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Edmond A. Murphy

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## Medical Data and Applied Ethics - - Part I

Edmond A. Murphy, M.D., Sc.D.

There has been long recognition that Medicine, because of its human context, gives rise to important ethical problems; and, for better or for worse, Medical Ethics is a well-established subject.

But there is now a newly awakened feeling that the area should be radically reworked and this for two major reasons. In the first place, there is in the field of Medicine a massive increase in factual knowledge; in certain cases, such as the progestational agents or cardiac transplantation, this knowledge has presented ethical problems calling for urgent solution. No longer can one use elaborate evasions over the problem of the nature of death or of the definition of a conceptus. On the other hand the massive accumulation of fact has thrown light on a point which previously was only dimly apprehended, that the state of organization of Medicine is uncomfortably low and that vast areas are lacking in the most fundamental coherence. If Medical Ethics is to develop as a sys-

tematic discipline at all, then it will be necessary to develop an abstract discipline of Medicine and this the profession is ill-prepared to tackle. Indeed the general attitude of its members is one of more or less open hostility towards such an idea.

In the past, the pronounced opinions of specialists have been held in a aura of quite spurious definiteness: the theologian has felt that the medical facts and ideas in the light of which he has been called on to decide an appropriate course of action, are much more definite than is the case. Conversely the medical practitioner seeking advice on an ethical problem has had exaggerated ideas of the refinement of the philosopher's opinion.

This series of papers has been written in the belief that much is to be gained by clearing away some of these misconceptions; and while I realize that this is like to cast me in the role of a nihilist, nevertheless I believe there is more faith in honest doubt than there is in accepting a morass of plausible but specious arguments. It would be better to suspend belief indefinitely than to be content with the fruit of unsound scholarship.

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*Dr. Murphy is Associate Professor of Medicine, John Hopkins University, Baltimore, Md.*

At the outset there are three major classes of problems to confront:

I Semantic problems

II Problems over the sources of fact

III Problems over the interpretation of fact

We may, with advantage, consider each in turn in a separate paper.

### SEMANTIC PROBLEMS

The epistemological watchword of the age is semantics. It may seem tedious to labor this topic but it is indeed a matter of the first magnitude; and since in the present context it operates at several levels of subtlety it will bear some brief consideration.

a. In discussion of medical topics by those outside the profession confusion arises over the technical use of lay words. The theologian is familiar with this difficulty. When he says "I believe in the apostolic succession," and the nutritionist says "I believe in supplementary vitamins," it should be clear enough that the word "believe" is being used in two different senses. Likewise "hope" in the lay and in the theological senses do not mean precisely the same thing.

In the same way medicine uses such words as "tumor" — not exclusively to connote a malignant, cancerous, growth, but in a much broader sense to mean any autochthonous, space-occupying mass whatsoever. Again the word "diseased" in the lay mind is used in the sense that the part concerned is infected i.e. has been invaded by foreign organisms, whereas the pathologist would use the term in a wider sense to indicate that for any reason whatever the limits of the normal have been transgressed.

In such cases one feels that it is the specialist who has been at fault — he canonizes lay words at his peril. And it is up to him to see that any misapprehensions which result are put right. It is one of the major justifications for the invention and use of technical vocabulary that by this means confusion with vulgar usages is avoided. In principle we are all well aware of this pitfall.

b. The second source of difficulty is the converse of the first, where a word, which is from the start technical, undergoes a perversion of its meaning by the careless usages of the ill-informed. Several examples will at once suggest themselves to the theologian. Charity has come in a popular sense to mean the rather condescending bestowal of material things. Abstinence is commonly confused with fasting, calumny with detraction, fornication with adultery.

