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PRELIMINARY EXPLORATIONS OF THINKING IN MEDICINE*

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Abstract—The hypothesis is offered that physicians employ two different modes of thought which, though interdependent, are in competition. Analytic thought is the reductionist mode of science—explaining things by taking them down to their parts. It is the most public and acceptable mode and is the kind of thought most physicians think they are thinking when they function as physicians. Valuational thought is in opposition to analytic. Valuational thought is an integrative, synthetic, or constructionist mode based on conceptions against which the object of the thought is compared. The conception is the meaning of something we have in our minds. Valuational thought is private as each enriches meanings, and therefore the stored conceptions, through experience unique, in part at least, to the person. Valuational thought appears to be the thought mode of the clinical process as the patient is compared to the stored conceptions of disease, symptoms, etc. Valuational thought is also the primary mode employed in human value thinking. The assignment of Value and the clinical thought process are very similar. Because of this, the argument contends, the increased emphasis on scientific, analytic thought in medicine not only mistakenly tends to drive out valuational thought—the more basic mode of medical thought—but to exclude humanistic considerations from modern medicine since such value actions are also based in valuational thought. It is suggested that a return to a more humanistic medicine will require increased legitimation of and training in the use of valuational thought. The definitions and mechanisms proposed are meant to provide the basis for further research into the nature of medical thought and value behavior.

I am beginning to believe that physicians, without realizing it, use two interdependent but competing modes of thought. One, analytic thought, deals with the technical–scientific and is, in this era, robust, well developed, and popular. The other kind of thought, valuative, deals with the moral and the personal and is less well developed and more private in operation. The mode dealing with the technical–scientific with its apparently greater power seems to drive the mode that deals with the personal into a less accessible position, as though an intellectual Gresham's law were in operation.

Further, it appears as though the medical structure, or paradigm—the organized pool of medical information, conceptions, and beliefs—does not contain or is in conflict with the paradigm or structure in which the personal rests. Indeed, the paradigm of the personal is not even defined whereas the medical paradigm is highly differentiated and systematically instilled into the physician throughout his training.

If these hypotheses are correct, then an understanding of the mechanics of thinking involved in medicine and an awareness of the nature of the medical paradigm—the structure around which that thought is organized—may be an essential part of the remedy of an uncontrolled technology in medicine.[1]

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ANALYTIC THOUGHT IN MEDICINE

The mode of thought most popularly associated with medicine is analytic—the thought mode of the technical and scientific. Indeed, the science that underlies our understanding of the body is a model of analytic thought.[2] Over the centuries that have been occupied in the development of medicine, doctors have, in essence, taken the human body apart bit by bit. Modern medical education, in this regard, tends to recapitulate the history of medicine. The student, in dissecting the body; first in anatomy but then also in biochemistry and physiology, is taught how to think "body". Training in analytic thought is continuous and intensive—almost as if any other way of thinking was "sloppy" or "non-medical" (for which you may read non-scientific).

The analytic thought mode is, by its essential nature, depersonalizing, as each step in the explanation of the body moves further from the individuality of one person's body to the universality of biological process. Indeed, it is precisely that depersonalization that aggrieves us when we complain of the lack of humanistic concern in modern medicine. Ultimately, however, medicine is concerned with persons, and physicians are distinguished in that regard from biochemists, anatomists, physiologists, etc., although each of those disciplines lends its hand to medicine.

BODY AND PERSON VALUATION IN MEDICINE

Let us now turn to the alternative mode, valuational thought. One might also call it synthetic[3] or integrative thought—no term is wholly satisfactory. I have settled (at least temporarily) on valuational or valuative because it seems also to be the thought mode of human values and moral action. *One cannot arrive at human values by analytic thought.*

To see how this kind of valuational thought applies to medicine, it is essential, at the outset, to understand that although physicians frequently deny that they make moral decisions, claiming instead to make only technical decisions,[4] the history of medicine[5] and the daily realities of medical practice makes it clear that much of what physicians do is valuative and moral rather than technical in nature; moral behavior in the sense that it has to do directly with the welfare and good of others.[6]

Thus, even when a physician claims not to be engaged in moral behavior when caring for the sick, the fact that disease resides in persons makes a disregard of the moral and valuative, in itself, a kind of valuative behavior. In the actual care of patients, disease cannot be seen separate from the person in whom it occurs.[7] (Although it is clear that on many occasions, perhaps even most, the course dictated by the technical and the personal are the same—this may lead to the mistaken belief by physicians that the personal has not been weighed or entered into their decisions).

