as these factors were regarded as important in epidemic disease they also participated in the property of being *pu nei wai*, partly Yin and partly Yang. In accordance with this, three great classes of illness, Yang, Yin, and mixed, were envisaged and, as we have already emphasised, it was always recognised that treatment must aim at the syndrome as a whole rather than at any particular symptoms, taking very great account of the individual's particular constitution.

This then is as far as we can go on the present occasion in our account of Chinese medical ideology and what ought to be done about it. One might feel that if any type case was needed to demonstrate the moulding of medicine by the culture in which it grew up, Chinese medicine would be such a case. But, on second thoughts, is there any reason for regarding it as more 'culture-bound' than Western medicine? To think of the latter as self-evidently universal in application may be an illusion commonly entertained because most of us happen to have been born within that occidental Semitic-Hellenistic culture which was destined by a series of historical accidents to give rise to specifically modern science in the later stages of the Renaissance. Western medicine is only modern because it is based upon the assured results of modern scientific physiology and pathology, in a way which the traditional medicines of the Asian civilisations are not; but it will not be truly and oecumenically modern until it has subsumed all the clinical experience, special techniques, and theoretical insights, achieved in the non-European medical systems. Then will have occurred that fusion of Eastern and Western medicine which we have referred to above. In the last resort, all medical systems have been 'culture-bound'; and modern medicine is only rising above this in so far as it can partake of the universality of modern mathematised natural science. Everything that the Asian civilisations can contribute must and will, in due course, be translated into these absolutely international terms. Only so will medical science be able to free itself from connections with particular cultures and be able to minister universally to a united mankind.

DISCUSSION

CHAIRMAN: Before we start, there are one or two apologies, I'm afraid. Sir George Pickering has had to return to Oxford this morning, and Sir Aubrey Lewis also has an engagement elsewhere. I think that the best plan is to hear the paper that Professor Needham has very kindly prepared for us and then to allow anyone to speak on that paper or on any other which is relevant. At 11.30 I am going to ask each member of the Symposium to speak for not more than five minutes.

NEEDHAM: First of all I would like to apologise to the Conference for the fact that my collaborator and I were not able to attend the earlier meetings. I was out of the country and only got back yesterday, and I can only hope that the paper we have prepared may do something to make up for our not being able to come for the other two days. I know that we do not have to read the paper (which has been read already by the participants) and so I need only run over the separate sections into which we divided it. We had three general sections. First of all regarding the sociological position of medicine in ancient Chinese Society; and then the influence of religious and philosophical doctrines on Chinese Medicine; and then, thirdly, the effects of the transition in contemporary times from a transitional Society to Marxist Socialism, and what that has meant for traditional medicine in Chinese Culture. And at the end also, I think you may remember, we raised the question of what medicine in ancient and medieval times, and even down to modern times, has *not* been culture bound. And we raised the question of whether medicine could become truly ecumenical without explaining and adapting in terms of modern science and technology, which happened to grow up only in Europe, for it couldn't become really ecumenical without explaining the insights and achievements of those other cultures in terms of universal modern science and scientific theory.

I should say that I have been away in Greece these last few weeks and what I would like to add to the paper, just by way of starting off the discussion, are some thoughts which occurred to me while I was there. I especially took the opportunity of visiting the Asklepieion on the island of Cos and the famous Asklepieion at Epidaurus in Argolis, opportunities which don't come to everybody. I never expected to see these places, and I was very glad indeed that I had the opportunity of studying them at close quarters, especially because of the experience that I have had in other parts of the world. For instance, visiting the first century hospital, the Buddhist hospital, at Mikintale in Ceylon and being able to compare some of these

things, one with the other. There are two things in particular that I wanted to draw your attention to. They were thoughts that came to me while I was sitting on one of those semi-circular seats which are scattered around at Epidaurus, where I imagine in ancient times medical consultations were held. A thought which came to my mind while I was sitting there was related to those age-old antagonisms, as it were, antitheses which we think of in Chinese so often as the Yin and Yang sets of ideas. One of the things that struck me very much in Epidaurus was the fact that there was not only the temple of Asklepios himself, the Uranic deity, the sky-born son of Apollo, in other words a very young conception, but there was also another structure close beside it that was built by Polyclitus called the *tholos*, a circular temple built on a very peculiar foundation. Now it seems that these *tholoi*, as they are called, were generally connected with the worship of the gods of the underworld; in other words they belonged rather to the apotropaic department referred to on page 256. You may remember that on page 260 we pointed out that 'the practice of using charms, incantations and invocatory prayers to deities persisted through most of Chinese history, particularly in the poorer strata of society and the exorcist activities of Taoist adepts and Buddhist monks.' As usual it has a Government aspect because in the Sung period besides professors of medicine and physiotherapy there were also professors of apotropaics. So you have these invocatory or placatory aspects which seem to have been involved in this round temple. There is no exact parallel to this in the Asklepion on Cos itself but it is very marked in Epidaurus. This department of life would be very much a Yin thing, this is darkness and under the ground and presumably had its apotropaic character in the famous phrase, *do ut abies*, we give you this in order that you may go away, not trouble us any more. This address to the gods of the underworld would be the very opposite of the sacrifice addressed to Asklepios, the god of the upper world which was not so much a matter of asking him to go away as it was of seeking his personal active intervention. This perhaps may indicate the moral of the story which I am gradually approaching, namely, do we not have here the earliest contrast between the *vis medicatrix naturae*, (the healing power of the body) on the one hand and the school which appealed to that, and on the other the conception of active intervention. In other words, may there not be a connection between the doctrine of the healing power of the body which we refer to about page 282 when we point out that in China you have the same contrast between the *i liao* aspect, the active intervention, and on the other side the strengthening of the natural power of the body (*yang sheng*). It occurred to me perhaps that this strengthening of

the power of the body is connected in its roots with the apotropaic idea, the idea that if you can persuade the evil spirits or the pain or whatever it is to go away you can allow the natural healing power of the body to take its course, so that perhaps it may well be that in Epidauros, for instance, it was the custom to do both things. You offered sacrifice in the *tholos* temple to the gods of the underworld to take away the evil spirits that were troubling the body; on the other hand you also offered sacrifice to Asklepios to come in with his active healing power and bring about the therapeutic effects that you were hoping for.

I mentioned the fact just now that the *tholos* at Epidauros was built on very peculiar foundations. What I meant by that was that it is a maze. You go in by one door and then you can't go straight to the centre of the shrine but you have to go through a series of winding passages until you get to the centre where the sacrifice was performed. I don't know what the object of that was but it would obviously add to the mystery because you seemed to be going a long way underground before you came to the centre. That is quite visible today although the actual *tholos* itself has disappeared and there are only fragments of it in the museum. When one speaks about the *i liao* aspect of things, the active intervention, this would seem to be quite the opposite of all the other ideas. It is not asking the spirits to go away, it's not relying on the natural healing power of the body when they *have* gone away. It is applying active intervention by means of drugs or of course any therapeutic practices, massage, physiotherapy and so on, and it is evidently again divided into two aspects as we did suggest about p. 282-83, namely that this active intervention can be brought to bear either on restoring the *krasis* of the body, which again is completely paralleled in Chinese thought by restoring the balance between the five elements which has been lost on the one hand, and on the other by actively attacking what we would be inclined to call today the invading organisms. I don't think that this was ever so clear in pre-bacteriological ages, but the idea of venoms and toxins is definitely there, and we have come across it in many Chinese texts. I mention particularly the conviction that when insects had been crawling on food that was afterwards eaten by human beings, diseases would arise, that some kind of venom had been left behind. An absolute parallel, of course, of the present idea (which has good scientific grounds) that it is not a good idea to eat some food on which flies have been crawling for some time beforehand, a completely modern idea. So that there are these two aspects of active intervention on the Yang side of things, and I felt there at Epidauros that it was very interesting to contrast the Uranic or Yang deity that was

being sacrificed to – Asklepios, Apollo's son – with the gods of the underworld which were also being honoured in the *tholos* temple. At Cos we can now only see a temple of Apollo, and two temples of Asklepios, one older than the other, but that doesn't mean, I think, that the gods of the underworld were not also sacrificed to at the Asklepeion at Cos. I was very disappointed that I could not see the Asklepeion at Corinth. It is rather difficult to get at, and there wasn't much time to see that; but I think very little is left but a rather elaborate supply of water conduits for hygienic purposes.

Related to these thoughts is another point which came up. Dr. Lu and I were hunting in this paper just before we started to find where we said that a man without persistence would never make a good magician or a good physician, but we also had in the first draft this other remark about physicians, which was that he would never trust a physician who had not come of a family which had been physicians for three generations. There is a very curious difference of interpretation of what 'Sancha' means, because while translators have generally translated it in the way I have just done, most of the commentators had quite a different view. They meant by Sancha not three generations but three traditions; in other words, I would not trust a physician who did not know the three traditions, and they tell you that the three traditions are those of Fu Hsi, Shen Nung and Huang-Ti. We won't elaborate on the legendary character of these figures of high antiquity but I would mention that what they must mean in this context is: Fu Hsi will mean the practice of divination which was later developed in the I-Ching (Book of Changes), divination by the Pa Kua, or trigram and hexagram symbols, while the other two represent schools which have been very little mentioned in writings on the history of Chinese Medicine by Westerners so far. Namely, the existence of two schools in antiquity, one concerned with decoctions and the use of herbs and their active principles; The other is called the *I Ching-pi*, which refers to the 'Ching', the tracts in the body for the acupuncture points, and acupuncture as a whole was clearly directed towards strengthening the powers of the body. Here again we meet with precisely the same contrast, the contrast between this *vis medicatrix naturae* school and the active principles of the therapeutic or active intervention school.

I have only one more thing to say. This again came up while reading books about the Asklepeion in Greece, on the spot. That was a very interesting legend about Asklepios which links up with the words wudu and udu in Chinese. In the literature one always finds the various medicinal herbs categorised as either udu or wudu which, according to the dictionaries would mean that its got poison

or that it hasn't got any poison. Again commentators on medical texts soon disabuse one of that idea, because they say it never meant that a herb was poisonous or non-poisonous, it meant rather that it had a very powerful active principle or that it did not have a very powerful active principle. One is using modern terminology, of course, but that is the gist of what they say. It does not mean necessarily that a plant or any of the animal or mineral substances described as *udu* is dangerous to use and should be labelled with a red label and put on the shelf and no-one should be allowed to touch it. It meant on the contrary that it was something you had to be careful about. It might be very valuable indeed, it might be very useful. This illustrates the conception which I think must have gone very far back in the history of Chinese Medicine and which made such an impression on me when I saw it in black and white in one of the works of Paracelsus where he writes: 'Die dosis macht dass ein Ding ein gift sei.' This seemed to me extraordinary clear-minded of Paracelsus and one of the big contributions of his in stating this so clearly in his iatro-chemistry, but it must have been something that was fairly apparent to people at an earlier stage, and certainly in China, whether it has an active principle you have to be careful about, or whether it is a very mild thing that you can use as much as you like, something that won't do any particular harm and might do a bit of good. I was therefore interested to find in one of the legends about Asklepios which I must now try to ferret out in one of the big encyclopaedias where one can find these things, that at some point or other Apollo, his father, gave Asklepios, when he saw how he was shaping as a healer, the blood of a gorgon and it was a very interesting thing that Asklepios then found that the blood from the left side was deadly poison, while the blood on the right side was highly therapeutic. If this really is an ancient legend, I don't know who first reported it. Whoever it might be, it is a very significant legend because it does indicate that the same thing may be an extremely deadly poison and an extremely powerful drug, depending on how the physician handles it. I think we have this position both in ancient Chinese ideology and also in Greek and I am looking forward to finding out the origin of the legend. I hope that perhaps somebody here this morning will be able to comment on these matters, and we would be very grateful indeed if someone would comment on those fundamental antitheses I was suggesting. Does it strike you that there might be a connection between the apotropaic aspect, the placatory aspect of the infernal deities, asking them to go away and leave the body in peace to get on with its job, of healing without any active intervention; is there any real connection between that and on the other hand the principle of active intervention

which would be concerned with the deities of which Asklepios is obviously one, son of the god of Light himself, and something which we would call yang instead of yin? I am sorry if I have overstepped my time but I thought that this was the best thing I could add to the paper for you to comment on.

