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THE DOCTOR'S DILEMMA— OLD AND NEW

By

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PREFACE

We have great pleasure in publishing the address delivered by Dr. Vijayalakshmi Kamat under the J. Srinivasan Memorial Lecture on 24th March 1977 at the Indian Institute -of World Culture, as it deals with a subject of vital interest both to the general practitioner of medicine and the layman alike.

Dr. Kamat, a graduate of the All-India Institute of Medical Sciences, New Delhi is currently Assistant Professor of Anaesthesiology in the Tufts University School of Medicine, Boston, Mass. She had taken Residency in the American University of Beirut, Lebanon and was appointed Instructor *At* the Harvard Medical School, Boston. She was certified M.D. by the American Board of Anaesthesiologists, and was Visiting Professor at Eastern Maine Medical Center, Bangor, Maine.

In addition to her experience in medical science, she has travelled widely in the Continent and in the States, and has evinced interest in philosophical and humanistic studies.

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THE DOCTOR'S DILEMMA—

OLD AND NEW

FRIENDS,

I deem it a great privilege to be asked to deliver this year's endowment lecture in memory of J. Srinivasan by the Indian Institute of World Culture which was founded by our revered leader B.P. Wadia more than three decades ago. The public is fairly familiar with the yeoman service rendered by the Institute in a calculated and beneficent way to offset the many disintegrating tendencies of the present age. One need not dwell too long on these liabilities which are marked by the clamour of the market place and the increasing confusion created by our social, political and religious idiosyncracies. My special thanks are due to the quiet but competent and efficient Director Shri M.V. Venkataramaiah who gave me this unique opportunity to visit my birthplace and speak to you from this forum during my short holiday.

But he has given me a difficult assignment: to address this august assembly on "Recent Advances in Medical Science." The pace of change that science has made in medicine in recent years has only highlighted the slowness of medical education to adapt itself to its fast speed, reminding one of the Queen's advice to Alice in the Wonderland:

"Now, *here*, you see, it takes all the running you can do, to keep in the same place. If you want to get somewhere else, you must run at least twice as fast as that."

Biological science has advanced so fast and so far in recent years that experiments in human breeding could be made of such a wide-reaching nature that the ensuing social, legal, ethical and religious consequences would make the rumpus about artificial insemination from a donor seem like a storm in a teacup. Before long, human reproductive cells can be grown in tissue culture and genetic material deliberately altered to breed special characteristics. These "test tube babies" are still beyond the horizon and human life synthesized from simple materials even farther away. But within the next few years, society and medicine will probably have to reckon with the possibility of a woman giving birth to a child that originated in an egg from another woman and a sperm from a man perhaps long dead. Are we not reminded here of the Srimad-Bhagavatham story of the birth of Balarama. by the transference of the embryo from Devaki to Rohini?

Biological discoveries at the cellular and molecular level are coming out in such feverish succession that their application in practical medicine are lagging far behind. But it *is* not to be deplored, as there will always be a gap between the discoveries of pure science and their application to human use for good or ill. Did it not take more than 30 years for fundamental discoveries in atomic physics to flower out not only in atom bombs but in nuclear-power stations, radio isotopes and invaluable machines for the treatment of cancer ?

The discovery that bacterial transformation depended on the transfer of deoxyribonucleic acid (DNA) from one strain to another and that this material embodied the genetic information in each cell was made in 1944; and not till 1953 was the Watson-Crick model of the structure of DNA, illustrating how self-replication might occur, proposed.

Magicians of the Future:

Already our fundamental concepts are changing: a gene is the unit with a capacity to make an enzyme; a virus is a particle of infectious heredity; the distinction between organic and inorganic matter has evaporated; the specificity of a gene lies in the arrangement rather than in the composition of its constituents. Suffice to mention only these few to prove the prophetic words of Madame H.P. Blavatsky that

“Chemistry and physiology are the two great magicians of the future, who are destined to open the eyes of mankind to the great physical truths.” (Secret Doctrine. I. 261)

The breakthroughs are in the future in such fields as the control of virus infection, a cure for cancer, a solution to the problem of immunity and when they come, they are all likely to emerge from this branch of biochemistry. But one cannot forget the dangers too; just as there are white and black magicians, adeptship and sorcery, who is to control the latter category? For can mankind afford to neglect (a) the possibility of the escape from a laboratory of an exceptionally virulent virus to which no one has an immunity described in the science fiction story “The Andromeda Strain”, (b) the unlimited spread of a cancer-producing virus with alarming applications to biological warfare, and (c) even more menacing, the creation of artificial life from simple materials?. All these may at the moment look like science fiction, but haven't we seen the fantasies of Jules Verne and H.G. Wells turning true ?

Here is a significant, momentous dilemma of the doctor, much more vital, throbbing and vibrant than the theme of the satirical play of Bernard Shaw under that title posing the question: “Who is to be saved by the doctor when he is faced with the choice: the honest, decent man Dr. Blenkinsop or the profligate artist Louis Dubedat?” In the first place, it is not a dilemma at all, being essentially an unreal question, demanding a choice between extremes, as though they were mutually exclusive and life could be lived in terms of absolutes. The dilemma posed here reminds the student of such Shakespearean prototypes in his “Problem plays”, particularly “Measure for Measure”, where the action turns on an unreal choice between chastity and charity, which masks the more fundamental but still unnecessary choice between justice and mercy. The artificiality of the mental categories involved in both Shaw's and Shakespeare's plays and their falseness to experience and the realities of life are self-evident.