Medicine is concerned with two realms: that of the body and that of the person.[8] A good physician must operate in both realms. (The word "physician" is used here to refer to a clinical practitioner and is best understood in this contest as a "primary care physician". This generally means family doctor, general practitioner, internist or other physician whose primary concern and interest is the care of patients as opposed to some diagnostic technique as, for example, a radiologist).

A treating physician who deals *only* with the body (the technical–scientific) is heartless. The physician who deals *only* with the person is rightly called by his colleagues a "hand-holder". The *art of medicine* joins these two realms; the bridge between body and person appears to be constructed by a weighing and integration of the valuations in each by the physician.

One of the hypotheses, that underlies this attempt to understand thinking in medicine, is that the process of valuation is basic to all discourse between doctors and patients and is an essential part of clinical thought process.

This process of valuation, when it concerns the body is frequently evident. The *valuation of the person*, however, often occurs on an unperceived level.

Body valuation is an essential part of the process of "clinical judgement": measuring and weighing pathological, physiological, biochemical parameters in health and disease. This is the overt subject of the medical school curriculum. Many doctors do, or think they do, nothing else. Even here, perception and acknowledgement of the true nature of the thought seems usually to be lacking. Most physicians would consider their thinking, when they valuate the body, to be scientific—i.e. analytic, when, in fact, it is valuational. We shall see below, after having further defined valuational thought, that usually the analytic thought mode is confined to explaining or making manifest the logic of a decision, or making clear an understanding of biological mechanism.[9] I think this will be easier to show after demonstrating how fundamental to medicine is the consideration of the moral. (It may seem strange to look to a consideration of moral thought to give insight into clinical thought, but it is in that seeming paradox that the advantage lies. We *know* how problematic is thinking about values and thus can both look with a fresh eye and I can ask a measure of tolerance for my speculation. In clinical thought it may not be clear that a problem exists and in any case one may have little tolerance for speculations that threaten such a seemingly functional system.)

Valuation of the person concerns the complex process by which the *patient's* personal valuations and beliefs and those of the group to which he or she belongs enter into the decision-making process. Valuations of the person (the values of the individual) have been much discussed recently as part of ethical decision-making in medicine.[10] It has become relatively easy to perceive these valuations when they deal with large moral questions, such as when to turn off the respirator, organ transplantation, telling the dying patient, and so forth.[11] In fact, physicians are criticized today for taking on themselves the tasks of making moral valuations of this important nature, as though making moral valuations was not the function of the physician.[12]

I believe that the process of *valuation of the person* is an inherent and necessary part of the art of medicine, occurring at all levels of the doctor–patient interaction. This valuation of person is dialogic in nature, involving a give and take between patient and physician.

When it occurs on a small, intimate basis it can be as simple—and as necessary—as helping a patient decide whether his injured back is serious enough to keep him from driving to visit his children in summer camp. The body-valuation of the degree of injury to the back, is seen clearly to be part of the physician's function in making a diagnosis. In instances of this sort, which occur many times a day, the physician is asked to measure and weigh a set of personal valuations. (Importance of the children to the patient, how long since he has seen them, his perception of their need to see him, his beliefs about his back and what a worsened back would mean to his life and work, etc.), against body valuations. (It might be argued that personal valuations are none of the physician's business and that his job is merely to make the diagnosis and to give body-information when asked—rather like a stock market quotation. It is difficult, however, to conceive of a patient who would be satisfied, or feel himself well served, by a doctor who had such a limited concept of his function.)

The above example demonstrates that the process of valuation of person is so intertwined

with body-valuation in the practice of medicine—particularly among primary care physicians —that separation occurs on an artificial and conceptual level only.