The medical profession is much more at the mercy of this perversion of meaning because of the promulgation of what passes for truth in the popular press. The term "hysteria" among non-medical people commonly connotes melodramatic screaming fits and not a subtle and pleomorphic psychological disturbance. Many lay people might be surprised to know the meaning of the word "allergy": that for example, it is not possible to be allergic to aspirin or to alcohol. The word "abortion" which signifies the termination, whether spontaneous or not, of a pregnancy at or before a particular stage has in most cases sinister and criminal overtones when used by the laity.

c. One of the advantages of a technical vocabulary is that it has a relatively stable meaning. Nevertheless

technical terms, like the ideas which they represent, undergo evolution. Thus the term "Addison's anemia" is now taken to mean a megaloblastic anemia due to defective absorption of vitamin B<sub>12</sub> and corrected by the administration of intrinsic factor. The actual details are unimportant — it suffices to say that vitamin B<sub>12</sub> was not identified until 1948, (1,2), something like a century after the disease was first described by Addison in 1855. It is obvious that Addison's notion of the disease could not have been expressed in such basic terms.

How far this process is paralleled in theology I would find it hard to say; but while we must beware of what C.S. Lewis calls "chronological snobbery" (3) — the belief that any long-standing idea has automatically been discredited by the passage of time and the vagaries of fashion — nevertheless the expert on Medical Ethics is well-advised to ensure that his references are modern. A major way writings date is that the ideas and the words they deal with are often in a state of alarming flux.

d. This consideration leads to the fourth and by far the most difficult kind of semantic problem. Whitehead with characteristic penetration has pointed out (4) that Aristotle, perhaps because he was the son of a physician, thought in terms of categories. This fact imprinted its stamp on late medieval philosophy which saw categories everywhere even where they did not exist. This in turn has left its stamp on biological sciences. There is never a problem in inventing categories. For example, all mankind can be divided into those over six feet tall and those under six feet. The classification is unambiguous but there is no reason at all for supposing that it corresponds

to any natural grouping. The only one could muster is that the one group could walk in a carefree fashion through a door six feet tall. Whereas the other group would have to bow or scrape. But after all the height of such a door is purely accidental — that even the usefulness of the classification is brittle.

Now one of the most striking features in biology is the range with which true categorizations occur. Two age-old examples stand up fairly well to modern scrutiny — a patient is either male or female; and either pregnant or not pregnant. It would be hard put to think at such a level of any third example. That there are occasional anomalies and ambiguities which mar the cleanliness of these categorizations does not undermine our belief in their naturalness.

The intricacies of Mendelian genetics have thrown up many further examples — for instance, patients can be usefully categorized according to blood groups, hemoglobin types, and certain enzyme peculiarities. But it is important to realize that these instances are exceptional, and for the most part subtle and difficult to study? and the medical profession has fallen into the error of extending the limited success of this approach into areas in which it is quite inappropriate.

The fourth class of semantic problems then arises in connection with those words used to correspond to ideas which are either frankly erroneous or have been analyzed with insufficient clarity to form the basis of any rational abstract argument.

For example, the medical practitioner behaves as if all men of, say, 45 can be divided into those with coronary artery disease and those without. Now

there is a basic ambiguity in the way in the word "disease" as used here. If it is to be used in the aboriginal sense of "dis-ease" i.e. impairment of well-being then the statement may be sound. Patients either have symptoms referable to the malfunctioning of the coronary arteries or else they do not. But this does not mean that there is a discontinuity of the structural changes in the coronary arteries. There is presumably some critical degree of narrowing of the arteries at which blood flow to the heart muscle becomes inadequate and symptoms appear. But there is no reason for supposing that those in whom the impairment is slightly less than critical are healthy. White pointed this out many years ago. (5)

"May there not be quite extensive change in the coronary arteries of many of us, even with narrowing and perhaps small or gradual symptomless occlusions here and there, with no lack of ease and with perfectly normal electrocardiograms? ... It is a comfort for the patient to realize that there is not actually a 100 per cent difference between his coronaries and those of his friend who feels perfectly well; there may be only three or four per cent. He, himself, may be just over the threshold of clinical evidence and his friend just under."