What is worse, Bernard Shaw has made a caricature of the medical profession not only in the play but in his 75-page long preface, which students reading at an impressionable age, as I did, are likely to be influenced by his warped opinions about the noble career of the doctor. It was only later that I realized that Shaw was at his old game of poking fun at the men of science. A great man of wit, of course, but alas, always indulging in bleak and heartless extravagance of statement on all subjects under the earth. Did he not call Christmas a mere hypocritical excuse for drunkenness and gluttony and a conspiracy of poulterers and wine merchants for strictly business purposes? It was G.K. Chesterton who rebutted the argument of this born caricaturist, by asking why he didn't add that the two sexes were invented by jewellers wanting to sell wedding rings? None has given a better assessment of the play “Doctor's-Dilemma” than G.K.C. and I crave your indulgence for quoting from his brilliant little book on Shaw:

“We cannot feel the doctor's dilemma, because we cannot really fancy Bernard Shaw being in a dilemma. His mind is both fond of finality and of abruptness; he always makes up his mind when he knows the facts and sometimes before. That both clever men and bad men ought to be treated like men does not seem to occur to him. ... As a matter of fact, in these affairs of life and death one never does think of such distinctions. Nobody shouts at sea: ‘Bad citizen overboard!’ I should recommend the doctor in his dilemma to do exactly what I am sure any decent doctor would do without any dilemma at all: to treat the man simply as a man and give him no more and no less favor than he would to anybody else. In short, I am sure a practical physician would drop all these visionary, unworkable modern dreams about type and criminology and go back to the plain business-like facts of the French Revolution and the Rights of Man.”

New Dilemmas:

Before going to the more serious dilemmas with which the doctors of the present day are faced, posed by the untidy frontiers between medicine, law and ethics, let me finish with the Shavian dilemma which persists in some form or other even now. Is a rich man or a good man entitled to a better service than a poor man or a bad man? No, the principle is that all should receive equal care and attention. But the dilemma arises in the case of selecting the relatively few patients for treatment when the doctor is in charge of very costly equipment, say, a dialysis unit. Since the State can only afford to provide the essential medical care for only 10 per cent of the several thousand cases which may require it, the renal specialist is faced with a dilemma of selecting cases of intermittent dialysis. What criteria should he adopt in selecting them? For, he is fully aware that for every person he treats, he is condemning to death the other nine, who are unable to receive this treatment. How is he to decree that one life is more important than the other? Luckily for him, these special social factors are best determined by an official committee whose recommendations help the renal specialist in his final decision. This is the greatest dilemma facing American doctors today—how to apply the principle of TRIAGE to hospital patients: who is to decide whether the 20-year old athlete and promising Harvard medical student with a dangerous stab wound should be on a respirator and be saved at all costs, while the 70-year old derelict with alcoholic cirrhosis should have less than maximum medical care? There are special teams of doctors, lawyers and economists in major hospitals in the U.S. to do cost-benefit analysis on all terminally ill patients and save the resources of doctors, nurses and drugs to those who can be saved. This is a tricky question and very difficult to apply, taking into consideration the moral and ethical aspects as well as the wishes of the patients and relatives. The Mass General Hospital has in the past six months published guidelines for caring for the terminally ill and hospitals around the country are now trying to apply them to all patients. This is still in the embryonic stage and it remains to be seen how it can be applied humanely.

Recently I had occasion to attend a symposium where our Ambassador to the U.S. presented his contribution which ably pin-pointed the Doctor's Dilemma in the present age. He said:

“We have been suffering from the civilizing effects of science and medical research. This is one of the most important issues of conscience in modern medicine—Medicine must advance on both fronts: birth and death. If it considers life is sacred and everything must be done to prolong it, it must also prevent human beings being born into an existence of poverty, destitution and frustration. The sanctity of life demands that the dignity of the individual must be upheld. What dignity will millions of children have who are being born into the world today?”

Here in short are several problems involved: the therapeutic revolution, transplant surgery, bio-engineering, geriatrics, euthanasia, contraception, etc. etc. all of which are contributing factors in the present day changing pattern of mortality and morbidity. Every advance step in medical science contains the seeds of new problems. The prevention and effective treatment of infections and the staggering advances in the surgical techniques have created conditions for more old people to survive, with the consequent dangers or hazards. More people with chronic disease conditions and mental disabilities are making heavy demands on medical, nursing and social services. As new treatments become available, the costs of care tend to rise and the financing of the Health Services poses increasingly serious problems to governments.

Delicate Balance:

Health and disease are intimately related like light and darkness which, in the words of the *Gita*, “are the world’s eternal ways.” If the most perfect functioning of the body is the light of the sun’s zenith, and death the darkest hour of midnight, the point of distinction between health and disease can be anywhere between. The question is: Are we going to reckon health as beginning when there is light enough *‘to distinguish between a light and dark thread’ or, are we going to count anything less than the zenith as disease? This can only be answered when we realize that health is a balancing of opposing forces, and if the balance is destroyed by removing too much weight on one side, the cause of health is not served.