CHAIRMAN: Thank you very much. Professor Wong, would you like to speak?

WONG: Today I will try to speak in English, as I have been improving my English all day long. Professor Needham is the leading authority in the Western world dealing with Chinese medicine, as Professor Huard is in the French territories. On behalf of the Chinese, I would like to express the Chinese point of view. I can't comment on all the details of Dr Needham's fine paper, but I want to make a distinction between old Chinese Medicine as preserved in books, and modern Chinese Medicine as practised by men. In books I often don't quite agree with the translation. If we consider Chinese Medicine at the present time, we can see that there is a tremendous evolution in the last ten years and the practice of Chinese traditional medicine in 1966 is quite different from that of 1956. We are dealing with the *practice* of medicine, and we don't find any contradiction with historical medicine just because at the present time the new school of Chinese Medicine considers that perhaps medical history is not so important as the practice of medicine; and so I want to underline the difference between books and men.

CHAIRMAN: Professor Huard?

HUARD: I have studied President Needham's communication along with his report, which shows us that his understanding of Chinese medicine is just as great as his knowledge of the other disciplines of Chinese science to which he has devoted his life. Consequently, there is little left to say, given the fact that mankind possesses these vast and numerous splendours which he has talked to us about; but nevertheless, I would like to make a few small points, the first concerning comparativism. It is obvious that we can only form an idea of Chinese medicine in the context of our own tradition or scientific attitudes. Meanwhile it is perhaps relevant to make a comparison between Chinese paleomedicine and Western paleomedicine; a comparison which shows that from the point of view of logical construction there were great points of resemblance between the Greeks and the Chinese, and that at just about the same time they both arrived at the only method of true diagnosis which the science of the period permitted, that is to say, semeiology, which appeared at about the same time in China and in Greece. I say 'about' because in fact we are not absolutely sure; we have not got absolutely precise texts or references. I believe anyway that

comparativism is now taking on an artificial form. Because of this one should compare Chinese medicine with primitive western medicine, that is to say, with the Greeks, and then with secondary western medicine, the Arabs, the Byzantines, the Europeans in general, etc. I think there is one point which is extremely interesting, just taken as an isolated fact, and this is what one can call natural comparativism, that is the spontaneous expansion of Chinese medicine over the whole of Eurasia, by land or by the sea routes, which finally reached the western world. Dr. Needham was talking to us about the *Mo Ching*, the famous classic on the pulse. Well, this classic on the pulse, written in the 3rd century B.C. approximately, found its way to Tibet and was translated and welcomed by the Tibetans. It likewise found its way to India, and then arrived in the Moslem countries. And you have, in the library at Istanbul, a translation of the *Mo Ching* in Arabic, with Chinese figures which have hardly been altered. Evidently the *Mo Ching* influenced Arab pulsology. On the other hand, from the 17th century onwards, we see this *Mo Ching* being translated first by a French monk, then by other authors, and at the end of the 18th century, there existed a certain number of practitioners, in France and Great Britain, who took the pulse in the Chinese fashion, and in England by Sir John Floyer, who was the Queen's physician. And just at the time when this practice of pulsology was arriving in Europe, so likewise were samples of Chinese 'materia medica'. At present this source is far from being exhausted, and we have it in a form which is very much alive and kicking - acupuncture. Acupuncture is, in fact, at the moment gaining a lot of ground in countries like the United States and Great Britain, which used to be completely hostile to the idea, but which now have a number of acupuncturists. And as a result of this a real problem arises, because, in France at least, acupuncturists are not charlatans, they are not bone-setters, but doctors of medicine, who have the same qualifications as the others, and who are driven by the same desire to work in an essentially *scientific* manner. And it is here that we have a serious problem of psychology and method.

The fact is that it is very difficult to integrate acupuncture in western, scientific medicine. And this is true just at a time when acupuncture is undeniably, as far as its effectiveness is concerned producing some significant results. For these days acupuncture can heal not only functional disorders such as sciatica, vomitings, etc., but is also capable, in certain hands, of curing such infections as, for example, shingles. Now a good acupuncturist cannot make a diagnosis without applying Chinese semeiology. That is to say, if he takes six different pulses, each one corresponds to an organ. This

pulse-lore was very fashionable in France and Spain at the end of the 18th century, but it now no longer exists. What also complicates matters is the terminology. For example, you will see in works and journals of modern Chinese medicine that appendicitis can be healed either by plants or by acupuncture. Now I believe that there is a terminological error here. I believe that if you examine this closely you see that in fact an acute appendicitis cannot be healed by acupuncture. But I can quote you an experience which will warn us to be prudent. I know an acupuncturist who had in his surgery a woman suffering from an acute appendicitis. He said to her 'Madam, I cannot heal your appendicitis, but I can take away the pain.' So he stuck a needle into her, the pain disappeared completely, and when the patient, two hours later, went to see a surgeon, the surgeon only operated on her because the acupuncturist telephoned to tell him it was vital. And then, at the operation, pus was found; consequently – this is something rather remarkable – in the case of an anatomically constituted lesion, with pus, it is possible to suppress the functional part of the condition. Now among the explanations given there was the following: it was remarked on that the actual acupuncture holes had a special electrical status. That is to say that electric currents did not go through normal skin at the same speed at which they went through the skin at the level of the acupuncture holes. And so a special apparatus was set up, the best-known of which was invented in Japan, and when you see this apparatus, you really can see that the current passes much more quickly at the level of the acupuncture holes than at the level of normal skin, and that when the subject has a pulmonary disease the current passes even more quickly at the depth of the lung than elsewhere. And these are very strange facts. I have talked about them to one of my colleagues who is Professor of Physical Medicine at the Faculty of Medicine in Paris, and he said 'It is disturbing, but I cannot find any sort of explanation. We will look for one, but we really don't know.' It is obvious that if this question of electrical properties were to be completely elucidated, then here would be a base for the integration of acupuncture into western medicine. But up till now there has been no definite evidence. There is a Korean doctor who has carried out histological experiments, and who believed he had found a systematic formula, which he described and which corresponded to the acupuncture meridians. But he was not able to come to any definite conclusions. But all the same, if you study the question from all angles, you arrive at this fact, that the power of the acupuncturists is increasing; that any observation from them is having to be taken more and more seriously; we know that statistics are beginning to appear, that sometimes the acupuncturists fail, but of explanation

we have not a trace. And it is strange to see how this treatment, which dates back some 2,000 years, is coming back into its own in our present-day scientific world, whilst we can find no explanation for it.

CHAIRMAN: Thank you very much, Professor Huard.

GALDSTON: May I present something which I think may be pertinent to these excellent observations of Professor Huard? It concerns my experience while working in Montreal, an experience which I think offers a scientific explanation of some of the phenomena associated with moxa, acupuncture, etc. Shall I offer this now, or shall we have the paper discussed first?

CHAIRMAN: I think we had better discuss the paper first as there is very little time left now.

POYNTER: May I ask Professor Needham if there is any evidence, documentary or literary, that he knows of which links some of the important theories of the 18th century – for example, irritability, Haller's ideas and the system of John Brown – with the introduction of acupuncture into Europe at the end of the 17th century?

NEEDHAM: I cannot think of anything. But this is really a question for Dr. Grmek. He may have something to say on that.

GRMEK: There was *some* connection, but it was not developed because the west was already going through a strong reaction against Galen and his theories. The late 17th and early 18th century was not really the best, the most propitious time for the introduction of Chinese medicine into Europe.

BOWERS: My information is that the first publication in the west which described moxa and acupuncture was a book by a Dutch author named Ten Rhyne; but the book which was most widely distributed was Kämpfer's. During the two years I was in Japan I was very interested in their medical practices, and one of the things I noticed was that the Japanese seem to place more reliance on moxibustion than on acupuncture. I wonder, Professor Needham, if you have any explanation of why this is so.

NEEDHAM: It is very difficult for us to answer that. I have very little experience in Japan. I was there for some time in 1964 but I attended acupuncture clinics. I did get the idea that they place more reliance on moxibustion than acupuncture but we haven't the faintest idea why, and it would take some real expert on Japanese medicine to say whether this is really so and how far it goes back.

BOWERS: The only explanation I heard was a joke. The Japanese told me that their country was so cold that they would rather burn mugwort than stick needles into themselves. During the two years I was in Japan I was impressed with their tremendous sensitivity about their health, and if you read Japanese history during the two

centuries when the country was closed, the items which they wished to have as imports were medicines, and they averred frequently that the only thing they needed from abroad was medicine. The Japanese talk more about their health than any people that I have ever been exposed to – and let me say in passing that I am very fond of the Japanese. I think they take more medicine than any people I have ever observed, and are unusually sensitive about their health. I think that there may be cultural differences that people have in their attitude to medicine. I wonder if the Chinese have a similar affection for medicine and sensitivity to health as I thought existed in the Japanese people?

NEEDHAM: I couldn't answer that one.

CHAIRMAN: Dr. Keele, you were criticised for something of which Dr. Needham disapproved in his paper. Would you like to answer this?

KEELE: Yes, I would. I just wondered whether this question of the sensitivity of the Chinese to medicine was going to be cleared up. I would like to say to Professor Needham that I used the word 'metaphysical', which is the subject of his criticism, because I don't quite know what other word to use. The word seems to me to mean something between religious thought and the systematic kind of thought that we call scientific. It seems to me that Chinese medicine has been through this philosophic, metaphysical phase. I think that this is the point of difference, in fact, in our confusing the word. Can we distinguish as science only that which has a mathematical formulation in the way of Galileo? I would say that we could use the word 'science' even in the qualitative stage, if its approach, shall we say on the Aristotelian path reveals the scientific outlook, even if it is not mathematicised to the stage of Galileo. I would say therefore that Chinese medicine impressed me from this point of view as being the formulation of metaphysical speculation. I expect I shall bring Professor Needham's criticisms down on my head for that remark.

NEEDHAM: Mr. Chairman, I am sorry that this has been taken in any spirit of criticism. We did not intend it as a criticism, or anything else polemical. It is only a question of the use of words and I am sure we can come to a common agreement very easily. Probably Dr. Crombie ought to be drawn in on this question of Aristotle and metaphysical, and for our part we would have thought that if anyone was metaphysical it would be Aristotle rather than the Chinese. Actually, the Chinese were the least metaphysical of people. They never wanted to argue about ontology or the problem of 'being'. When I say they never did, there were certain schools, of course, who were interested in this. They did begin a school of

thought about being and non-being but it didn't really take root in those times, it didn't found a school of thought that went on throughout the Chinese era. I think that one thing that worries us very much about the term 'metaphysical' as applied to Chinese thought is that it evokes the idea of the supernatural. This is slightly turning from philosophy to theology, but if anything is quite clear about Chinese thought throughout the ages, it is that they had no idea, as Westerners think of it, of the supernatural, because everything is *within* Nature. For the Taoist, for example, there were various kinds of gods but they are not something outside Nature. The conception of a Creation from nothing, *creatio ex nihilo*, which the Jesuit and other missionaries tried to bring to the Chinese, was always quite inexplicable to the Chinese. They could not conceive of any creative deity outside the natural world who had brought something into being from nothing. I think that is one of the greatest difficulties the Christian philosophy has always had within Chinese culture. When one speaks about what the Chinese substituted for the primitive magico-religious practice, I mean pure apotropaism, and when one begins to talk about all the elements and causative factors of disease that they have worked out, the fact that they were systematised in fives and sixes is to our mind secondary; the fact that is primary is that they were within the natural world, physical and *not* metaphysical, not beyond the physical world but *in* the physical world and of it completely. That is why we had rather they were called primitive science, not Galilean science, of course, but primitive science, primitive natural philosophy, but not metaphysical. They were not something beyond the natural world and not something beyond cognition, as it were. You could understand them by their effects and you could conceive of them. To call that intermediate stage metaphysical gives us the impression that it is something outside Nature. I may be quite wrong about that.

KEELE: Would you say that it is a systematic form of thought?

NEEDHAM: Yes, very much systematic. Almost far too much. When you come to a symbolic correlation, for example, when you insist on putting everything into boxes of fives, colours, smells, diseases, organs – of course there is the snag about fives and sixes but leave that aside for the moment – if you have boxes of fives all the time then it was really too systematic and in a way it was one of its drawbacks.

