

Science, Humanism, and the Nature of Medical Practice:
A Phenomenological View.

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A compelling paradox confronts present-day medicine. Major advances in medical technology are proclaimed almost daily. Built on this flourishing technology are equally significant gains in the physician's ability to understand the mechanisms of illness, devise new treatments, prolong life, and cure disease more often. Inexplicably, dissatisfaction with medicine grows despite this real progress. Many patients dread medical technology and feel a deepening sense of alienation from their physicians. Patients tend to view doctors more as remote technicians than as healers. The technology is experienced as invasive and dehumanizing. As a result, patients frequently fail to accept their doctor's recommendations or to comply with treatment regimes. Even in the face of the solidly documented efficacy of orthodox treatments, patients turn to unorthodox medical practices, perhaps in increasing numbers.

Dissatisfaction is also apparent on the physicians' side. Doctors seem unable to practice humanistic medicine in the face of the intensified demands of medical technology. The explosive growth of medical knowledge entails an increasing specialization wherein no single physician remains competent to care for the overall needs of a patient. Furthermore, the burgeoning cost of the technology renders medical care so expensive that taking the time to talk to the patient seems an archaic luxury. Although more and more physicians recognize the need for attending to the social and psychological roots of health and illness, they also find it quite difficult to integrate these psychosocial components into their actual practice.

The task of integrating medical science and medical humanism thus becomes urgent. Attempts at such integration abound. Across the country the majority of medical schools have programs that focus on human and ethical concern [1]. Liaison psychiatrists increasingly round with other physicians in order to stress the psychological, social, and humanistic dimensions of health care at the bedside. Admitting committees at medical schools are more sympathetic to candidates with a background in the humanities. At the conclusion of training, more attention is now devoted to the physician's humanistic attributes. For example, the American Board of Internal Medicine has recently required "high standards of humanistic behavior in the professional lives of every certifiable candidate" [2]. Despite these recent initiatives, an ongoing 3-Year review of the education of student doctors by the Association of American Medical Colleges continues to uncover an inadequate emphasis on humanism in medical schools [1,3].

Integrated efforts such as the ones mentioned above, laudable though they may be, prove inadequate because they merely graft a kind of remedial humanism onto a fundamentally technological and biomedical practice. If the root disciplines of medicine remain

natural sciences, such as biochemistry, physics, and physiology, we might wonder how the addition of humanistic approaches would substantially change medical practice.

This task of integrating humanism into medical science is rendered even more puzzling when we realize that "humanism" remains an ambiguous term. It can refer to some "art of medicine," to ethical values, or to human sciences, such as psychology and sociology. Do calls for "humanism" require that we supplement the science of medicine with the healing arts? Or do they indicate that the physician, in addition to his scientific expertise, must also develop a mastery of ethical distinctions and judgments? Or is the appeal to "humanism" an injunction that the doctor move from a model of illness based on the natural sciences to a more encompassing framework that also includes the human sciences? If so, how can the doctor become an expert in so many disciplines? The difficulty encountered in trying to fit diverse humanistic and technological concepts and approaches into an encompassing scientific framework constitutes a crisis for scientific medicine. We shall address this crisis by first discussing the strengths and weaknesses of what we view as the most persuasive attempts to resolve it. Since George L. Engel's important article, these two orientations go by the names of "the biomedical model" and "the biopsychosocial model" [4]. We shall contend that the shortcomings of both of these models can be fully discerned only when we recognize a fundamental aspect of the physician-patient relationship that they overlook. As long as this more basic aspect of medical practice remains concealed, any approach, whether scientific or humanistic, will misconstrue the patient. Medical practice, in other words, becomes intelligible only when its moorings in a fundamental domain of human experience are clarified and delineated. This more basic domain we shall find in the phenomenological conception of everyday human experience as the source of meaning for all science and humanism. The grounding of scientific medicine in everyday human experience-which phenomenologists call "the lifeworld"-will lead us to redefine the notion of scientific method. This reconception of science will generate a view of the hierarchy of the sciences with respect to which medicine can find its rightful place. Through this phenomenological approach we shall propose a new model for medicine.* We, however, shall not simply superimpose the human disciplines on a biomedical foundation. Rather we shall reconceive the nature of "science" such that medical practice remains fully rigorous and rational precisely by being humanistic.

(*A general characterization of the phenomenological approach is beyond the scope of this paper. For such a characterization we recommend the writings of Gurwitsch[5], Natanson[6], and Zaner[7].)