Much as the modern citizen may claim freedom from illness and from pain as part of his human birthright, he has to learn that it can never be fully guaranteed. Illness and pain are risks that can only be minimized and the extent to which it can be done is to be decided on scientific rather than emotional grounds. Scientific experiments have proved that over-protective conditions by removing all possible stresses and frustrations are not conducive to health but lead to glandular and biochemical changes which make the animals unfit for life in the natural state. Doctors should receive less of the limelight than they do today, when there is an almost morbid and sensational interest in diseases and their treatment. Naturally, in Plato’s *Republic*, the presence of many hospitals and doctors in a city was considered as a sign, not of compassionate society but of a bad government.

With infant mortality drastically reduced, life expectancy greatly increased and the great killing diseases, which once took their regular toll of human life, firmly under control mankind is faced with the grim problem of population explosion. Lord Ritchie Calder has calculated that if present trends are allowed to continue unchecked, the earth’s habitable areas would be so eroded by the middle of the next century that people would be forced to live in vast congeries of towns of 1,000 million inhabitants. This dreadful fate, which children born today, might well live to endure, carries with it all the potentialities for famine, violence and insanity, and ultimate catastrophe. It is not a wild urge for procreation that has created this dilemma, but the achievements of scientific medicine—which the doctors have to face today.

But the problem assumes dreadful dimensions only when viewed on a national scale; when extended to global size it presents a different picture. Are we quite sure that there is not politics mixed up with this problem? If it is such a global issue, why has not the United Nation or any other international body come up with any effective agreement on such a vital issue as Family Planning? Can you imagine the tremendous instinctive reaction that even the hint of such a proposal would arouse in many Western countries? It is ever so easy to discuss objectively what is best for the Chinese, the Puerto Ricans, the Africans and the Indians; but not so receptive to the ears when the same proposal is to be applied for themselves!

Demographic Cycle:

The history of populations all over the world since the seventeenth century suggests that national growth takes place according to a cycle in which five stages can be discerned. The first phase is from which each nation begins, when the population remains stationary, as the high death rate cancels the high birth rate. In the next stage, the death rate declines and the birth rate is stationary with an increase in population-

The third stage is when the birth rate too declines, but not higher than the death rate. In the fourth, there is a stabilization with a low birth and death rate. In the final stage, the population declines, as the babies born are fewer than the deaths.

Such cycles are likely to have evolved in previous civilizations too. It looks as if the

Roman civilization must have reached the fourth and fifth stages between the second and fourth centuries A.D. Now as every country has been influenced by growing industrialization we are in the second stage since 1650. But this growth of world population in the last three centuries does not express a trend, and cannot be projected indefinitely into the future. According to Woytinsky 'in "World Population and Production" (New York 1953), this expansion has been a unique, unprecedented and unpredictable phenomenon of limited duration.

The regular sequence of cycles is not easy to follow, since the great changes in death rates have occurred in recent years, thanks\ to the advancement of medical science. Such countries as India, Pakistan, Burma, Sri Lanka, Thailand, Indo- China, Korea, the Middle East, Turkey, Mexico, Central America and some South American States are in the second stage. But in view of several changes in recent years some of these countries must be placed in other stages. The Soviet Union, Japan, Argentina, Poland, Bulgaria, Rumania, Yugoslavia, Italy, Spain and Chile are now in the third stage. In the fourth stage are the western, northern and some central parts of Europe, the U.S.A., and Australia. The fifth stage is still hypothetical, except perhaps France.

Not only have means of communication brought all peoples into touch with one another, but there is interdependence to a large extent. The difficulties of living and the opportunities open to the people have become world problems. No longer can any people easily starve in isolation, nor can any enjoy the fruits of the earth unaffected by his neighbour's misery. The great differences which exist are sources of frustration and tension. No wonder nations disagree today about the interpretation of population trends and also to- the proper course of action to be pursued; which H. P. Blavatsky had already explained in the "Key" a century ago:

"What right have we to think so (i.e. of an earthquake- engulfing the people in the slums, as a right solution to the- problem of overpopulation), while one half of humanity is in a position to effect an immediate relief of the privations suffered by their fellows? When every individual has contributed to the- general good what he can of money, of labour, and of ennobling thought, then and only then, will the balance of National Karma be struck, and until then we have no right nor any reason for saying that there is more life on the earth than Nature can support." (p. 203)

A Sociological Problem:

The difficulties that confront the world today are not technological but only sociological; as they are bound up with habits of living, inadequacy of housing, poverty, and systems; of values. The world is now at the beginning of a movement where science and sociology must go hand in hand to prevent man from biological suicide by overpopulation, as the various WHO reports testify. The growth of the world's population, viewed as part of a complex of demographic cycles, seems to- be a self-limiting process. By the development of natural resources a number of new and potent processes can be established, which will inevitably tend to a decline in birth rate, rising income and consumption, improving education, emancipation of women and their employment outside the family, increase in physical mobility and the secularization of cultural values and institutions. The crucial change is in the last—the system of cultural values, and it is gratifying to note that this is being steadily fostered by the Indian Institute of World Culture here, as it opens out newer vistas of activity and knowledge to the citizens of Bangalore.