KEELE: This systematisation was a speculative one?

NEEDHAM: Well, speculative? That is a very interesting one too. I don't feel particularly happy with the word speculative, either, as characterising a form of primitive thought because, after all, isn't modern Science also speculative? What is speculation except doing

things with the mind. When Gailileo – we shall certainly have to bring Dr. Crombie in any moment – and the early people in his time had abstracted the fundamental things from the secondary qualities, don't worry about the colour and the smell, etc., just think of it as a mass, I should have thought that *that* was highly speculative. The fact that it works doesn't matter. I should have thought it was all highly speculative at the beginning. All this brings us to the fact of how we would like to refer to the early Chinese systems of thought; they are very systematic. We would rather think of them as primitive science rather than modern science, and rather than metaphysical or even speculative as such. It's just a matter of explaining our point of view really; it wasn't meant critically in the slightest degree. Dr. Lu points out that one reason why we shouldn't like to call these classifications speculative is that they were based on a certain amount of experience. I don't know whether Dr. Crombie would like to come in.

CHAIRMAN: If I may, I propose to follow the course I suggested earlier. That each member of the Symposium should speak for about five or six minutes now and say just what they like, if it has any relevance to the subject. I think Dr. Crombie you were going to speak about the paper. Perhaps you could combine both.

CROMBIE: Certainly. About this matter of metaphysical, it seems to me first of all a question of the use of words. It seems to me somewhat improper to use the word metaphysical in this context. I would take Dr. Needham's side over this. It seems to me more generally that what Dr. Needham is dealing with is the study of scientific thought, medical thought and so on, and all study of scientific thought occurs within a system of beliefs and these beliefs arise within the Culture; they belong to the culture. I think this is one of the difficulties of speaking in the language of one culture about another culture. I think I should now move on to the more general remarks that Lord Cohen has asked us for . . .

KEELE: Before you go on, sir, may I ask what is the correct word?

CROMBIE: No, I can't do that. The system of beliefs, if you like. Metaphysics in Greece was a particular word which is attached to theology. It is a study of physics in a special way, it tells one about what exists. This is a fundamental problem in the philosophy of science, of course. This is worked out as a very logical and critical exercise in the study of this problem and is developed as a continuing problem in the West, but apparently not so in China; they just did not have the interest in this kind of thought. In more general terms, I think that what has struck me most about this Symposium is the fact that we have been considering problems in the terms of explanation, in the terms of what the medical man *expects* to find.

Why does one expect to find something? Because of our antecedent system of beliefs. In the West we have developed a system of crystallising our beliefs in terms of what we find, it works out systematically and anyhow explicitly. It seems to me to constitute what the western scientific culture is all about. I think Dr. Needham would agree with this.

NEEDHAM: No!

CROMBIE: Well, what Dr. Needham has done for me, before he launches his counter-attack, is to produce this magnificent series of works of scholarship with the picture of another culture in which thought about Nature, highly intelligent, critical thought about Nature, is based on a different system of beliefs from the one we have inherited in the West, and he has shown us what happens working critically and intelligently in that system. There are two other things really. One is, that in the study of these problems of medical and scientific thought within these cultures, one has to consider the question of effectiveness. Do these things work? There are all sorts of reasons why they do and they don't. We had a number of examples from Asian, South American and African cultures of medicine. I think this is a question we must ask ourselves in these historical studies. Do they work? If one has too much clarity, of course, one can lose other phenomena and one can lose sensitivity to the phenomena and thought that appeared in other cultures, which is something we have to be aware of. The third thing I wanted to say is this, we have spent a good deal of time studying the history of medical thought, concepts of disease and so on. I think that in the history of science, the history of medicine, the history of technology, all these enterprises, one should study the history of medicine and science in themselves, the theoretical development, but also the medicine *in* history. It is very important to study the history of actual diseases of which there are records going back over 2,000 years in both the Eastern and the Western hemispheres of the world, and much longer if you use archaeological evidence. We have a very concrete record of diseases in different societies, and I think one ought always to try and relate the theory of disease to the actual history of disease and its incidence and one can quantify a great deal of that data through the study of the actual incidence of the disease and through relating it to demographic studies. This is a question I really want to refer to Professor McKeown.

CHAIRMAN: Thank you very much. Professor Guerra, did you want to speak?

GUERRA: There is only one point. I have been amazed that neither Professor Needham nor Professor Crombie brought out the point that there is a man in the middle of the 17th century who could

provide an answer to Dr. Poynter's questions, also to the question of the transfer of scientific culture between China, the East and Europe, and that was Athanasius Kircher. This man had all the information of the Jesuits, he was a Jesuit himself, the most distinguished of the scientists in his company, and he wrote a monumental work on China, he wrote an excellent work on the magnet, an excellent work on epidemics, an excellent work on physiology, an excellent work on medicine. In that man, with the well-organised methods the Society of Jesuits had in those days, in this man we are going to find the answer to scientific knowledge imported at the end of the 17th century into Europe.

CHAIRMAN: I thought perhaps we would leave Dr. Poynter and Dr. Iago Galdston until the end. After all, they have organized this meeting and they may like to consider whether the organization has been worthwhile.

POYNTER: By that time all the good things will have been said.

CHAIRMAN: I hope they will. Then you will just be left to say 'Thank you very much'. Now, Dr. Wong, would you like to speak?

WONG: We have discussed many matters of interest. The medical practitioners or historians of medicine in collecting their sources have searched through a large number of books and references. The result is already fascinating and should arouse wider interest when the papers are published. I am very grateful for the chance of taking part in an enquiry that will encourage our future research.

CHAIRMAN: Thank you, Dr. Wong. Professor Needham, would you like to have a word now about what has been said?

NEEDHAM: I don't mind coming in at any time. Of course, I'm in rather a bad position in that when I read the papers of the other members of the Symposium, I had only those which came to me before I left the country. I haven't read the latest ones, so I wouldn't be much use in commenting on the contributions that other people have made. Still, I hope that I may be forgiven in view of the circumstances. First of all, I would like to go back to something that Professor Huard was saying at the beginning in connection with acupuncture and special Chinese methods. We were very interested to gather what he actually feels about the probable capabilities, the actual therapeutic value of acupuncture, but I think we would like to emphasize what we said in the paper about acupuncture, that actual clinical statistics are going to be the only sheet anchor for knowing in the course of time exactly how valuable for all kinds of therapeutic results moxibustion and acupuncture are. These are not being kept at the present time by the Chinese themselves. We were last there in 1964, working a lot on this, and they had too much on their plate to get out actual clinical statistics, but we hope

it will come in the course of time. I think that this should be modified in some cases. There were statistics which are being very carefully done, in a big hospital in Shanghai, for example, of the effects of acupuncture on appendicitis. They don't do it in acute cases; they regard surgery as the immediate necessity in anything acute. In other cases they have been trying acupuncture, and the results are backed by statistical evidence. What you get in mild cases is remissions for two years or so, so that perhaps in the Middle Ages they were with acupuncture running through a whole series of remissions but never actually curing the thing. They agree that an operative procedure is the only means of a radical cure and that of course is what the Middle Ages couldn't do. What is generally not known in the West is that in present day China, animal experiments are being done, and we thought that this was extremely important because this would knock the bottom out of one of the widespread beliefs about acupuncture, which is so often taken, namely that it is a matter of suggestion. We have given our own point of view in the paper, that we find it difficult to accept suggestion as the main explanation of the procedure throughout so many centuries and with so many millions of people, but that is a matter of personal choice. What is clear is, that if you can get things going with animal experiments this factor can't come in. The work that had been done by this Shanghai team was concerned with experimental appendicitis in dogs, and they found in the same way that remissions were produced but the effects that could be produced consistently by experimental appendicitis in dogs could be washed out by section of the vagus nerve and that they felt was the beginning of strong evidence for what many of the Chinese physiologists believe does happen, namely, effects on the sympathetic nervous system. I think we also said in our paper that the most preferred beliefs of the Chinese physiologists that we have met is that the action is mediated through the sympathetic or autonomic nervous systems upon such a system as the reticulo-endothelial for increasing the antibody titre in the blood. We know that a lot of work is going on about the increase of antibody titre in the blood; for example, there is typhoid, in relation to acupuncture experimentally. The other possibility, of course, is the increase of cortisone production, the increase of cortisone level in the blood is being estimated. It is very tantalizing that one cannot get at the literature. I am sure Dr. Huard may have also found great trouble in this, that, even in China we know of only one place where the *Chung-i Tjah* is kept and this is in the Academy of Traditional Medicine in Peking. This is a journal of a long run and in China we have only seen it complete in one place and we know of no library, no medical library in the West at all,

not even the Royal Society of Medicine Library or the Surgeon General's Library, which contains a complete set of this journal. Many more of the Chinese journals are provincial journals. We ourselves, for a year, succeeded in getting the Shanghai Journal, and this has come to the West a bit, but after a year we could get it no longer and we do not know where there are complete runs of these journals. These are the places they publish the things in! Furthermore, they don't have a reprint system as adequate and systematic as the West and we have found it difficult even to get reprints, even when we have been in China and speaking to the people, it is very hard to collect. I don't know what the remedy to this is. I suppose if we wait another 80 years or so photographic copies will be made of all these publications and they will become available, but I despair of it in my own life time. We depend a great deal, therefore, on personal visits to the people, notes of what they are doing at the time, and of course we will in due course use this.

What Professor Huard was saying about electric currents, the high conductivity of the skin and subcutaneous tissues along the tracts, what he said about that was very interesting and we know the Japanese – he mentioned Manako which is a new name to us – many Japanese have been very interested in this. Again, any judgement is difficult. You have to be an electro-physiologist really to appreciate what they have done. In Japan we went to one laboratory where they were doing electro-physiology; but we are not electro-physiologists and we are not able to criticise the work they are doing, and I wish that some electro-physiologist, like Professor Hodgkin, could go to China some time and really sum up what they are doing in China and Japan in these electrical studies. It is very difficult to assess.

With regard to Professor Galdston, I was very glad that he mentioned Hans Selye and the Montreal work on stress because we have a whole box-file of his work and have long thought it ought to be brought into prominence precisely with regard to the Yang-sha type of activity, and we are planning to do that.

Finally, I would like to comment on Dr. Crombie's point that in Europe people were prepared to modify their system of beliefs in respect of what they found. I think that his feeling must be that in these over-systematised systems like the old Chinese, the five elements and so on, I agree that there was certainly an *a priori* element where you had these numerical categories, but I don't believe that it was because these natural philosophers or physicians in China were not willing to modify their system of beliefs in respect of what they had found by experimental practice, in as far as there was experiment, and by clinical observation and experience

accumulated through the ages. I don't think they were unwilling to modify their fundamental structure of beliefs. How I would like to put it rather is how elastic the basic framework is. In a way this might be a way of defining the difference – which we are always trying to think out and never quite succeeding – between primitive scientific hypotheses and modern scientific hypotheses. Is it perhaps a question of elasticity, how elastic is the basic framework? If you have a basic framework that you can fit anything to by slight modifications, then it is a primitive scientific theory. Of course, there is the fact that they can't be quantified, but this is part of the same idea because when you come to modern science – we wouldn't, of course, in any way disagree with Dr. Keele about modern science being not only a Galilean mathematised science, but also including biologists like Harvey or Linnaeus. Nevertheless, the paradigm – I don't much like that word, but it is fashionable – the paradigm was the mathematicised system of science and in that kind of system the basic framework is not at all elastic. It is very rigid, because you have merely invented a way of getting yes and no answers. You have put alternatives which are not true alternatives. This is, in a way, the rigidity of the European way of thinking. I mustn't enlarge on this too much, but the Chinese were always less naive. It may be that you have to be naive in order to create modern science. As I have been saying for years and years, the typical Chinese reply to any question is 'Not exactly'. If I say 'Did we lock the door when we came out?', my Chinese friend will reply 'Not exactly'; and you say, 'The door must be either locked or unlocked,' it turns out in the end to be one of those French windows where you turn the handle so that no-one can get in from the outside, but it's not locked. On the other hand, it's not unlocked. This, I think, is a very illuminating case because the Chinese don't like yes or no. I think that reality is really much more complicated than yes or no, but if you are going to create modern science it seems to me that you have to be rather naive. You have to become a little child, perhaps, and say yes or no, and when you become Chinese, as it were, you no longer sympathise with that sort of thing. It might have been the kind of thing that the mathematical paradigm did – it only permitted you to say yes or no. In modern science the basic framework is no longer elastic. It isn't that Europeans were the only people who were prepared to change their beliefs in respect of what they found, but they were the only people, especially in the 17th century, who were prepared to ask these silly questions you could only answer yes or no to.