Another example of how the physician must enter both and person valuations into decision-making is the following: A 57 year-old man is seen in the emergency room of a New York City hospital with chest pain that is not characteristic, but suggests the possibility of a heart attack. There are no other findings to confirm the diagnosis, but the troubled physician suggests hospitalization. The man replies that he lives in Maryland and wishes to take the train home. The physician is sufficiently suspicious to indicate that such a long trip is unwise and that the man should stay in hospital. Given such a situation one can see that medical decision-making would change relative to the following (A) personal, or (B) physical information. (*A*) *Personal Situation*: (1) The man says his wife has the "flu" and he must go home to her. Or, (2) the man says that his wife is dying and he must return to her. (*B*) *Physical Situation*: During the dialogue the chest pain worsens and the patient shows signs of impending shock.

The physician *must* take the condition of the wife into account, just as he *must* take into account the condition of the man—both are part of the patient's condition. Such medical decision-making is particularly difficult because of the probabilistic nature of the events involved. The physician who refuses to take personal evaluations into account, such as the dying wife, would be considered merely a technician by the same people who criticize him for entering into moral decision-making at the highest, most obvious level. (The physician who took only the personal valuations into account would be remiss in his obligation to the body).

EXAMINING VALUATIVE THOUGHT

What values are and how to measure them has been a source of endless difficulty in science and philosophy.[13] One stands poised to step into the swamp of studying value thought with the greatest trepidation. But I have already discussed the vital importance of valuation to the art of medicine, showing that the process of valuation occurs in both the person and body realms and is a fundamental part of day-to-day medical practice. Thus, despite the difficulties, it is necessary to propose certain preliminary constructs and definitions as a basis for understanding the process of valuational thought. It is clear that these constructs may prove inadequate. They are heuristic devices, to enable data collection, further study and the construction of more refined concepts and understanding.

Basic to understanding the use of the terms valuation, structures of values (or paradigm), value-ordering, etc., is an understanding of the word *conception* (for which you may read concept, mind set, framework of reference, category, intention.) A *conception* is used here to mean the content we have in our minds about a thing. It is all those characteristics, or features, or elements with which, in our heads, we define the thing. Parts of a conception may be ideas, symbols, beliefs, or feelings about the thing. A conception, then, is a meaning existing in our heads. Two people may have the same conception, a group may share a conception, or a person may have a unique conception. A conception does not have to be "accurate" or "true". It may be small, as in the conception of a pencil or blood vessel, or large, as in the conception of justice or health.

Conceptions do not, so to speak, float around freely in one's head. They are related to one another and built from one another. The relationship of conceptions to each other is

determined by the *structures of value* (for which you may read paradigm, world view,[14] belief structure, outlook, ethos, cosmology). As conceptions are the meanings of things in our mind, it is the *structures of value* that relate the meanings to each other, or give the meaning of meaning. The structures of value are our ideas about the universe. More than simply our ideas, the paradigm is the fabric that ties our ideas together; to which we refer new ideas in our minds. As with conception, a structure of value need not be "true" or "accurate" but will usually be used to judge whether a conception is "true" or "accurate". Structures of value or paradigms may also be large, as exemplified by a belief in God, or small, as with the structure of the family. A paradigm is a higher order "truth" than a conception. Ultimately then, a structure of value or paradigm is an organization of conceptions.

The process of valuation has more than one aspect. As used here, it involves the measurement of something against a chosen conception.[15] We ask ourselves to what degree do the features of the thing in question correspond with the characteristics of the conception selected. The act of taking a measurement of correspondence establishes the conception as a framework of reference within which the thing in question is valuated. If the degree of correspondence is high, then the valuation in the given set (i.e., the conception) is also high. Similarly, if the degree of correspondence is low, then the valuation within the given set is low.

A sufficient correspondence would establish that the thing in question is in fact whatever is defined by the chosen conception. A precise and complete correspondence of characteristics would establish that the thing in question was a "good" one of the things defined by the conception. Little correspondence would indicate a "poor" one of those things. And, no correspondence (in some cases, little correspondence, also) would indicate that we were working with a thing wholly unrelated to the conception against which it is being valuated, or that our conception needs to be changed.