The assumption, therefore, that population curves will eventually flatten out is not fanciful. From the Delhi conference on World Population in 1953 to the Bucharest conference in 1974, a shift in emphasis has been effected; for it is in the latter meet that stress was made for the developed world to hasten with its help to speed up development in the overpopulated areas, seeing in this a more effective means to population control than gratuitous advice about family limitation. But it shared the same fate as the similar resolutions passed at the series of UNCTAD conferences in Delhi, Santiago and Nairobi during the last decade, as the helmsmen of the developed nations have been continuously turning a Nelson's eye to the basic issues raised at these deliberations.

It is the time factor which is now important, as the advent of modern public health has greatly accelerated the decline of mortality, thus aggravating the problems of the developing nations. The spectre of Malthus and all the other bogeys of an overpopulated world (as exemplified in the Cassandrian prophecies of demographers like Dr. Chandrasekhar) must dog our footsteps for some time to come, unless the stages in the natural cycle can be accelerated. Limitation of the family cannot be imposed from without upon the human being; and here, we must express our appreciation of our Prime Minister's firm stand against any form of compulsion in the implementation of the national family planning programme. It has also to be noted that the world community cannot and will not ever settle the actual numbers permissible to each nation. The World Health Organization wisely refrained from launching a mass attack on the population problem, quite unlike the action taken on the question of malaria and other communicable diseases. For that matter, it may be remembered that the subject was once raised in the General Assembly in an impassioned speech by the Norwegian delegate; but it was ruled out of order by the Chairman, Andrija Stampar, himself probably more aware than anyone else of the great dangers of over-population. But the world body, to its credit, set out to study human fertility and, in a long series of technical reports from international scientific groups, has been able to throw much light on the subject. (Cf. WHO Technical Report series: Numbers 280, 303, 326, 332, 360, 386, 397, 424, 471, 473, 514, 520 and 527.)

Fast Pace of Change:

The hope of finding a solution to the world population problem rests upon the development of social movements, which enthrone the idea of a smaller planned family. That seems to be the outstanding need of public health in the closing quarter of this century, everywhere in the world; and I hope to be forgiven for dwelling fairly long on the subject. For doctors, belonging to a conservatively inclined profession are in some danger of being left behind in the present day world of rapid liberalization of sexual behaviour. It is no use being blind to the frightening pace of social change, particularly in the moral and sexual independence of youth: posing yet another dilemma to the doctor. The collapse of traditional morality has always been part of the small change of public debate; and the doctor's fears are confirmed when he reads such laments in the Letters to the Editor columns:

“It has become increasingly easy to stray from the path due to the total lack of inhibition. Promiscuity becomes as easy as the next cigarette. In this respect, the pill is as morally dangerous as heroin to the addict physically.”

The Population Council of New York surveyed the use of oral contraceptives recently, and reported that while the use of the pill throughout the developed world had doubled, in the developing countries it had quadrupled. It is argued In some quarters that the very existence of the Family Planning Association is a sign of the failure of the majority of family doctors,

over the years, to give advice on an important branch of social medicine and the personal problems of the patient.

More than the demographic problem, the pill poses a dilemma to the doctor: whether the conventional ideas of sexual morality are not over-turned. Whereas history suggests that periods of license tend to alternate with periods of greater restraint, it is doubtful whether the pendulum could ever swing back again, now that women's sexual emancipation is virtually complete, at least in the West.

Yes, the doctor is in a dilemma: as he feels it his duty to conserve his professional code and traditions, especially its ethical rules, while his daily experience often tempts him to promote or support radical reforms. He is neither master nor servant, but a member of a profession which has its roots in antiquity and which must continue to develop and change as an essential part of a society as far in the future as we care to look.

Noble Profession:

Change has been the keynote of man down the ages. He has turned forests into arable land, marshes into cities and yeast into protein. From agriculture to antibiotics, there has been a vast transformation, and every time the change has been wrought only for human comfort. But aye, here is the rub! Each problem once solved opens up another like the peels of an onion. Having upset the normal ecological balance, man lives in an artificial environment, with his synthetic diets and drugs, breathing the dirt and dust of the factories. To the list of hazards has been recently added radiation. The problem facing the doctor is how best he can safeguard the health of mankind. Biological regulation being upset, he has to further the health of the group by human wisdom. Man, instead of nature, has become the loadstone; and hence biology needs to be reinforced by social organization. How many of the young doctors had not felt elated and found a sympathetic echo in the words of Dr. Lydgate, albeit a fictional character in George Eliot's "Middlemarch" where the need for comradeship is stressed:

"I should never have been happy in any profession that did not call forth the highest intellectual strain, and yet keep me in good warm contact with my neighbours. There is nothing like the medical profession for that."

What was stated a century ago still remains broadly the ideal of most medical students. Having entered the profession, do they find the two sides of the profession, scientist and artist, ineradicably opposed? Has the ascendancy of the scientific medicine, which in the care of the astronauts has enabled scientists and specialists to touch a distance, barely dreamt of by George Eliot, left the general practitioner searching for a role? Progress in science has brought forth a set of new problems: regarding the profession and practice of medicine; as also those regarding economic and social policy, let alone the ethical problems that society has barely begun to nibble at.