CHAIRMAN: I think that Dr. Crombie ought to be given two minutes to answer that.

CROMBIE: I think that Professor Needham has put it very well. I think that this matter of yes and no questions is simply no problem. I don't think we really can go on about it. Perhaps we may discuss it ourselves later.

NEEDHAM: May I just add one or two points. The thing about the yes or no is that the Chinese attitude is not entirely against that. The first formulations of binary arithmetic which is used in the computers which give this off or on response, were in the Book of Changes where in the minus 5th century or so the trigrams and hexagrams were worked out, this line was immediately recognised. The other example is a quite striking way in which the Chinese were prepared to change a very basic framework. In the 13th century and again in the 17th century we have had two revolutions in Chinese Medicine. It wasn't modern science but it was a change in pre-modern conceptions.

CROMBIE: This is most interesting. The Western reaction has been by developing statistics to try to quantify imprecise information where 'yes' and 'no' cannot exist.

CHAIRMAN: Would you like to say a few words, Dr. Théodorides?

THÉODORIDES: I wanted to say a few words on the Symposium in general, which is very short. From what I have heard, the main lines of this Symposium were: medical humanism, the history of medicine, and medical education. As regards medical humanism, the relations between ancient and Western medicine have seemed to me particularly important. As a biologist, I was especially interested in the *materia medica* used in traditional medicines in Africa, the Far East or South America. In this respect, I do not quite agree with the belief which some people hold that all these drugs are quite inefficient and present only placebos, and I think it would be quite worthwhile to continue work in the laboratory on these drugs, as has been already done with traditional drugs from China. In many cases the presence of alkaloids has been duly demonstrated. Concerning Chinese medicaments, we mention ephedra, castor-oil seeds, gingseng, chaulmoogra, and so on. We have to be very careful when talking about these traditional drugs, as they have uses which are truly medicinal. This pharmacological aspect is a very important link between traditional and modern medicine.

CHAIRMAN: Dr. Leavell, would you care to say a word.

LEAVELL: Just one or two things, Sir. As with so many of these things one finds that the extent of the subject is very much greater than one had thought before. One or two points I would like to make particularly that we have not dealt with as much as I think perhaps we should. How can we alter the existing culture of the medical schools in developing countries so that they more nearly meet the

local needs of the people? I am taking culture as something that can be changed with varying degrees of rapidity, and that there is a will to make these changes in many places. I was interested to find in Lagos where they were establishing a new Medical College a few years ago, that they wanted it to teach a 'Nigerian' medicine. When we asked what is a Nigerian medicine, they said they wanted more emphasis on social medicine, more emphasis on general practice. I was interested at the meeting of the Association for the Advancement of Medical Education in India last spring, when they were talking about what they wanted in medical education, so many times the word 'missionary' approach came in. I counted it more than twenty times in the course of one morning. The thing is, they felt if they could get into their own medical faculties and profession some of the things that they had seen in the missionary hospitals and practices, that would be something they would like. How one alters the culture I think depends on how clearly one is able to define the real objectives and this has not been done. One of the objectives which seems to me to be preventing this is a desire, shall we say, to be able to practice in Harley Street or Park Avenue, recognising at the same time that there are no Harley Streets or Park Avenues in the country where their training is going on. I had an opportunity a few years ago to do some follow-up work on people who had studied in Public Health schools in the U.S.A. and Canada, particularly in India. This was done partly by interview and partly by questionnaire. One particular time we had an opportunity to interview four people who had been trained to work in the Atomic Energy Laboratory in Bombay and one of the questions was 'How do you find what you have learned applicable?' No trouble. We come back to Bombay on Friday, go back to the lab. and find the same instruments we were taught to use, and on Monday we are at work. You talk with people who are concerned with health administration, health education; it took four or five years for us to adapt what we had learned to the problems that we have to face every day in India.

On the question of getting ayurvedic practice and the practice of scientific medicine together, there are Public Health Centres which have both curative and preventive services in India, and they are manned by ayurvedic doctors, but they have been trained in the combined system of practice which does teach them something about the value of injections and things of that sort. It is interesting that the Council of Health Ministries of the different states has taken the view in the last few years, which Professor Keswani did not report on, that the ayurvedic training should be true ayurveda and not this modern system. I have the feeling that this is a sort of attempt

to discredit ayurveda on the part of those who made the suggestion, on the assumption that if the ayurvedic doctors were deprived of penicillin and things like that, which they are certainly now using, the system might fall into innocuous desuetude.

I don't know whether we can draw any lesson from the field of osteopathy. In the United States I had the opportunity to look into this a few years ago. When the discussion was going on about acupuncture I was reminded of the osteopaths' attempt to explain scientifically what were very useful and interesting results in some of their patients. They were finding changes. First an osteopath would sit you upon a table and palpate your back and on the basis of this would be able to say what was wrong with you. One of them decided that my left knee was bad, which it was at the time. It seems they are able to find electrical changes in the muscle by putting electrodes in; and also different sweat gland operations, and the skilful osteopath can probably map out these areas and they check rather well with the changes in the electric current and the sweat operations. There is a move in the States now to put osteopathy in with allopathic medicine, but this is resisted by the true osteopaths who think that allopathic medicine is ready to gobble them up and not look carefully at what they are prepared to offer to the scientific approach. They are trying to explain scientifically the pathogenesis they recognise.

CHAIRMAN: Thank you. I'm afraid we have less time now than we had, so each, I'm afraid, must be rationed to an even shorter time. Who will give a good example? Professor McKeown?

MCKEOWN: In a few minutes, I thought the best I could do was to reflect on the simple classification of subject matter that I suggested at the outset. I suggested, if you remember, five possible ways of looking at this and one of them was culture with a small 'c', which is Professor Hubble's terminology, and I prefer to leave that aside. His paper, Professor Pickering's, and in part Professor Dodd's, were concerned with the doctor as a humanist, the doctor as a cultured man and so forth. Then there is Culture with a large 'C', which is Culture and Society, and here I think there are four themes. We have dealt mainly with one of them instead of about three. The distinction between what has been said and what has not been said can be epitomized by considering separately the two questions: what have doctors been doing? And what have doctors been achieving? If one focuses on the first of these questions, then of course it is right to look back into dark antiquity and to explore it; if one is focusing on the second, I question whether there is much to be said before the 18th century. I feel myself that this is a theme very much neglected, and until it does get attention we are very heavily handicapped

in making the analysis that Dr. Poynter was referring to, that is, making this study more than just an antiquarian approach to history. I think it is very chastening indeed to take what I myself think should be the route of any simple enquiry of what has happened to health and how it has happened. First there is the fact that it is only since the 18th century that one can demonstrate any significant change, and secondly, that in bringing these changes about, the first and by far the most important influence has been the equating of numbers and food supply, and the avoiding of a large number of accidents, in which beating a large number of undesirable bacteria has been the most significant. In this context it is quite clear that the actual thing that can be done by the doctor to the patient is a marginal activity in relation to health. I don't think that this is a fact of history, I think it was inevitably so in view of the nature of the situation, and I think that kind of interpretation is very rewarding when one comes to the other questions following Dr. Poynter's line of thought: How have our problems changed in consequence? And what bearing has that on the character of the medical care that we have today? So I want to make it perfectly clear, even to those of us who are not medical historians, that, although all that has been said has a good deal of interest, it is no reflection on its interest to say that there is a good deal else that one hopes will come to be comprised later in this study.

CHAIRMAN: Dr. Guerra – three minutes.

GUERRA: I put in writing the ideas discussed by this meeting. First, the potential role of medical history as the integrating body of cultural ideas in medical education. Second, the need of incorporating cultural anthropology into medical history research and the pragmatic application of the results of these studies. Third, the importance of traditional systems of medicine on grounds of cultural anthropology, next to the standard Western medicine. Every writer and everyone working on non-Western cultures, has given a great deal of consideration to the value of native pharmacopoeias. I am trying to offer not only my own experience of many years working in the laboratory with the native drugs of South America, but also offering you the consensus of the professional pharmacologists: the general opinion is that native pharmacopoeias are negligible from the pharmacological point of view.

CHAIRMAN: Thank you very much. Now, Dr. Keele.

KEELE: The impression I have from these discussions is that they have emphasised the inner and outer aspects of Medicine and Culture, that is, the effects of the culture of civilisations on the practice of medicine, and I think that it has brought out the fact that medicine may too, in its turn, affect them. I was glad to find that Sir

Geoffrey Vickers took this view last night and emphasised the influences and effects that medicine can have upon culture. I think that we have not sufficiently emphasised and have not spoken at all about the place of medical ethics and the behaviour of one to another in the medical profession, and I have no time to elaborate on that, except to refer to Dr. Leavell's remark just now how the Indians felt that the word 'missionary' could be a help too, and this is perhaps the beginning of the ethics of medicine. We have I think established in our hospitals and in our medical profession a level of conduct which I think most people would agree is above most of the everyday levels of conduct that we meet outside the profession, in terms of ethics. This is one of the features worth propagating in relation to culture.

The second point, however, is that there is a chance, it seems to me, of fusing geographically these traditional cultures that we have been talking about which had many points in common as well as many differences. It seems to me that in going out from one culture to another what I might call anthropological medicine could well be the spear-head of approach. This is a mode of entrance to these many communities with their many differences, that we have a common factor in medicine and our medical outlook which could well link up in such very diverse communities. Such a link is being achieved by Professor Needham in terms of the Chinese outlook being communicated to us. I appreciate that India and China do present special problems. Obviously, they cannot be considered in terms of primitiveness, some other terms must be found for them, and I suspect that all the other communities and civilisations might make the same point, that their culture is not primitive, but that they all present their special problems if you are going to merge so-called modern medicine advantageously with them. This will require action, and if there is one recommendation for medical education for our students in this country, I would say that it is to keep these factors in mind.

CHAIRMAN: Thank you, Dr. Keele. Now, Dr. Hodgkinson.

HODGKINSON: Originally, I thought this would be a discussion on Medicine and Culture in its widest sense, now I feel that it has been a discussion at a very high level in which factors in the academic field have really predominated over the human side. There are a few things which I don't think were discussed, that is better distribution of doctors in the underdeveloped countries and even in the West. There is the importance of the international standardisation of drugs and especially the cheapening of the more expensive drugs today and its effect on world health. Another problem we might have discussed is the effect of wealthy countries buying doctors from others,

for example, 2,000 doctors practising in Germany out of the total of 11,000 registered practitioners in Turkey. Coming nearer to my own field, I do think that from the practical point of view there are some topics which the Symposium has neglected. The indigenous medical systems which have been discussed, as Professor Grmek said, are closely linked with the economic resources and the whole philosophy of these countries. But I feel that we also have to inflict Western medicine as we know it today on these countries. There is the question of diseases which only our Western sciences can combat; no indigenous system can have any particular interest in this mass medicine problem. We have also to inflict our Western medical system in so far as the health of the masses needs an efficient administrative system which these backward countries have not yet got. An efficient Civil Service is most essential to a successful medical care programme and here too we have our contribution to give. Financially, too, apart from the fact that most of these countries cannot afford to pay the salaries of the doctors who have been educated here, they cannot afford to apply the medical knowledge which they will take back with them; so from a financial point of view we are deeply involved with these countries. Nearer home again, our social welfare policy is a policy of social expediency and not just a question of humanity. If I may say so, all our academic discussions lead us farther away from viewing man and the position of medicine today, which is the *total* outlook on health. None of the discussions seem to me to have got to this meaning, which I think is the role of the doctor today. We seem to be getting farther and farther away from what medicine is about, and this is not just providing a physician for the sick. I am sorry if I have misunderstood any of you. Today, methods of diagnosis and treatment take you farther and farther away from the patient, and yet for a doctor to play his complete role culturally he must get nearer and nearer the patient and to Society as a whole. So, I do go away with this impression, which I think a layman always gets, that you have a very expert body of people who can discuss things very academically, but can still miss the true meaning of what this Symposium was going to be about, and I think that was *our* medical history, *our* medical knowledge. And it must have some bearing on the future; we can't just discuss things in a vacuum.