Advantages and Weaknesses of the Biomedical Model

The biomedical model rests on the natural sciences: physics, chemistry, and biology. Within this model, medical practice becomes a technology that consists of the practical application of the natural sciences to human illness and health. This model fundamentally attracts adherents for two reasons. Since the natural

sciences alone constitute the conceptual basis, the biomedical model imparts systematic unity and rigorous coherence to medical practice. If illness and health are exclusively "biochemical or neurophysiological in nature" [4], then the conceptual framework that guides the treatment of disease and the restoration of health can exhibit the intelligibility and clarity of highly developed systematic theory. (2) In contrast to "sciences" such as psychology, psychodynamics, and sociology, the natural sciences possess a marvelous exactitude and precision in conceptualization. Indeed, many of the concepts and laws of the natural sciences can be formulated mathematically. The technological advantages of such exactitude in a science are many. But for medical practice perhaps the greatest benefit is predictive power. Not only do the precise classifications of the natural sciences provide greater certainty in diagnosis, but the same exactitude renders far more reliable the treatment of disease. As Auguste Comte recognized over a century ago, to be able to predict nature is to have power over nature. What we can add to Comte's dictum is that the more exact the predictions, the mightier the power. When compared with the almost complete absence of predictability in the social sciences, formulations derived from the natural sciences prove attractive indeed to the physician who must intervene in the patient's life with some certainty of the possible outcome.

The unity and exactitude of the biomedical model is, however, purchased at too high a price. As critics like Engel have pointed out [4], those components of human distress that elude descriptions in terms of the natural sciences are ignored or even denigrated as irrelevant to medicine. Clearly, humanistic concerns fall among such supposedly irrelevant components. Yet, again and again these "irrelevant" features of human illnesses prove to be directly relevant to their diagnosis and successful treatment. The nonsomatic components of human life, defined out of existence by the biomedical model, stubbornly remain crucial to illness and recovery. The biomedical model exists, however, more at the level of mythical views of medicine than at the level of real medical practice. In fact, few doctors actually practice in accordance with this model. Nonetheless, in the minds of many physicians the model serves as an ideal or paradigm of medicine. Moreover, critics of contemporary medicine often tend to view it through the distorting lens of this myth. The model fails not only because it is an inadequate representation of real medical practice but also because it would prove harmful if actually followed.

Advantages and Weaknesses of the Biopsychosocial Model

The biopsychosocial approach advances beyond the limitations of the biomedical model in recognizing the multifaceted nature of human life. It attempts to portray these many facets in a hierarchy of natural systems [8] (fig. i). Each level in the hierarchy refers to an aspect of human reality that is relatively distinguishable from the others. Thus each aspect, because of its distinctiveness, can be described in terms and theories that differ from those of other aspects. Each facet of human life, in other words, can be illuminated by its own science. The "two-person" system, for example, might be studied by social psychology, whereas the "person" system

would be the topic of psychology. Yet, despite the relative distinguishability of these different systems, they remain connected to one another through hierarchical dependence: each system is a component of higher systems, and changes in one system usually affect the workings of others, especially changes among the more closely linked systems. The primary gain of the biopsychosocial approach over the earlier biomedical one lies in the comprehensiveness of the former. Moreover, this comprehensiveness does not sacrifice scientific rigor and replace it with "art," for each of the aspects of life that it includes becomes the topic of a distinctive science. Hence the many facets of human existence require many sciences. Yet this multiplicity does not lead to theoretical anarchy, because of the hierarchical linkages that unify it.

We might wonder, however, just how adequate this hierarchical unity is. We know in a vague way that serious changes in the tissue system entail some modifications in the person system, but what does the hierarchy tell us beyond this? As far as we can see, very little. Unless we know precisely which events in the tissue system are correlated with other events in the person system, it helps little to be told that there is some dependency of even interdependency. This lack of precision in the biopsychosocial model leaves the practicing physician with little guidance in treating patients. The model is sufficiently vague so that, in principle, any and every aspect of human life might be incorporated. With any particular patient, of course, only a limited number of factors will play a role in treatment, but the biopsychosocial model offers no help in delimiting and circumscribing them. For one patient the spiritual support afforded him by his religion may prove relevant. For another patient the financial support he lacks may be crucial. For even another person the political support he receives from his constituents may be quite important. The biopsychosocial model provides no guidance in locating and specifying the relevant variables. The physician who adopts it thus incurs the obligation to take the broad view and consider multiple possibilities, but the possibilities remain undefined and endless.