Describing the problems relating to medicine in Modern Society, Prof. McKeown one of the remarkable post-war generation of epidemiologists who have led the renaissance in preventive medicine, remarks that "in order of relative importance, the main influences responsible for the decline of mortality have been: a rising standard of living, the control of the physical environment, and specific curative and preventive therapy." With a steep fall in death rates, most people in middle age are afflicted by degenerative diseases of the heart and blood vessels, bronchitis and occasionally cancer, which have become successors to tuberculosis highly prevalent in earlier times; and these ailments continue even more

defiantly in old age. Being major unsolved problems; in medicine, these diseases pre-empt research and doctors⁵ time to an ever increasing extent.

Another result of the control of infectious diseases has been to bring into relief mental illnesses and subnormality as the main causes of disablement. Psychiatry has, therefore, drawn much time, money and effort of the public health services in recent times. Ageing population is another problem bringing difficulties to medicine, as it is estimated that old people make three times as great a demand on doctor's time as the working population.

Geriatrics:

A new branch of medical science—geriatrics—has come into being to study and treat illness in this age group. Old people may have multiple diseases and disabilities, such as chronic bronchitis, failing heart, arthritis, paralysis, corns and painful deformed toes, partial blindness and deafness, which restrict their independence and may confine them to a bed or chair for long periods. It is estimated that only one-fourth of the men and one-fifth of the women aged 65 or more are free of chronic ailments.

The new branch of biology related to this subject is gerontology which is rapidly expanding, as there is so much to be learnt about the ageing process in cells, tissues, organs and in species earlier than man. So far research has succeeded in lengthening life, after vigour has declined, which has put only more strain on the available medical services. But it is hoped that in time means will be found of controlling and slowing down the ageing process, so that degeneration is deferred and we have more “Yayathis”.

Such a prospect fills one with immortal longings hoping that it may be possible for the process of replacement of not only decaying cells but organs too to go on indefinitely..

By about 2000 A.D. it is not impossible to achieve the replacement of the heart, the kidney, the blood vessels and the valves, the face and the limbs when required by newly and stronger ones, may be even by a sort of do-it-yourself process. But one organ in the human body will still defy all efforts of organic substitution—the brain. And when it is made possible, say in a century or so, will he be the same person? Even before that event, a great social problem awaits to be tackled: The elderly 12 per cent of our population contains many perceptive and penetrating brains, Voltaires and Shaws, Viswesvarayyas and Rajajis; but they are forced to premature retirement according to the rigid rules prevailing today. Several surveys have revealed that a good proportion of old people are allowed to waste their talents in idleness; and to mobilize their skill and gifts involves decisions of a political and administrative nature beyond the doctor's purview. But it lies in his hand to make the suggestion that forced retirement of those who are not ready is a fecund source of psychiatric disturbance—notably depressive illness— which is preventable.

There is another aspect to old age: where the body -continues to survive long after the mind has ceased to function properly. The modern discoveries due to recent advances in medicine, such as antibiotics, orthopaedic surgery and bio-engineering developments have given us the power to prolong handicapped lives. Inevitably the doctors, nurses, relatives and friends are devoting time, energy and effort, yes money too, unrequired by any glimmer of recognition from the senile; and one wonders whether this question has not crossed their minds sometimes: “Is such a vegetable -existence worth all the trouble?”

Is this not yet another dilemma of the doctor? Can he withhold the last course of penicillin? Can he give enough tranquilizers to check the noise and restlessness; enough

barbiturates to produce sleep? These steps hardly qualify for euthanasia: a dirty word ever since the Nazi doctors carried out Hitler's order to wipe out the chronic sick. Recently we read a report in the press of incurably ill Californians acquiring the right to order doctors to let them die. The controversial California natural death act, involving the withdrawal of life sustaining equipment, is the first to be passed in the United States early this year. Critics of the legislation have called it the "the legal murder act" and say it licenses doctors to kill the aged, the weak and the poor. Naturally, to avoid any such suspicion, a strong statement has been written into the legislation saying that it in no way condones or opens the door for mercy killing or euthanasia. It may be recalled that there was a big uproar in the press and among the people when Gandhiji advocated nearly half a century ago the mercy killing of animals in dire distress.

Perplexing Problems:

Along with old age, the question comes up: what is one to do with grossly deformed newborn children, bound to be severely subnormal? Also there are cases of persons who have suffered severe brain injuries due to haemorrhages or accidents; and advances in medical science are such that they can be kept alive in respirators, fed through tubes, medicated to prevent any complications, and yet with not the slightest chance of recovery to an independent existence. There are also cases of prolonged coma and incurable cancer. Who is to decide when to turn off the switch ? or withhold the drug ? There are two posers involved here: Has the patient in his full knowledge of his plight the right to ask for the end ? or, has the doctor any right to carry out the patient's wishes, either deliberately or suggestively by leaving narcotic or hypnotic drugs in sufficient dosage within the patient's reach ?