CHAIRMAN: Professor Dodds.

DODDS: As the ignorant person in the room, I came here to learn, and I have learned. My interest is in modern western medicine as developed and practised in a technological society, and some things I should like to have heard discussed which have not been discussed. A layman like myself, interested in things which are non-scientific,

is puzzled by the social attitudes towards the doctor in our culture. It seems to me very important, both to the doctor and to the culture. On the one hand you get the respect and admiration which surrounds the modern doctor, who is a prestigious figure; on the other, and it seems a paradox, you get the mistrust of doctors which seems embedded in our modern culture. You get people taking refuge in folk medicine, indulging in self-diagnosis and self-treatment, not only the illiterate. Why is this? I'm puzzled by it. There has been some talk about sin in this conference, some not very systematic talk. Dr. Keele has given us some metaphysical talk about sin perhaps, but I should like to reinforce the point he made about the ethical considerations which relate the doctor to society. This seems to me to be very important in a cultural context. One mentions euthanasia, therapeutic abortion, and so on. What are the responsibilities of the physician here? Is he one of the makers of his culture? Is he expected to lead his culture, or follow it? These are not scientific questions, but still I think of some importance. What impressed me most about the conference was the remarkable assembly of polarities and convergencies of Western medicines and other systems, other cultures. It was remarkable how the papers converge on this and illuminate the different points of view. This seems to me a very real accomplishment.

CHAIRMAN: Thank you, Dr. Brand.

BRAND: The thing that I have found most impressive about the conference is the emphasis it has placed on the medical problems in the developing and so-called under-developed countries and the need to draw upon indigenous resources in these nations. One of the most realistic problems in the world today is that there are millions and millions of people who will never be able to have the advantages of Western medicine as we know it because of the shortages of trained staff and the high cost, the enormous cost, of Western technological medical advances. At the same time the conference has highlighted for me the need to utilise the indigenous medical resources both in practice and in the training of foreign doctors in Western cultures. We also have an indication of the understandable reluctance of the modern Western physician to make use of the indigenous or traditional medical practices. It seems to me that this dichotomy points to the fundamental importance of the work of men like Professor Huard, Professor Keswani, Dr. Lambo and other scholars in interpreting indigenous medicine to Western medical staff. Being an American and a Government employee working in a Health Grant programme, I am practically orientated and would like to see a further step taken. I would like to make a tentative suggestion that perhaps under the sponsorship of an

international body like the W.H.O. we might see developed a series of current reviews or analyses of indigenous medicine, systems of belief, particular diseases and indigenous materia medica. In the range of the developing nations this perhaps could be carried out co-operatively by physicians with historical interests and by cultural anthropologists. In raising this possibility I am not envisaging superficial little booklets like 'How to be a doctor along the Zambesi'. In some areas we do have a substantial body of knowledge available where cultural anthropologists have done partial pragmatic studies. In other areas we do not, and such information could be put to very practical use both in Western training programmes for physicians in under-developed countries and by Western physicians if they go to under-developed countries to carry out one or two years' exchange work or exchange programmes. It is perhaps no accident that we have had at this conference representatives of five granting agencies and these agencies might consider getting such a project under way, if on reflection they felt it had merit.

My second point is that we recognise the need for Western physicians to understand the changing dilemmas of their own cultures and the implications of such change for the practice of medicine. We have acknowledged the difficulties, because of the heavy demands on the time of medical students, of introducing questions on the social and economic aspects of medicine into the medical school curricula. It is also clear that much direction will have to come from the Public Health physician trained in Public Health techniques who holds a prominent role in its government. It may be that in postgraduate Public Health training, more emphasis can be placed on the social and economic aspects of medicine, and some universities in the United States have already introduced this. I hope it will not be long before other countries follow, through the teaching of sociologists, cultural anthropologists and social psychologists who are often overlooked. Finally, I would like to take note of what I thought was a very high calibre of the papers presented, and the very fact that men of such ability take an interest in this Symposium is some guarantee that the ideas expressed will receive some augmentation in the day to day work of our respective countries.

CHAIRMAN: Thank you very much. Professor Keswani.

KESWANI: The very fact that you have collected the best cultural representatives, if I may use the word, of all cultures that have survived up to this time, reminds me of what Charaka said almost 2,000 years ago: that the intelligent should look upon everyone as his teacher, and gather the best in applied therapeutics even when that knowledge comes from the enemy. I am sure that none of us is the

enemy of another. In the discussions we have been having for the last three days, I must thank the organisers for the opportunity of not only being able to represent the culture to which I belong, but also at the same time to learn about various other cultural backgrounds in so far as they concern medicine. One fundamental point has come out of this discussion as, sir, you also emphasised yesterday, that we need another conference on the History of Medical Education, and also on Health Education. Dr. Leavell very aptly talked about the missionary spirit which the modern medical man in India is asking for, and which I believe exists today in every one of us. In my note of thanks, I again quote Charaka, who admonished the new physician who has just graduated from the medical school of his time, that not for self, not for any material gain or earthly desire should you treat your patient and so excel; those who sell their medicine as a merchandise shall gather the dust and be glad to go. Thank you.

CHAIRMAN: Thank you very much, Professor Keswani. Dr. Bowers, before the officials come in.

BOWERS: I believe that there is considerably more synthesis between the main system of medicine and Western medicine than we realise. There has been a great deal of progress in India since 1952 when I first went there, from things Professor Keswani has told me. I know that in China, Chung-i and Western medicine are often practised in the same clinics; in Western style medical schools the students must learn traditional Chinese medicine, and I understand that the reverse is also true in the schools of traditional Chinese medicine, where Western medicine is taught as well. I think there is more synthesis than we are prone to admit. Secondly, and a terribly important point, we have commented several times about the imposition of Western styles of medicine on the developing countries. I think we must realise too that we respond to the demands of the medical profession in the advancing countries, and that in general they are much more interested in neurosurgeons, plastic surgeons and renal dialysis than in the simple problems like pneumonia, diarrhoea and sanitation. I think we have to look at this problem.

CHAIRMAN: Well, then, Dr. Galdston, would you like to come in next.

GALDSTON: I'm sorry that time does not allow a brief recitation of the history of this conference, which is immensely interesting, and vastly longer than you might imagine. At the moment I want to respond to what the Chairman, Lord Cohen, has suggested and that is a kind of evaluative reaction to the experience of these two and a half days. I should imagine that a sober evaluation would have to

be hedged in terms of the intention, in terms of the accomplishment and in terms of the prospective result. I submit that the cardinal intention, as expressed in some of the papers submitted here, was to test out the validity of the proposition that medicine is a humanistic discipline concerned with man and his life experiences, a discipline that utilises the exact sciences, but is other than and, in fact, more than an exact science, and that in consequence it is the very web and woof of culture. It is my opinion and I think most people share it, that this proposition has been fully validated in our discussion; it has been validated in different ways and from different aspects and I think that you will concur with this. If it was fully validated, it was certainly not fully plumbed and here I respond to comments of Dr. Wong and Professor Keswani. The proposition itself involves certain commitments which cover an enormous territory. Of course, such a territory could not be covered in a conference such as this. If there is a disadvantage in the fact that sin was brought up and was not pursued, and that we have not plumbed the parity of Chinese mystical operations and their relationships to modern things, it arises out of the limitations of the circumstance. I would like to see, and I submit this, under the heading of prospective results, I would like to see us or somebody else give very thorough studies to historiography which I am sorry to say was not really picked up adequately, in my humble judgement. I think very important, too, is medical education. We have touched on it, and our colleagues have made some penetrating observations on it, I think without a radical confrontation of medical education given in a much more balanced orientation, it seems we can't expect at the present time to be too ambitious about it. I think we have to look to the programming of the practice of medicine on an individual and collective dimension. I think that the problem is as urgent with us here as it is in the so-called under-developed countries.

I have repeated any number of times this cliché that modern medicine to a very large extent has converted mortality into morbidity. Many of our statistical analyses which accent the improvement in the mortality of the infant or of the woman in labour is an illusion because it does not say what happened thereafter. I just wonder, when it comes to appendicitis and you have removed the appendix, what takes its place in mortality? I think also, and it has been accented but it needs to be elaborated, we have a need for a synthesis of the valid thoughts and practices of the different cultural entities with those of Western medicine and not simply a one direction flow. I was a little distressed by the phrasing in the final paragraph of Professor Needham's paper, which is admirable and I have nothing to find exception to, but it uses the word

'mathematised' and he also uses the word 'subsumed', and I thought the word subsumed was perhaps like a Chinese maybe, or even yes or no. I don't know whether subsume means addition or whether it means subtraction or division or what not, but I don't think that I subscribe completely to this final conclusion and maybe I misread it. I hope, Professor Needham, that the Chairman will give you a chance to call me wrong if I am wrong. Everything that the Asian civilisations can contribute must and will in due time be translated into these absolute international terms, for instance, mathematics, subsumed, only so will medical science be able to free itself from the associations of the particular culture and be able to administer universities, etc. I abhor, and thank God I won't live to see the time when there will be no different cultures. I think that the idea that everything in medicine can be subsumed and mathematised is erroneous and I hope that I have misread Professor Needham. If that is the case will you please relieve my distress.

CHAIRMAN: Perhaps Professor Needham could do that during lunch. Dr. Poynter, would you like to have the last, or rather the penultimate, word?

POYNTER: The Symposium, I think, is a banquet and as I remarked to our Chairman yesterday, perhaps it is good for our spiritual health to go away from a banquet feeling still a little hungry. Our theme covers a vast field, and I am not really surprised that we have not had time to discuss all the topics which were mentioned in the preliminary note which I circulated to members. What we have been able to do is to open up certain views or aspects of Medicine and Culture and to note some of the signposts which point to the more interesting bypaths. The topic that Professor Dodds just mentioned was something more than a bypath, for the idea of sin has always had an important influence in a Christian culture. Historically – and I would remind you that our conference was an historical one – historically, the influence of Christianity on Western Medicine has been continuous and pervasive and can be found along whatever highway of development you explore. Obviously there is no time now to follow that, but in the two or three minutes which I have I should like to offer you, briefly, two models which may not be so familiar.

The modern public health movement had its origins in the first country to be industrialised, that is, England; it sprang from the enunciation of what has been called 'the sanitary idea', and this new principle, as I have shown elsewhere, developed from a change of religious belief in a single individual, Dr. Southwood Smith, who became the leading propagandist and evangelist for the public health movement. He was brought up very strictly in a Calvinist

College and when he was 19 he revolted against Calvinism, what he called 'this terrible creed' which consigned the greater part of mankind to eternal damnation. He became a Unitarian and, fired by the belief that the sinner must eventually be redeemed – for eternal punishment was senseless – he came to consider ways and means of redeeming the sinner in this life. He investigated the causes of disease and crime and saw that both sprang from poverty and he argued, along religious lines, that there was no divine law which made this necessary, any more than it did eternal punishment. We could, and should, act to alleviate the lot of the miserable, to prevent disease and to rehabilitate the criminal – and it is interesting to note that 150 years ago he said that prisons should be 'hospitals of the mind'.

There is another model which combines the most up-to-date work on some aspects of space medicine with Christian writings more than a thousand years old. This fascinating and extraordinary work is being done by a London neurologist who has also made a study of the Coptic language. Professionally interested in the problem of sensory deprivation, the symptoms of which could be troublesome to space travellers, she sought about for clinical material and then recalled that the accounts of the Coptic saints and hermits comprised a very substantial body of 'case records' of just such phenomena. Their pious practice was to have themselves bricked up in small cells, stand up to their necks in water for long periods, or sit in dark caves. In the last two or three seasons Dr. MacDermot has visited Egypt and Nubia and on talking to Coptic churchmen there she finds that oral tradition has preserved these accounts with very little corruption and that some of these practices were still followed until modern times. The results of her research will be published in a year or two.

Here then we have two examples of the interaction between Medicine and religion which I would have mentioned in the discussion yesterday if it had not been cut short. I must not keep you any longer now, but I should like to express, for the record, my gratitude to each one of you for your contribution to the undoubted success of this conference. For me it has been an unusually interesting and stimulating experience.