Von Bertalanffy, the father of general systems theory, thought that the real unity of the hierarchy consisted in laws that, although differing in meaning, exhibited the same form or mathematical structure; that is, the laws governing the different levels would prove, at a very high level of abstraction and formalization, to be isomorphic [9]. Such isomorphisms will appear only when these different sciences have developed to a point of near-completion. But before this point is reached, we are left only with an assortment of different sciences. We have, of course, the assurance that these various sciences are somehow related to one another. Yet, lacking knowledge of the isomorphisms that unite them, we have merely this vague assurance. At the bedside, the theory fails to help us.

Another difficulty with the biopsychosocial model can be found in Engel's treatment of systems such as the "person system," the "two-person system," the "family system," and other social groupings. We are left wondering how to appreciate these aspects of reality. Are physicians to understand these realities exclusively through the analytical concepts of psychology, social psychology, sociology, and other human sciences? Or are we, on the contrary, to use both the human sciences and some extrascientific approach

to persons and their social worlds? If the latter, then what is the nature of this extrascientific approach? Such questions can find no definite answers in the current biopsychosocial model.

The Spirit of Abstraction

We maintain that the kinds of questions raised above cannot be answered until the biopsychosocial model is revised along phenomenological lines. Engel's efforts to call attention to the mythical status of the biomedical model and to overcome its limitations by broadening it are admirable. However, in criticizing the narrowness of the biomedical approach, Engel does not notice that this narrowness arises from a more fundamental shortcoming: the biomedical model is too abstract. This model substitutes for the concrete reality of the patient a construct derived exclusively from natural sciences such as biochemistry, microbiology, and physiology. In this manner, the reality of the patient is subsumed entirely under the abstract concepts of these sciences. The patient's life is reduced to whatever these abstractions can express. The biomedical model, we maintain, proves too narrow because it embodies both what Gabriel Marcel has called "the spirit of abstraction" [10] and what Alfred North Whitehead has termed "the fallacy of misplaced concreteness" [11].

The spirit of abstraction is the tendency to approach a reality exclusively from the point of view of highly abstract concepts and theories. An abstraction is a concept or theory that, in order to focus on some features of things, ignores other features of those same things [5]. We speak of concepts as "abstracting from. ..." Concepts must set aside certain properties of a thing in order to remain unambiguous and precise. Indeed, the more precise a concept, the more features of things it must ignore or exclude. Such exclusion is a necessary requirement of precision and clarity in conceptualization. Thus, to the extent that it is possible, it is a requirement for scientific conceptualization. The spirit of abstraction, however, is the tendency to forget that such abstractions have ignored and excluded certain aspects of reality. The spirit of abstraction, then, is a blindness precisely to the abstract character of certain points of view on reality.

Because of this blindness, the spirit of abstraction can easily fuse with the fallacy of misplaced concreteness. This fallacy consists in mistaking the abstract for the concrete [11]. When one forgets that one's point of view on reality is abstract, one can easily assume that the "truly real" properties of reality are solely those that one's chosen point of view discloses. By assigning exclusivity to one abstract perspective on reality, one comes to believe that that perspective alone illuminates the true being of reality. But since this perspective has been constructed by abstracting from many other properties of reality, what is taken to be "truth" is actually only a fragment of reality, a limited part of the whole. The part may be quite "true," but it remains merely a part. The fallacy of misplaced concreteness consists in mistaking this partial truth for the whole.

Following Husserl, we contend that this spirit of abstraction and fallacy of misplaced concreteness have pervaded Western life since the beginning of the modern age in the sixteenth and seventeenth centuries [12]. With the rise of modern science in the works

