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THE DIMENSIONS OF ILLNESS: A PHILOSOPHICAL
APPRAISAL OF CLINICAL MEDICINE

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ABSTRACT

This study is a philosophical appraisal of clinical medicine and the dimensions of illness which constitute the concern of clinical medicine. It was my intent to illustrate the practical and theoretical orientation of traditional medicine in so far as it bears on the understanding and treatment of contemporary health problems.

A broad philosophical analysis of medical science, medical practice and the concepts of health and disease was introduced by considerations of the place of psychiatry in medicine. Critics of psychiatry have argued that mental illnesses are problems in living rather than diseases and therefore not properly medical problems. My broader analysis of medicine suggests that the antipsychiatric movement is in error because it is problems in living that are the proper concern of medical practice. I argue that diseases are scientific abstractions used to explain these problems and that attention to them rather than to the multiple dimensions of illness results in a clinical medicine which is impracticable and poorly suited to meeting contemporary health care needs.

After criticizing what I take to be an outdated medical theory and practice, I offer the rudiments of an alternative theoretical approach which I think is better suited to the understanding and treatment of contemporary

health problems. This alternative theoretical approach is founded in systems theory. In medical science the application of systems theory is a way of organizing and accounting for the contribution, to the initiation or expression of illness, of numerous levels of an organism's structure or functioning. From the standpoint of clinical medicine, systems thought serves to reorganize clinical data and health-care services in such a way that treatment is comprehensive and appropriate to the particular patient.

My conclusion suggests some of the ethical and social consequences of this alternative theoretical approach to health and illness. In particular, I give consideration to the practical and moral responsibility of the patient for his or her own health and care.

PREFACE

Many of the ideas presented in this thesis are not new and seem to be merely the dictates of common sense; nevertheless, it is important that these ideas be presented. It is my belief that the philosophical examination of a problem will serve to unify our thinking and make our actions more clearly defensible. I hope that this examination will help provide a conceptual framework that allows for the development of a more comprehensive and coherent approach to the satisfaction of our health care needs.

I want to thank the Department of Philosophy at The University of Tennessee, Knoxville, for giving me the opportunity to pursue these studies, and L. V. A. for the patience and encouragement provided throughout the period in which I was beginning to collect my thoughts.

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INTRODUCTION

In recent years there has been a great deal of debate over whether or not mental illness is a medical problem. It is my belief that both sides, those arguing for and those arguing against the medical legitimacy of psychiatry, have reached their positions in haste. To determine whether or not mental illness is a medical problem, we must first consider what "illness" is and then examine the social and theoretical structure of medicine. It is my thesis that mental illness is sufficiently like physical illness to warrant treatment by the same institution, and I will therefore refute two arguments that attempt to establish a dissimilarity between the two conditions. Critics of psychiatry argue first that a judgment of mental illness is normative while a judgment of physical illness is not. Second, they argue that mental illness is unlike physical illness because mental illnesses are not manifestations of diseases. In opposition, I will argue that all judgments of health and illness are normative, and that the medical concept of disease is of little practical value in distinguishing between mental and physical illnesses. I will draw a distinction between diseases and illnesses and argue that medicine often treats illnesses regardless of whether or not they are manifestations of disease. Consequently,

mental illness is sufficiently like physical illness to be considered a medical problem.

In my first chapter, I will argue that physical medicine, no less than psychiatry, works to realize social and personal goals. Antipsychiatrists contend that physical disease is a fact of nature, that judgments regarding the proper functioning of the body are objective and can be rendered through scientific inquiry. This is wrong. Historical and anthropological studies show that definitions of somatic health are culturally relative and normative.

My second chapter will be concerned with the argument that mental illness is not a medical problem because it is not the manifestation of a disease. This chapter will draw a distinction between "illness" and "disease" arguing that "illnesses" are the problems in living with which patients and society are concerned, and "diseases" are medicine's way of explaining "illnesses." My argument in this chapter is that problems in living are the proper concerns of medical practice but that medical practice loses sight of this fact when it faces many illness conditions. Rather than attending to the actual clinical phenomenon of illness, the nature of illnesses has come to be understood in terms of the available disease theories rather than visa versa.

My third chapter will be a discussion of medicine's explanation of illnesses or "diseases." I will argue that medicine's disease theories are impracticable for mental

illness and several chronic somatic diseases that are today's major medical problems. As I see it, this practical inadequacy is the result of a conceptual bias against the social and psychological dimensions of illness. I will argue that our explanations of illness, be they biological, psychological or social, produce distortions when applied singularly to the clinical picture. Clinical phenomena tend to overwhelm the categories constructed to confine them.

My fourth chapter will provide an alternative theoretical approach in medicine which makes greater sense of illness phenomena than do our contemporary disease theories. I will begin with an outline of the applications of General Systems Theory¹ in biology and examine its practical consequences for medicine as drawn together in George Engel's "biopsychosocial" model of medicine.²

My conclusion will summarize my argument and then make some further suggestions regarding ethical and social considerations introduced throughout this thesis. In particular, I will point out the relationship between our explanations of illness and the role and responsibilities of the patient for his or her own health and care.

¹Ludwig von Bertalanffy, General Systems Theory (New York: Braziller, 1968).

²George L. Engel, "The Need for a New Medical Model: A Challenge for Biomedicine," Science, 196 (1977, 129-136).

CHAPTER I

IS ILLNESS A NORMATIVE CONCEPT?

Those who debate the problem of whether or not mental illness is a proper medical concern often raise a question similar to this: Is mental illness merely a label that society applies to disvalued behavior, and therefore like criminality, or is mental illness like physical illness and therefore a proper concern of the medical establishment? My research has led me to the conclusion that this is a bad question. As stated, the question forces us to establish a dichotomy between social standards and/or personal values and the ends of medical practice, a dichotomy which I contend does not exist in practice. This question also fails because it expresses an ignorance of medicine's various social roles. It is my first proposition in this thesis that medicine, like the penal system, is an institution which serves to realize both personal goals and social standards.¹ As judgments of physical illness are no less normative than judgments of criminality, it cannot be argued that the normative basis of psychiatric diagnoses makes them unlike the diagnoses of somatic medicine.

¹By "social standards" I will mean those standards of behavior set independently of the individual, having a history prior to him and often being institutionalized so as to have coercive power.

Such a question as that about how to best understand mental illness has arisen recently out of the work of Thomas Szasz.² It is Szasz's position that the diagnosis of mental illness is a judgment of "unacceptable deviance" made by society, while the diagnoses of somatic medicine are non-normative. Szasz therefore concludes that mental illness is not a medical problem. The same point is advanced by Anthony Flew. According to Flew, while crime is a function of the legal system and therefore what counts as criminal varies in both time and space, disease is different. He writes,

. . . at least as regards disease the norms involved seem to be comfortably undisputantious. Where there is agreement about clinical facts we do not expect doctors, even from very different cultures . . . to disagree more than very occasionally whether a patient is or is not physically diseased.³

Flew's suggestion, like Szasz's, is that the determinations of somatic medicine are non-normative.

Among those opposed to the position of Szasz, and at the opposite extreme, is A. M. Ludwig,⁴ according to whom all cases of mental illness will be found to have a somatic basis. According to Ludwig, it is therefore appropriate

²Thomas S. Szasz, "The Myth of Mental Illness," The American Psychologist, 15 (1960), 113-118.

³Anthony Flew, Crime or Disease? (London: Macmillan, 1973), p. 40.

⁴A. M. Ludwig, "The Psychiatrist as Physician," Journal of the American Medical Association, 234 (1975), 603-604.

for the medical profession to be concerned with mental illness. I will argue for a position between these two extremes. I recommend that even if no biological basis can be found for the functional⁵ mental disorders, they are still properly categorized as medical problems.⁶

In the first section of this chapter I will argue that there must be a normative foundation for medical practice--this will follow first from a conceptual and then an anthropological analysis. The second part of this chapter will be concerned with the problem of determining what standards are, and should be, used in establishing the norms of medical practice. I will argue for a minimal notion of health based more on social rather than personal standards of acceptable functioning.

The Normative Foundation of Medicine

It is obvious that clinical medicine is normative in so far as it functions to realize the social or individual

⁵Functional mental illnesses are those which have no known organic basis. These are the conditions which Szasz calls "problems in living"; organic disorders are "true diseases" for Szasz.

⁶Szasz's contention that all diseases have a somatic basis could prove to be a problem for him when we recognize that some physical illnesses have no known physical cause. Szasz, in response, would say that we could still differentiate between a cancer, without known physical cause, from a mental illness without known physical cause, on the basis of their symptomology, one having somatic and the other behavioral or psychological symptoms. Considering the studies relating psychological stress to stomach

standard of health; more important is the delineation of the end of health that is sought. Christopher Boorse and Szasz would grant that medicine is value-oriented in trying to realize the value of "health," but would insist that the term "health" is itself value-neutral. According to Boorse, health is an objectively definable state which can be established through purely descriptive methods. Boorse contends that health is normal functioning ". . . and that diseases are deviations from the species' biological design. . . ." ⁷ Boorse uses the term "normal" in a purely statistical sense: we can determine how an organ should function from the knowledge of how most do.

In opposition to Boorse is the position of Joseph Margolis⁸ who writes that dysfunction is an evaluative rather than a descriptive term. According to him, something functions well only in relation to some end. If this is the case, and I think it is, Boorse can found his notion of dysfunction only on a descriptive basis with an appeal to an essential species-norm for biological functioning. Such

ulcers, or the relation between lead poisoning and psychological and behavioral symptoms, his symptomological distinction carries little weight.

⁷Christopher Boorse, "Health as a Theoretical Concept." Philosophy of Science, 44 (1977), 542-543; Christopher Boorse, "On the Distinction Between Disease and Illness," Philosophy and Public Affairs, 5 (1975), 49-68.

⁸Joseph Margolis, "The Concept of Disease," The Journal of Medicine and Philosophy, 1 (1976), 230-255.

a position is "teleological" in a sense which Aristotle might advance and is hardly defensible on scientific grounds.

I think that it is a fair description to say that the activities of living things function in such a way as to bring about certain consequences. More questionable is the often implicit claim in such a position that these consequences should be pursued. Herein lies the teleology that is scientifically indefensible. Living things, for example, attempt to maintain and perpetuate themselves; this is a fact of nature well illustrated in evolutionary biology. Yet it is important to realize that this maintenance is not in itself a good or a bad thing. Living things appear to have ends, but we decide whether these ends are "good." In a comatose patient, the heart may struggle to keep the brain alive, but we decide whether the heart's activity is good or bad depending on our chosen purposes. It is the case that most persons agree to such values as life and freedom from pain, and for this reason they will call similar states functional. It is this virtual universal agreement in favor of such values which enables us to forget that a value judgment, even if implicit, is being made.⁹

⁹Martin Hoffman, "Philosophical Aspects of Mental Disease," Australian and New Zealand Journal of Psychiatry, 12 (1978), 29-33; Peter Sedgwick, "Illness--Mental and Otherwise," Hastings Center Studies, 1, No. 3 (1973), 19-40.

According to Hoffman, it is this widespread agreement as to the norms of somatic medicine that produces the confusion in Szasz's position. Szasz contends that mental illness is unlike physical illness because the former is founded on a value judgment while the latter is not. In fact, both judgments of illness are founded on our norms. Consequently, we cannot distinguish mental and physical illness on these grounds.¹⁰

Anthropological studies also support my contention that all judgments of health and disease are normative. According to Stephen Kellert, we can draw a distinction between a sociocultural and a traditional medical view of health and disease. The latter view is based on certain specific physical or psychological symptoms which, whenever present, are regarded as indicating pathology and a need for intervention. Because of this, Kellert explains, in traditional medicine health and disease are thought to be universally definable, non-normative determinations. Conversely, the sociocultural approach views health and illness relativistically, as defined in accordance with the standards of acceptable adaptation employed by social groups.¹¹

¹⁰Hoffman, op. cit., p. 30.

¹¹Stephen R. Kellert, "A Sociocultural Concept of Health and Illness," The Journal of Medicine and Philosophy, 1 (1976), 222.

The same point is made by Horacio Fabrega¹² in his analysis of medicine as a social institution.

According to Fabrega, medicine is a social institution designed to remedy and explain various social evils. This is the way that medicine is like a legal or a religious system. They all have conceptual structures that attempt to explain, and practices that attempt to remedy, various dysfunctions. Fabrega and Kellert both contend that what counts as disease and how it is responded to is contingent on the functional demands of the individual's particular social order. As Fabrega explains, in primitive cultures where the conceptual structure of the medical science is not advanced, a condition only begins to have medical import after it begins to affect the individual's capacity and performance as a member of a social group. Social behavioral changes, involving verbalizations, changes in appearance, and interferences in physiological or social function served as primary indicators of disease.¹³ Kellert writes that the initial step in illness determination is this "social screen" which occurs before the patient ever

¹²Horacio Fabrega, Jr., "The Function of Medical Care Systems: A Logical Analysis," Perspectives in Biology and Medicine, 20 (1976), 108-119; Horacio Fabrega, Jr., "Need for an Ethnomedical Science," Science, 189 (1975), 969-975.

¹³Fabrega, "Need for an Ethnomedical Science," p. 970.

begins to think his problem is medical.¹⁴ Once the socially dysfunctional individual passed through this screen, his condition is evaluated by the medical care system that has evolved to care for these dysfunctions. The medical institutions then use more fixed indicators of dysfunction to further qualify the individual's condition.¹⁵ Thus in primitive cultures, the notion of disease and the medical care provided are patient-centered and problem-oriented, the primary dysfunctions being social and psychological and only secondarily biological.

Contemporary medicine, with the exception of psychiatry, has moved away from this relativistic, sociocultural understanding of illness. It tends to abstract dysfunction from the social context in which it arises and attempts to render a judgment that is regarded as being objective, universally applicable and subject to precise diagnostic and therapeutic techniques.¹⁶ As Kellert has pointed out,

¹⁴It is reasonable to ask at this point what is the significance of personal indicators of illness in such an analysis. It is easily argued that pain or dysphoria is the primary indicator of illness for the individual sufferer. Yet, I think it is fair to say that in the large majority of cases there is a correspondence between the personal experience of dysphoria and social dysfunction. The question becomes more problematic when we consider some cases of mental illness in which there is social dysfunction, but no dysphoria. This issue will be addressed shortly.

¹⁵Kellert, op. cit., pp. 223-224.

¹⁶As might be gleaned, I think that social and psychological parameters are essential in understanding and treating illness. So, initially I am in agreement with the

in contemporary society the medical understanding of disease is capable of over-running our individual or social conceptions and concerns.¹⁷ To use his words, medical criteria of illness bypass the relativistic judgments of the social screen. The consequence of this is that people might be termed medically ill (diseased) but not suffer from any dysphoria or dysfunction. This has considerable import when considering treatment options, because many forms of medical practice are capable of producing iatrogenic illness.

The normative foundation of medicine and the distinction between its explanatory and curative functions can be highlighted by comparing medical science and medical practice. This distinction has been drawn by Ronald Munson who suggests that an analysis of the goals of clinical and scientific medicine will serve to distinguish them. As Munson explains, medical science works primarily for the acquisition of knowledge, and clinical medicine seeks to lessen or eliminate illness. Clinical medicine uses the concepts, methods and explanatory structures of medical

antipsychiatrists. We part company when they say that these problems in living are not medical concerns. I will later argue for the inclusion of such parameters in evaluating somatic disease.

¹⁷Kellert, op. cit., pp. 222-224.

science,¹⁸ and the physician can serve as both practitioner and researcher.¹⁹ Yet, these roles are distinguishable.