CHAIRMAN: Thank you. The final item on the agenda is entitled 'Chairman's concluding remarks'. It has been for me a great privilege to chair this symposium and I have learned a great deal from it under two main headings. The first is how the different cultures are related in the practice of medicine, that is largely a socio-historical study. The second is how the practice of medicine is affecting the culture of different societies and peoples. This is social,

economic, educational, religious and so forth. We have had comparatively little discussion about the way in which different cultures have regarded their doctors; or the code of behaviour which is proper to doctors between themselves; or their relationships with their patients and with Society; or how we regard the special obligations, responsibilities and privileges which many cultures confer on doctors. That I would like to have heard more about, but there might be an opportunity to do so on some other occasion. May I also say how well you have all behaved – in general. We should have finished at one o'clock. We are finishing at three and a half minutes past. Thank you very much.

GALDSTON: May I move a vote of thanks to our Chairman, who has behaved extremely well.

INDEX

- Abi, Amon d', 221
 Abortion, therapeutic
 —in Britain, 125-26
 —in U.S.A., 35, 125
 Ackerknecht, Erwin H., 202, 203
 Acland, Sir Henry, 73
 Acosta, José, 185
 Acts of Parliament, *see* under short title of Act
 Acupuncture, 261, 279-83, 291-93, 299
 Adams, Samuel Hopkins, 146
 Addams, Jane, 139
 Adrian VI, *Pope*, 180
 Africa, 96, 97, 201-10, 302
 —*anatomy*, 220-22
 —*conflict with European medicine*, 223-30
 —*ethno-science*, 215
 —*medical ethno-botany*, 215
 —*native medicine*, 215-23
 —*psychiatry*, 218-20
 —*ritual surgery*, 217
 —*therapeutic surgery*, 217
 —*theories of causation of disease*, 208-10
 —*traditional beliefs*, 205-8
 —*veterinary medicine*, 222-23
 Afro-Asian ethnic medicine, 211-37
 Agni tribe, Ivory Coast, 221
 Aguilar, Sanchez de, 181
 Alarcón, Ruiz de, 181, 183
 Alexander VI, *Pope*, 179
 Alexander, Samuel, 109
 Alexander Borgia, *Pope*, 238
 Alhazen, 175
 Allbutt, Sir Clifford, 83, 197
 All-India Institute of Medical Sciences, New Delhi, 44, 114
 al-Muqtadir, *Caliph*, 268
 Alpino, Prosper, 215
 American Association for Labour Legislation, 139
 American Association for the Study and Prevention of Infant Mortality, 149
American Economic Review, 156
 American Federation for Sex Hygiene [American Social Hygiene Association], 149
 American Medical Association, 32, 40, 42, 51
 American Pharmacological Society, 167
 American Public Health Association, 141
 American Society for Clinical Investigations, 145
 American Society for the Control of Cancer, 149
 Apollo, 286, 288, 289
 Appriah, Joseph, 226
 Appriah, Mrs. Joseph, 226
 Aquinas, Thomas, 180
 Arabian medicine, 268, 269
 —*contacts with Chinese medicine*, 268, 291
 Aretacus, 83, 266
 Aristotle, 101, 294
 Arnold, Matthew, 79, 103
 Arriaga, Pablo J. de, 181
 Arrow, Kenneth J., 133, 156
 Ashby, Sir Eric, 84-85, 101, 103
 Asia, 43, 96, 97, 230-34
 Asklepios, 285, 286, 288, 289, 290
 Atcho, Albert, 218-20
 Auden, W. H., 244
 Austen, Jane, 101
 Australia, 91, 157
 Austria, 76
 Avicenna, 23
 Aztec civilization, 181, 182, 183, 184
 Bacon, Roger, 175
 Baghdad, Iraq, 268, 271
 Baker, Ray Stannard, 139
 Baker, Sara Josephine, 139, 148-49
 Bambara tribe, West Africa, 211, 212, 213, 214
 Bantu tribe, South Africa, 211, 212
 Bartels, Maximilian Carl August, 215
 Bayanda tribe, Central Africa, 221
 Beatrice, Dona, 225
 Behring, Emil von, 23
 Belfast, Northern Ireland, 146
 Belgium, 76, 129
 Benedict XIII, *Pope*, 186
 —*Roman Provincial Council (1725)*, 186
 Bethesda, Maryland, National Institutes of Health, 112, 142
 —*Biologic Standards Division*, 168
 —*National Institute of Mental Health*, 120
 Biggs, Hermann, 141, 148
 Birdwood, Sir George, 197
 Birmingham, Warwickshire, 164
 —*University*, 103
 Bismarck, Otto, *Prince von*, 139, 150
 Black Sea, 215
 Board of Education, 148
 Boards of Governors of Teaching Hospitals, 90
 Bobo-Dioulasso, French West Africa, 229
 Bombay, India
 —*Atomic Energy Laboratory*, 303
 —*Kalim Hospital*, 241
 Boniface, St., 183
 Booth, Charles, 139
 Boston, Massachusetts, 148
 Boulton, Matthew, 103
 Bowers, John, 41, 44, 51, 57, 58, 112, 114-15, 117, 125, 244, 245, 253, 293-4, 310
 Brand, Jeanne, 120, 121, 137-53, 157-61, 165, 166, 167, 308-9
 Bregbo, Ivory Coast, Africa, 218, 220
 Bridgman, E. C., 265, 266
 Bright, Richard, 79
 Bristol University, 107
 British Medical Association, 126, 150
British Medical Journal, 145
 British Pharmacopoeia, 244
 Brosse, Th., 233
 Broussais, F. J. V., 62
 Brown, John, 293
 Buchanan, George, 140
 Bureau for Dietary and Nutritional Research in Africa, 229
 Burnett, Sir MacFarlane, 118
 Burstein, S. R., 206, 208
 Burton, Robert, 34
 Byers, Sir John, 146
 Byzantine civilization, 105, 291

- California Institute of Technology, 109
 California University, 108
 Cambodia, 230
 Cambridge University, 71, 72, 74, 81, 102, 106
 —pattern of education in Middle Ages, 72
 Cameroons, 217, 222
 Canterbury, *Archbishop of*, 122
 Cape of Good Hope, 224
 Carballo, J. R., 218
 Cartagena, West Indies, 184
 —Order of St. John of God, 184
 Catholic Church, 179–87, 238–39
 —Charitable Commission of the Catholic Faith, 238
 —in Spanish-America, 179–87
 Ceylon, 279, 285
 —Ayurvedic system, 279
 Chadwick, Edwin, 31, 61, 140, 164, 174
 Chairman of symposium
 ‘Medicine and Culture’, *see* Cohen of Birkenhead, *Rt. Hon. Lord*
 Chang Chi [Chang Chung-Ching], 266
 Charaka, 245, 309, 310
 Charcot, Jean Martin, 94
 Charles V, *King of Spain*, 179
 Chhao Yuan-Fang, 272
 Chhi Po, 262
 Chhin, *Prince of*, 256, 258
 Chhin, *Princess of*, 256
 Chiarugi, Vincenzo, 96
 Chibcha civilization, 181
 Chicago, 144, 148, 157
 —Juvenile Psychopathic Institute, 149
 —Sanitary conditions (c. 1900), 139
 —University, 134
 Chih-Yen, 271
 Children Act (1908), 148
 China, medicine in, 69, 167–68, 196, 215, 230–33, 243, 245, 248–49, 250, 251–52, 255–303, 306, 310, 311–12
 —Astronomer Royal, 269
 —Canon of Chinese Medicine, 251
 —Court Medical School, 231, 267
 —Imperial University, 269
 Chinese Medical Journal, 278
 Cholera, Asiatic, 31
 Churchill College, Cambridge, 166
 Clark University, Worcester, Massachusetts, 147
 Clement V, *Pope*, 185
 —Council of Ravenna (1311), 185
 Cobo, Bernabé, 185
 Cohen of Birkenhead, *Rt. Hon. Lord*, 37, 39, 41, 47, 60–61, 66, 102, 104, 106–7, 108, 109, 115–16, 117, 122, 157, 164–65, 170, 171, 176, 243–44, 252, 285, 296, 298, 304, 310, 313–14
Colliers, *The National Weekly*, 146
 Colomb, A., 218
 Committee on Physical Deterioration (1904), 139, 150
 Commonwealth and Empire Law Conference, Sydney (1965), 91
 Confucius, 256, 273
 Consumer behaviour, medical care and, 129–136, 154–57
 Copernicus, Nicolaus, 72, 101
 Corinth, Greece, 288
 Cortés, Hernán, 184
 Cos, Greece, 285, 286, 288
 Cripps, Peggy, *see* Appriah, *Mrs. Joseph*
 Cripps, *Sir Stafford*, 226
 Crombie, Alistair, 63, 118–19, 120, 121, 174–75, 294, 296–97, 300, 302
 Crozat, *Fr.*, 227
 Cruz, Martin de la, 215
 Dakar, French West Africa, 229
 Dale, *Sir Henry Hallett*, 81
 Darwin, Charles, 72, 100
 Darwin, Erasmus, 103
 Descartes, René, 13, 172–73, 174, 175, 176
 Dieterlen, Germaine, 212
 Diola tribe, Senegambia, Africa, 211
 Dodds, John W., 27–36, 39–41, 43, 46, 50, 51, 53, 54, 58, 59, 62, 63, 66, 67, 109, 122, 125, 126, 168, 304, 307–8, 312
 Dogon tribe, French Equatorial Africa, 213, 214
 Dubié, Paul, 227
 Du Bois-Reymond, E. H., 19
 Dubos, René J., 32, 210
 Dunlop Committee on Safety of Drugs, 88, 89
 Dunlop, *Sir Derrick*, 89
 Dupuytren, Guillaume, *Baron*, 62
 Edinburgh, Scotland, 144
 Education (Administrative Provisions) Act (1907), 148
 Education, medicine and, 56, 69–77, 100–4, 105–18
 Egypt, Ancient, 17, 69, 215
 Egypt, 313
 Einstein, Albert, 101
 Eliot, T. S., 90
 English and American medicine and society (1900–1914), 137–53
 Epidaurus, Argolis, Greece, 285, 286, 287
 Fabricius ab Aquapendente, Hieronymus, 175
 Fa-Hsien, 271
 Fang tribe, Gabon, West Africa, 221
 Fejos, Paul, 16
 Filliozat, J., 234, 259
 Flexner, Abraham, 145
 Flexner Report (1910), 159
 Floyer, *Sir John*, 291
 Foster, Michael, 80
 Foucault, M. J. P., 96, 104
 Foulbé tribe, West Africa, 222
 Fox, *Sir Theodore*, 91
 France, 76, 96, 129, 141, 149, 229, 249, 267, 291, 292
 Freud, Sigmund, 23, 95–96, 147, 159, 207
 Fu Hsi, 288
 Fulton, John F., 15
 Gabon, West Africa, 221–22
 Galdston, Iago, 1, 4, 7, 8, 15–25, 35, 37–39, 40, 41, 42–43, 44, 46, 48, 51–52, 54, 55, 56, 57, 59, 61, 66, 103, 107–8, 109, 116–17, 118, 121–22, 123, 124, 157, 161–63, 168, 170–71, 176, 245–47, 252–53, 293, 298, 300, 310–12, 314

- Galen, 23, 83, 175, 266, 282, 293
 Galilei, Galileo, 72, 101, 258, 294, 296
 Gasset, Ortega y, 23, 42
 Gee, Samuel Jones, 81
 General Medical Council, 62, 73, 74, 101, 115, 144
 —establishment in 1858, 73
 George V, 76
 Germany, 91, 104, 129, 141, 148, 149, 249, 307
 Ghana, 226
 Gilson, Etienne, 176
 Glesinger, Lavoslav, 53
 Gobi Desert, 268
 Goethe, Johann Wolfgang von, 234
 Great Wall of China, 268
 Greece, Ancient, 16, 20–22, 66, 69, 105, 123, 176, 198, 213, 259, 266, 268, 285–90, 296
 Green, J. R., 61
 Greenwood, Major, 23
 Gregg, Allen, 195
 Griaule, Marcel, 211
 Grmek, M. D., 48, 52–53, 54, 65, 119–20, 293, 307
 Grosseteste, Robert, 175
 Guarandi Indians, 185
 Guatemala, 184
 —Bethlemite Order, 184
 Guerra, Francisco, 41–42, 51, 120, 167–68, 177, 179–87, 238–40, 241, 250–51, 251–52, 297–98, 305
 Guy's Hospital, London, 110