To add to the doctor's dilemma, here is another: Many of the frontiers between medicine, ethics and the law are untidy. Even if the procedure is formalized, why should the doctor embark on the course of taking the mask of the executioner? Many of the advances of medical science have left behind a legacy of ethical problems: Who is to choose the suitable candidate for the use of the dialysis unit? Whose pregnancy is to be terminated ? Can the perplexing problems of experimental medicine and the decisions in organ transplantation be settled? The list can be added: but let us turn to a more savoury subject.

Many of the present conflicts between the social mores of today and the religious beliefs make the doctor's dilemma almost impossible to resolve in time. Medical research is responsible for this dilemma, as it has destroyed the normal biological checks and balances. If life is held sacred, then prolongation of life is inevitable. Let us see how ancient India, regarded as a highly spiritual society, tackled this subject. The man past forty should leave his family and become a *Vanaprastha*, the third stage of life (after *Brahmacharya* and *Grahashtya*), when he retires from his house, but still accessible to his relations, and is chiefly occupied in overcoming all passions by withdrawing his affections more and more from all the things of this life. How this Oriental life inspired Max Muller and how he spent the last 25 years of his life in Oxford with the spiritual quest in his mind is described by Nirad C. Chaudhuri in a long chapter in the biography of the professor entitled "Scholar Extraordinary" Max Muller himself described the state in one of his books thus:

"During that third station, that of the *Vanasprastha* or *Hylocios*, the mind of the hermit became more and more concentrated, on that higher philosophy which we call religion, and more particularly on the *Vedanta*.... Instead of merely dipping into the waters, the philosophical baptism became then a complete submergence, an entrance into life with Brahman, where alone perfect peace and a perfect

satisfaction of man's spiritual desires could be found."

For such noble persons there is no question of euthanasia, as the Upanishadic passage explains:

"He should not wish to die nor hope to live,
But await the time appointed,
As a servant awaits his wages. . .
Rejoicing in things of the Spirit, calm
Caring for nothing, abstaining from sensual pleasures."

This is a way of life altogether alien to the spirit of the modern age! Although this Indian system of mysticism was also alien to the Greeks of the Hellenic age, who feared and detested old age, it is interesting to note Euripides' remarks in a judgment, endorsed by Plutarch, on those who patiently endure long illness:

"I hate the men who would prolong their lives
By food and drinks and charms of magic art;
Perverting Nature's course to keep off death.
They ought, when they no longer serve the land,
To quit this life and clear the way for youth."

History of Medicine:

It is a fascinating study to trace the growth of medicine from these ancient times. After Hippocrates and Greek science, the structure of medical lore was provided by Aristotle and Galen, who formed the source for the development of Islamic science from the 8th to the 12th centuries with Averroes and Avicenna as their representative exponents. Their writings had the greatest influence on the West when they were brought into Europe in Latin versions during the Renaissance. Padua was a great stronghold of Aristotleanism and it was there that William Harvey studied and was first put upon the path which led him to discover the circulation of the blood. The system of classifying diseases according- to the five humours based on the five elements—earth, water, air, fire and ether—fitted perfectly into an age which delighted in logical, theological and philosophical systems; and so familiar was it a way of thought that nobody ever dreamed of questioning its validity. This line of thinking, one notes, is evident in the literature of the day; and I am reminded of these lines read in my school days from Shakespeare's "Romeo and Juliet" regarding the penurious life of the doctor:

"I do remember an apothecary,
And hereabouts 'a dwells, which late I noted
In tattered weeds, with overwhelming brows,
Culling of simples. Meagre were his looks;
Sharp misery had worn him to the bones;
And in his needy shop a tortoise hung,
An alligator stuff'd and other skins
Of fill-shap'd fishes; and about his shelves?
A beggarly account of empty boxes,
Green earthen pots, bladders, and musty seeds,
Remnants of packthread, and old cakes of roses,
Were thinly scattered, to make up a show."

Things began to change in the age of reason, when the new type of scientific pathology replaced the old humoral study of passions and emotions; and the Italian Morgagni demonstrated the location of disease in particular organs by correlating case records with the post-mortem reports and thus was launched the scientific method of diagnosis. Henceforward,

the disease, rather than the patient, became the subject of treatment; and the patient became a “case”. New diagnostic aids came into being to make a visual examination of the liver, the heart or the lungs in the subject, and not merely the feeling of the pulse. Treatment is no longer limited to the pill, mixture, massage and hot water bottle. It has gone far beyond to infra-red therapy, radioactive cobalt teletherapy, external dialysis, heart pacemaking, electrosleep, electric shock therapy, laser, photo-coagulation, artificial limbs, etc. etc. On the surgical side too, the doctor has now a choice of scores of artificial body parts for replacing defective ones.

Inter-Disciplinary Research:

One of the fundamental benefits of these new medical instruments is the objectivity of their observations in the realm of diagnostics and the relative freedom from human error in their operation in the field of therapy. Further, they have extended greatly the areas of the body and its functions which doctors can probe and sound as, say in the mapping of the brain wave pattern with the EEG machine. It is note-worthy that quite a large body of inter-disciplinary research work has been carried on within the last few years among several major institutions in the country, chief of them being my *alma mater*, the All-India Institute of Medical Sciences. The large volume of work being done at these institutions was reflected in more than hundred papers presented at the sixth All-India symposium on bio-medical engineering held a few months back in this city of Bangalore under the auspices of the Bio-Medical Engineering Society of India.