As Lester King explains, medical science does not try to distinguish between health and disease; biology is concerned with such things as the structure of organs, rates of metabolism, growth and reproduction. Medical science seeks to understand relationships between events and the order in which they occur, but from the biological point of view, the pattern of events that we call "disease" does not differ in kind from the patterns we call "healthy." Nevertheless, he says, one pattern is more useful to us than the other; the more useful we call "health" and the less useful, "disease."²⁰ Sedgwick provides an excellent example of this point explaining that we would view the parasitic infection of a lizard as a competition between species, while the parasitic infection of our children or livestock would be considered a disease.²¹

¹⁸Ronald Munson, "Why Medicine Cannot Be a Science," The Journal of Medicine and Philosophy, 6 (1981), 188.

¹⁹This is also pointed out by Miriam Siegler and Humphrey Osmond, Models of Madness, Models of Medicine (New York: Harper, 1974). Siegler and Osmond additionally consider a third sub-discipline of medicine, that of public health medicine, and point out that these different spheres of function can lead to ethical dilemmas.

²⁰Lester S. King, "What Is Disease?" Philosophy of Science, 21 (1954), 194.

²¹Sedgwick, op. cit., p. 31.

It is my contention that medicine is an institution which has evolved to explain illness and realize the value of health. The notions of "health," "dysfunction" and "illness" are not prescribed by any kind of essential norm that is good for all members of the species. Rather, they are defined in relation to individual or socially chosen ends upon which there is much agreement. The predominance of this agreement is somatic medicine, and the lack of it in psychiatry, has led some authors to think the former is value-free and the latter value-laden.

Towards a Minimal Notion of Health

The conceptual and the anthropological arguments that I have presented strongly suggest that judgments of health and illness are normative judgments. The obvious question then arises: What norms should be used in this determination? This problem arises in considerations of somatic illness, but it is of far greater magnitude and frequency when determining what counts as mental illness. As stated, the incapacitations and dysfunctions that are regularly the domain of somatic medicine are generally agreed by all to be bad, although one can recognize divergences between social and social, and individual and social spheres, when one gives consideration to abortion, euthanasia and genetic screening. The case is not similar regarding mental functioning; there is far less agreement as to how we should

think and act than there is regarding how our bodies should function.

There are certain thought or behavioral patterns which nearly everyone, regardless of culture, would agree to be disturbed. It would be difficult to specify, either qualitatively or quantitatively, this minimal level of acceptable functioning because people disagree on the quality of the actions that they take to be expressions of mental illness, some individuals defining mental illness in terms of personal norms and others in terms of social norms. Self-defeating acts and acts of outwardly directed violence would be viewed differently from these two perspectives. Not only would there be disagreements as to the quality of mental illness, there would potentially be a second disagreement as to the degree of dysfunction necessary before a person would be called mentally ill and this judgment would be subject to change as people's expectations of themselves or others were raised or lowered. The history of psychiatry shows this.

As I see it, the problem of defining illness is largely a question of resources. Medicine needs to establish a "decent minimum"²² of care before it begins working to realize a patient's ideals. This holds for both somatic and psychological medicine. I think most people would

²²Charles Fried, "Equality and Rights in Medical Care," in Ethics in Medicine: Historical Perspectives and Contemporary Concerns, eds. S. J. Reiser, A. J. Dyck, and W. J. Curran, 1st ed. (Cambridge: MIT Press, 1977).

agree that it is more important to use our resources to fund an adequate nursing staff than to spend them on cosmetic surgery. The case is similar with mental health. It is the social norm which comes closer to representing that acceptable minimum level of psychological and behavioral functioning. To define "mental illness" in terms of a personal norm asks too much of medical resources. It is more important that medicine work to establish a socially practicable rationality before attempting to realize a patient's ideals. I am arguing that health should be understood as the absence of disease, rather than some more positive conception,²³ at least until our resources are increased. Positive definitions of health, which tend to construe it as everything desirable are impracticable and unrealistic. Two examples follow.

1. Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.²⁴

2. Let us define mental health as the adjustment of human beings to the world and to each other with a maximum of effectiveness and happiness. Not just efficiency or contentment--or the grace of obeying the rules of the game cheerfully. It is all these together. It is the ability of maintain an even temper, an alert intelligence, socially

²³Rem B. Edwards, "Mental Health as Rational Autonomy," The Journal of Medicine and Philosophy, 6 (1981), 309-322; Ruth Macklin, "Mental Health and Mental Illness: Some Problems of Definition and Concept Formation," Philosophy of Science, 39 (1972), 341-365.

²⁴World Health Organization, "A Definition of Health," in Contemporary Issues in Bioethics, ed. Roy Beauchamp, and Le Roy Walters (Encino: Dickenson Publishing, 1978), p. 89.

considerate behavior, and a happy disposition. This, I think, is a healthy mind.²⁵

To rigidly define "mental illness" in terms of either the personal or the social norm would be requiring more clarity than the subject matter admits. Historical, psychological and social studies point out that both of these norms operate in defining "mental illness. It is to a consideration of these norms that I will turn in the upcoming chapter. My second chapter will first draw a distinction between illness and disease and then examine in more detail how illness comes to be defined. I will argue that illness has psychological and social dimensions in addition to biological dimensions, and that these psychological and social parameters are of crucial importance in making medical decisions.

²⁵Karl Menninger, in Boorse, "On the Distinction Between Disease and Illness," pp. 69-70.

CHAPTER II

THE DIMENSIONS OF ILLNESS

The problem introduced at the beginning of this thesis was that of the place of mental illness in medicine. I have recommended that the resolution of this problem requires a broad analysis of medicine's roles, of the nature of illnesses and of medicine's theoretical orientation. It was my purpose in the first chapter to argue that all judgments of health and illness are normative judgments, in opposition to the antipsychiatrists who claim that diagnoses of mental but not those physical illnesses are normative. The second argument of the antipsychiatrists that I will address regards the theory structure of contemporary biomedicine. It is argued that mental illness is not a medical problem because it is not the result of a disease, disease being a major part of biomedicine's conceptual explanatory structure. This second argument can be dismissed when we realize that there are many physical disorders without known cause, and that there is mounting evidence that some physical disorders may have psychological causes, for example, ulcers, heart disease, alcoholism, and perhaps some of the cancers. These conditions call into question the applicability or practicality of some of medicine's disease theories.

Although the above conditions are difficult to explain using medicine's dominant disease models, these conditions are nonetheless considered medical problems. I believe that this is the case because they result in severe impairment which individuals and society want to be remedied.

It is also true that many psychiatric disorders cannot be linked to a physical aberration, and it is reasonable to assume that in many instances such linkages may never be demonstrated. I say this because it is possible that some forms of mental illness are exhaustively defined by social parameters. In spite of this factual possibility, I will still contend that the "functional disorders" are properly medical concerns. I am arguing, as others have,¹ that the most important similarities between physical and mental illness are practical rather than theoretical; the failure to recognize this is an error of modern medicine. What is crucial in determining whether or not X is an illness are "general categories of behavioral symptoms"² which significantly impair an individual's ability to (1) attain his goals, or (2) function in accordance with social standards. Too stringent a focus on the conceptual framework of

¹David P. Ausubel, "Medical or Disease Model," in Psychopathology Today, ed. W. S. Sahakian (Itasca: Peacock, 1970).

²Ruth Macklin, "Mental Health and Mental Illness: Some Problems of Definition and Concept Formation," Philosophy of Science, 39 (1972), 341-365.

biomedicine will not allow us to satisfy the practical requirements of many patients because this conceptual framework is too narrow to account for, or remedy, the various clinical dimensions of illness.

My contention is that dysfunction, be it biological, psychological or social, should be primary in determining the goals of medicine.³ As Stephen Kellert suggested,⁴ I recommend the importance of reestablishing the "social screen." Adherence to medicine's conceptual model⁵ does not allow the recognition of this important orientation,

³Some authors would add distress and deformity as conditions indicating medical attention; I would include these only in so far as they result in dysfunction. The relief of distress or deformity which does not impair an individual's ability to live and work in the world would constitute a more positive conception of health than we are able to afford at this time.

⁴Stephen R. Kellert, "A Sociocultural Concept of Health and Illness," The Journal of Medicine and Philosophy, 1 (1976), 222-224.

⁵It is somewhat oversimplistic to speak of "the medical model." There exist several different medical systems with fairly well developed theoretical foundations and practices--consider for example allopathy, homeopathy, osteopathy and naturopathy.

It should also be noted that within the allopathic school there exist at least three different approaches to the explanation of disease; as we shall see, some are anatomical, some physiological and others etiological. Walther Riese, "Conception of Disease: Its History, Its Versions and Its Nature (New York: Philosophical Library, 1953).

I will be discussing only our prevailing allopathic orientation. I will defend medicine in so far as it has been successful and greatly advanced our scientific knowledge, but I will suggest that time has come for it to expand its purview and approach disease more phenomenologically than it has tended to do in recent years.

for it has a bias in favor of understanding illness in overly abstract biological terms. The advancement of biomedical science has led medicine to define disease in an increasingly exclusionary manner. Disease has largely become a biochemical phenomenon, and social and psychological dysfunctions are explained in these parameters or excluded from discussion.⁶

A Distinction Between Disease and Illness

What has been developing from the start in this essay is (1) a distinction between the social or personal evil that society seeks to remedy through the development of institutions, and (2) the conceptual explanatory structure of that institution. This distinction breaks the whole of medicine into at least two sub-disciplines, clinical medicine and medical science, as we described earlier. The sociological analyses provided by Fabrega and Kellert are complemented by a conceptual analysis which works to draw a distinction between disease and illness.

Tristram Englehardt, in his "Ideology and Etiology," distinguishes between "illness," the "disease state" and "disease."⁷ "Illness," according to Englehardt, can be understood to mean the set of variables experienced by the

⁶George L. Engel, "The Need for a New Medical Model: A Challenge for Biomedicine," Science, 196 (1977), 130.

⁷H. Tristram Englehardt, Jr., "Ideology and Etiology," The Journal of Medicine and Philosophy, 1 (1976), 257-258.

ill person or his associates⁸ as pathologically distressful, deforming, displeasing, painful or dysfunctional. The "disease state" is that set of symptoms identifiable by the term "illness" and all those other measurements or determinations which have come to be causally associated with, or have shown themselves to be good predictors of, illness. Finally, for Englehardt the concept "disease" is a scientific abstraction: it forms part of the explanatory structure developed by medical science to explain, and used by clinical medicine to remedy, illness. As Englehardt writes, illness and disease states are the explananda, the phenomena to be explained, and diseases are the explanatia, the explanations of those phenomena.⁹

Englehardt's conceptual analysis suggests two important points: (1) the necessity of distinguishing medical concerns from all other social and personal evils; and (2) the distinction between the explanatory disease theory of modern medicine, and the malady, illness that it attempts to explain. In this chapter I will give consideration to the issue of how problems come to be defined as illnesses. I will argue that illnesses may be defined first by medical science when that science has the conceptual tools capable

⁸His attention to the perceptions of associates places illness in a social framework.

⁹Englehardt, op. cit., p. 258.

of explaining the condition, and second by medical practice when that practice is able to remedy the condition. At the same time, it must be recognized that in a greater sense it is social processes which define the whole of the medical institution and therefore its proper objects, illnesses.

The Definition of Illness

It has been my contention that medicine is a social institution which evolves out of a need to remedy and explain various conditions that the individual or society sees as dysfunctional given its goals or standards. It is then a major problem to determine which of numerous available goals and standards medicine should work to realize. That is, we must have a way of distinguishing "illness" from all of the other things that we do not like. To pick illness out of the background of all social and personal evils, we might ask medicine to do the selecting, and like Englehardt, define illness in terms of medical science's disease theory. Illness would then be those "bad" phenomena explainable in terms of our medical model. According to Englehardt, illness is a pathologically distressful, deforming, displeasing, painful or dysfunctional state, pathology being determined by the state medical science. This argument appears to introduce a circularity into our reasoning, as our disease theory is supposed to be a theoretical system evolving out of a need to explain illness. Nevertheless, this apparent circularity is of no

great consequences if we take a historical rather than a logical stance. I think to a large extent, Englehardt's suggestion as to how illness is defined is correct. Various dysfunctions are assimilated into the set of medical problems if the current medical science has an explanatory system that can make sense of these dysfunctions.

Another possible way of isolating medically relevant problems from all other evils is to suggest that the evil is medically relevant when it can be remedied through medical practices. This approach does not seem necessary or sufficient to define an illness, for there are many problems that we would want to call medical that are currently untreatable, and many treatable conditions that we would not want to call medical. For instance, medical disease theory suggests that the common cold is a medical problem, though untreatable. Moreover, psychosurgery on convicted felons might remedy a great many social problems, but I think few people would call this treatment medical probably because, as Flew suggests, medicine is thought to work for the benefit of the patient. Although Flew's suggestion may hold generally, there is good reason to doubt it in some instances. In addition to its scientific and clinical concerns, medicine also has an explicitly social role. Medicine often acts against individual patients for the greater social good, examples of this would be the mandatory reporting of venereal disease to the

public health services, and the involuntary commitment of the psychiatric patient who is a danger to others.

I have suggested that illnesses may be defined in terms of the practices and concepts of the prevailing medicine, but it is instructive to look further and try to understand how medicine has come to be what it is. I contended in the first chapter that medicine is an institution which serves society. For this reason, it is important to give attention to the social and historical processes that have generated the body of medical knowledge and practice. Only after considering these processes can we gain a fuller understanding of the various dimensions of the clinical picture.

Fabrega argues, correctly I think, as follows:

1. The definition of illness is a product of historically determined social happenings.
2. Medicine is defined in terms of its concern with illness.
3. [Therefore] medicine's activities are rooted in socially structured categories.¹⁰

It is important to recognize, as do Paul Thompson and Michael Martin,¹¹ that there is a difference between the definition of an illness and its explanation. Whether or not X is considered an illness is dependent on the norms,

¹⁰Horacio Fabrega, Jr., "Concepts of Disease: Logical Features and Social Implications," Perspectives in Biology and Medicine, 15 (1972), 583.

¹¹R. Paul Thompson, "The Role of Models in Medical Explanations of Socially Maladaptive Behavior," The Journal of Medicine and Philosophy, 6 (1981), 424; Michael Martin, "Is Medicine a Social Science?" The Journal of Medicine and Philosophy, 6 (1981), 349-350.

mores and ethical presuppositions of one's society. This is particularly well put by David Mechanic who writes:

. . . The application of disease labels to particular aspects of social functioning is a social process of imposing standards of normality that characterize known populations.¹²

He goes on to say that the imposition of these labels in psychiatry can either be of use or harm to the people who fall under them.

The social contribution to the definition of illness is most pronounced in psychiatry. As Talcott Parsons¹³ explains, the primary criteria for mental illness must be defined in reference to the social-role performance of the individual. The same point is made by Mechanic who says that mental illness is only visible when the individual is unable to make proper responses in a network of interpersonal relations and the evaluation of these responses depends on the frame of reference of the evaluators.¹⁴ Rather than being a medical decision, the decision as to

¹²David Mechanic, "Explanations of Mental Disease," The Journal of Nervous and Mental Disease, 116 (1978), 282.

¹³Talcott Parsons, "Definitions of Health and Illness in the Light of American Values and Social Structure," in Patients, Physicians and Illness, ed. E. G. Jaco, 2nd ed. (New York: Free Press, 1972), p. 165.

¹⁴David Mechanic, "Some Factors in Identifying and Defining Mental Illness," in Mental Illness and Social Process, ed. Thomas J. Scheff (New York: Harper and Row, 1967), p. 25.

mental illness is usually made by community members.¹⁵ For this reason,

. . . if we are to understand the "mentally ill" patient, we must understand the situation from which he comes and the circumstances that led to the definition that needs treatment.¹⁶

One would expect that definitions of mental illness would be largely socially determined, but this is true of certain somatic conditions as well. Rene Dubos¹⁷ explains that any condition which is very widespread in a group comes to be considered "normal" and is consequently accepted. Surprisingly, he explains there was a tendency in nineteenth century Europe and America to accept tuberculosis as an inescapable part of human fate. Siegler and Osmond explain that tuberculosis was highly romanticized. It often struck the young and was thought to be the disease of artists. Those who suffered from it were thought to be morally pure, sensitive and creative. It was even suggested that Hugo would have been a better poet were he not so healthy.¹⁸

¹⁵Here we have the "social screen" described in the first chapter. In my brief experiences in an admissions ward of a state psychiatric hospital, I found this screen to be highly operational.