of Copernicus, Galileo, Newton, and continuing through Einstein and Heisenberg, theories of increasing abstractness and formalization have tended to shape the ways in which we view reality. Modern science, especially in its mathematical-logical form, provides highly abstract points of view on the world. We tend to forget the immense abstractness of such theories because we simply inherit them, ready-made, through education and socialization. Blind to their highly abstract character, we mistake scientific theories and concepts for the "concrete truth" of reality [5]. In this way, the table sitting before me is assumed to be "ultimately" or "fundamentally" not a brown writing table but rather a purely physical entity, with a definable molecular structure that reflects light waves in such a manner that my retina is activated in certain definable ways. These retinal stimuli in turn initiate certain neurophysiological processes in my organism that affect certain neural centers in my brain. This scientific description of "seeing the table" is taken to be what "really happens" in the act of perception. In other words, a highly abstract scientific explanation is substituted for the ordinary experience of perceiving things [13]. This substitution of scientific abstractions for common, ordinary experiences of the world is the fallacy of misplaced concreteness. This fallacy, we maintain, permeates the way in which we moderns interpret ourselves and our world. We, as a matter of course, commit the fallacy of misplaced concreteness by dismissing ordinary experiences as superficial, spurious, and "subjective." We assume that scientific investigation alone penetrates to the objective truth of things. For this reason, we tend to overlook the world of everyday human experience—a world that Husserl called "the lifeworld"—and deem that knowledge mediated by the abstract concepts of modern science as alone true and objective. In a word, the lifeworld, as immediately given to us in ordinary perception and action, is passed over in favor of the universe as science describes it [12]. We shall explicate the features of this lifeworld more fully below. What we wish to contend now is that Engel's biopsychosocial model and even his admirable "humanism" must incorporate the phenomenological conception of the lifeworld if they are to capture the breadth of a patient's dilemma. The many scientific abstractions through which we understand the person and his or her social moorings achieve integration only if we relocate that person within the more concrete setting of the pre-scientific lifeworld.

The Lifeworld as the Source of Meaning for Medicine

The processes of abstraction that constitute scientific thought presuppose experiences that are more concrete. This idea has been amply demonstrated by Jean Piaget and other developmental psychologists: the mental operations involved in the formalizations and generalizations of science evolve out of more basic experiences of sense perception and bodily action [14]. Children first learn to perceive the properties of objects through their senses and to transform them through bodily action. Such sensory-motor experiences serve then as a necessary foundation for the development of rational and conceptual thought. Only the child who can bodily manipulate things in space can learn to conceive of geometrical

spatiality and the infinite divisibility of space. Scientific thought, in other words, has a history or genesis [14]. The abstractions of science can be traced back to their concrete origins in pre-scientific life. Human beings who can conceive of things through scientific theories are first of all beings who can perceive things through their senses and act on things through their bodies. Scientific thought harbors a crucial presupposition: scientific interpretations of the world are possible only because there are more fundamental ways of experiencing that same world. Scientific experience necessarily presupposes pre-scientific experience [5].

Consider some examples. Biologists who study the function of the cones of the eye in vision can develop scientific explanations of them only because they already know, in a pre-scientific manner, what an eye is, what role it plays in ordinary perception, and what is ordinarily involved in perceiving objects. Without such ordinary, pre-scientific knowledge of the eye and perception, scientists could not even locate the topic of their study. Scientific interpretation of the eye presupposes a larger context of everyday experience within which we already comprehend, to some extent, the place, possibilities, and functions of the human eye [15]. This reliance on ordinary knowledge is even more evident in medical practice. Ophthalmologists require the same kind of pre-scientific knowledge of vision when they deal with a cataract. In a similar vein, the pulmonary specialists are able to understand the cellular pathology and radiological findings associated with emphysema because they are already familiar with breathing and breathlessness in everyday life. The technical conception of emphysema, of course, moves far beyond the ordinary understanding of breathlessness. But the scientific notion draws on and always presupposes this pre-scientific experience. Likewise, any physician is able to comprehend what the patient talks about only because the patient voices complaints in the natural language that physician and patient share by virtue of their participation in a common social world. A psychiatrist may wonder about the particular grimace on the patient's face because he or she already knows what grimaces usually mean in human experience. In the case of a paranoid patient, the psychiatrist is able to begin to understand what the patient says about his or her experience because the psychiatrist is already familiar with the feelings of fear and mistrust in everyday, pre-scientific life. In other words, the understanding of other people that the physician possesses through daily living with them is presupposed in the doctor's more scientific work. The everyday world within which we communicate with others and strive to make sense of their experiences constitutes the larger social context within which medical understanding can emerge [16].