But one should not afford to ignore an unsatisfactory aspect of this new development, namely, what is popularly named the “diagnostic racket” in the big cities. Whereas treatment was in the hands of the general practitioner, in earlier times, who was a jack-of-all-trades and fairly successful in his work, today the patient is knocked about from one diagnostic clinic to another, each specializing in a particular body function assessed by particular equipment and each charging heavily for the examination. Another sad aspect reported frequently in the press is the lack of adequate personnel to operate, maintain and service this costly modern equipment. According to a survey of Indian hospitals and clinics nearly 70 per cent of the electro-medical instruments in them are out of order and hence remain unusable.

I may be permitted in this connection to refer to a charge- recently being made about the medical profession that it is responsible for creating the hypochondriacal society of today. The idea that doctors may be the cause of the diseases that afflict a majority of mankind today is brought out by Dr. Ivan Ilich in his new book: “Medical Nemesis.” He has coined the word “iatrogenesis” and suggests that doctors create clinical conditions through medicines and drugs which make patients sicker than they are. While the complaint may be partly true, one has to remember that Dr. Ilich, like Bernard. Shaw, overreaches himself in his criticism. One can do no better than quote the comments of Dr. Lewis Thomas,. President of the Memorial Sloan-Kettering Cancer Centre in New York and one of America’s leading figures in medicine, on this issue:

“I think this is an outrageous exaggeration. I don’t think that medicine should be criticized for the things it can do uniquely’ well—for example, curing pneumema, tuberculous, syphilis and. preventing a variety of viral diseases that were once lethal. At the same time, Ilich fails to recognize that medicine is still a young science with much of its future ahead of it, and he criticizes the whole field for being unable to cure diseases which we- do not yet understand. All in all, if as Ilich suggests, we were to close down medical science, I think we would end up

spending more money and being in more of a shambles than we are today.

Contradicting Dr. Illich's gloomy thesis, Dr. Lewis; Thomas sees a number of discoveries over the horizon in science and medicine and affirms:

"We are actually in one of the most exciting eras in the history of medicine, when one can just feel the emergence of the future. . .First, there is the cure of the degenerative diseases... Then, you will find that cancer is the result of a single mechanism Earlier diseases that troubled us, like syphilis, had the appearance- of many separate diseases, as the lung, bones and blood vessel were all involved. The brain and heart were disabled years after the initial infection. It looked like a multifactorial disease with environmental aspects—that is, a disease with many causes, the way cancer looks today. But syphilis turned out to be a host of reactions to a single mechanism, the organism known as a spirochete. Nature is simple and such diseases as arthritis and cancer, which look so mysterious today, will turn to have a single- core. Nature isn't that tricky as to use a hundred different mechanisms to produce a single disease.

There is another exciting area of the future; for it is possible to transfer single genes from mammalian cells to bacterial cells- and to use the bacterial cultures as 'factories' to make useful, proteins, including enzymes missing in some deficiency diseases.

But there are risks too. . .There are lots of Pandora's boxes- around and the only reason there are hazards is that we still don't know everything. Time and patience are required."

Preventive Medicine:

In its broadest sense, medicine is an important department of knowledge, while in its narrowest it is the practice of an art, yes an useful art or applied science, now usually grouped under the term "technology". More and more it has become a science, or a group of sciences, the bio-medical and health sciences. The doctor is a perpetual student, as- he has always to learn, not the least from patients. Still, there is a gap between knowledge and performance, especially in this country due to economic and social difficulties. He is also a citizen and taxpayer and if he is to help in implementing the social health policies, there is not much in his formal education to prepare him for that noble role. All over the world there are increasing signs of interest in preventive and environmental medicine, which is the next stage in medical development.

Latest trends are looking upon medicine more as a "humanistic technology"; and if the general education of the medical students is to keep pace with the recent developments, a few more subjects like the following should be included in his curriculum: psychology, ethics, sociology and social anthropology, the history of technology particularly relating to medicine, and linguistics and communication. For it is evident that medical science has acquired during recent -decades its own special language not readily understood by those unfamiliar with any scientific education.

Of what avail is it if in spite of spending enormous sums -of money in treating the sick, the quality of life is continuously devalued? Noise, traffic, air pollution, water contamination and overcrowding have made urban life a strain, which naturally erodes the resistance of the individual to disease. 'The disciplines of preventive medicine and public health, therefore, have assumed great importance in this century. A symposium on Preventive Medicine held a few years ago in the Hall of Royal College of Physicians of Edinburgh throws much light on

the subject; and it is interesting to note that experts on the question of preventive medicine categorized it into five broad heads:

The first stage is described as measures to change the environment. It includes the elimination of toxic pollutants both in the atmosphere and more especially in certain hazardous industrial processes. The second involves changing people's behaviour, the most obvious example being cigarette smoking. In developing countries, persuading people to take simple sanitary precaution to avoid infection of water supplies again involves a behavioral change which can reduce the incidence of disease. The third stage is changing body physiology to reduce disease, say, by immunization. The fourth is the early or pre-symptomatic diagnosis of -disease. There has been interest in the early detection of cancer, diabetes, bacteriuria and hypertension. This links in with the fifth stage which is preventive therapy. Here preventive medicine runs into therapeutic medicine and the classical distinction between the two can no longer be drawn. An example is the use of antibiotics pre-operatively in gut surgery. This can reduce the incidence of complications and shorten the average length of post-operative stay in hospital.