A simple inventory of correspondence, however, does not sufficiently indicate the process of valuation. Some characteristics of a conception may be weighted more heavily than are others. In fact, the constituent elements of most conceptions are given importance (for purposes of valuation) according to the degree of meaning, precision, or uniqueness they supply those conceptions; that is, according to the defining power they possess. As an example, see the definition of fever found in Webster's Third New International Dictionary (definition b): "an abnormal bodily state characterized by increased production of heat, accelerated heart action and pulse, and systemic debility with weakness, loss of appetite, and thirst." In this conception the characteristic "increased production of heat" may be more important than "loss of appetite, and thirst."

This weighting of characteristics may lead to instances where little correspondence of features exists between a thing in question and a chosen conception, yet because of the presence and correspondence of one heavily weighted or important characteristic, the thing in question is valuated highly within the chosen conception. Or, conversely, in the event of high correspondence and the absence of a single important or heavily weighted characteristic, the chosen conception may be rejected. For instance, within the conception of fever cited above, the presence of "increased production of heat" alone may sufficiently complete the set defined by the conception of fever to warrant the conclusion that fever exists. And, the absence of this characteristic, even in the presence of all other defining features, may warrant the conclusion that fever does not exist.

Some preliminary evidence suggests an alternative manner by which valuation may

change. In the example above, the definition of fever chosen from the dictionary was a definition prevalent during the 18th and 19th centuries when fever was considered a disease itself. There, increased production of heat was not essential to the definition. The emphasis on one characteristic of the conception as more important than the others suggest, rather, a change in conception—a change in meaning. The early evidence suggests that the process of valuation depends heavily on the use of adjectives in the weighting of characteristics. See, for example, the definition of fever cited above.

The process of valuation may also use conceptions in a normative sense. A person's conception of a thing may be used to tell themselves when they are in the presence of the desirable. It may also be used as a standard or criterion upon which to comment on the behaviour of another individual, as in the making of "value judgements". Or as the standard or criterion used in making choices. It is this latter normative aspect of the process of valuation that has received the most attention in the study of value phenomena.

VALUATIVE THOUGHT IN DIAGNOSIS

Let us return to medicine in order to demonstrate how the same mode of thought that operates on value phenomena applies to the body. For example, when a physician sees a patient with cough, fever and chest pain, the diagnosis of pneumonia may suggest itself. The term pneumonia applies to a conception just as the terms pencil or chair refer to their conceptions. The conception "pneumonia" is defined within the doctor's head by a set of features or elements against which he begins to measure those feature of the patient's illness. Not only are the symptoms part of those features, but things to be found by examining the patient, his blood, his X-ray and etc. are also part of the set of characteristics that give the conception "pneumonia" its meaning. The valuation of the patient, then, weighs and measures the things to be found out about the patient against the conception "pneumonia". If the correspondence of the patient and the conception are very high, then pneumonia may be diagnosed with considerable certainty. If the correspondence is less high, or even low, then certainty diminishes and an alternative conception may be sought—for example, bronchitis. Again the measure of correspondence proceeds until a match is made or unmade. If no good correspondence can be made between the features of the patient's illness and the conceptions of the physician, the illness may be dismissed as unimportant—the patient may be told he has a "virus". The diagnosis "virus" is not of the same order as pneumonia or bronchitis within the medical paradigm and is primarily intended to give the patient a name for the illness. (It is beyond the scope of this article to discuss the function of giving the illness a name, but the name, to the patient, is similar, in valuational terms, to a diagnosis for the physician.) Or, the physician may achieve no correspondence between diagnostic conceptions and the patient's illness and yet find a high correspondence between the features of the illness and the conception "very sick"—such a result would cause him to continue the search or take some other positive action.

The conceptions "pneumonia" or "bronchitis" or even "lupus erythematosis" as I have portrayed them are relatively stylized and seem to bear little relation to value thinking or moral thought. (However, see how similar the thought method is to thinking about "good" clocks, rugs or even works of art.) That is because of the firmly bounded nature of the conceptions as I have portrayed them. They are concrete. That is the way they are found in textbooks of medicine and perhaps the only way they can be taught to the novice.

Within a short time, experience begins to enlarge a conception—add features discovered through practice. At this juncture the concreteness begins to diminish or seem to diminish.

The more experienced practitioner has seen cases of pneumonia where very few of the stylized features were present or, conversely, non-pneumonia where all the features seemed present. Now the intricacies of valuational thought leave simple explication and approach the richness of thought we call experience.