Because everyday experience constitutes the fundamental context that bestows meaning even on those activities that go beyond it, Husserl called the lifeworld "the foundation of meaning" for all of human existence [12]. He argued, however, that this basis of meaning had been forgotten in our modern age through the spread of the spirit of abstraction. This forgetfulness has led to a crisis in the meaning of humanity. We can no longer resolve our perplexity regarding the meaningfulness and coherence of human activities because we always overlook the ground and source of human meaning, the everyday lifeworld. Hence the basic value and meaning of humanity can be recovered, Husserl thought, only if this

lifeworld is restored to its rightful place.

The lifeworld, accordingly, is the foundation for both science and humanism. The present crisis of medicine can be overcome only if the lifeworld is recognized as "the foundation of meaning" of medical science and humanism. Restoring the lifeworld to its proper place becomes crucial therefore for our project of developing a phenomenological model for medicine. Doing so will not prove easy, however, because of the pervasive spirit of abstraction that prompts us to overlook the lifeworld. For this reason, we must devote some time to explicating the lifeworld and its central components: the lived body and understanding. Only when this fundamental reality is fully recognized as the ground of all experience will we then be able to describe the special features of medical science and medical humanism. Medicine takes on its true meaningfulness for human life when it is seen as arising out of and always relying on the lifeworld.

Pre-Scientific Experience: the Lifeworld, the Lived Body, and Understanding

If pre-scientific experience proves to serve as the genetic foundation for medicine, this pre-scientific origin must be at least sketched in its basic components. We shall focus on three constituents of pre-scientific life: the lifeworld, the lived body, and understanding. Our primary purpose in describing the lifeworld and the lived body is to indicate their differences from the physical universe and the biological organism depicted by science. We are describing everyday understanding because we wish to distinguish it from scientific understanding, although, as we shall maintain more extensively later, the former does provide the basis for the latter.

The Lifeworld

The lifeworld is the sphere of pre-scientific experience [5, 12]. It is the realm of everyday social interaction and practical projects. Here we do not conceive the world through scientific ideas; we rather perceive it through our senses and engage in it through bodily activity. We encounter our fellow humans and communicate with them while we engage in common practical tasks [17]. The medium of this communication is the natural language that we inherit from our shared cultural tradition, not the technical and formal language of science. In the lifeworld, for example, I understand this object before me as a desk on which I can write my letter to my friend. And I experience the object as a desk through my bodily activity of using it as a tool for a certain practical purpose. My bodily activity, always guided by sense perception, teaches me the nature of things as they conform to my purpose or as I am forced to conform to them [18]. For example, the workman has a "knowledge" of the features of his hammer that is wholly pre-scientific. He knows how much force to apply to it in order to drive in the nail at precisely the angle he desires. The physicist would be able to describe the molecular structure of the hammer. The workman does not need to know this in order to fulfill his practical

task of building a house. He does, however, possess a rather precise pre-scientific notion of just how much bodily force he can wield before the hammer shatters at the impact. Yet the workman could scarcely translate this "bodily knowledge" into words. The lifeworld, then, is that practical, social world into which we gear and that we understand through bodily activity and sensory givens.

Humanistic values and concerns are born in everyday social interaction within the lifeworld. Thus the roots of humanism, like the roots of science, constantly draw their nourishment from this fundamental level of human experience.

B. The Lived Body

The human being who inhabits and acts in the lifeworld is the embodied subject [16, 18]. We stress the embodiment of the subject here in order to avoid a dualism of mind and body. I "know" how to walk, although this knowledge is a sensory-motor mastery below the level of speech and thought. Whatever the concept of "force" may mean in theoretical physics, the bodily "force" that I know how to apply in order to move a chair has no need of theoretical definition.

We call this body "the lived body" in order to express the way in which we attain this pre-scientific "knowledge" of it and its abilities. I come to know my body through living, not through thinking. In every movement and even in stillness I directly experience my body by being it [19].

The lived body, therefore, must be definitely distinguished from the "organism" that biology studies and explicates. In my everyday living, I do not experience my body as composed of the cells, tissues, and organelles of which biology speaks. However crucial these terms may be in the scientific conception of the organism, they are completely absent in my experience of my body as directly lived [20].

When, for example, I smile and wave to my neighbor across the street, I experience no difference in kind between the friendliness I feel and the bodily acts through which I express my greetings. My act of greeting my neighbor is a unitary act; it is "psychophysically neutral," to borrow Helmut Plessner's phrase [2 I, 22]. There is no part of my act that I experience as mental while I experience another part of it as physical or biological. Granted, I could smile and wave without feeling friendly or without really intending to greet my neighbor. But this difference is not experienced by me as a difference in kinds of reality, one physical and the other mental. I could also smile without waving, or I could wave without smiling. I could feel friendly without wishing to greet anyone, or I could wish to greet someone without feeling friendly. These are certainly different human experiences. But they do not prove any mind/body dualism. At the concrete level of the lived experience of my body, then, there resides no distinction between mind and body; my mind and my body are one. My pre-scientific experience of myself as an embodied subject remains psychophysically neutral.