¹⁶Mechanic, "Some Factors in Mental Illness," p. 31.

¹⁷Rene Dubos, Man Adapting (New Haven: Yale University Press, 1965), pp. 250-251.

¹⁸Miriam Siegler and Humphrey Osmond, Models of Madness, Models of Medicine (New York: Harper, 1974), pp. 58-64.

Englehardt provides an interesting analysis of the "disease" of masturbation. He writes,

. . . in the 19th century, biomedical scientists attempted to correlate a vast number of signs and symptoms with a disapproved activity found in many patients afflicted with various maladies.¹⁹

For many, masturbation was thought to be an "unnatural" form of sexual excitation; this coincidence of morality and nature provided explanatory and treatment goals. According to Englehardt, there is first a judgment of deviance and then an attempt at devising etiological accounts.²⁰ This is consistent with the anthropological analysis provided in the first chapter.

One of the most enlightening disease histories is that of alcoholism which Joseph Schneider explains is a paradigmatic example of the medicalization of a deviant behavior.²¹ A historical examination of the phenomenon of alcoholism shows a shift from an understanding of it as a sin to an understanding of it as an illness. Alcoholism illustrates that illnesses need not be defined on medical grounds for it is neither treated effectively nor has an identified cause.

¹⁹H. Tristram Englehardt, Jr., "The Disease of Masturbation: Values and the Concept of Disease," Bulletin of History of Medicine, 48 (1974), 247.

²⁰Ibid., pp. 234-248.

²¹Joseph W. Schneider, "Deviant Drinking as Disease: Alcoholism as a Social Accomplishment," Social Problems, 25 (1978), 361-372. The bulk of my discussion will come from this article.

Alcoholism in colonial times was viewed as a sin. Consistent with the religious heritage of the time, drunken behavior was thought to be the result of choice and was seen as a hedonistic indicator of moral degeneration. The clergy and certain civil officials carried the authority regarding the punishment or care of these individuals. In the next stage of its development, alcoholism was reformulated by Benjamin Rush who claimed that drunkenness was a joint result of the character of the drunkard and the physical qualities of the drink. He shifted descriptions of the alcoholic's compulsive behavior in such a way as to suggest that the individual was not responsible for his action. With this decline in responsibility, the physician gained authority over the clergy and treatment was given rather than punishment.

As Schneider explains, Rush fueled the temperance movement of the nineteenth century. Coupled with their moral crusade, the political use of the slogan "inebriety is a disease" resulted in the disease concept of alcoholism not being examined in the nineteenth century.²² Eventually the moral crusade gave way to scientific study and the twentieth century made alcoholism acceptable as a medical problem.

The new conceptualization of deviant drinking in the twentieth century was the result of three largely political

²²Ibid., pp. 365-366.

developments:²³ (1) the establishment of the Yale Research Center, (2) the founding of Alcoholics Anonymous, and (3) the political use of the slogan "Alcoholism is a disease." The Yale Research group on alcoholism was composed of numerous scientists of acclaim and this professional stature gave a scientific credibility to the group's publications which they may not have deserved. The claims made by the Yale group were not scientific; rather, this group was a lobbying force which helped to reorient political thinking on alcoholism and establish the National Institute on Alcohol Abuse and Alcoholism.

The founding of Alcoholics Anonymous is also informative. As Schneider²⁴ explains, Alcoholic Anonymous embraced the disease concept of alcoholism contending that the alcoholic's problem was a consequence of a physiological sensitivity rather than a sign of moral decay. Two major tenants of the A.A. creed are first that the alcoholic is powerless over his condition--he is victimized, and second that the alcoholic must turn over his self-direction to another. What we have in A.A., as described by these two tenants, is the adoption of "the sick role," as formulated by Parsons²⁵ and the recognition of the physician's

²³Ibid.

²⁴Ibid., p. 366.

²⁵Talcott Parsons, The Social System (Glencoe: The Free Press, 1951).

"Aesculapian authority" as formulated by T. T. Patterson.²⁶ These two elements form the social dimension of the medical model.

The Social Dimensions of the Medical Model

Siegler and Osmond describe "Aesculapian authority" as consisting of three types of authority: sapiential, moral and charismatic. Sapiential authority is authority by reason of knowledge or expertise. The physician possesses this because of his knowledge of medicine. The second ingredient of Aesculapian authority is moral authority. This is the right to control and direct by reason of the goodness of the medical enterprise. The physician is given moral authority because it is thought that he does what is socially expected of him and because he is concerned with the good of the patient. The third element of Aesculapian authority is that of charismatic authority; this is the right to control and direct by reason of grace and this reflects the original unity of medicine and religion.²⁷

As Siegler and Osmond go on to explain, the conferral of Aesculapian authority allows the physician to take up his main function, the conferral of the sick role; "the sick role enables the patient to occupy a different, but

²⁶T. T. Patterson, Management Theory (London: Business Publications, 1966).

²⁷Siegler and Osmond, op. cit., pp. 92-94.

morally acceptable, social role until he can take up his usual role once again."²⁸ As Siegler and Osmond describe, the sick role has four essential aspects:

1. The sick person is exempted from some or all of his normal social responsibilities.
2. The sick person cannot help being ill and cannot get well by an act of will.
3. The sick person is expected to want to get well as soon as possible.
4. He is expected to seek appropriate help, usually that of a physician, and cooperate with that help toward the end of getting well.²⁹

Given the social advantages of being "sick" and the resources that become available upon adoption of this role, I think it becomes obvious why Alcoholics Anonymous might seek to give alcoholism a medical status. The sick role not only serves to free one of social responsibilities and mobilizes resources, but it also lifts the burden of guilt from the individuals with the problem, thus having a psychological appeal.

The third major development which pushed alcoholism into the realm of medicine was the popularization of the disease definition of alcoholism. Between 1940 and 1960, E. M. Jellinek³⁰ described five phases of the progressive disease of alcohol addiction. It was Jellinek's development of addiction as the defining quality of the disease which finally pushed alcoholism into the medical sphere

²⁸Ibid., p. 97.

²⁹Ibid., p. 102.

³⁰E. M. Jellinek, The Disease Concept of Alcoholism (Highland Park: Hillhouse, 1960).

rather than the social or moral sphere.³¹ Acquired tissue tolerance to alcohol, adaptive cell metabolism and withdrawal symptoms, once identified, gave alcoholism the somatic component that it lacked previously.

From this, Schneider concludes:

The question of whether or not a given condition constitutes a disease involves issues of politics and ideology--questions of definition, not fact. . . . That certain forms of deviant drinking are now . . . medicalized is not due to a medical "hegemony," but reflects the interests of the groups and organizations assuming, or being given responsibility for behaviors associated with chronic drunkenness in the United States.³²

The same conclusion is drawn by Siegler and Osmond after their analysis of the changing status of tuberculosis. They argue that diseases are human inventions created from centuries of accumulated observations and insights of many workers. The problem with certain conditions, such as schizophrenia, is that they are not yet fully defined;³³ consequently, their medical, moral and social status is subject to question.

It is a "bad question" to ask, "What is alcoholism really?" This question asks for a fact which is simply not there. Alcoholism is a condition that has social, psychological and biological parameters, so we would be in error

³¹Schneider, op. cit., pp. 367-368.

³²Ibid., p. 370.

³³Siegler and Osmond, op. cit., p. 64.

to say that it is singularly a biological, psychological or social phenomenon. The same is true of all illnesses although they are composed of each of these components to varying degrees.

A good example of the point I am making is provided by Joshua Bierer and John Williamson. Bierer and Williamson provide an analysis of a single case of depression from the standpoint of several different models.³⁴ Depending on whether one views the patient's condition from a medical, psychological or social perspective, one gains a different understanding of the case and what should be done about it. Where the medical model attends to biological functions such as sleeping patterns, weight loss and speech retardation, the psychological model attends to the patient's guilt, ego-strength and self-understanding and the social-behavioral model to marital and peer relations and changes in the patient's environment. These models also suggest different treatment modes, the medical suggests ECT, the psychological, psychoanalysis and the social-behavioral, behavioral and environmental modifications. I contend that it is an error to say that depression is either a biological, psychological or social condition; it is all of these. I therefore agree with Bierer and Williamson and argue for a

³⁴Joshua Bierer and John D. Williamson, "A Theoretical Perspective on Social Psychiatry," The International Journal of Social Psychiatry, 22(3) (1976), 164-165.

comprehensive and eclectic approach to the understanding and treatment of illness.

It should be realized that illnesses are defined in terms of social, biological and psychological elements but the degree to which these elements contribute to the illness varies with the condition. Lead poisoning can be defined very neatly on biological grounds without much attention to social variables while many forms of mental illness could be defined largely by social parameters without much attention to molecular biology. The recognition of the social and psychological elements that contribute to the definition of an illness implies a loss of medical innocence. Rather than mourning at this loss, we should embrace the realization. I believe that an awareness of the social and psychological dimensions of illness can lead to better diagnoses and, more importantly, better modes of treatment. A strict biomedical approach to a patient's condition may not address the problems with which society or the patient is concerned.

My next chapter will be an analysis of biomedicine's conceptual orientation. I will examine the ways in which medicine explains the complex illness phenomenon. I will begin with an outline of three disease theories, the etiological, the physiological and the anatomical and then examine the history of these theories as it illustrates the strengths and weaknesses of each approach. Finally, I will

consider the applicability of these models to a continuum of illness conditions ranging from PKU to depression.

In the fourth chapter I will address an alternative theoretical approach to the explanation of illness which attempts to account for its psychological and social dimensions. I think that this orientation will prove useful in those instances where our more traditional explanations of illness fail.

My conclusion will summarize my argument and make some suggestions regarding the ethical and social considerations introduced throughout this thesis. In particular I will note the relationship between our explanations of illness and the patient's responsibility for his or her own health and care.

CHAPTER III

CONTEMPORARY BIOMEDICINE: EXPLANATIONS OF ILLNESS

In this chapter I will examine one of the chief conceptual abstractions of medical science--disease. Critics of psychiatry have argued that mental illness is not a medical problem because it is not the manifestation of disease. If it were, then the pathology would be localizable in the nervous system and care would be delivered by neurologists rather than psychiatrists. I am in agreement with Szasz on this point, but do not draw the conclusion that mental illness is not a medical problem.

In the last chapter, I argued that disease was an abstraction which served to explain clinical events. It appears that Szasz considers disease some real, localizable thing with an existence of its own. In the last chapter, I also argued that the domain of medicine is largely defined by non-medical forces. Problems become medical problems because people disvalue conditions regardless of whether or not medicine can remedy or explain them. Medical problems have social and psychological dimensions. The clinical phenomenon that is disvalued is that which I have called "illness." I argued that the definition of illness is often the outcome of a social process, and that this definition was independent of the explanation of the illness.

In this chapter I will examine contemporary medicine's attempts at explaining illness: this will involve an examination of contemporary disease theory. I will first offer some general criticisms of the biomedical model of disease, outline these disease theories and examine some of their historical roots. I will then consider the applicability of these models to a series of illnesses, particularly regarding their diagnostic and therapeutic usefulness.

Disease Entity or Individual Sickness?

According to R. L. Engle, the problem of relating "disease" and "illness" is largely the philosophic problem of universals.¹ As maintained by Englehardt, our disease categories are abstractions, which by their generality produce distortions when they are used to describe individual clinical pictures. Engel recommends that we make our disease theory more comprehensive so as to be able to account for the various dysfunctions expressed in the clinical picture. Engel has attacked the biomedical model as tending toward exclusionism and reductionism. Psychological or social dysfunctions are explained in terms of biochemical events or excluded from discussion.²

¹Ralph L. Engle, Jr., "Medical Diagnosis: Present, Past and Future, II," Archives of Internal Medicine, 112 (1963), 520-521.

²George L. Engel, "The Need for a New Medical Model: A Challenge for Biomedicine," Science, 196 (1977), 131.

J. G. Scadding suggests that biomedicine's theoretical orientation has been largely influenced by the success of the nineteenth century's infectious disease theory.³ Germ theory gave disease an ontological status which divorced it from the context of the patient's life, and for this reason I suggest it is often an inadequate foundation on which to make the value judgments implicit in diagnostic and treatment decisions. The success of the infectious disease model has, according to critics, allowed us to force the greater phenomena of "illness" into too narrow a "disease" mold.⁴

In the forthcoming discussion of the history of disease concepts, I will try to make four points. First, I want to demonstrate the validity of the disease-illness distinction. Second, I want to provide an historical perspective on our contemporary medical models and on the "new" one that will be proposed in the following chapter. Third, I will try to show that the determination of what is healthy and what is ill turns on the state of our science

³J. G. Scadding, "Diagnosis: The Clinician and the Computer," The Lancet, 2 (1967), 877.

⁴What sometimes happens in applying this model to other illnesses, somatic and psychiatric, is that the ontology of the disease comes to be understood in terms of the available therapies rather than visa versa as we might expect. (My thanks to Professor Dwight Van de Vate, The University of Tennessee, Knoxville.) This is understandable and to a degree forgivable given two conditions: (1) the previous successes of that treatment mode; and (2) the lack of a better theoretical or therapeutic alternative.

in addition to prevailing norms.⁵ Finally, I want to suggest that history shows that new disease theories arise in response to the practical limitations of the previous ones.

In his paper on the history of medical diagnosis, Engle⁶ points out that as the history of disease concepts unfolds, we see an oscillation between the abstraction and individuation of disease concepts, suggesting the existence of either specific disease entities or individual sicknesses. There have been several different descriptions of these two opposing tendencies. Bernard Aschner⁸ calls these views of disease "disease rationalism" and "disease empiricism." Others⁸ have used realism and nominalism, or conventionalism and naturalism. I choose to use the terms "ontological" and "clinical-descriptive" disease theories because these terms are the most widely used in the research that I have examined.

⁵Owsei Tempkin, "The History of Classification in the Medical Sciences," in Classification in Psychiatry and Psychopathology, eds. M. Katz, J. Cole, and W. Baton (Washington, D. C.: Public Health Service Publication #1584), p. 19.

⁶Engle, op. cit., p. 116.

⁷Bernard Aschner, "Empiricism and Rationalism in Past and Present Medicine," Bulletin of the History of Medicine, 17 (1945), 269-289.

⁸Owsei Tempkin, "The Scientific Approach to Disease: Specific Entity and Individual Sickness," in Scientific Change, ed. A. C. Crombie (New York: Basic Books, 1961).

An ontological view of disease conceives of diseases as independent of their particular manifestations. With their demonologic overtone, diseases have an existence of their own, attack the patient and are expressed similarly in every instance. According to such a view, the role of the physician is to determine the prevailing pattern and combat the specific entity.

The opposite, clinical-descriptive approach, was first formulated by Hippocrates. This theory of disease contends that diseases have a nature rooted in the general nature of human beings. Rather than being invading entities, diseases were thought to be imbalances in the ratios of natural substances. This theory concentrated on obtaining an accurate description of the clinical picture of each patient. It was thought that no two individuals were similar enough to be treated alike. In the Hippocratic school of medicine symptoms were not idealized in a Platonic sense; rather, they were understood to be the unique expressions of the history of the individual patient. Furthermore, symptomology was seen as extremely flexible and subject to chronological variations. For this reason, diseases were understood in terms of the life periods of the patient. Unlike an ontological approach, this theory did not admit of categorization.⁹

⁹Walther Riese, The Conception of Disease: Its History, Its Revisions and Its Nature (New York: Philosophical Library, 1953), pp. 32-36.