 Haggard, Howard W., 196, 243
 Haller, Albrecht von, 293
 Hanaoka, Seishu, 230
 Hangchow, China, 231, 257, 270
 —School of Pharmacy, 231
 Hannay's Royal Almanack, 33
 Harriot, Thomas, 175
 Harris, William Wade, 218, 220, 225–26
 Harrison, Frederic, 79
 Harvard University, 113, 117
 —Medical School, 145
 —School of Public Health, 110
 Harvey, William, 32, 82, 175, 176, 181, 251
 Head, Sir Henry, 281
 Healy, William, 149
 Heberden, William, 82
 Heinroth, J. C., 93, 104
 Helmont, Joannes Baptista von, 263
 Henderson, Lawrence J., 195
 Hernandez, Francisco, 186, 215
 Herodotus, 215
 Hesiod, 21
 Hill, Gardiner, 96
 Hippocrates, 19, 21, 22, 23, 66, 173, 175, 215, 261, 262, 282
 Hippocratic Oath, 87, 90
 Hitler, Adolf, 91
 Hodgkin, A. L., 300
 Hodgkinson, Ruth G., 42, 45, 46, 51, 54, 58, 59, 123, 124, 125, 163–64, 166, 169, 175, 306–7
 Holmes, Oliver Wendell, 145
 Holton, Gerald, 37
 Hopkins, J. E., 23
 Horton, R., 207
 Ho the Physician, 256, 258, 280
 Hsiao Tzu-Liang, Prince, 269
 Hsin Kung-I, 269
 Hsüan Tung, Emperor, 272
 Huan the Physician, 256
 Huang Chün, 270
 Huangfu, 279
 Huangfu Mi, 266
 Huang Ti, Emperor, 262, 265, 288
 Huard, Pierre, 211–37, 238, 245, 248–50, 252, 253, 290–93, 298, 299, 308
 Hua The, 266
 Hubble, Douglas, 45, 47, 48, 51, 60, 63, 79–92, 102–4, 108, 111, 120, 238, 304
 Hunter, John, 82, 107
 Huxley, Thomas Henry, 72, 79, 103

 ibn Thàbit ibn Qurrah, Sinàn, 268
 Idaho, U.S.A., 144
 Illinois, U.S.A., 109
 Imperial College of Science and Technology, London, 109
 Inca civilization, 181, 185
 India, 15, 18, 110, 113, 120, 129, 131, 189–200, 240–45, 247, 291, 303, 306, 310
 —Ayurvedic system, 189, 190, 191, 192, 193, 194, 196, 197, 199, 242–45, 253, 270, 271, 273, 303
 —Central Council of Health, 191
 —Central Research Institute in Indigenous Systems of Medicine, Jamnagar, 191
 —Chopra Committee Report (1948), 190–91
 —Dave Committee Report (1956), 191
 —Mudaliar Committee Report (1959–61), 190
 —National Sample Survey (1961), 194
 —Pandit Committee Report (1959), 191
 —Parliament, Scientific Policy Resolution (1958), 190
 —Unani system, 189, 190, 191, 194, 253
 Indiana University, U.S.A., 107
 Innocent III, Pope, 182, 185
 —Fourth Lateran Council, 185
 Institute of Psychiatry, London, 247
 International Tuberculosis Congress, Sixth (Washington, 1908), 148
 Iraq, 271
 —Mongol Conquest of, 269
 Islam, 227
 Italy, 96, 105
 Ivory Coast, Africa, 218, 220, 221, 225
 —Binger Mission (1892), 227

 Jamot, Eugène, 229–30
 Japan, 213, 230, 282, 292, 293–94, 300
 Jefferson Medical College, Philadelphia, 144
 Jerome, St., 183
 Jesuit Order, 215, 295
 Johns Hopkins University Medical School, Baltimore, U.S.A., 145
 Johnson, Samuel, 82
 Johnston-Saint, Captain P., 197
 Joint Blood Council, Report (1962), 168

- Jones, Ernest, 147
 Joos, Louis C. D., 224
Journal of the American Medical Association, 134, 150
 Keele, Kenneth D., 41, 46-47, 165, 166, 171-74, 175-76, 245, 253-54, 259, 260, 294, 295, 301, 305-6, 308
 Kepler, Johannes, 174
 Keswani, N. H., 44-46, 52, 53-54, 58, 113-14, 120, 124, 189-200, 238, 240-43, 244-45, 246, 254, 303, 308, 309-10, 311
 Khama, Seretse, 224, 226
 Khama, Mrs. Seretse, 226
 King Li-Pin, 231
 Kinyoun, Joseph J., 141
 Kircher, Athanasius, 298
 Koch, Robert, 148
 Ko Hung, 263, 275
 Korea, 231, 292
 Kruif, Paul de, 41
 Lagos, Nigeria, 303
 Lain Entralgo, P., 119
 Lambo, T. Adeoye, 29, 201-10, 248, 308
Lancet, 32, 147
 Lashley, K. S., 19-20
 League of Nations, 70
 Leavell, Hugh R., 43-44, 51, 58, 59-60, 65-66, 113, 114, 121, 166-67, 246, 302-4, 306, 310
 Lee, Matthew, 72
 Leighton, 96
 Leonardo da Vinci, 175
 Lévi-Strauss, C., 218
 Levy-Bruhl, Lucien, 205-6, 211
 Lewis, Sir Aubrey, 50, 51, 93-99, 104-5, 118, 119, 120, 121, 124, 125, 174, 204, 247, 285
 Lewis, Sinclair, 41
 Leyden, Netherlands, 107
 Liberal Party reforms in England (c. 1906), 139
 Liberia, 225
 Libya, 160
 Li Cheng Tchi, 231
 Linacre, Thomas, 72
 Lincoln, Abraham, 146
 Li Shih-Chen, 257
 Lister, Joseph, *Baron*, 32
 Liverpool University, 103, 107, 108, 117
 Lloyd George, David, 138, 150
 Local Government Board, 140, 141, 142, 158, 165, 166
 London, 31, 149
 —conditions of labouring classes (1900-1914), 137
 —Toynbee Hall, 139
 —University, medical schools in, 117
 Lu Gwei-Djen, 255-84, 288
 Lunar Society, Birmingham, 103
 MacDermot, Violet Denise, 313
 McDermott, Walter, 43, 48
 McKeown, T., 1, 47, 56, 59, 61, 109-12, 113, 114, 117-18, 126, 127, 254, 297, 304
 McNaghten rulings, 98
 Madegascans, 212
 Mali, Tigani El, 204
 Malthus, Thomas Robert, 72, 100
 Manchester College of [Advanced] Technology, 108
 Manchester University, 107, 109, 117
 Mao Tse Tung, 251
 Maran, René, 229
 Margetts, Edward L., 218
 Martin, Gustave, 217, 222
 Marx, Karl, 122
 Masai tribe, East Africa, 205
 Massachusetts Institute of Technology, 109
 Maudsley, Henry, 96
 Mauritius, 248
 Maya civilization, 181, 182
 —Ritual of the Bacab Maya, 183
 Mead, Richard, 82
 Medical Act (1858), 55, 144
 Medical (Amendment) Act (1886), 144
 Medical education, culture and, 80-87
Medical History, 165
 Medical Office of the Privy Council, 140
 Medical practice, Culture and, 87-92
 Medical Register, 74, 144
 Medical Research Council, 157
 Mental Health Act (1959), 97
 Mexican Council (1555), 180, 182, 185
 Mexico, 99, 180, 183, 184, 185
 —Brothers of the Charity of St. Hippolytus, 184
 —Hospital of Jesus, 184
 —Royal Hospital of Indians, 184
 Midwives Act (1902), 148
 Mikintale, Ceylon, 285
 Milan University, Italy, 215
 Mille, Pierre, 229
 Ministry of Health, 74
 Minnesota, U.S.A., 109
 —University, 109
 Mississippi, *River*, U.S.A., 144
 Molière, 82
 Monardes, Nicolás, 215
 Montaigne, Michel Eyquem de, 82
 Montana, U.S.A., 144
 Montreal, Canada, 293, 300
 Morgagni, Giovanni Battista, 272
 Morgan, J. P., 145
 Morison, Robert, 95
 Mossis tribe, West Africa, 214
 Mudaliar, A. Lakshmanswami, 193
 Nadel, S. F., 218
 Nahautl pharmacopoeia, 185
 Naples, Italy, 116
 Narendrayasas, 271
 National Association for the Study and Prevention of Tuberculosis (U.S.A.), 149
 National Blood Transfusion Service (England and Wales), 133-34, 157, 162
 National Committee for Mental Hygiene (U.S.A.), 149
 National Conservation Committee (U.S.A.), 150
 National Health Service, Great Britain, 97, 123, 170, 174
 —Act (1948), 74
 National Insurance Act (1911), 138, 150, 159
 Ndembu tribe, Central Africa, 209

- Needham, Joseph, 238, 255-84,
285-90, 293, 294, 295-96, 298-301,
302, 306, 311-12
- Nehru, Jawaharlal, 189, 190, 242
- New Delhi, India, 246
- New Guinea, 95
- Newman, Sir George, 140, 148, 149,
150
- Newman, John Henry, 71, 80
- New Orleans, U.S.A., 142
- Newsholme, Sir Arthur, 140, 150
- Newton, Sir Isaac, 101
- New York, 107
- New York Academy of Medicine,
134, 163, 168
- New York City
—Bacteriological Laboratory,
141-42
—blood transfusion services,
133-35, 168
—Bureau of Child Hygiene, 139,
148
—Department of Health, 149
—Hull House, 139
—sanitary conditions (c. 1900), 139
- New York Herald*, 146
- Nigeria, 129, 202, 247, 303
—Bakongo tribe, 203
—Baluba tribe, 203
—Ibibio tribe, 203
—Ibo tribe, 203
—Lagos Methodist Mission, 225
—Yoruba tribe, 202, 203, 205, 207,
209
- Notification of Births Act (1907), 148
- Nottingham University, 102, 111
—committee on medical education
in Britain, 73-74
—origins of, 108
- Nubia, 313
- Nuffield Provincial Hospitals Trust,
74
- Old Age Pensions Act (1908), 138
- O'Malley, C. D., 39, 56
- Oppenheimer, R., 235
- Orleans, France, 249
- Osler, Sir William, 25, 83
- Oxford University, 71, 72, 74, 82,
101, 102, 103, 106, 117
—Botanic Garden, 72
—Dr. Lee's Chair of Experimental
Philosophy (Physics), Chemistry,
and Anatomy, 72
—Linacre Chair of Zoology, 72
—pattern of education in Middle
Ages, 72
—Sherardian Professorship of
Botany, 72
- Padua, Italy, 107, 175
- Pakistan, Chief Justice of the Supreme
Court, 91
- Palaeopathology, 17, 48-49
- Paracelsus, 189
- Paré, Ambroise, 20
- Pasteur, Louis, 31, 32, 189
- Patent medicines, 33, 146
- Pavlov, Ivan Petrovich, 233
- Peking, China, 196, 231
—Academy of Traditional Medicine,
299
—Institute of Chinese Medicine,
252
—Institute of Physiology, 231
- Persia
—Gundashapur hospital, 271
—Mongol conquest of, 269
- Peru, 180, 183, 185
- Pettenkofer, M. von, 25
- Peuhl tribe, West Africa, 222
- Philip II, *King of Spain*, 179, 180
- Philip III, *King of Spain*, 180
- Physician, The, as humanist in a
technological society, 27-36
- Physician/patient relationship, 87-89,
90-92
- Physiology, education in, 80-81
- Pickering, Sir George, 45-46, 48, 57,
62-63, 69-77, 100-2, 103, 105, 108,
109, 111, 112, 113, 114, 116, 120,
122, 169-70, 238, 245, 285, 304
- Pien Chhio, 261, 265
- Pinel, Philippe, 96
- Pius V, *Pope*, 185
- Plato, 22, 101, 227
- Platt, Sir Robert, 127
- Platter, Felix, 272
- Playfair, Lyon, 75
- Polanyi, Michael, 6, 19, 20, 63-65,
66, 103, 104, 105-6, 109, 110, 113
- Polyclitus, 286
- Porta, Giovanni Battista della, 175
- Power, Sir William, 140
- Poynter, F. N. L., 1-3, 39, 41, 47,
55-56, 57, 62, 63, 64, 165-66, 176,
239, 293, 298, 305, 312-13
- Pre-Columbian civilizations,
integration with the Catholic
Church, 179-87
- Preventive medicine, 58-59, 60
- Prichard, J. C., 104, 119
- Prussia, 76
- Psychopathology and psychotherapy,
60, 92, 93-99, 104-5, 119, 120, 121,
160
- Ptolemy, 175
- Quackery, 32, 145-46
- Queen's University of Belfast, 146
- Quinet, E., 234
- Radcliffe, John, 82
- Raphael, St., 183
- Reform Bill (1867), 79
- Regional Hospital Boards, 90
- Registrar General of Births, Marriages,
and Deaths, 140
- Religion, 54, 57, 93, 94
—Buddism, 256, 258, 268-69, 270,
273, 274, 279, 285
—Calvinism, 312-13
—Catholicism, 125-26, 179-87,
238-39
—Confucianism, 256, 257, 269,
273, 274
—Coptism, 313
—Hinduism, 240, 241
—Taoism, 256, 258, 268-69, 270,
273, 274, 275, 277, 286, 295
- Rivera, Agustin, 186
- Rocco, St., 183
- Rockefeller Foundation, 41, 44
- Rockefeller, John D., 145
- Roger of Sicily, 268
- Rokhlin, Professor, 49
- Roman Empire, 268, 270-71
—collapse of, 72
- Rome, Italy, 22, 69