Early in the treatment of patients, *valuations of person* enter judgement. The presentation of a symptom is also complex. The person feels something and then reports what he feels. But to the patient, as to all of us, events must be explained. The patient, then, has already started to give meaning to the symptom and the physician must disentangle the report of the alien body sensation from the meaning (conception) assigned to it by the patient so that the physician can assign meaning (find the relevant conception) within the medical system. To carry out such disentanglement the doctor must have some idea of the valuational processes being followed by the patient. (It is clear that not all, perhaps few symptoms require such complex disentanglement to allow the physician to use them diagnostically, but it is probably the rare symptom that a person experiences that he does not operate upon valuationally.)

When patients are cared for, a knowledge of the conceptions in which their illness, the medical setting, the treatment or the outcome are being valuated is essential if the person is to be treated, not merely his disease. Here the nature of the conceptions themselves change. As the conception of pneumonia is concrete and finite, the conceptions "disabled", "obligations to wife", "dying" and so forth are vague, poorly defined, and perhaps infinitely variable. Yet they are vitally important to the care of the sick—if one does not want to merely care for the disease and ignore the person. At this point the valuations of person that the physician must carry out are indistinguishable from the other complex value or moral thought. But the basic method of valuation, whether it be in the bounded conceptions of disease or the seemingly unbounded conceptions of the person, seems the same. The physician, at the bedside, asking questions of the patient about his cough, pain, wife, job, and so forth, is eliciting characteristics and features that must be entered into the calculus of valuational thought which is fundamental to the diagnosis and treatment of the patient.

ANALYTIC THOUGHT IN DIAGNOSIS

What part does analytic thought play in this diagnostic process? If the physician were to analyze his case for us, in justification of his diagnosis, he might say the pain is sharp and aggravated by cough and breathing suggesting involvement of the pleura. If it were dull and tight and confined to mid-chest, it might suggest the pain of bronchitis. The fever, also, is higher than you find in bronchitis. The illness started more suddenly and severely than bronchitis, and while the blood-flecked sputum might also be found in pulmonary embolus (clot in the lung), there is nothing to suggest a source for the clots; and so forth.

In doing this he is taking it apart feature by feature in order to demonstrate the correspondence between the particulars of the patient and the internalized conception he favours. From his dissection we can follow his reasoning and ourselves arrive at a similar diagnosis. But only if we share his conception (in whole or part). There is nothing intrinsic in these features that say "pneumonia" if one does not have the conception in the first place or is not prepared to adopt it. The conception "pneumonia" is a category whose explanatory value lies in its existence. Its existence is a necessary way of organizing real events.

If we were to ask the physician why chest pain figures in the diagnosis he might not say "because it is a feature of pneumonia". He might recognize what a sterile explanation that

seems and instead explain that the chest pain comes from the rubbing together of the inflamed covering of the lung and lining of the chest. This, in turn, is due to the inflammatory process in the lung, which is due to the body's response to the pneumococcal bacteria, which in turn is due to . . . and so forth. Those are truly analytic statements which rationalize, or explain, the features of the conception. While "true" and necessary for real understanding of pneumonia, their value to the clinical physician who cares for patients is dependent on the existence of the conception "pneumonia". There is no way to take the entire series of relevant analytic statements and re-compile them to arrive at the conception pneumonia in any but its barest outlines (if at all). The conception is the organizing unit. That is not to say that the internal validity of the conception—does this or that feature rightfully belong —cannot be tested by analytic thought, because that is one of the vital functions that analytic conclusions play in conception maintenance.

COMPETITION BETWEEN BOTH MODES OF THOUGHT

But which of the two kinds of thinking do we value most highly? That is, which is the most acceptable for classroom demonstration, public announcement or pronouncement of science? Certainly in this era, an explanation of pneumonia that showed how the pneumococcus excited a response by the lung which in turn produced an inflammation which in turn . . . , and so forth, would be more acceptable than an explanation which suggested that pneumonia is pneumonia because it has the characteristics of the conception pneumonia as pronounced by Professor X. The analytic would be more acceptable than the valuational despite the fact that it is dependent on the pre-existence of the conception. I am aware that the way I have stated it does honor to neither valuational nor analytic thought. The language of science is indeed richer than I have indicated just as in real life, valuational statements are richer.