The philosophical foundations of disease have been debated since Hippocrates' time. Porphyry questioned whether or not genera and species really existed or whether they were human inventions. In keeping with an ontological approach, he affirmed their reality. The opposite position was later taken by Occam. Paracelsus opposed the Hippocratic theory of disease and insisted that diseases were entities whose seeds were scattered throughout the environment.¹⁰

Before reviewing the history of disease concepts, and to a lesser extent the growth of medical knowledge, it will be useful to provide a preview of what we will see. The history of medicine shows a shift from a clinical-descriptive to an ontological theory of disease; this is the consequence of the refinement of medical knowledge. As science has progressed, its analytic method has broken up previous wholes into increasingly smaller parts, and with the attainment of this knowledge, medicine has increasingly sought simpler and smaller causes of disease. This movement is reflected today in the diagnostic process.¹¹

The clinician is first faced with an illness which is very often too complex and too large to be dealt with as a

¹⁰Engle, op. cit., p. 122.

¹¹The following discussion of diagnostic reasoning comes from Alvin R. Feinstein, "An Analysis of Diagnostic Reasoning: I The Domain and Disorders of Clinical Macrobiology," Yale Journal of Biology and Medicine, 46 (1973), 219-229.

whole. He then organizes elements of the clinical pictures into disorders or sets of disorders, a disorder being defined as a gross abnormality in structure (a lesion) or function (dysfunction) of a domain, a domain being the portion of the body which is the source of the lesion or dysfunction. Once the clinical picture is restructured into sets of disorders, the physician seeks pathological causes for the disorder. It is important to note that clinical data which cannot be worked into a recognizable disorder pattern is excluded from, or sidelined for, further processing.

As Feinstein goes on to explain, the physician's second step is to identify a physiological cause, that is, a general pathological process that might account for the disorder--for example, hypoglycemia, inflammation or trauma. When the physiological cause is identified, the physician seeks to identify an anatomic abnormality, a lesion, which might lead to dysfunction and disorders. Once a morphological cause is identified, the physician seeks an etiological explanation for the anatomical abnormality. He looks for circumstances or agents that might cause, provoke or predispose the development of disorders, dysfunctions or anatomical abnormalities. If the physician characterizes the illness on the basis of the first level of disorder, he has a clinical-descriptive disease characterization. If he identifies an abnormal process as underlying the disorder,

he has a scientifically more technical physiological explanation of illness. If further progress is made, he will have an anatomical explanation and with continued progress might be able to explain the disease etiologically, the scientifically most refined definition.¹² As noted, there is a continual loss of clinical information as the diagnosis proceeds such that the final diagnosis may say nothing about what the patient finds wrong.

Contemporary Disease Theories

Contemporary medicine relies on the physiological, anatomical and etiological models of disease and attempts in both its science and practice to provide etiological explanations. These models of disease can be outlined as follows:

Physiological

1. Illness is the result of a disturbance of function.
2. Diseases are "whole body" or systemic phenomena and are highly individualized.
3. Diagnosis consists of description of the dysfunction (i.e., hypertension, spastic colon, impotence) and treatment aims to offset the functional imbalance or remove its cause.¹³

¹²Scadding, op. cit., pp. 877-882.

¹³Walther Pagel, "The Speculative Basis of Modern Pathology," Bulletin of the History of Medicine, 18 (1945), 1-43; Riese, op. cit., pp. 1-99.

Anatomical

1. Illness is the result of structural abnormalities (lesions).
2. Diseases are localized and classifiable by their location and the severity of the disruption.
3. Diagnosis consists of localizing those lesions (i.e., compound fracture, cleft palate, tertiary meningioma) and treatment aims to repair the lesion, remove it or its cause.¹⁴

Etiological

1. Patients become ill because they are attacked by disease or diseases.
2. Diseases are of a sufficiently similar kind or nature to be classifiable in a simple logical scheme.
3. The aim of diagnosis is to name the specific disease or diseases attacking the patient (i.e., PKU, lead poisoning, influenza) and treatment consists of combating this specific cause.¹⁵

A History of Disease Theory

As we said earlier in comparing and contrasting the ontological and clinical descriptive approaches to disease,

¹⁴Ibid.

¹⁵Scadding, op. cit., p. 877.

it was the philosophy of the Hippocratic school of medicine that every instance of illness was unique. Little or no attempt was made at categorization because diseases were not viewed as things, but rather as disturbances in the life processes peculiar to individuals. Galen later utilized the clinical-descriptive approach to disease but gave it a more explicit physiological orientation with his understanding of disease as a disturbance in the humoral balance.

The next medical science to come to the forefront in medical explanation was that of morbid anatomy. Although Galen had given some attention to the localization of physiological dysfunction, it was not until the Renaissance that this approach began to gain great momentum. Historically the anatomical approach to disease began with Galen, but as it developed through Vesalius, Morgagni, Bichat, Pineal and Virchow, it became increasingly more refined and scientific. In earlier attempts, much attention was given to the project of correlating symptoms with the physical lesions of organs, but with time clinical description gave way and finally Virchow identified disease with the lesion itself and not the symptoms.¹⁶

Riese is highly critical of this exclusively scientific approach to medicine, particularly in regard to its

¹⁶Riese, op. cit., pp. 47-64.

application in nineteenth century psychiatry. He explains that the localized view of disease abstracts to the point of becoming impracticable. Disease, he writes, is a whole of vital manifestations rather than a localized lesion. In psychiatry, there are a limited few anatomical lesions which might be properly called brain diseases, but even in these few cases where the lesions are known, this knowledge is of little help in the physician's task to understand the patient and to derive therapeutic guidance. The development of appropriate treatment programs requires a knowledge of the patient's psychological structure, his environment and his experiences, not merely the simpler knowledge of a microscopic brain lesion of which the patient is unaware.¹⁷

Tempkin writes that disease in the nineteenth century meant somatic disease. This notion, he says, reflected the conviction that there is a science of medicine separable from its practice. He goes on to explain that due to this divergence of spheres, a whole realm of diseases lost their right to medical recognition because of the disassociation between the patient's complaint and the physician's philosophical perspective. Similarly, Engel says that the dissatisfactions of patients today is due to a discrepancy between the illness that is experienced by the patient and

¹⁷Ibid., p. 63.

the manner in which it is conceptualized by the biomedical model.¹⁸

In spite of the conceptual changes that occurred through time, the empirical approach of Hippocrates did not disappear from medicine. Galenic physiology broke down under the weight of seventeenth century physics and chemistry, but as Tempkin explains, these formal systems offered little to the practicing physician. At this time Sydenham was beginning to formulate nosological systems on a purely factual basis. Sydenham in the seventeenth century and Sauvages, Cullen and Pineal in the eighteenth century developed elaborate taxonomic schemes in which diseases were defined on the basis of an enumeration of symptoms that were thought to be sufficient to recognize genus and species of a condition. These early nosologists, although they grounded their diagnostic categories in experience, were attempting to describe the natural history of diseases. In their ontological approaches they sought to determine and classify those factors intrinsic to different diseases, factors independent of the patient and his life. Unlike the Hippocratic school, for these nosologists disease was not rooted in the nature of man.¹⁹

¹⁸Engel, op. cit., p. 135; Tempkin, "The Scientific Approach," p. 635.

¹⁹Tempkin, "The History of Classification," pp. 13-14. It is interesting to note that Sydenham, the ontologist,

In opposition to the anatomical conception of disease was the redeveloping physiological approach. Broussais stressed functional over anatomical disorders and opposed the tendency to draw up definitive clinical pictures of disease.²⁰ It was postulated by Broussais and his followers that disease was nothing but life under altered conditions. He repudiated the classification of diseases as no more than "practical makeshifts, having neither real existence nor scientific claim."²¹

Shortly thereafter, the work of Pasteur and Koch gave a tremendous impetus to the development of specific etiological concepts of disease. Tempkin explains that the anatomical approach reached its apex about 100 years ago. When it began facing a group of fevers and general diseases which it could not explain, bacteriology solved this practical limitation. After Pasteur and Koch, classification of disease suddenly switched to considerations of specific cause; and the finding of these infectious causes led the way for specific therapies.²²

lived during the time of London's great plague. This plague showed very little variation in its clinical expression (Tempkin, "The Scientific Approach," p. 647).

²⁰Engle, op. cit., p. 527.

²¹Tempkin, "The History of Classification," p. 17.

²²Tempkin, "History of Classification," p. 16; Engle, op. cit., p. 124.

After the recognition of the role of microorganisms in disease, there was another rejuvenation of the German physiological school, once again stressing the importance of detailed individual histories. Nevertheless, the etiological model still maintains a firm hold in medical science, and particularly in psychiatry. As Herbert Weiner explains, Scaudinn's discovery of the spirochetic cause of paretic neurosyphilis, the nineteenth century psychiatry's paradigmatic and most interesting disease ". . . impelled psychiatry to search continuously for the bacteriological, molecular, enzymatic, viral and metabolic cause of mental illness."²³

I have presented this historical survey to try to illustrate four major points: (1) the distinction between disease and illness, or similarly, between medical science and medical practice; (2) the historical background of the "new" medical model that I will introduce; (3) how disease theories give way under the weight of practical considerations, for example, the impracticability of the seventeenth century rationalistic science, and the inappropriateness of an anatomical approach to the fevers; and finally, (4) how determinations of health and disease are bound to both changes in the prevailing social norms and the current state of medical science. In the second half of this chapter, I

²³Herbert Weiner, "The Illusion of Simplicity: The Medical Model Revisited," The American Journal of Psychiatry, 135 (1978), 28.

will discuss the theoretical orientation of contemporary medical science and the relationship of this theoretical perspective to diagnostic and treatment decision-making.

A great deal of criticism has been directed toward "the medical model," but it is important to realize that that is not just one medical model. Even within contemporary allopathic medicine disease can be conceptualized on several different grounds. Most of the criticism of the medical model has been directed at the etiological disease theory of medicine, but it will be important to address the strengths and weaknesses of the other approaches as well.

Some contemporary authors classify diseases into three basic categories: infectious, traumatic and functional. History suggests that this classification is largely accurate reflecting the etiological, anatomical and physiological emphases in medical science. In the remainder of this chapter I will focus largely on etiological and physiological models of disease; the anatomical will only be considered briefly as it seems relatively unproblematic. After outlining the etiological and physiological models, I will criticize them first on conceptual grounds and then examine their practical value for the diagnosis and treatment of a series of illnesses.

Weiner and Scadding²⁴ explain that medicine has been set up like a straw man and criticized unfairly. Critics of "the medical model" have tended to construe all of medicine as working from an infectious disease perspective. Such an orientation would be highly problematic, but modern medicine does not limit itself to this approach. As a survey of medical science or practice would show, disease is also explained physiologically and anatomically today as it was in the past.

The Ontological Approach

I think it is reasonable to suggest that much of the criticism directed at medicine is more a criticism of ontology than of infectious disease theory. The major criticism as I see it concerns the fact that a highly scientific approach to illness tends to be ontological and may exclude the patient, his life activities, and his environment from the explanation of illness. The ontological view of disease understands disease as having an existence of its own. Rather than being a disturbance of life functions, it is an "ens" with its own life center and life schedule.²⁵ While such an orientation is applicable to the infectious diseases, it is largely inapplicable to contemporary medical problems such as

²⁴Weiner, op. cit., p. 27; Scadding, op. cit., p. 877.

²⁵Pagel, op. cit., pp. 26-27.

heart disease and hypertension, cancer and the mental illnesses.

The ontological approach to disease is highly valuable on theoretical grounds but is limited in practice. An ontological approach to disease enables the physician to systematize clinical data and therefore advance medical science. It also enables the nosologist to construct diagnostic categories which serve to preserve medical knowledge and present it in a way that it can form a series of working hypotheses on which the clinician can base his actions. At the same time, this conceptual strength endows ontology with a practical weakness because it fails to account for the dynamics of disease in actual cases. Nosological categories cannot account for the tremendous range of variation in the expression of any one disease. Factors such as host biologic strength, host history and the environment in which the host lives can determine whether a disease arises at all, and if so, what its severity and course will be.²⁶

The above is a basic criticism of all nosological schemes, and a physiological model, when it generates diagnostic categories is subject to the same criticism, although the physiological approach, at least in theory, is more flexible than an etiological approach.

²⁶Riese, op. cit., pp. 89-92; Tempkin, "Scientific Approach," p. 634.

Infectious disease theory in medicine is distinctly ontological,²⁷ but psychological nosologies can be ontological as well. At merely a higher level of organization, psychology has explained psychological conflicts on the basis of psychopathological factors often deep-seated conflicts in the mind, having their own life center which reorganizes the life of their possessor. This, Weiner says, is conceptually no different from an infectious disease model; it is merely phrased in a different language.²⁸

There is one other practical ground on which we must address ontological disease theories. The advancement of science has brought about the recognition of the importance of many "soil" and environmental factors for the establishment of disease. Thus, it is to set up a straw man to say that infectious disease theory is strictly monocausal. The development of immunology and public health medicine attest to the fact that host and environmental factors are considered in contemporary medical science. Even with this attention, we are still left with an ontological theory for the explanation of many illnesses. As Riese explains,

²⁷It is interesting to note that the more primitive infectious disease theory is being replaced by another ontological model, that of genetic disease. Searching for genetic causes simply brings the entity in from the outside (Tempkin, "Scientific Approach," p. 647).

²⁸Weiner, op. cit., p. 28.

the host is still thought of as being attacked by some foreign entity; thus the diseased individual is still qualitatively different from the healthy individual. This qualitative difference between health and disease is one of the greatest strengths of an ontological approach, but it also confers certain practical limitations.

An ontological understanding allows the physician to determine clearly who is ill and who is not. In a more clinical-descriptive or a physiological approach the line between health and illness is not as clear. If disease is disordered function, we are left to ask how much dysfunction must there be for condition X to be called a disease. In a physiological approach, disease is a quantitative phenomenon. The well and the sick do not differ by the presence of some thing, like a tubercule bacillus, but rather by degree. On the other hand, a qualitative or ontological approach to disease would not allow the term "disease" to be used in many instances where its use might be desirable, for instance, in the cases of hypertension, obesity and depression, a more physiological approach is clearly warranted.

The Clinical Descriptive and Physiological Approaches

As stated earlier, the other major conceptual orientation to the understanding of illness is the clinical-descriptive approach. The major strength of this approach

is that it recognizes the uniqueness of every clinical picture; for this reason it attempts to provide individualized explanations and a treatment that is appropriate to conditions of the individual patient's life. As I noted previously, the other major strength of this approach is that it takes health and illness to be matters of degree. For many major medical problems, such as hypertension, obesity, depression, diabetes, etc., this approach is wholly appropriate.

While a clinical-descriptive approach to illness resolves some of the limitations of an ontological approach, it offers a different set of practical and theoretical problems. First, on the theoretical level, a strictly descriptive approach to illness does not admit the construction of diagnostic categories; the writings of Hippocrates illustrate this. This is a very significant weakness for without nosological categorization knowledge is not systematized, science is not advanced, and the practicing physician has virtually nothing to take with him to the bedside, that is, no working hypotheses to guide his inquiry. For medicine to be effective, clinical data must be organized into conceptual systems and some diagnostic categories must be constructed, but by definition the clinical-descriptive approach does not allow this. This difficulty was recognized by the Greeks. Interestingly,

Tempkin writes that the Greek physicians in Galen's time reasoned as follows:²⁹

1. Individual differences between men cannot be subjected to universalization.
2. The theories of medicine grasp at universals only.
3. [Therefore] medicine suffers from a fundamental contradiction; its practice deals only with individuals and its science only with universals. Clinical medicine cannot be a science.³⁰

The way in which this tension between individual illness and disease theory was "resolved" was by giving disease an increasingly physiological content, founded, I think, on a teleological biology. The Greek physician compared the data of the case at hand to his previous experiences with both "normal," healthy, and "abnormal," diseased patients. In the Greek eye, the norm was thought to be in accordance with nature and the abnormal contrary to it and since that time the tendency to identify the statistically normal with the desirable has persisted. As was suggested in my first chapter, while this identification may have a degree of pragmatic justification, it is not conceptually sound. It is important to see how the purported existence of an ideal state of being or mode of functioning takes away the major strength of the physiological model. Attributing an idealized biological essence

²⁹I present this argument as it demonstrates the "disease-illness" or similar "medical science-medical practice" distinction.