The threshold of narrowing is like the doorway six feet high — the separation it produces is sharp but it is a separation of the consequences and not of the basic mechanisms. There is, of course, nothing logically inconsistent in basing a classification of disease on overt clinical manifestations; but the medical consensus would be against it and I have no doubt that this attitude is wise. But if one is to insist not on bedside manifestations but on basic mechanisms, then the problem of coronary disease becomes a very difficult one. The primordial lesions of the disease — or to be exact, what some of us believe to be the primordial

lesions of the disease — are present in early life and indeed perhaps even before birth. It looks very much as if the early lesions of the disease are indistinguishable from what is known as hemostasis, i.e. the normal process of "caulking" by which the arterial tree is kept water-tight.

It will be even more illuminating — though intellectually even more unsettling — to consider the problem of hypertension ("high-blood pressure.") Whereas in the great majority of cases coronary disease is discovered because the patient has some symptom — usually pain — hypertension does not in itself cause any symptoms and the diagnosis is usually made either on routine physical diagnosis or because the patient has some disorder in which high blood pressure is an aggravating factor. But the matter of diagnosis raises thorny problems. I suppose what we would like would be the existence of non-overlapping categories: let us say that all persons would have a systolic blood pressure either of 100-130 mm. of mercury whom we might call "normal", or of 170 to 300 whom we would call "hypertensive." But such appears not to be the case, though the matter is disputed (6-8). We could tolerate some overlap in the two ranges; but in fact the overlap in the two populations — always supposing there are two populations — is so great that there are more borderline cases than typical ones; and this raises the fundamental issue as to whether our basic assumption of two categories of people is a sound one.

It may be that the categorization is of the same kind as the ability to get through the doorway not only unbowed but also unbloody. The classes of "tall" and "short" people can be changed in a quite arbitrary



fashion by changing the height of the door. Likewise, the categorization into "normal" and "hypertensive" can be altered by an arbitrary choice of the upper limit of normal blood pressure — certainly no natural cleavage point between the two has been demonstrated to everyone's satisfaction.

This basic difficulty must not distract us from the indisputable point that there are better and worse blood pressures. Those with unusually high blood pressures are much less likely than others to survive and maintain good health for any long period of time. But the transition from this state of jeopardy to optimal health is a gradual one; at no point is there an abrupt deterioration in prognosis associated with a small rise in blood pressure. And certainly from a medical standpoint — from consideration of pathogenesis, prognosis or treatment — there is nothing to be gained by converting what is a graded state into an artificial categorization.

Perhaps the one exception to this generalization is the demands of administration. There are situations in which despite the indefiniteness of the notion of hypertension it is necessary to force an artificial dichotomization. It may be a problem of early induction of labor in a "hypertensive" patient. Whatever we may feel about the graduated character of blood pressure, induction of labor is not graduated: it is a strictly all-or-none (quantal) decision.

However, such outcomes are for the most part accidentally quantal. When the standard treatment for severe hypertension consisted of the operation known as sympathectomy there was little opportunity for graduation of treatment: once the surgeon

decided to operate at all, he must as well do a thorough job. But when the operation was replaced by treatment with the first effective antihypertensive drugs, treatment could now be graduated to produce the desired effect; and since to have a sustained effect drug treatment must be perpetual, the decision to treat is completely reversible and the original state of the patient could be restored in those cases where the treated state was, for one reason or another, unacceptable. Thus the spurious dichotomization was a fiction which no longer had to be maintained. In the same way should a suitable medical treatment emerge for high blood pressure in pregnancy, it would no longer be necessary to pretend that there is a categorically distinct state of "hypertension" in pregnancy.

#### THE NOTION OF DISEASE

The foregoing considerations raise the question of how far it is necessary and useful to defend the notion of "disease". The term might be understood in two senses. It might, like "tallness", be used in a very loose sense, to convey a vague attribute of descriptive value but not suitable as a term in a rigorous argument; or it might be considered an exact statement for use in arriving at cogent conclusions. Let the reader consider the two principles, "Tall criminals should not be executed" and "Pregnant criminals should not be executed": he will see that the latter principle only would be legally workable. The fundamental question then is which of these states the notion of disease resembles.