Since I am trying to show how one method of thought is in competition with the other in the public market place of medicine it seems odd to come to the conclusion that they are totally interdependent. And, perhaps more odd to hypothesize that analytic thought has driven valuational thought underground and in so doing undermined both moral thought and the ethical and moral in medicine (and true clinical thought at the same time). In order to clarify the argument it is necessary to see how each kind of thinking is developed and enriched.

DEVELOPMENT AND ENRICHMENT OF ANALYTIC THOUGHT

Analytic thinking is enriched by following each conclusion to the necessary underlying conclusions. Why does the pneumococcus produce an inflammation in the lung? Because of the body's response to foreign substances. Now we follow the exciting trail of white blood cell scavengers; and how they come to the scene of invasions; and how they engulf the bacteria and kill them; sometimes dying and producing exudate (pus) in the process. How some bacteria have better defences than others by virtue of capsules around their cell walls. The chemistry of the cell wall and capsule and their relationship to the immune mechanism of the body. The relationship between an antibody and an antigen. Knowing those things for pneumonia, we can explain other diseases: each step is fascinating in itself and builds a fabric of knowledge that is also fascinating—but even further removed from the person in whom the disease occurred. More wonderful is the way we can make explicit each step in the reasoning process. By so doing we excite the interest of others in the educational process and they, too, join the pursuit as each answer produces another question. The rich-

ness lies in the details open to all who will enquire and the developed fabric with the answer to so many questions in a life beset by questions. Little does it matter that the answers are to questions that little trouble us when we wonder about ourselves and our lives.

DEVELOPMENT AND ENRICHMENT OF VALUATIONAL THOUGHT

Richness in valuational thought lies in another direction. There it is the investment of each conception with greater detail as experience finds existing detail wanting. In medicine, at least, each new experience means another exposure to the disease and consequently to a person with the disease. How to disentangle the features of the diseases from the people who contained them. Commonly we hear physicians speak of a case "I once had a case like this, he was a sargeant when I was in the army, who . . ." In the recitation we hear a person detailed as part of the case. Each case is unique, and gradually so is each doctor's conception of the disease. The good physician learns to disentangle the elements in his thought but they remain, in part, unique to him. If he is a good teacher he may be able to share his knowledge, but we can pretend no democracy or universality of experience here, as in the demonstrations of analytic thinking.

Thus, just as analytic thinking in medicine leads ever further from persons and is open to all, valuational thought leads ever closer to persons and is ever more private.

CHOICE OF ANALYTIC OVER VALUATIONAL— THE SCIENTIFIC OVER THE MORAL

Further, we are aware that each doctor brings to his observations something of himself. Were two physicians to experience the same patient at the same time, they would see different things; enrich their conception in different ways. These differences are the essence of the subjective. Have we not been brought up to believe that subjectivity is the enemy of science—even truth?

Furthermore, is it not a tenet of our faith that we are all equal before the mysteries of disease? Analytic thought supports the faith and valuational thought denies it. So we suppress—for public consumption at least,—that which runs counter to the public faith. In this manner the one kind of thinking—analytic, drives the other—valuational, into hiding.

Thus the kind of thinking used for moral evaluation is stunted in favor of the kind of thinking used in science.

One might argue that the competition between modes of thought does not explain the mechanistic thrust of modern medicine since it is conceivable that conceptions of disease might contain as part of their characteristics, elements of the personal. Or, if not, that other conceptions devoted to the personal might be considered essential referents for the practicing physician. Attempts to create referents such as "treat the whole patient" have not been particularly successful. To understand the absence of the personal from the medical paradigm we must first see the importance of the conception to scientific thinking in medicine.

THE USE OF THE CONCEPTION IN ANALYTIC THINKING

In earlier parts of this discussion it might have seemed that the conception was basic to valuational thought, but incidental to analytic thinking. That does not seem to be the case, rather the conception plays a central role in both modes of thought. In valuational thought, as we have seen, the conception is the model against which experience is measured, and by experience, enriched. In analytic thought, the conception provides the substrate for

analytic reduction. The features of the conception are taken apart and explained in ever greater detail, and by such examination reaffirmed or changed. In other words, as noted earlier, one cannot explain the characteristics of pneumonia without having the conception "pneumonia". And one cannot maintain the conception of "pneumonia" unchanged in the face of changing experience or nonconfirmatory explanation. Such a view of conceptions is a dynamic one but such dynamism, uncontrolled, is in itself a threat to science.