³⁰Tempkin, "Scientific Approach," p. 636.

to man removes the allowance for the individual variation that the physiological approach was founded upon. This loss of disease individuation was hardly felt in Greece, but with the advancement of medical technology the "healthy" mode of function has become increasingly narrowed, I think to the point of approaching ontology.

Although the Greeks understood disease in terms of variation from an ideal norm, the great thrust for a quantitative approach to disease did not come until the nineteenth century when it became possible to establish numerical norms on the basis of elaborate testing procedures.³¹ The development of medical technology and the generation of large data bases allowed a statistical approach to disease definition. This approach, in combination with a teleological biology, allows us to reaffirm non-individualized diagnostic categories. Today many diseases may be identified on a detailed quantitative basis. Given the "knowledge" of how an organ should function, for instance, knowing what oxygen titer should be generated given a particular blood acidity, it becomes possible to specify dysfunction in terms of some specific blood titer. The refinement of our testing procedures has allowed us to once again shift disease out of the context of the patient's life and toward an ontology.

³¹Tempkin, "Scientific Approach," p. 636.

Defining disease as a function of a "normal" range can be criticized on two grounds. If this approach is justified on teleological grounds, we can criticize it conceptually, and if it is defended on empirical grounds, there exists an empirical refutation. I briefly introduced in the section in Chapter I on "The Normative Foundation of Medicine" the conceptual criticism of a teleological approach to disease definition. In the remainder of this chapter I will concentrate on the empirical refutation.

Since the Greeks, the physiological school of medicine has tended to construe as pathological that which lies outside the statistical norm. Recent research in genetics, biochemistry and physiology is calling that notion into question, as it is demonstrating a tremendous range of interindividual variability in many physiological parameters. Historically, two claims have been made. First, it has been thought that the individual members of a species differed only minimally from the normal, and second, that there existed a necessary interdependence between the biological optimum of a given characteristic and the frequency of that characteristic in the population. That is, in a Gaussian distribution curve, the individuals which occupy the region around normal are the most healthy, and those at its extremes most diseased. There is reason to reconsider both of these claims.

Interindividual Variability and Statistical Definition of Disease

In recent experimental and theoretical biology there has been a developing concern for the reevaluation of the concept of "biological normality." Due to our Greek heritage, the advancement of statistical mathematics, and the tendency in science to average over deviations in experimental data, differences in the interindividual values of biological characteristics of a species were thought to be quite small. However, as Vacha explains, recent research has begun to demonstrate that there is no such thing as an average individual. In biochemistry and physiology, experiments have shown reproducible differences in biological characteristics reaching several orders of magnitude. This is being recognized in contemporary taxonomy, and numerical taxonomy is reorganizing its categories polythetically, that is, individual organisms are designated as belonging to a group if they possess a substantial portion of the characteristics by which the group is defined. Thus, modern taxonomic categories may not differ substantially from each other, as some of the same characteristics may serve to define two different groups.³²

³²Jiri Vacha, "Biology and the Problem of Normality," Scientia, 13 (1978), 830-831.

What these biological findings suggest is a "polycausal conception of disease." As opposed to an ontological theory, these findings suggest a quantitative approach to disease explanation dependent on a multiplicity of variables. In such an approach there is a continual transition between optimal health and manifest disease, and it is thought that all states of an organism are the consequence of the action of many genetic, historical and environmental factors.³³

This we have seen is not a new idea; it is in fact very similar to the clinical-descriptive or broadly physiological approach of Hippocrates and Galen; it has simply been given a more precise formulation. It has been suggested that contemporary medicine defines disease physiologically,³⁴ but according to Vacha, our traditional physiological understandings in biochemistry, physiology and pathophysiology are no longer tenable. Traditionally, the frequency distribution for biological characters was thought to be symmetrical and perfectly approximated by the Gaussian integral, but recent developments in physiology have shown that there are actually dramatic differences in the ways healthy individuals of the same species solve the same basic physiological tasks. Vacha explains that health

³³Ibid., p. 831.

³⁴Contemporary medicine defines disease physiologically, but not so broadly as the Hippocratics or Vacha would recommend.

is a function of ever differing consellations of biological parameters that must be understood systemically rather than additively or in isolation. He explains that,

. . . the significance of the given size of the organism's parameters for its biological fitness depends on the complex of all other characteristics, and thus on the individual constitution of the organism. The empirical expression of this theoretical postulate is the clinical conception of the individual norm.³⁵

He goes on to say that the optimal performance of a biological system is always a kind of trade-off between contradictory requirements. These properties of biological systems make it possible to understand how certain extreme values of characters can play a quite special and necessary role in an individual. Thus, although a particular variable may assume an abnormal value, at the same time the organism as a whole may be functioning well.

Vacha's second argument concerning the relationship between the biological optimum and the mean characteristic of the group is more popularly addressed. As Vacha and many others illustrate, the species mean for a certain characteristic is not necessarily the biological optimum for that characteristic. Vacha cites the predominance of dental caries and high serum cholesterol in our population and the existence of malaria in others. In these cases the species mean for the characteristic is actually thought to

³⁵Vacha, op. cit., pp. 834-835.

convey a biological disadvantage. Another example against the naive concept of a relationship between mean character and biological value is that of genius. Genius, or great athletic ability, are equally "unnatural" from a statistical point of view, but we would balk at the idea of calling these conditions diseases.³⁶

The consequence of these findings is that there can exist a considerable tension between individual and statistical norms, and furthermore, that treating the individual in such a way that he might come to conform to the statistical norm could prove to be pathological for that individual. Vacha recognizes that there is a loose relationship between the statistical and the individual norm, and further, that a multivariate statistical approach might demonstrate certain invariant relationships between sets of variables. An example of this has been found in animal physiology where allometric relationships between six circulation parameters have been found to be constant for the whole class of mammals. Yet until other such systemic relations are demonstrated, the evaluation of fitness as statistically construed will only be able to serve as a rough guide to individual determinations of health and disease.³⁷

³⁶Ibid., pp. 836-838.

³⁷Ibid., pp. 836-839.

It was my intention to give an empirical criticism of disease as defined statistically on the basis of group or species norms. The physiological approach in medicine has historically attempted to attend to a variety of host and environmental factors in determining proper prognosis and treatment, but the development of medical technology has fostered the systematic exclusion of many factors which individuate disease into actual clinical pictures. In medicine this is particularly well illustrated by psychiatry's search for biochemical characteristics which could serve to define many forms of mental illness. It is important to note that Vacha's comments are better directed to some types of medical problems than others. His systems approach contends that illness is a quantitative phenomenon that is the result of a multiplicity of causes. We might now look at a variety of illnesses and consider the applicability of this orientation and that of a more strictly defined physiological orientation, and that of an ontological or etiological model.

Problems of Application

Consider the spectrum of illnesses listed below. For each of these conditions, it will be valuable to consider the practical value of the ontological and the clinical-descriptive approaches.

PKU--syphilis--hypertension--cancer--depression

Engle explains that each of these conditions will have a diagnosis of a varying order of certainty: the diagnosis of PKU is a diagnosis of the first order; its etiology is clear and its clinical picture varies little between individuals and environments. Treatment in this case is singular and specific; it consists of adding a single amino acid to the patient's diet. Syphilis would carry a diagnosis with a second degree of certainty. Its etiology is well defined although its clinical picture expresses greater variability. Treatment can also be specific but this depends on the developmental stage of the illness. Hypertension would be a diagnosis of third order certainty. An Engle explains, its diagnosis is almost purely descriptive since little is known concerning its etiology. Treatment is multiply pronged and directed at symptoms as well as contributory factors. Cancers of various types carry diagnoses with a fourth order of certainty. In these illnesses general reactions are known, but the cause(s) and individual and environmental variation is great. Diagnoses of the fifth order of certainty such as depression are based on constellations of signs and symptoms. Etiology is unknown and great variability exists in the clinical picture unless a sometimes artificial attempt is made to limit the extent of the disease. Whether these conditions are diseases or not is debatable. They are often given the diagnostic status of "syndrome," that

is, a group of signs, symptoms and lab findings which fit together but do not constitute a definitive disease.³⁸

Engle's analysis is nearly sufficient to make my point. But it is for me to add that ontological and clinical-descriptive approaches are valuable to different degrees in different circumstances, although as suggested earlier, neither approach can be pursued exclusively. The juxtaposition of the above conditions is informative. We can see the appropriateness of a quantitative as opposed to a qualitative approach, or a single cause as opposed to a multiple cause approach for each of these conditions. In the light of these insights, we must question the amounts of money being spent on research that seeks "the cause" of cancer, obesity, degenerative diseases and mental illness. In these latter conditions, as the history of psychiatry demonstrates, we may in a few limited cases find a single viral, genetic or biochemical cause for a malady, but for the majority it is likely that such an approach is unrealistic. For the majority of these types of chronic problems, which we are increasingly having to deal with, a broader conceptual orientation might serve us better. I do not deny the theoretical and practical validity of an ontological or strictly defined physiological approach, but these

³⁸Ralph L. Engle, Jr., and B. J. Davis, "Medical Diagnosis: Present, Past and Future, I Present Concepts of the Meaning and Limitations of Medical Diagnosis," Archives of Internal Medicine, 112 (1963), 516-519.

orientations are not appropriate for use across the board. Both in their genesis and in the dysfunctions expressed, these conditions provide a broader set of problems that can be solved using a narrow conceptual model.

In these last two chapters, I have drawn a distinction between the definition of a problem as medical and the medical explanation of that problem. In the second chapter, I argued that illness is defined largely on non-medical grounds. The dysfunctions which constitute illness are social, psychological and biological in nature. On the other hand, contemporary medicine, with the possible exception of psychiatry, explains and attempts to remedy illness in far too narrow a fashion. The lack of cognizance of the multiple dimensions of illness, and the failure to recognize that it is clinical medicine's official function to treat illness and not disease results in unsatisfactory explanations and treatments.

This analysis of "illness" and its medical explanation, "disease," shows that the critics of psychiatry are confused. Mental illnesses are not diseases, but medicine is designed to treat illnesses; its attention to disease is a conceptual and practical error. To argue that medicine should not treat mental illnesses furthers this error.

The next chapter will offer an alternative theoretical orientation that attempts to explain and remedy illness rather than disease. My conclusion will summarize my

argument and then make a few further suggestions regarding some of the ethical and social considerations introduced throughout this thesis. In particular, I will make some suggestions regarding the relationship between our explanations of illness and the individual's practical and moral responsibility for his or her own health and care.

CHAPTER IV

AN ALTERNATIVE THEORETICAL ORIENTATION FOR MEDICINE AND SOME PRACTICAL CONSEQUENCES

The alternative conceptual model that I will present in this chapter is an attempt to supplement medicine's historically proven science and disease theories. History shows that medicine evolves in response to social and biological pressures; old theories and practices are overturned and new ones develop in an attempt to explain and remedy the problems which confounded the previous medicine. This is the situation that I see medicine facing today. In Western societies, the infectious diseases that dominated the medical scene in the last century have virtually been wiped out. Smallpox has been eradicated worldwide while the incidences of diphtheria and paralytic poliomyelitis have declined to very low levels in North America and Europe; current research indicates that rubella, mumps and chicken pox may be good candidates for eradication as well.¹ Regardless of these successes, medicine is as busy now as it ever was. I think it is reasonable to suggest that society's expectations have been raised. Until recently,

¹Roy M. Anderson and Robert M. May, "Directly Transmitted Infectious Diseases: Control by Vaccination," Science, 215 (1982), 1053-1060.

medicine lacked the resources to deal with many of today's problems and death or debilitation was more or less accepted as the norm. But today with the eradication of infectious diseases, advances in medical knowledge and technology, and increased medical expenditures at all levels, new demands are being made of medicine. Yet, as I suggested in the last chapter, medicine's dominant models of disease are poorly prepared to meet these new demands. The older etiological and strict physiological models of disease were in part a response to the infectious diseases. As these have been conquered, we are left with old tools to resolve "new" problems. Western medicine now faces a variety of chronic and degenerative diseases of unknown origin which show dramatic variation in their clinical pictures. Conditions such as heart disease, cancer, and many forms of mental illness will require a more comprehensive theoretical and practical perspective if they are to be understood and treated successfully.

My aim in this chapter is to suggest an alternative way of approaching contemporary medical problems. The newly developing study of systems theory, with its basis in information science, offers theoretical and practical insights useful to the study of living things, their disruptions and the resolution of these disruptions. I will begin this chapter with a systems theoretical description of living things. I will then consider the applicability of these

descriptions in medicine and finally, illustrate two ways in which a systems theoretical approach can be implemented in medicine.

General Systems Theory

One of the problems facing medicine in its attempts to explain and treat many of the chronic diseases is essentially the problem of the limitations of analytical procedures in science. The classical form of science upon which medicine is based is mechanistic and reductionistic, that is, it attempts to resolve an entity into numerous smaller parts. As Bertalanffy explains, the application of this procedure depends upon two conditions. First, the interactions between "parts" must be non-existent or weak enough to be ignored, and second, the relations describing the parts must be linear; only then is an equation describing the behavior of the total of the same form as the equations describing the behavior of the parts. While such an approach might have been warranted in considering the problems of classical physics, this mechanistic view is no longer generally tenable in modern physics, biology, psychology or the social sciences. Contemporary science is attempting to study not only parts and processes in isolation, but also the problems of organization and order, the means by which the parts are held together.² In each

²Ludwig von Bertalanffy, General Systems Theory (New York: Braziller, 1968), pp. 18-19, 32-33.

of these disciplines, attempts have been made to show "that the whole is greater than the sum of the parts." Quantum theory, ecological biology, gestalt psychology, and studies in the social sciences since Durkheim illustrate this point.

General Systems Theory has made considerable progress in developing mathematical programs which are capable of describing non-linear interactions between the parts of a system, a system being defined as an entity consisting of parts in interaction. These mathematical models often take the form of simultaneous differential equations.³ A hypothetical system might be described by twenty-six variables A through Z, each of which is a function of every other. Consequently, a variation in the value of a single variable would produce changes in all other variables. This system could be modeled mathematically as in Figure 1.

$$\begin{aligned} A &= f_a (B, C, D \dots \dots \dots Z), \\ B &= f_b (A, C, D \dots \dots \dots Z), \\ &\vdots \\ &\vdots \\ Z &= f_z (A, B, C \dots \dots \dots Y). \end{aligned}$$

Figure 1. An abbreviated mathematical model of a system described by twenty-six variables. As is illustrated in the figure, each variable is a function of all other variables.

Source: Jiri Vacha, "Biology and the Problem of Normality," Scientia, 13 (1978), 823-846.

³Ibid., p. 19.

Variable interdependence is a primary characteristic which we must recognize when we are studying living things. An organism is an integrated whole, each activity and the quantity of any variable is dependent on all others. This characteristic of living things has a practical consequence in medicine in the determination of biological norm. I argued in the last chapter that empirical studies show that organisms are capable of solving the same physiological task in a variety of ways. This has been called the property of equifinality. Unlike conventional physical systems where the final state and the path to it are unequivocally determined by the initial conditions of the system, the living organism shows remarkable self-regulatory characteristics.⁴ The activities of organisms are often attempts to maintain physiological "steady states," and as these can be established from a variety of initial conditions in a variety of ways, a statistical definition of health or disease based on the absolute values of physiological characteristics is inadequate; what is required is a systematic understanding of the relationship between variables.