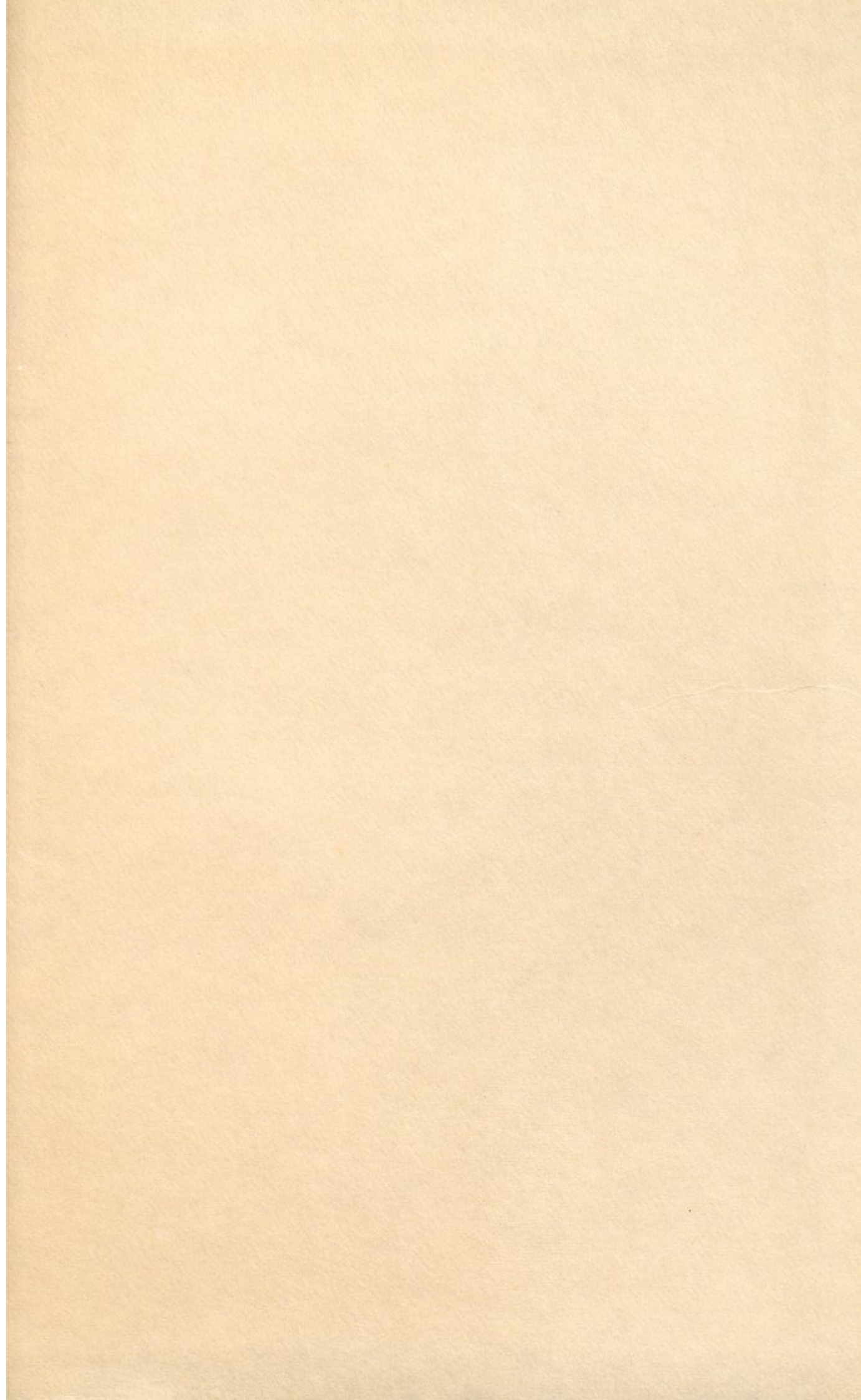
Index

- Roosevelt, Theodore, 139, 149, 150
—Progressive (Bull Moose) Party (1912), 139
- Roseneau, Milton J., 142
- Ross, Sir E. Denison, 197
- Rouch, J., 218, 220
- Rowntree, B. Seebohm, 137–38
- Royal College of Obstetricians and Gynaecologists, London, 126
- Royal College of Physicians of London, 72
—Harveian Oration (1965), 91
- Royal Commission on Medical Education, 114
- Royal Commission on Mental Health (1957), 97
- Royal Commission on the Poor Laws and Relief of Distress (1905–1909), 138
- Royal Society of Arts (Indian Section), 197
- Royal Society of Medicine, London, 300
- Rufus, 266
- Rutherford, Ernest, *Baron*, 101
- Sahagún, Bernardino de, 184, 185
- Saigon, South Vietnam, 250
- St. Bartholomew's Hospital, London, 81
- Salem community (1690), 94
- Salernitan Regimen, 21
- Salerno, Italy, 116, 268
- Sanchez, Dr., 41
- Sanderson, James Burdon, 80
- Sarenelli, Tommaso, 215
- San Francisco, California, U.S.A., 142, 251
- Saudi Arabia, 160
- Saxony, Germany, 93
- Scarpa, Antonio, 215
- School of Oriental Studies, University of London, 197
- Schmideberg, M., 206
- Schopenhauer, A., 204
- Scot, Reginald, 174
- Schweitzer, Albert, 228
- Seaton, Edward, 140
- Seattle, Washington, U.S.A., 168
- Selye, Hans, 300
- Shakespeare, William, 65
- Shanghai, China, 231, 299
—Society of Pharmaceutical Scientists (1926), 231
- Sharpey, William, 80
- Shaw, George Bernard, 195
- Shelley, Percy Bysshe, 115, 176
- Shen Nung, 288
- Shryock, R. H., 61, 67
- Shunyü I, 265, 267, 280
- Sicily, 116, 268
- Sierra Leone, 167
- Sigerist, Henry E., 15, 29, 50, 57, 137, 193–94, 242
- Silkin, *Rt. Hon. Lord*, 126
- Simon, Sir John, 40, 140
- Simpson, Sir James Young, 32
- Sixteenth-century medicine, 22–23
- Smith, T. Southwood, 40, 174, 312
- Society of Apothecaries of London, 144
- Society of Chymical Physitians, 276
- Socrates, 22, 66
- Soranus, 266
- South Africa, apartheid policy, 224
- Spain, 238, 292
- Spanish America, 42, 111, 179–87, 238–40, 250
—Council of the Church, 185
—role of religion in medicine, 179–87
- Spanish Antilles, 184–85
- Spectator*, 31
- Ssuma Chhien, 265
- Steffens, Lincoln, 139
- Storch, Alfred, 206
- Strauss, E. B., 206
- Sudan, Quinquandon Mission (1890), 227
- Sung Ching, 270
- Sun Ssu-Mo, 275
- Surgeon-General's Library, Washington D.C., U.S.A., 300
- Sushruta, 245
- Sussex University, Science Policy Research Unit, 166
- Su Sung, 272
- Su Tung-Pho, 269–70
- Switzerland, 76
- Sydenham, Thomas, 25, 52, 272
- Sydney, Australia, 91
- Szasz, T. S., 93
- Tagliocozzi, Gaspare, 245
- Tanzania, 129, 131
- Tarbell, Ida, 139
- Taunton, *Rt. Hon. Lord*, 75
- Technological society, The physician as humanist in a, 27–36
- Temkin, Owsei, 283
- Thaiyuan, Shansi, China, 257
- Théodorides, Jean, 105, 302
- Thomas, Louis Vincent, 211, 214
- Thopa Yü, *Prince*, 269
- Thorne-Thorne, Richard, 140, 166
- Tibet, 291
- Times, The*, 164
- Times Literary Supplement*, 17
- Titmuss, Richard M., 54–55, 56, 60, 66, 112–13, 123, 129–36, 154–57, 161–64, 165, 167, 168–69, 247, 249, 250, 252
- Trilling, Lionel, 80
- Trotter, Wilfred, 62, 76
- Tsou Yen, 259, 274
- Tuke, Samuel, 96
- Turkey, 307
- Turnbull, Colin Macmillan, 226
- Turner, V. W., 210
- Unemployed Workmen Act (1905), 138
- U.N.I.C.E.F., 229
- United Nations Organization, 70
- United States of America, 15, 18, 32, 33, 35, 40, 93, 120, 121, 125, 129, 130, 162, 194, 230, 232, 291, 304
—blood transfusion services, 133–35, 156–57, 162–63, 168–69
—Federal Children's Bureau, 142, 149
—higher education, 106, 107, 108, 109, 110, 113, 114, 117
—medicine and society (1900–1914), 137–53, 157–61
—National Board of Health, 141
—Public Health and Marine Hospital Service, 141, 142
—Public Health Service (1912), 141

Index

—Pure Food and Drug Act
(1906), 146
U.S.S.R., 15, 121–22, 124, 168–69,
196, 243, 251
University Grants Committee, 71,
76, 108
Vesalius, Andreas, 244–45, 246
Vickers, *Sir* Geoffrey, 1, 5–14, 91,
92, 305–6
Vienna, Austria, 148
Vietnam, 231
Virchow, Rudolf, 25, 173, 233
Wallace, Alfred Russel, 72, 100
Wang Chhung, 275
Wang Mang, *Emperor*, 269, 271
Wang Shu Ho, 266
Wang Thao, 273
Washington, D.C., U.S.A., 148
Wassermann, August von, 147
Weaver, Warren, 44
Wedgwood, Josiah, 103
Welch, William, 145
Wên Ti, *Emperor*, 267
Wenner-Gren Foundation for
Anthropological Research, 1
West African Council for
Trypanosomiasis Research, 229

Westermarck, Edward, 180
Whitman, Walt, 233
Williams, Ruth, *see* Khama, *Mrs.*
Seretse
Wilson, *Rt. Hon.* Harold, 75
Wilson, Woodrow, 150
Winslow, C.-E. A., 140
Wisconsin, U.S.A., 109
Withering, William, 103
Wolfenden, *Sir* John, 122
Wong, Ming, 245, 251, 290, 298
World Health Organization, 167,
169, 171, 174, 229, 309
World War I, 137, 232
World War II, 231, 232, 278
Wu Tsung, 270
Yale University, 120
—school of medicine, 117
Yang Chhing [Kungchhêng
Yang-Chhing], 265
Yei Han-Tchen, 231
York, Yorkshire, 138
Young, Thomas, 55
Yü Fu, 261
Zagreb University, 52–53
Zahan, D., 211, 212, 213
Zürich, Switzerland, 202



✓

5