Any clear distinction between mind and body-which we usually associate with Cartesian dualism-can arise only at a level of

scientific abstraction. Mind proves to have different properties from body only when they are interpreted from different scientific perspectives. The cells, tissues, and organelles that biology would ascribe to the human organism definitely differ from the ideas, emotions, purposes, and attitudes that, according to psychology, compose the human mind. At this level of scientific abstraction, we must either accept this radical difference and admit a mind/body dualism, or we may try to reduce one reality to the other and thereby embrace reductionism. But whether we are dualists or reductionists, we must distinguish between mind and body as long as "mind" is interpreted from the point of view of psychological science and "body" from the perspective of biological science. Yet it is only at this level of scientific abstraction that the distinction arises. At the more concrete level of pre-scientific experience, mind and body-as expressed in our phrase "the lived body"- remain unitary [15].

The lived body and the biological organism, we submit, are different facets of the same human reality; they are simply two different ways of experiencing the same reality, one concrete and the other more abstract. As we shall explain later, different facets of reality are given to us through different experiential perspectives. What we now wish to oppose is the fallacy of misplaced concreteness, which would deem the lived body "unreal" or "merely subjective" and relegate only the biological organism to the status of "true reality" or "objectivity." Both lived body and biological organism are objective and real.

C. Understanding (Verstehen)

Understanding is the way in which one person comprehends the experiences of another person [23]. Understanding, as thus defined, is constantly at work in everyday life. When my neighbor waves to me from across the street, I understand his gesture as expressing a friendly greeting. At the check-out counter in the grocery store, I hand the clerk my three items totaling \$ 3.46 and a \$5 bill. He understands my intention, for without either one of us uttering a word, he in turns hands me my three items in a bag and \$ I. 54. Although no one has spoken, we have understood one another's purposes sufficiently to complete the practical task in which we are mutually engaged. His intentions and mine, silently expressed in our gestures and deeds, are understood by one another; and this reciprocal understanding informs and guides our interaction. Understanding, then, consists in the ways in which human beings apprehend the meanings of one another's actions.

The meanings of another person's actions are apprehended through what Alfred Schutz, following Husserl, has call "typifications" [17]. The term "typification" should be contrasted with "conceptualization." Typification is the way in which we organize and understand our experience at the concrete level of sense perception and bodily action. Conceptualization, on the other hand, is the manner in which we structure and sift our experience on the more abstract levels of thinking and reasoning. When I perceive my neighbor waving at me, I typify this action as a friendly greeting. In our culture this gesture "typically" conveys this meaning. In another society it might typically express an insult or dismissal.

Similarly, having seen my neighbor's wave, I may wave to him in return. We typify a greeting as a human act that calls for a reciprocal response of the same kind. Hence typifications inform and structure the pre-scientific understanding of one person by another .

Such typifications of everyday life remain rather indefinite and imprecise in meaning, however. Imprecision renders typifications more inclusive and generic. The inclusiveness and generality serves the purpose of everyday practical projects. I typify the person I perceive in the grocery store as a clerk. Such typification remains generic and open: I know nothing precise about him. Yet it is definite enough to inform me that I might ask him about the location of tomatoes with the expectation of receiving an answer.

Psychiatrists have been familiar with the scientific claims of understanding (in German, *Verstehen*) since Karl Jaspers contrasted it with explanation (*Erklaren*) in his masterful *General Psychopathology* [24]. However, it was left to the phenomenologist Alfred Schutz to describe in detail the everyday use of understanding in the life-world. [17]. Schutz then showed how this pre-scientific understanding served as the basis for the more scientific understanding of human existence as provided in the social sciences. Following Jaspers and Schutz, we maintain that understanding can function as a central method of medical science only because it first serves as our mode of access to other people's experiences in ordinary social life. Jaspers, however, tended to restrict understanding to the way in which one person apprehends the mental life (*Seelenleben*) of another person [24]. This tendency in Jaspers's thought, we suggest, exhibits the lingering influences of a Cartesian dualism that sharply distinguishes mind from body. As our exposition of the lived body has indicated, however, we reject any sharp distinction between mind and body except at the upper reaches of scientific abstraction. We shall subsequently address the important role of abstract notions in the scientific understanding of the physician. But we must first show the nondualistic or psychophysically neutral character of understanding in pre-scientific life.