Variable interdependence and the consequent property of equifinality could have as much bearing in psychiatry as it does in physiology. Bizarre behavior might be understood

⁴Bertalanffy, *op. cit.*, pp. 141-143.

as a mechanism which serves to relieve stress in an individual; thus, such behavior might be an understandable, although perhaps an unacceptable, means of reestablishing psychological balance. This systematic understanding of variable relations would suggest that a medical theory such as the "dopamine hypothesis" is at least inadequate and probably wrong. The "dopamine hypothesis" contends that the affective disorders, such as schizophrenia and depression, are consequences of either the excessive or inadequate uptake of dopamine-like neurotransmitters in the brain. A clinical application of this hypothesis is the attempt to diagnose affective disorder purely on the basis of the serum concentration of these chemicals. In contrast to such an abstracted understanding of the mental disorders, a more comprehensive approach, such as that which we will see in the new DSM-III,⁵ attempts to understand a single variable such as dopamine concentration only in relation to numerous other variables. Besides the insight a systems theoretical approach can offer regarding patient and treatment assessment, a systems theoretical understanding of the living organism has important consequences for the treatment of illness.

Bertalanffy, in his General Systems Theory, draws a distinction between "open" and "closed" systems. Closed

⁵Diagnostic and Statistical Manual of Mental Disorders, 3rd ed. (Washington, D. C.: The American Psychiatric Association, 1980).

systems are systems that are considered to be isolated from their environment, systems to which the laws of thermodynamics apply. Open systems, on the other hand, are environmentally integrated and maintain themselves in spite of energy transfers between themselves and their environment. As Bertalanffy explains, open systems may never reach thermodynamic equilibrium, and instead can be maintained in a time-independent steady state. In a steady state, the composition of the system remains relatively constant although there is continuous exchange of components.⁶ As I will describe in more detail later in this chapter, the structural and functional integrity of the steady state of a living system is maintained by both environmental and internal forces and exchanges. This is significant for the stabilizing potential of environmental forces can be brought to bear in medical treatment.

Systems theory as a mathematical approach has been shown to be of great practical value in traffic engineering and ecological biology. In ecology, complex mathematical models have been developed which are capable of yielding accurate predictions upon the manipulation of variables. It is important to note that these models, while highly predictive, are non-explanatory in a classical sense, that is, they do not attempt to provide causal accounts of

⁶Bertalanffy, op. cit., p. 158.

phenomena.⁷ The modeling methods are better suited to problem solving than the attainment of scientific understanding and therefore more appropriate to clinical medicine than medical science. We will see the potential impact of the mathematical modeling in clinical medicine when we give consideration to computerized diagnostic programs.

Three characteristics of living organisms, variable interdependence, equifinality, and their "open-endedness," have practical bearing for the diagnosis and treatment of illness; we will consider these further in the remainder of this chapter.

Systems Theory in Medicine

Living things are open systems; they are wholes with irreducible parts; they maintain themselves in a changing environment; and they possess a dynamic stability characterized by non-linear cyclic interactions between components. Finally, and most important for our discussion, living things are composed of systems, and they themselves are component parts of environmental suprasystems. Each level of organization, be it cell, organ, person, or family, has unique characteristics and dynamics, which cannot be fully described using the concepts of lower levels. Furthermore, this organization is relatively stable in both its structure and its functioning. This stability of

⁷My thanks to Roger Jones, Philosophy Department, The University of Tennessee, Knoxville, regarding these points.

configuration is maintained by both internal, intrasystem, and external, inter-system, modulations. Within any system there is a coordination of component parts, and overturn of molecules, cells, persons, etc., and as a component of a larger system, its configuration is stabilized through environmental forces. As Brody explains, if we designate any level "n," all other "n" systems, and those designated "n + 1" would comprise the environment and act as potentially stabilizing or destabilizing factors.⁸ Figures 2 and 3 illustrate the hierarchical and integrative organization of systems.

Human nature, explains Brody, can be understood as having distinct quantum levels of organization which are arranged hierarchically; the disciplines of biophysics, biochemistry, cytology, etc., corresponding well to the different organizational levels represented in Figures 2 and 3. In keeping with Bertalanffy and Brody, Engel writes that the horizontal components of this hierarchy have been mapped in detail by the classical factor analytic method, but what is lacking is an understanding of the functional interactions between levels.⁹ The same point

⁸Howard Brody, "The Systems View of Man: Implications for Medicine, Science and Ethics," Perspectives in Biology and Medicine, 16 (1973), 72-73; George L. Engel, "The Clinical Application of the Biopsychosocial Model," The Journal of Medicine and Philosophy, 6 (1981), 104-106.

⁹Engel, "The Clinical Application," pp. 104-105; Brody, op. cit., pp. 81-82.

SYSTEMS HIERARCHY
(LEVELS OF ORGANIZATION)

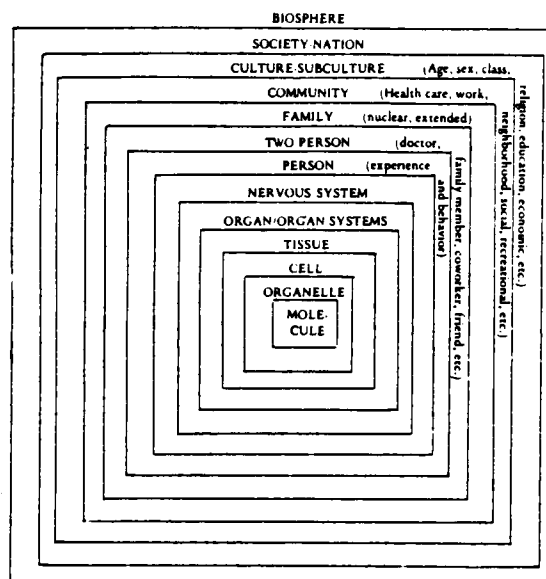
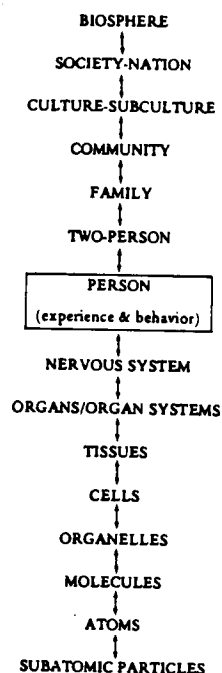


Figure 3. A schematic representation of systems integration.

Figure 2. A schematic representation of the hierarchical organization of systems.

Source: George L. Engel, "The Clinical Application of the Biopsychosocial Model," The Journal of Medicine and Philosophy, 6 (1981), 104-105.

is made by Herbert Weiner, although less abstractly. He explains that a comprehensive understanding of man requires the insights of evolutionary, cultural, and developmental biology, as well as those of cellular and molecular biology, the cominant disciplines of contemporary medical science. Molecular and cell biology are concerned with the origins of components and their structures, that is, they characterize the horizontal components of Figure 2. This knowledge must be supplemented with an understanding of how living systems interact with and adapt to their environment. Like others, Weiner is arguing that the vertical relationships between levels of organization need to be appreciated.¹⁰ Engel attempts, with his "biopsychosocial" model of medicine, to account for the importance of these inter-systematic interactions in so far as they might contribute to our understanding of disease or serve to remedy illness.

Systems theory offers useful definitions of health and disease. In viewing these concepts from a systems perspective, it is important to keep in mind particularly the aforementioned characteristic of living systems--the fact that they can achieve a dynamic stability. According to systems theorists, the healthy state for a living organism is one in which it is structurally and functionally in steady

¹⁰Herbert Weiner, "The Illusion of Simplicity: The Medical Model Revisited," American Journal of Psychology, 135 (1978 suppl.), 29.

state. Health has been defined by systems oriented physicians as a harmonious and dynamic equilibrium. Illness begins as a perturbation or stressor on one or many levels. Two major consequences are possible upon the initiation of the insult: either the system accommodates, making adjustments primarily in immediately adjacent levels and possibly compensating for the disturbance; or it fails to accommodate and the perturbation is transmitted both upward and downward throughout the system.¹¹ In Figure 4, Brody provides an excellent illustration of the ramifications of an uncorrected system stressor. Additionally, one might readily conceive of a perturbation initiated at a higher level which works its way downward through interlocking systems. Consider for instance environmental crowding resulting in psychological stress which in turn fosters the development of, or aggravates, a stomach ulcer.

At this point, a potential criticism of medical application of systems theory needs to be addressed. It might be readily argued that a systems understanding of illness flies in the face of our common sense understanding of illness and our experience of the world. If we take illness to be a breakdown of structural or functional integrity, we would be committed to the possibility that there might be such things as sick societies, environments or biospheres.

¹¹Brody, op. cit., p. 80.

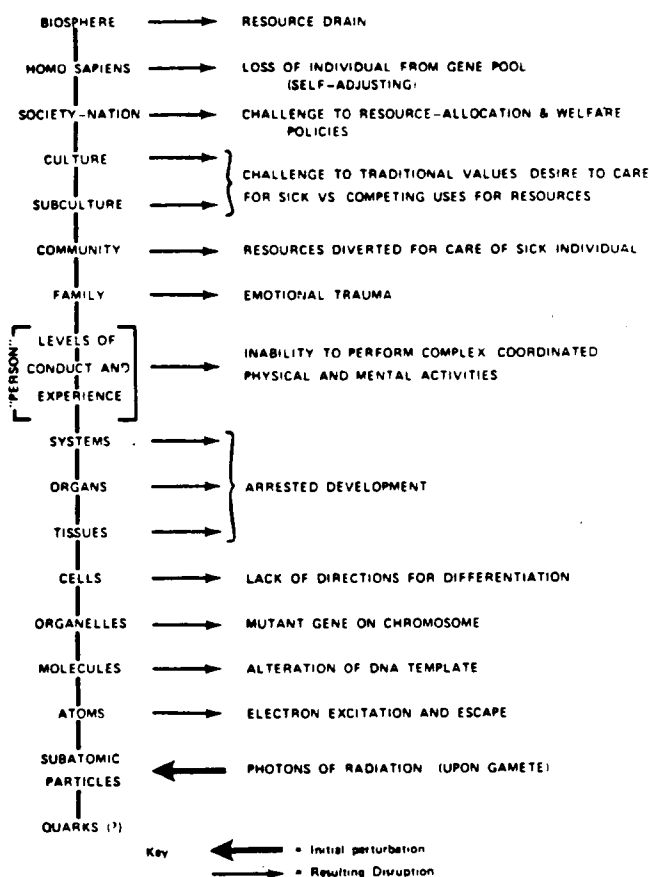


Figure 4. Illness example. Severe physical and mental retardation caused by a radiation-induced mutation in the gamete: example of spread of disruption upward through the hierarchy.

Source: Howard Brody, "The Systems View of Man: Implications for Medicine, Science and Ethics," Perspectives in Biology and Medicine, 16 (1973), 79.

Although opposed to our common usage of the notions of disease or illness, this implication is defensible.

It is regularly thought that only biological levels of organization can be ill or diseased. Critics of my position, that there can be sick societies, etc., would argue that the proper domain of illness can be delineated on the basis of biological set points or steady states which serve to maintain the individual or perpetuate the species.¹² This criticism I take to be grounded in a teleological biology. Living systems, from the level of the cell to that of the species, appear to have a goal, their physiological steady state, which their activities serve to realize. Furthermore, it might be argued that this end, steady state, seems to be a good, for illness, a normative concept, consists of its disruption. A conclusion that might follow would be that only biological organizations have such "natural" set points and only the biological organizations from the cell to the species can be ill or diseased.

In reply, I will agree that the activities of living things generally serve to move it towards a steady state, and that the establishment or maintenance of this state

¹²Christopher Boorse, "On the Distinction Between Disease and Illness," Philosophy and Public Affairs, 5 (1975), 49-68; Christopher Boorse, "Health as a Theoretical Concept," Philosophy of Science, 44 (1977), 542-573.

leads to survival of the individual and/or the species. Yet, it is important to realize that in itself the establishment of the steady state is neither a good nor a bad thing. Steady state is only a good thing given the valuation of species or individual survival. This was the point made by Sedgwick, Margolis and others in my first chapter. At that time, I presented an example which illustrated the normative content of all ascriptions of illness, that is, while we would take a parasitic infection of our children to be an illness, the parasitic invasion of a worthless desert plant would be regarded as an example of competition between species.

The structural and functional integrity described as "health" in systems theory is only good in so far as it contributes to the realization of our values. This is as true of social as it is of biological organizations. One fails to see the formal similarity between the structure and functioning of our bodies and the structure and functioning of a social organization because we understand biological integrity to be a state that is defined independently of our values. We can contend that there are biological norms, but these norms are established only relative to values such as survival and reproduction.

Given a system's organizational understanding of illness, illness remains a normative concept. Societies or ecosystems can be understood as "ill" if there is a

breakdown in their organization and this organization led to or maintained a state of being which we took to be a good. We can say that societies are sick because judgments of "sickness" are normative--not factual. It might be advantageous to use the notion of "illness" or "sickness" only in the biological sphere, and find another word that expresses the same idea when applied to higher levels of organization. Nevertheless, the two terms would be similar in the idea they represent.

There is a second criticism of systems theory that I would also like to address. In response to the contention that everything is composed of systems and in turn comprises a part of a larger system, a critic might readily argue that nothing of substance has been said. If everything is a system, then the notion of system does not serve to define anything, and what we take to be the boundaries of an organization would, in fact, be arbitrary. I might agree with this comment and reject the formulation of systems theory if not for the practical value of this formulation.

Like the critic, I would agree that in nature systems have no boundaries, but for practical purposes boundaries can be and are drawn. According to systems theory, the galaxy in which we exist is a system and its organization has a bearing on our lives and our health, but from the standpoint of medicine, attention to this sphere of organization is pointless. The position of our planet and the

solar season may contribute positively or negatively to our state of health, but since this effect is so indirect, and since it is beyond our power to manipulate, this systemic relationship must be ignored for the sake of practicality. For a similar reason many biological, psychological and social factors must be ignored; we currently lack the capacity to either account for the effects of numerous of these conditions, and are not in a position to change them in a knowledgeable way. Although this will always remain the case to a varying degree, the information storage and pattern recognition capacities of modern computers will continually allow us to account for more of these indirect and complex factors which contribute to the composition of the illness picture.

In spite of the above philosophical criticism of systems theory, I will argue that the usefulness of this theoretical orientation warrants its explication. Systems theory has important practical significance for medical practice, first for the characterization, and second for the treatment of illness.

Practical Implications of Systems Theory in Medicine

The first practical implication of a systems approach in medicine involves the characterization of illness. The diagnostic labels of traditional medicine rarely describe the clinical picture; there are a great many facts about the patient and his condition which do not lend themselves

to categorization, yet these variables may be essential in understanding how and why the patient is ill.¹³ Keeping in mind the propositions regarding variable interdependence and systems interconnectedness, there may be good reason to reinstitute the broadly descriptive Hippocratic approach for a variety of problematic illnesses. A. M. M. Payne has advocated this approach in suggesting that tuberculosis, schizophrenia, and suicide might be classified together in a category of diseases related to social factors.¹⁴ Alan Sheldon explains that we need a classification scheme that makes social and psychological variables an essential part of the classificatory process.¹⁵ These suggestions are being implemented in psychiatry, but this clinical-descriptive approach to illness may have equal or greater value in somatic medicine with the advent of computerized diagnosis.

The American Psychiatric Association, in its formulation of DSM-III, the Diagnostic and Statistical Manual of Mental Disorders, has taken a broadly descriptive and

¹³George L. Engel, "A Unified Concept of Health and Disease," Perspectives in Biology and Medicine, 3 (1960), 463.