It is useful to consider human disease as forming a spectrum. At one end are the diseases which are environmental in causation, such as nutritional deficiencies and infectious diseases. At the other end of the spectrum are those diseases which are genetically determined, more difficult to assess and also increasing for the same reasons. Whereas the former involves public health measures and the traditional skills of medicine, the prevention of genetic disease requires a different approach and demands different skills. They are chromosomal diseases and are identified by the recent introduction of improved staining methods, by means of which not only individual chromosomes but also parts of chromosomes can be recognized.

Psychiatry:

Time is too short for us to go into any detail about these genetic diseases, and before concluding we have to refer in brief at least to the mental diseases which show an upward trend, as the pace of social change increases. The mind cannot be weighed, measured or dissected in any physical sense; but the prevalence of mental ill-health is a serious problem on which detailed studies are still awaited, and which, unfortunately cannot be easily conducted without elaborate medical and social services. Neurosis, the generic name for schizophrenia, manic depression and psychopathic personality, hysteria, anxiety and several such disorders has been said to be more prominent in the highly developed world, as an accompaniment of secularization in an industrial society— and absenteeism, psychoneurosis seen in the doctors' surgeries, suicide, divorce, child delinquency, have all been given as examples. Industry, in giving rise to perplexing choices and loss of security, to which the peasant in performing traditional roles is not subjected, may well be a factor in the production of our social misfits and of the psychosomatic disorders which prevail. The tempo of life, current in the Orient only a few -decades ago, where the drive for material advancement was comparatively less, was more favorable to mental health. Meditation, which played an important role in their life, was of very great significance in preserving not only physical but mental health.

Anyway, as we cannot put back the clock of so-called "progress", even in the Orient, the psychiatrist's role has expanded, like his subject, tremendously. Previously only a guardian of the insane, he has now become a diagnostician and a scientist, a clinician in general hospitals and a social worker in the public eye. With so many roles to perform, it is not surprising that he has sometimes become too a scapegoat for the ills of society. Though the causes for mental health cannot easily be traced, it is remarkable that the success of the tranquilizers

demonstrates that its aberrations can be repressed. The growing idea that schizophrenia is caused by chemical changes in the brain, which could be prevented or reversed by appropriate drugs, adds to the scepticism with which certain psychological theories, especially Freudian, have always been regarded by many doctors. So have the age-old idea of possession by devils and such other superstitious beliefs taken to the heels before the dawn of science, for:

. . . yonder shines Aurora's harbinger,
At whose approach ghosts, wintering here and there,
Troop home to churchyards. Damned spirits all,
That in crossways and floods have burial,
Already to their wormy beds are gone,
For fear lest day should look their shames upon;
They willfully themselves exil'd from light,
And must for aye consort with black-brow'd night."

Certainly it is by the administration of certain chemical compounds that mental hospitals all over the world have been emptied of millions of long-stay patients, and not by incantations, rituals and sacraments.

If the rate of progress in physical sciences, and particularly in the more exact of the biological sciences—pharmacology, immunology, virology, radiology, genetics and biochemistry—is kept up, what would be the state of medical science in 2000 A.D. is not a far-fetched question to answer. Before answering it, let it be remembered that disease, as stated earlier in the course of the discourse, is an abstraction, for there are no diseases but only sick people. Further if answers are attempted, they are only tentative, extrapolational in nature:

1. It may seem to be a bold assertion, but trends are that many of the problems of cancer will have been solved;
2. The remaining infections, especially the virus diseases, will be conquered with many a rearguard action;
3. Chronic bronchitis may yield to preventive measures;
4. Psychiatry is expected to master the non-organic psychoses;
5. Spare-part surgery may well develop enormously, as a result of great strides in bio-engineering, and thus mitigate the results of degenerative diseases;
6. Congenital malformations, inherited diseases, metabolic disorders may be tackled more efficiently in terms of preventive, palliative and corrective measures; and
7. More people will visit doctors when they are well for preventive measures than when ill for curative treatment. Much progress still needs to be effected in dealing with the new diseases, with neuroses and with behaviour ailments, all of which will be demanding from psychology and social sciences a more firm basis of established facts to build upon. It is a pity that so far there are no signs of a breakthrough in this field comparable with the discovery of penicillin and antibiotics or of the contraceptive pill.

However basic questions like: "What is addiction?" "How can human aggression be contained?" etc. are engaging the attention of medical experts now, which border more in the province of psychology and sociology; but they are all impinging on medicine and are likely to mount in importance. Despite the fact that there are no settled answers, the fact that they are posed shows how far medicine has travelled in this century and how exciting its future is likely to be. As a scientist and as a humanist, the doctor's role is expanding in an exciting profession, which, to quote George Eliot again, will certainly "call forth the highest intellectual strain."