In everyday life I engage in common tasks with my fellow man, and we understand one another's experiences. In helping my friend move his furniture, I lift one end of a heavy piece while he lifts the other. He looks at me and nods his head in a certain direction. I understand him to mean for us to carry the furniture into that corner of the room. My understanding of his intention is ratified when I begin to move in that direction and he follows me. Because I understand his unvoiced experiences of strain and imbalance, I walk slowly. As we approach a table standing in our path, I assume that he perceives the same table and the obstacle that it poses for us. My assumption regarding his experience is again confirmed when he circles around the table in such a way that I too can circumvent it. Thus I understand that he understands my predicament. This mutual understanding of one another remains a necessary ingredient for our success in this task. Everyday social practice could not proceed without sufficient understanding of one person by another .

This reciprocal understanding is, moreover, psychophysically neutral. When my friend nods his head toward the corner of the room, I do not experience his nodding head as a physical event in space that somehow manifests a quite different mental intention.

His nod immediately expresses his intention: that expression is what his nod is for me. I do not apprehend one as in any way distinct from the other. Similarly, when my neighbor waves at me from across the street, I perceive his wave as a greeting without distinguishing between a physical component and a mental component. Granted, I could mistake the movement of his arm for a greeting while he is in fact merely stretching his arm for exercise. But I could also mistake his shirt for a pajama top. As someone approaches me, I may perceive his eyes as blue only to note later that they are green. The fact that we humans can make mistakes does not prove that there is a mind/body distinction. The mistake regarding my neighbor's intention can be corrected only by further experiences with my neighbor. Similarly, the mistake regarding his shirt or eye color can be rectified only through further experiences of him. Thus I understand other people only by apprehending them as unitary embodied subjects like myself. All understanding at work in medicine presupposes and grows out of this more fundamental understanding operative at the level of the lifeworld. Both medical science and medical humanism are rooted and nourished here.

Science

In order to trace the relationship between medicine and the lifeworld, it is first necessary to specify what makes medicine scientific. When we grasp the nature of science, we shall be able to follow the gradual genesis of medicine as a science out of the pre-scientific sphere of the lifeworld.

Science differs from ordinary life. This difference lies primarily in the determination of scientists to base all their beliefs and practices strictly on evidence [25]. Science, in other words, subjects its beliefs, attitudes, and activities to the following methodological principle: nothing shall be accepted as scientific without being confronted with all possible evidence regarding its truth or falsity. Scientific beliefs about a topic must be based on some directly given features of that topic. Evidence is direct givenness. Science, then, can study only those topics that, in some manner, can directly present certain aspects of themselves to the researcher. What counts as evidence depends on the subject matter under study and the perspectives through which we can gain access to it. Different sciences must accordingly adopt different modes of approach or different methods for gaining evidence of their different subject matters [26,27]. No topic can be scientifically investigated, however, unless there are ways in which some of its features can be directly given. By reference to these direct givens, scientific beliefs stand or fall [28].

Of course, everyday experience in the lifeworld also has its evidence. If I hand to the grocer \$.75 for the item marked ".75" and he accepts it, my belief that I could own this item in exchange for \$.75 has been verified. But this evidence is rather limited. I could obtain more evidence if I chose. Yet, in everyday practice there is no need for further proof because the meager evidence already attained suffices for completion of the practical task at hand. The evidence of the lifeworld remains limited to what is required for practical success in carrying out one's daily projects.

Science, as the search for truth, is not satisfied with such meager evidence. Science is self-critical in the sense that, no matter how much evidence already supports a belief, the scientist always knows that it could be false. Hence more evidence is always needed. Science, accordingly, includes the demand that claims to knowledge stand or fall on the basis of their conformity to all the relevant evidence. Beliefs are non-scientific if they are accepted without being subjected to repeated evidential tests. This principle, we contend, is a necessary condition for counting a belief as scientific. Medicine can secure its scientific status, therefore, by requiring that all judgments regarding the patient be based on all the evidence possible.

Figure 1. The hierarchy of natural systems