¹⁴A. M. M. Payne, "Innovation Out of Unity, Milbank Memorial Fund Quarterly, 43, Part 1 (1965), 397-408.

¹⁵Alan Sheldon, "Toward a General Theory of Disease and Medical Care," in Systems and Medical Care, eds. Alan Sheldon, Frank Baker, and C. P. McLaughlin (Cambridge: MIT Press, 1968), p. 95.

systems theoretical stance to the understanding of mental illness. The manual formally requires the inclusion of several different classes of information, relating biological, psychological and social parameters, in the determination of a psychiatric diagnosis. In this way, the DSM-III attends to the illness condition rather than disease.

According to the DSM-III, a patient's condition must be assessed on five axes. This scheme insures that attention is given to types of disorders, aspects of the patient's environment and areas of functioning which might be overlooked if the diagnostic focus were on a single variable.

Axes I and II consist of the entire class of mental disorders and those conditions not attributable to a mental disorder which are a focus of attention or treatment.

Axis III permits the clinician to indicate any current physical disorder that is potentially relevant to the understanding or management of the patient.

Axis IV serves to code the severity of the psychosocial stressors that are judged to have been a significant contributor to the development or exacerbation of the current problem. The DSM-III notes that the evaluator should attempt to rate the stressor as would an "average" person with sociocultural values similar to the patient's. The manual explains that accounting for psychosocial

variables may be important in the formulation of a treatment plan which might include the removal of the stressor and attempts to help the individual cope with it.

Axis V codes the highest level of adaptive functioning in the past year, adaptive functioning being a composite of three major areas: social relations, occupational functioning and use of leisure time. The parameters considered on this axis are interesting in light of my earlier discussion of a minimal notion of mental health. The functioning with which the DSM-III is concerned is a minimal level of social functioning; it makes no attempt at evaluating the patient's functioning in regard to personal goals or self-fulfillment. Social behavior is taken as the primary determinant in establishing a norm for the patient's behavior.¹⁶ Figure 5 shows a DSM-III multiaxial evaluation.

Axis I:	296.23 Major Depression, Single Episode, with Melancholia
	303.93 Alcohol Dependence, In Remission
Axis II:	301.60 Dependent Personality Disorder (Provisional, rule out Borderline Personality Disorder)
Axis III:	Alcoholic cirrhosis of liver
Axis IV:	Psychosocial stressors: anticipated retirement and change in residence with loss of contact with friends
	Severity: 4—Moderate
Axis V:	Highest level of adaptive functioning past year: 3—Good

Figure 5. An example of a DSM-III multiaxial evaluation.

Source: Diagnostic and Statistical Manual of Mental Disorders, 3rd ed. (Washington, D. C.: The American Psychiatric Association, 1980), p. 30.

¹⁶Diagnostic and Statistical Manual, op. cit., pp. 23-32.

Interesting new Hippocratic approaches to illness characterization have arisen in somatic medicine as well. This has become possible because of the information storage and assimilation potentials of modern computers. In these computer programs multiple indicators and multivariate analysis based on probability techniques establish or recognize similarities in complexes or clusters of symptoms and signs. In these computer programs patients with the same disease are not expected to have precisely similar characteristics; rather, like modern numerical taxonomy, a patient is assigned to a category on the basis of significant numbers of characteristics whose values may vary over a range.¹⁷

These programs assemble clinical and laboratory data and as an illness is defined by no more than an enumeration of symptoms and signs, a diagnostic decision is made directly without a stepwise reasoning process which looks for consecutive causes. This approach to the characterization of illness can reduce the amount of distortion which occurs in abstracting a diagnosis from a clinical picture. It reduces the amount of data elimination that occurs in classical diagnostic reasoning as was described in my

¹⁷Sheldon, op. cit., p. 44; J. G. Scadding, "Diagnosis: The Clinician and the Computer," The Lancet, 2 (1967), 877; Ralph L. Engle, "Medical Diagnosis: Present, Past and Future, III Diagnosis in the Future, Including a Critique on the Use of Electronic Computers as Diagnostic Aids to the Physician," Archives of Internal Medicine, 112 (1963), 537-538.

second chapter. The outcome of this statistical approach to diagnosis is a prediction of prognosis, but this prediction lacks explanatory value in that it does not posit causes or mechanisms.¹⁸ Fabrega provides us with the following model of a multivariate statistical approach to diabetes (Figure 6).

$$D = a_1 Q_1 + a_2 Q_2 + \dots a_n Q_n;$$

D = "amount" of diabetes;
 a_i = weighting constants ("how much" each indicator or variable contributes to D);
 Q_i = an indicator of D specified in appropriate units.

Figure 6. A hypothetical multivariate and quantitative model of diabetes.

Source: Horacio Fabrega, Jr., "Concepts of Disease: Logical Features and Social Implications," Perspectives in Biology and Medicine, 15 (1972), 611.

This approach to the characterization of illness takes illness to be a quantitative phenomenon; individuals are not either well or sick; rather, they are less well or more sick. According to such a model, health and illness are a matter of degree. Fabrega explains that it is more accurate to speak of hypertensive scores, diabeticity scores, etc., rather than of diabetes or hypertension. In this approach indicators of illness are quantified whenever possible,

¹⁸Alvin R. Feinstein, "An Analysis of Diagnostic Reasoning: II The Strategy of Intermediate Decisions," Yale Journal of Biology and Medicine, 46 (1973), 276.

and on the basis of a statistical formula, an illness number is computed for each individual.¹⁹ Possibly then, individuals could be designated by complexes of these numbers which would indicate risk, possible prognoses and what changes in life might be initiated to modify probable outcomes.

This process is fundamentally different from standard diagnostic reasoning. Classically,

The sequence of diagnostic reasoning follows a rational direction opposite to that used in explaining the process of pathogenesis. In pathogenic reasoning, the logical direction is from cause to effect.²⁰

Thus, diagnostic reasoning classically moves from effect to cause. Feinstein describes this process as a sequential search for entities that are immediate causes, each sequential cause providing an explanation for the state at hand and in turn becoming the state to be explained once it is recognized. There is a development of a scientific, causal understanding of the relations between events and conditions.²¹ According to this model of illness, the difference between the healthy and the ill individual is

¹⁹Horacio Fabrega, Jr., "Concepts of Disease: Logical Features and Social Implications," Perspectives in Biology and Medicine, 15 (1972), 611.

²⁰Alvin R. Feinstein, "An Analysis of Diagnostic Reasoning: I The Domains and Disorders of Clinical Macrobiology," Yale Journal of Biology and Medicine, 46 (1973), 219.

²¹Ibid.

not one of degree; the presence or absence of a pathological cause gives the healthy and the ill different characters.²²

Diagnosticians realize that they use probabilistic reasoning and that their search for a single cause, monopathic reasoning, is idealized and is better suited to instruction and research than it is to clinical practice. As Lester Lave and Eugene Seskin point out, the causality that classical diagnosis searches for may not be a useful notion for the chronic diseases.²³ Classical causation becomes an increasingly less helpful notion as numerous conditions are capable of modifying outcomes--such is the case with many contemporary illnesses.

Another criticism that can be leveled against traditional diagnostic reasoning is that it often lacks pragmatic value. As I noted in the last chapter, diagnoses can take several forms, sometimes they are functional, other times anatomical and still other times etiological. It is important to realize that as an illness is increasingly characterized scientifically, there is a shift away from attention to symptomatology, which in effect is usually what the patient is concerned with.²⁴ For this reason

²²Feinstein, "An Analysis of Diagnostic Reasoning: II The Strategy," p. 273.

²³Lester B. Lave and Eugene P. Seskin, "Epidemiology, Causality and Public Policy," American Scientist, 67 (1979), 178.

²⁴J. G. Scadding, "Viewpoint: The Semantics of Medical Diagnosis," Bio-Medical Computing, 3 (1972), 89.

narrowly scientific diagnoses may not be very helpful in formulating treatment plans. In conditions where etiology is well defined scientifically, technical diagnoses can be extremely effective by designating the use of a highly specific "magic bullet," like penicillin, but for the majority of problems facing clinical medicine today, such an approach is not realistic as etiologies are unknown, and given the probable complexities of these etiologies, may never be. Conditions such as alcoholism, depression, heart disease and cancer will require a broader sense of treatment than that of a magic bullet. These conditions are not diseases in the classical infectious disease sense; they are more the products of the trajectory of the individual's life, and the environment in which he lives. Consequently, these conditions will tend to require preventive maintenance and long-term management rather than a short-term "cure."

Because diagnostic labels may have little bearing on the clinical picture, it has been recommended that the acceptability of a diagnosis should be determined by its bearing on prognosis. In such a scheme, nosology would become a process of assigning illnesses to categories which share the same prognosis and response to therapeutic intervention; some diagnostic distinctions might then be dropped from the roster. Dana Copeland explains that medicine has the scientific and technical capability to distinguish between two types of meningiomas, but as the distinction is

without prognostic significance, this differential diagnosis is no longer made.²⁵

Categorization of medical conditions by prognosis is being attempted through the use of computerized reasoning programs. In these programs prognosis and treatment response are part of the information input from which illness patterns are established. These programs attempt to skip diagnostic labeling and the end result of the reasoning is a management decision. Once again we see that the information generated by such an approach is more predictive than explanatory. These programs are essentially engineering programs which generate prescriptions, given goals, rather than causal or mechanistic understandings.

Computerized diagnosis is not a panacea. Traditional diagnostic logic is ideally suited to many conditions, and it can in those instances provide excellent practical guidelines. Yet, illnesses of the sort with which I am concerned, that is, cancer, obesity, alcoholism, etc., are not of a character which can be understood or treated in traditional fashions; a statistical, multivariate analysis may shed more light on these problems than more classical approaches.

Computerized diagnostic programs are subject to many of the limitations of traditional diagnosis. The data which

²⁵Dana Copeland, "Concepts of Disease and Diagnosis," Perspectives in Biology and Medicine, 20 (1977), 535-536.

the computer processes must still be selected and interpreted for entry, although given the storage capacities of modern computers more information can be retained and assimilated than has been previously possible. Second, a computer can generate no more than a statistical, non-normative definition of disease, this, as we saw in the last chapter, is inadequate for several reasons. Biological characteristics will vary over a considerable range and distance from the mean may not necessarily be "bad"; we will still be faced with the problem of pointing out where in this continuous range of biological values health begins and disease ends. This determination cannot be made by the computer.

The third weakness of computerized diagnosis is that the computer must average over individual differences in clinical pictures when constructing illness patterns. Nevertheless, the computer is capable of providing a more individualized picture of the patient than traditional logics and they will be able to increasingly individualize illness as more information becomes available and their storage capacities and speed increase.

The fourth and final weakness of computerized diagnoses is that both the descriptions and prescriptions that they provide are isolated in time, unlike the disease process. Any diagnosis yields a single picture of an illness; in this it might be said to be closed-ended. Some progress is

being made in this area where information is being collected over long periods of time to generate more dynamic descriptions of the illness.²⁶

The Biopsychosocial Model and the Structure of Clinical Care

The systems theoretical understanding of man, health and illness is capable of generating some insightful guidelines for clinical medicine; these have been brought together in George Engel's "biopsychosocial" model of medicine.²⁷ From the standpoint of general systems theory, this model attempts to conceptualize and treat illness comprehensively. It recognizes that perturbations or stressors can be biological, psychological or social and that they are capable of destabilizing the patient's life in many spheres of functioning. In understanding the initiation of illness as a perturbation, treatment consists of aiding the system in self-accommodation, by drawing upon information and resources at all levels of a patient's life and applying it in such a way as to offset or isolate the stressor. This is probably of greatest importance in long-term health maintenance and care.

²⁶Engel, "Medical Diagnosis: III," p. 536; Sarah S. Bishop, "Explanation in Medicine: The Problem-Oriented Approach," The Journal of Medicine and Philosophy, 5 (1980), 45-47.

²⁷Engel, "The Clinical Application," pp. 101-123; Brody, op. cit., pp. 77-80; George L. Engel, "The Biomedical Model: A Procrustian Bed?" Man and Medicine, 4 (1979), 257-275.

Unlike the bench scientist who can single out and isolate a component from an integrated whole, the clinician is faced with multiple and interacting variables. The "biopsychosocial" model is an attempt to come to grips with these numerous conditions and levels of functioning; it is therefore more concerned with illness than it is with disease. Engel is quick to point out that attention to the psychological and social parameters of illness is as much a scientific as it is a humanitarian concern. Engel seeks to extend systematic and scientific methodology to aspects of everyday care and practice.²⁸

In addition to the insights offered by systems theory, Engel recognizes that clinical medicine is essentially a problem-solving enterprise, and further that these problems are the patient's problems. Accordingly, the patient's subjective description of his illness and personal assessment of his condition are primary in determining treatment goals and establishing programs of care and maintenance. This perspective suggests that the patient be fully informed and stresses that the individual patient is best equipped to know and evaluate many facets of the clinical picture.

The patient-centered and problem-oriented approach to medical care serves to orient systems thought in medicine and has tremendous potential to be implemented through the

²⁸Engel, "The Clinical Application," p. 101.

use of Problem-Oriented Medical Records (POMRs).²⁹ This novel method of organizing medical information has arisen out of the practical needs of nursing, but has developed into a health care philosophy nearly identical to that of Engel's. As Bishop explains, the Problem-Oriented Medical System (POMS) sees medicine as a socially accountable institution, and attempts to provide a non-conventional medical explanation of illness based on a multiplicity of ". . . variables which are known generally or statistically to predispose to or affect certain pathological conditions."³⁰ The POMS also stresses attention to social and economic factors that may be of importance for the proper maintenance of treatment or prophylaxis, and argues that the patient should be an active member of the health care team. The essence of this approach is the structuring of medical records around the major problems.

The medical record is an essential part of medical practice for it is around this information that clinical care is structured. The medical record contains descriptions of the patient, diagnoses, lab results, assessments,

²⁹Bishop, op. cit.; G. S. Lang and K. J. Dickie, The Practice-Oriented Medical Record (Germantown: Aspen Systems, 1978); Rose Marian Berni and Helen Ready, eds., Problem-Oriented Medical Record Implementation (St. Louis: C. V. Mosby, 1978); Department of Hospital and Related Institutional Nursing Services, ed., The Problem-Oriented System: A Multidisciplinary Approach (New York: National League for Nursing, 1974).

³⁰Bishop, op. cit., p. 35.

treatment plans and follow up notes, but as the medical record has been traditionally structured, it has failed to be pragmatic or interdisciplinary. Furthermore, the medical record did not clearly designate the roles of the different health care professionals for the provision of care. In the old Source-Oriented Record (SOR), information was scattered, its location depending on the service which rendered care. Lab data was in the lab section; X-ray reports were in a different section; nurse's notes were all together; doctor's orders were separated from clinical records, and so on. As Katherine Lambert explains, under this system it was almost impossible to put together a picture of what was happening to the patient and why.³¹ The POMR establishes a single data base, part of which is collected by each discipline. In it there are no longer doctors' progress notes, nurses' progress notes, etc.-- there is only one sheet designated Patient Notes on which all comments are written.³²

The POMR is essentially a new way of organizing medical information in such a way as to make it more useful for the tasks of patient care. It consists of four parts:

³¹Kathryn Lambert, "Basic Principles of the Problem-Oriented System," in The Problem-Oriented System: A Multidisciplinary Approach, pp. 29-43.

³²Roberta Abruzzese, "The Nursing Process and the Problem-Oriented System," in The Problem-Oriented System: A Multidisciplinary Approach, pp. 11-21.

the data base; the problem list; a list of plans according to problem; and a follow-up for each problem. Figure 7 illustrates this type of record.