THE MEDICAL PARADIGM

If conception formation is essential to scientific explanation, and a feature of science is the possibility of universal understanding, then conceptions must be shared by more than one scientist or physician to the greatest extent possible. For this purpose the fixed conception is necessary. Another, simpler way of saying this is to say that physicians must have standardized definitions of disease if they are to do research on the causes of disease, compare treatment programs, or teach students at widely separate parts of the globe with any hope that learning in London will be useful in caring for patients in New York. Indeed, such standardization has been one of the hallmarks of medical progress in the last century. Conceptions are built of one another and related to each other and so did we not already know of the importance of systems of classification and heirarchies of category we would have to postulate their existence. Such a system of inter-related conceptions about disease and its causes constitute the medical paradigm—the structure of medical values.

Systems of classification are not unique to modern scientific societies, Levi-Strauss[16] has shown us in great detail the construction of classification schemes by primitive tribes that are employed to organise reality. The complexity of such categorical relationships, inter-relationships and heirarchies is immense, whether we are presented with botanical taxonomies or totemic organizations. The presence, in so-called primitive peoples, of conceptual structures that seem no less intricate than more sophisticated scientific schemata attests not to the sophistication of the primitive nor does it denigrate the advanced nature of scientific schemata. Rather, we are shown how essential classificatory schemata are to all organized thought. Indeed one is forced to speculate that such organization is essential to thought itself.

Modern medicine has spent centuries in the development of the present medical paradigm. However the fullest, most cohesive development seems to have taken place in the last 100–150 years with the development of the cell theory of disease and bacterial etiology of infectious diseases. These two developments seem to have provided the basic models for the structural nature of disease and useful concepts of disease causality. Indeed, the extension of Virchow's original concepts to their present day sophistication as we search for biochemical explanations for all human phenomena attests to the richness of understanding that analytic thought can provide. (One might note that our continued failure to understand the nature of being and the moral fabric of man is a strong argument in favor of the hypothesis that analytic thought has developed well ahead of valuational thought, if not at its expense.) We search in vain in the modern structures of value in medicine—the medical paradigm—for references to the essentially moral nature of medicine and concepts of person. They seem, quite simply, not to be present. One can speculate that they are absent because they have no scintific basis, but then our argument would approach circularity. But circularity is probably one of the characteristics of a paradigm and its supporting analytic framework. As Kuhn[17] has shown so well in science, the paradigm organizes our vision and our vision searches for that which supports the paradigm. Here, as in other biological

systems, we find a homeostatic mechanism—the maintenance of the status quo. And around our paradigms we erect structures, psychological, social and environmental, which serve further to reinforce the original paradigm.

As pointed out elsewhere[18], the absence of concepts of person from the medical paradigm may have its origins in the Cartesian duality and be supported by the mind–body controversy that has continued to the present time.

ENRICHING THE MEDICAL PARADIGM

This discussion has been based on the hypothesis that some of the apparent lack of humanistic concern in modern medicine derives not from the surface failures of well intentioned physicians, but arises from the structure of medical thought. I believe that the mode of thought of science and the mode involved in the personal are different and, within the mind of the physician, in conflict. Further, it seems probable that the medical paradigm—the organized scheme of medical conceptions, beliefs and information—does not contain or is in conflict with the paradigm in which the personal rests. In support of these hypotheses a preliminary construction of the nature of value thought was advanced and shown to be essentially similar to the kind of thought the physician uses in the care of patients.

The speculative nature of the ideas proposed is apparent, but the definitions and mechanisms proposed for valuational thought are meant to be heuristic devices that will enable them to be tested by research into the nature of thought and the structures of value and belief in medicine. Such investigations have begun, but the difficulties are considerable. However difficult, the work seems necessary, since basic changes in the thrust of medicine would not seem possible without a change in the paradigm and an increased legitimation of valuational thinking.

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