There is, I think, no easy answer to this question. "Disease" is used to denote two quite distinct things; a

process which is in no sense in the interests of the body; and a process which tends to restore the *status quo* and may therefore be regarded as homeostatic.

Thus a cancer is, as we at present understand it, a disorder of growth control (associated with other abnormalities) so that the tissue concerned proliferates without regard to the body's economy.

Now quite different from this is the inflammatory process. Superficially it may resemble a cancer but the manifestations are for the most part the effects of processes tending to dispose of foreign bacteria or harmful physical or chemical stimuli. The increased blood flow, for instance, promotes lymph production which dilutes toxins and increases the supply of white cells and of antibodies. But it also makes the inflamed part hot, red and swollen. These signs then are (other things being equal) welcome indications of an adequate response to injury; and ordinarily medical effort is not directed to abating them. By contrast the manifestations of cancer do not apparently correspond to any useful response and the aim of treatment is to abolish them.

It is thus easy to see that by any reckoning, cancer is an abnormal state; but it is very far from obvious that inflammation is. It is doubtless true that the cause which has provoked the inflammation is in some sense "abnormal"; but insults of this kind are ubiquitous and to contend that everyone is perpetually in an abnormal state is manifestly a meaningless statement.

"What did they live on?" said Alice, who always took a great interest in questions of eating and drinking.

'They lived on treacle' said the Dormouse, after thinking a minute or two. 'They couldn't have done that, you know', Alice gently remarked. 'They'd have been ill.' 'So they were' said the Dormouse; 'very ill.'" (9)

To revert to the subject of hypertension in the light of this distinction we can see a major problem arising. While the behavior of the population as a whole suggests that a blood pressure of say 230/120 is associated with a shorter expectation of life than average, it is also true that the patient's compensatory mechanisms vigorously resist therapeutic attempts to change the blood pressure to more "desirable" levels. However if with sufficiently vigorous treatment this resistance can be overcome, the evidence suggests that a normal prognosis is restored. It thus appears that in such cases the body's notion of the normal (if one may be permitted so anthropomorphic a figure of speech) is perverted. Whether this defect is due to genetic factors or represents a permanent deformation of the homeostatic mechanism by some environmental insult, remains to be seen. But it is at least clear that something like a constructive mechanism may be at work which nevertheless in no sense tends to produce an optimum state.

If I may attempt to summarize this difficult section, clearly there are at least three kinds of states to which the term "disease" is promiscuously applied.

(1) "Purposive" reactions to environmental injury, tending to restore the optimal state or something close to it. The clinical manifestations of disease commonly represent the operation of these compensatory mechanisms.

(2) Similar to (1) but where the compensatory mechanisms are operating towards an objective which is itself harmful or relatively harmful.

(3) Operations which are completely anarchical and not directed by any consideration for the body's economy.

Without pretending to have seen the full ethical implications of these thoughts I consider it at least likely that the ethical arguments based on these heterogeneous usages of the term "disease" may turn out to be quite diverse.

### CONCLUSION

It is well to remember that medicine began as a practical art and has in fact evolved little beyond that. This lack of abstraction has not in fact obtruded itself on the consciousness of the medical profession and there is certainly an exaggerated belief in the degree to which current ideas have been crystallized. This belief has been further enhanced in the minds of those outside the profession; and if ethical principles are to be based on sound scholarship, a much more radical analysis will be necessary.

The simplest and most readily remediable difficulties center on the use of words. The modern philosopher and, increasingly, the modern scientist are aware of this problem and how it is to be circumvented.

But the study of ideas is another matter. By way of illustration the idea of "disease" has been fairly fully

worked out. Many such ideas current in medicine are of a comparable degree of complexity and will require to be examined in at least as much detail if fruitful dialogue is to be achieved.

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