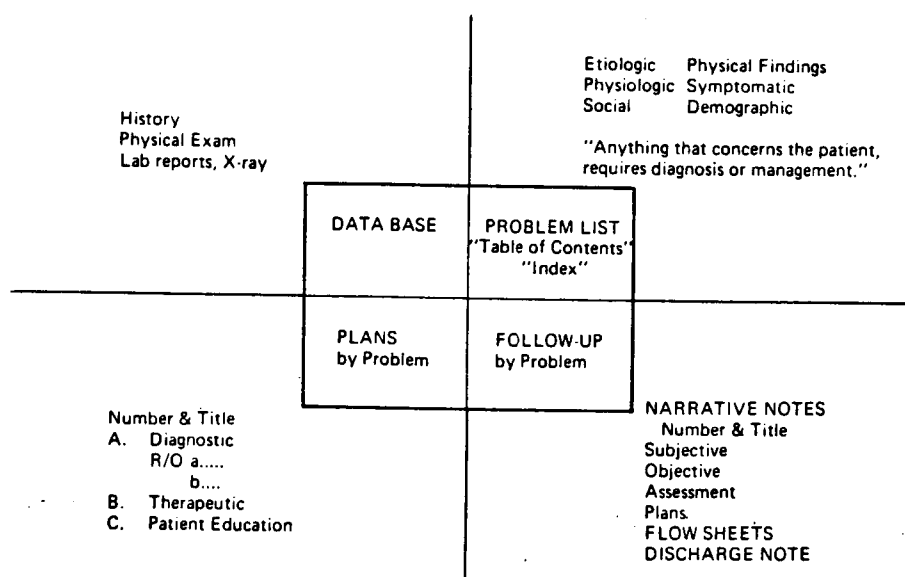


Figure 7. The Problem-Oriented Medical Record.

Source: Edward J. Twin, "The Physician and the Problem-Oriented Record," in The Problem-Oriented System: A Multidisciplinary Approach, ed. Department of Hospital and Related Institutional Nursing Services (New York: National League for Nursing, 1974), p. 24.

As noted, the data base integrates the information provided by all health care disciplines; it consists largely of the patient's profile, his health history, including psychological and social responses to past stressors, the results of the physical and lab tests, and often contains a familial health history. The problem list is the heart of the record, as illustrated in Figure 7. It contains

any thing of concern to the patient or health care providers, and other things which might interfere with the patient's health either presently or in the future. In this section problems are numbered according to their significance to the patient, and all plans and progress notes relevant to that problem are given the same number. This provides a cohesiveness to the POMR which the SOR lacked. Finally, it should be noted that the problem list, like other elements of the record, is open-ended and continually updated.

The third part of the record is a list of plans. Long- and short-range planning is provided for each problem and each plan has three elements: diagnostic plans, usually orders for more information; treatment plans; and patient education plans. Formalization of such steps into the record insures comprehensive care and provides a check on the care being delivered.

The fourth part of the record is that of "follow-up"; this is the section where progress is noted. Follow-up contains the narrative notes of each discipline and has four components designated by the acronym (SOAP). First is a subjective or symptomatic account of the patient's progress from the patient's point of view. Some authors have suggested quoting the patient. Second are the notes of the health care professionals. Designated as objective notes, they record things observed, measured or monitored.

Third is the assessment section, notes on progress or regression according to the goals formulated previously in the plans section of the record. It is in the assessment section that an explanation for the patient's condition can be found.³³

From its comprehensive and integrative perspective, the POMS attempts to provide a non-conventional medical explanation. Instead of considering individual variables from the standpoint of a single discipline, the problem-oriented explanation attempts to synthesize and cross-reference a wide variety of variables thought to affect the patient's condition. It does this by drawing on the assessments of each member of the health care team. This serves to individualize the explanation; this explanation is then evaluated according to the purposes of the medical care program. As we noted, these purposes are determined to a large extent by the individual patient.³⁴ To devise programs of more appropriate care, authors, most notably Lawrence Weed, the founder of the POMS movement, advocate patients access to their own medical records.³⁵

³³Edward J. Twin, "The Physician and the Problem-Oriented Record," in The Problem-Oriented System: A Multidisciplinary Approach, ed. Department of Hospital and Related Institutional Nursing Services (New York: National League for Nursing, 1974), pp. 22-28.

³⁴Bishop, op. cit., p. 37.

³⁵Lawrence L. Weed, Your Health Care and How to Manage It (Essex Junction: Essex Publishers, 1978).

The problem-oriented explanation in the POMS serves three revolutionary goals:

. . . to work with patients to educate and care for them in their goals of health; to liberate them from a dependence on a profession with "privileged access" to their medical records and data; and to help reduce suffering in those for whom "sickness" . . . necessitates the revision of personal goals and expectations.³⁶

By way of contrast with traditional medicine's source-oriented record, the POMS shows that traditional medicine has ignored illness in favor of a focus of disease. The explanations of traditional medicine are often too narrow or abstract, while explanations of illness are pragmatic and multifactorial. The conceptual orientation of systems theory in medicine results in a clinical practice which is comprehensive and integrated.

In this chapter I have presented the rudiments of an alternative approach to the understanding and treatment of illness. I have argued in previous chapters that our traditional models of disease are largely inappropriate for many of our contemporary health problems. Illness is a complex phenomenon and can only be adequately described and resolved by information drawn from biological, psychological and social spheres. Until recently medicine has lacked the conceptual and technical tools to account for the immense amounts of diverse information which makes up the clinical

³⁶Bishop, op. cit., p. 54.

picture. The application of systems theory in medicine is an attempt to remedy this insufficiency.

Systems theory provides a conceptual framework in which massive amounts of clinical information can be organized. The models that systems theory can provide, together with the information storage capacities of modern computers, will allow medicine to increasingly develop more individualized characterizations of the patient's illness. In theory, computer applications in medicine would allow the development of a "science of the individual." The mathematical modeling of patient characteristics may allow the physician to predict the outcome of treatment regimes, patient activities and environmental circumstances. Standards of health would be chosen and computers might allow us to rigorously determine what should or should not be done to realize that standard.

A systems theoretical approach to health and illness could have a tremendous value particularly for health maintenance and long-term care. This approach can be implemented through the use of a problem-oriented medical record. The POMS is an innovation in information organization. With a grounding in systems theory, the problem-oriented medical system attempts to stabilize the patient's condition by drawing on the integrative forces of several levels of health care organization. This addresses all of the dimensions of illness.

In my forthcoming conclusion, I will summarize my argument and then make a few further suggestions regarding some of the ethical and social considerations introduced throughout this thesis. In particular, I will make some suggestions regarding the relationship between our explanations of illness and the individual's practical and moral responsibility for his or her own health and care.

CHAPTER V

SUMMARY AND CONCLUSION

In recent years there has been a great deal of debate over the place of psychiatry in medicine. Critics of psychiatry have argued that psychiatry should not be a part of medicine because its objects, mental illnesses, are problems in living rather than diseases. It is argued that the diagnoses of somatic medicine are objective and scientifically determinable while on the other hand psychiatric diagnoses are said to be normative rather than factual.

It is my contention that the antipsychiatrists have reached their position prematurely. A determination of the place of mental illness in medicine must be based on a broad examination of medicine's roles and the concepts of illness and disease; this thesis provides the beginning of such an examination. I conclude from my studies that illnesses, with their psychological, biological and social dimensions, are the proper concern of medical practice. Those arguing against the medical legitimacy of psychiatry are in error because they demand that medicine treat diseases rather than illnesses. Diseases, I contend, are scientific abstractions, and attention to them results in a clinical medicine which does not satisfy practical needs.

In my first chapter I attempted to illustrate the normative foundation of medicine. I argued that the

institution of medicine evolves to explain and to remedy various conditions that the individual or society find to be dysfunctional. The explanatory and restorative roles of the institution allow us to divide medicine into the two subdisciplines of medical science and medical practice respectively. After arguing that medicine's official function is to realize the social or individual standard of "health," I gave consideration to the definition of this standard. It was my contention that "health" is not a biological fact that can be determined through scientific inquiry. Instead, the judgment as to proper functioning is normative and ultimately dependent upon the standards and intentions of those concerned with that functioning. There is a widespread consensus as to the values of somatic medicine which is lacking in psychiatric medicine. For this reason, judgments of somatic medicine are thought to be value-free while those of psychiatric medicine are thought to be value-laden. In fact, all judgments as to health and disease are normative.

In my second chapter I was concerned with outlining the clinical dimensions of illness. First, I provided an analysis that paralleled the medical science--medical practice distinction drawn in Chapter I. Following Englehardt, I contended that a distinction can be drawn between illness and disease. I argued that illness is the clinical phenomenon which comprises the domain of medical

practice, while on the other hand, diseases are the conceptual abstractions used by medical science to explain illness. After drawing this distinction, I went on to consider how various social or personal evils came to be defined as medical problems, illnesses. On the basis of historical surveys I concluded that illnesses are defined by social and political as well as by more direct medical forces. Being ill entails, to varying degrees, a breakdown in social and psychological functioning in addition to biological dysfunction. I suggest that appropriate treatment must attend to all three dimensions of the illness picture.

I argued in the second chapter that one can distinguish between the definition and explanation of an illness. My third chapter is an examination of the traditional forms of medical explanations, diseases. It is my major contention in this chapter that traditional forms of medical explanation are inappropriate for many contemporary illnesses of growing importance. Medical science and classical diagnosis seek progressively reductionistic explanations of illness. Beginning with a complex and comprehensive description of the clinical picture, traditional reasoning progressively reduces the amount of information that enters into the medical explanation. This occurs because it sequentially searches for progressively simpler causes. These reductionistic and exclusionary types of explanations have been of little

worth when applied to conditions such as heart disease, obesity, depression and cancer and the treatment methods that they suggest have been equally inadequate. Multi-variate analyses which attempt to account for social, psychological and biological variables might aid in the development of more adequate explanations for many contemporary illnesses; minimally such an approach would aid in the development of more individualized and therefore more appropriate treatment programs.

In my fourth chapter I provide the rudiments of an alternative theoretical approach to the understanding and treatment of illness. The systems theoretical understanding of disease as a breakdown in structural or functional integrity of an organism attempts to synthesize, in an interdependent framework, the various levels of organismic functioning. Traditional physiological, anatomical and etiological models of disease are consistent with this framework but do not exhaust it. Additionally, the systems theoretical understanding of disease recognizes the possibility that social or psychological factors might be of fundamental importance in the initiation, aggravation or maintenance of a disruption in the life of an organism.

As I understand it, systems theory is a theoretical approach to the organization of information. Combining the mathematical models of systems theory with the information storage and pattern recognition capacities of modern

computers, the contribution to illness, of factors previously too numerous or too complicated to be accounted for might be understood. It is increasingly being recognized that many contemporary health problems are more the outcome of the trajectory of our lives than of simple biological processes. It is reasonable to suggest that changes in our life patterns, work, environment, diet, etc., might have dramatic effects on our health. A systems theoretical approach to disease may allow us to account for many of these factors and eventually organize health maintenance and treatment programs that will lead to the realization of our goals of health.

From a practical standpoint, systems thought in medicine has its greatest value in the construction of treatment programs. Beginning with a phenomenological description of the illness picture and enumeration of its biological, psychological and social dimensions, the biopsychosocial approach to health care attempts to construct a comprehensive and individualized program of treatment. This is achieved through the restructuring of clinical information, as is illustrated by the Problem-Oriented Medical Record (POMR), and reorganization of health care services. The treatment program dictated by the biopsychosocial model reflects its systems theoretical foundation as it is an attempt to draw upon the integrative forces of several levels of organization in the patient's life. I

suggest that this systems theoretical approach may be well suited to many contemporary health problems that cannot be understood or treated adequately by more conventional means.

As this thesis was an examination of such basic issues as the organization of medical science and practice and the definition of disease and illness, a great many problems in medical ethics might be addressed from the foundation that I have constructed. Nevertheless, I will concern myself with only two of these. First, I will make some suggestions regarding the individual's responsibility for his or her own state of health and second, I will make some suggestions regarding the organization of health care services and the importance of the individual's responsibility for the determination of his or her own course of treatment once health has failed.

I have argued that many of our contemporary health problems cannot be understood in terms of our traditional models of disease. Throughout history a dominant way of understanding illness has been ontological. For centuries illnesses have been thought to be caused by invading entities over which the individual had little or not control. In conceptually primitive cultures, these entities were thought to be demons or evil spirits, but as knowledge advanced, they became germs and today these entities are thought to be viruses or mutant genes. For the large part, it was not until recently that the sick individual could be blamed for

his or her condition. Unsanitary environmental conditions, the presence of infectious pathogens and the dietary and work habits of people were largely beyond their control. Because the individual was not in practice responsible for his or her own state of health, it was defensible that the sick individual not be blamed for his or her condition. As I see it, these conditions of practical and moral responsibility no longer hold.

It is increasingly being recognized that many of our modern health problems are more the outcome of our way of living than simple biological causes. Most individuals in Western society have considerable control over living habits and for this reason are more culpable than their predecessors for their state of health. The moral and social treatment of the sick individual as instituted by the "sick role" needs to be reconsidered. It is a basic tenet of the sick role that the individual is not responsible for his or her condition; consequently, the individual is not penalized, rather he or she is relieved of responsibilities and provided with benefits not available to the healthy individual. This treatment I find justifiable given an ontological understanding of illness causation, but as this understanding may no longer be factually accurate, our social position towards the sick should undergo a change. Most importantly, we might consider shifting our health care expenditures from acute care to

the organization of preventive and health maintenance measures. To some extent this attitude is gaining ground as is illustrated by certain changes in the insurance industry, for example some companies charge a higher premium for smokers and drinkers than non-smokers and non-drinkers. Much more could be done in this direction which might dramatically lessen the burden society bears in caring for the sick. It is first necessary that consciousness be raised. It should be well known that we are faced with competing values; that a particular job or dietary habit while valuable to us might result in our being less healthy in the long run. If we are well informed about the consequences of our activities and financially responsible for their outcome, we might raise society's level of health and cut our health care expenditures.

The second issue in medical ethics that I want to address regards the organization and role of health care professionals and the importance of patient choice in determining the course of treatment once his or her health has failed. I have argued in this paper that the traditional medical understanding and treatment of illness abstracted the biological sphere of functioning from the social and psychological spheres of the individual's life. Although this approach might have been justifiable to a certain degree when faced with infectious diseases where the cause was singular and treatment rational and specific,

this abstraction is no longer so appropriate. Many of the important health problems today are chronic illness, and the frequency of these will increase even further as society shifts demographically to an older population. These illnesses, heart disease, cancer, obesity, diabetes, depression, can only be properly characterized as broad problems in living; the dysfunctions which characterize them are biological, psychological and social. For this reason I believe that health care services must be reorganized in such a way as to provide a more comprehensive sense of care than a "magic bullet."

Furthermore, if we realize that illness is more a problem in living than a biological dysfunction, we will take a different approach to deciding what and how care should be rendered. If illness is a social and psychological as well as a biological phenomenon, the physician is not equipped to bear the full authority over treatment decisions. The expertise of the physician is largely limited to the biological domain and for this reason his expertise must be supplemented by experts from other fields. Only in this way can the full scope of the illness be treated.

Finally, it must be remembered that judgments of health and illness are normative and even if health care providers account for the data of the biological, psychological and social spheres of functioning, a judgment still

must be made as to the value of the functioning or dysfunctioning at each of these levels. As I said before, the standard of health that we choose to pursue will always be the outcome of numerous competing values. For this reason, the dimensions of the patient's condition must be assessed as completely as possible. Once this is done and the information is available, it should be provided to the patient so he or she can make a choice as to the type of life or mode of treatment that best suits him or her. I think it would be advisable that health care decisions be made by a team of which the patient is a part. The role of the professionals would then largely be to provide complete information to the patient and act upon his or her wishes once the patient has made a decision as to the quantity and quality of functioning he or she values most highly.

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